

APPENDIX

APPENDIX A

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2019-1001

CUSTOMEDIA TECHNOLOGIES, LLC,
APPELLANT

v.

DISH NETWORK CORPORATION, DISH NETWORK LLC,
APPELLEES

Decided: Nov. 1, 2019

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board in
No. CBM2017-00019

ON MOTION

RAYMOND WILLIAM MORT, III, The Mort Law Firm,
PLLC, Austin, TX, for appellant.

(1a)

ELIOT DAMON WILLIAMS, Baker Botts LLP, Palo Alto, CA, for appellees. Also represented by GEORGE HOPKINS GUY, III; ALI DHANANI, MICHAEL HAWES Houston, TX.

PER CURIAM.

ORDER

Customedia Technologies, LLC moves to vacate and remand in light of this court’s recent decision in *Arthrex, Inc. v. Smith & Nephew, Inc.*, No. 2018-2140 (Fed. Cir. Oct. 31, 2019). That decision vacated and remanded for the matter to be decided by a new panel of Administrative Patent Judges (“APJs”) at the Patent Trial and Appeal Board after this court concluded that the APJs’ appointments violated the Appointments Clause. Customedia’s motion seeks to assert the same challenge here.

We conclude that Customedia has forfeited its Appointments Clause challenge. “Our law is well established that arguments not raised in the opening brief are waived.” *SmithKline Beecham Corp. v. Apotex Corp.*, 439 F.3d 1312, 1319 (Fed. Cir. 2006) (citing *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1320–21 n.3 (Fed. Cir. 2005)). That rule applies with equal force to Appointments Clause challenges. *See, e.g., Island Creek Coal Co. v. Wilkerson*, 910 F.3d 254, 256 (6th Cir. 2018); *Turner Bros., Inc. v. Conley*, 757 F. App’x 697, 699–700 (10th Cir. 2018); *see also Arthrex*, slip

op. at 29 (emphasizing that Appointments Clause challenges are not jurisdictional and that the court was granting relief only when the party had properly raised the challenge on appeal). Customedia did not raise any semblance of an Appointments Clause challenge in its opening brief or raise this challenge in a motion filed prior to its opening brief. Consequently, we must treat that argument as forfeited in this appeal.

Accordingly,

IT IS ORDERED THAT:

The motion to vacate and remand is denied.

FOR THE COURT

November 1, 2019
Date

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

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APPENDIX B

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2019-1001

CUSTOMEDIA TECHNOLOGIES, LLC,
APPELLANT

v.

DISH NETWORK CORPORATION, DISH NETWORK LLC,
APPELLEES

Decided: Nov. 7, 2019

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board in
No. CBM2017-00019

ON MOTION

Before REYNA, HUGHES, and STOLL, *Circuit
Judges.*

PER CURIAM.

O R D E R

Appellant Customedia Technologies, LLC moves for leave to file a supplemental brief. In light of the court's November 1, 2019 order,

IT IS ORDERED THAT:

The motion is denied.

FOR THE COURT

November 7, 2019
Date

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

APPENDIX C

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2019-1001

CUSTOMEDIA TECHNOLOGIES, LLC,
APPELLANT

v.

DISH NETWORK CORPORATION, DISH NETWORK LLC,
APPELLEES

Decided: Nov. 8, 2019

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board in
No. CBM2017-00019

JUDGMENT

RAYMOND WILLIAM MORT, III, The Mort Law Firm,
PLLC, Austin, TX, argued for appellant.

ELIOT DAMON WILLIAMS, Baker Botts LLP, Palo
Alto, CA, argued for appellees. Also represented by

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GEORGE HOPKINS GUY, III; ALI DHANANI, MICHAEL
HAWES Houston, TX.

THIS CAUSE having been heard and considered, it is
ORDERED and ADJUDGED:

PER CURIAM (REYNA, HUGHES, and STOLL, *Circuit
Judges*).

AFFIRMED. See Fed. Cir. R. 36.

ENTERED BY ORDER OF THE COURT

November 8, 2019

Date

/s/ Peter R. Marksteiner

Peter R. Marksteiner

Clerk of Court

APPENDIX D

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2019-1001

CUSTOMEDIA TECHNOLOGIES, LLC,
APPELLANT

v.

DISH NETWORK CORPORATION, DISH NETWORK LLC,
APPELLEES

Decided: Dec. 23, 2019

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board in
No. CBM2017-00019

ON MOTION FOR PANEL RECONSIDERATION
AND RECONSIDERATION EN BANC

Before PROST, *Chief Judge*, NEWMAN, LOURIE, DYK,
MOORE, O'MALLEY, REYNA, WALLACH, TARANTO, CHEN,
HUGHES, and STOLL, *Circuit Judges*.

PER CURIAM.

O R D E R

Customedia Technologies, LLC moves for panel reconsideration and reconsideration en banc of the court's November 1, 2019, and November 7, 2019, orders (ECF Nos. 49, 51). The motion was referred to the panel that issued the orders, and thereafter the motion for reconsideration en banc was referred to the circuit judges who are in regular active service.

DISH Network Corporation and DISH Network LLC move to extend the time to respond to Customedia's motion by 14 days, until January 9, 2020.

Upon consideration thereof,

IT IS ORDERED THAT:

The motion for panel reconsideration is denied.

The motion for reconsideration en banc is denied.

The motion to extend time is denied as moot.

Circuit Judge NEWMAN dissents.

FOR THE COURT

December 23, 2019
Date

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

APPENDIX E

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

2019-1001

CUSTOMEDIA TECHNOLOGIES, LLC,
APPELLANT

v.

DISH NETWORK CORPORATION, DISH NETWORK LLC,
APPELLEES

Decided: Mar. 5, 2020

Appeal from the United States Patent and
Trademark Office, Patent Trial and Appeal Board in
No. CBM2017-00019

ON PETITION FOR PANEL REHEARING AND
REHEARING EN BANC

Before PROST, *Chief Judge*, NEWMAN, LOURIE, DYK,
MOORE, O'MALLEY, REYNA, WALLACH, TARANTO, CHEN,
HUGHES, and STOLL, *Circuit Judges*.

PER CURIAM.

O R D E R

Appellant Customedia Technologies, LLC filed a combined petition for panel rehearing and rehearing en banc. A response to the petition was invited by the court and filed by Appellees DISH Network Corporation and DISH Network LLC. The petition was referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc was referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for panel rehearing is denied.

The petition for rehearing en banc is denied.

The mandate of the court will issue on March 12, 2020.

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FOR THE COURT

March 5, 2020
Date

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court

APPENDIX F

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case CBM2017-00019
Patent 7,840,437

DISH NETWORK CORPORATION, DISH NETWORK LLC,
PETITIONERS

v.

CUSTOMEDIA TECHNOLOGIES, LLC,
PATENT OWNER

Entered: Jun. 12, 2017

DECISION

*Granting Institution of
Covered Business Method Patent Review
35 U.S.C. § 324(a) and 37 C.F.R. § 42.208*

Before MEREDITH C. PETRAVICK, MICHAEL W.
KIM, and KALYAN K. DESHPANDE, *Administrative
Patent Judges.*

Opinion for the Board filed by *Administrative Patent
Judge KIM.*

Opinion Concurring filed by *Administrative Patent Judge* PETRAVICK.

KIM, *Administrative Patent Judge*.

I. INTRODUCTION

A. *Background*

DISH Network Corporation and DISH Network L.L.C. (collectively, “Petitioner”) filed a Petition to institute a covered business method patent review of claims 1, 9, 10, and 13–16 U.S. Patent No. 7,840,437 (Ex. 1001, “the ’437 patent”) on grounds of unpatentability under 35 U.S.C. §§ 101, 103. Paper 1 (“Pet.”). Customedia Technologies, L.L.C. (“Patent Owner”) filed a Preliminary Response. Paper 6¹ (“Prelim. Resp.”). For the reasons given below, we are persuaded that Petitioner has demonstrated “that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” 35 U.S.C.

¹ The Preliminary Response contains passages of words reproduced from other documents as what appears to be images. *See e.g.*, Prelim. Resp. 50–51. The passages are reproduced in fonts and spacing that do not comply with the requirements of 37 C.F.R. § 42.6(a)(2)(ii), (iii). The parties are cautioned that all documents created for this proceeding must comply with 37 C.F.R. §§ 42.6(a)(2) (ii), (iii) and that strict attention should be given to the mandated word count certification of 37 C.F.R. §§ 42.24(a), (d). *See Google Inc. v. Makor Issues & Rights Ltd.*, Case No. IPR2016-01535, slip op. at 7 (PTAB, Dec. 1, 2016) (Paper 8).

§ 324(a). We, thus, institute a covered business method patent review of claims 1, 9, 10, and 13–16 of the '437 patent, however, on less than all grounds challenged. We institute on the § 101 based ground only.

B. Related Proceedings

Petitioner and Patent Owner identify the following district court proceeding concerning the '437 patent: *Customedia Technologies, L.L.C. v. DISH Network L.L.C.*, Civil Action No. 2:16-CV-00129 (E.D. Tex). Pet. 1; Paper 5, 2. The following proceeding, before the Board, also involves the same parties and the '437 patent: IPR2017-00936. U.S. Patent No. 8,955,029 (“the '029 patent”) is related by continuity to the '437 patent, and the '029 patent is involved in the following proceedings before the Board, and also involves the same parties: CBM2017-00031, IPR2017-00638, IPR2017-00639.

C. Standing

Section 18 of the American Invents Act governs the transitional program for covered business method patent reviews. Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, § 18, 125 Stat. 284, 329–31 (2011); *see also* 37 C.F.R. §§ 42.300–304 (2016) (setting forth the rules governing the transitional program for covered business method patents). Section 18(a)(1)(B) of the AIA limits such reviews to persons, or their privies, that have been sued or charged with infringement of a covered business method patent. *See also* 37 C.F.R. § 42.302 (setting forth who may petition for a covered business method

patent review). Petitioner asserts that, because it has been sued for infringement of the '437 patent, it has standing to file this Petition. Pet. 2 (citing Exs. 1005, 1008). Based on the record before us, we agree.

D. The '437 Patent

The '437 patent discloses that the claimed invention relates generally to “renting or purchasing data products for immediate, on-demand delivery, which may be formatted and transferred to a portable medium for use in any existing playback device.” Ex. 1001, 1:29–33. According to the '437 patent, an “information explosion” has created “a serious need for an integrated system that manages and handles the growing amount of information available over the various data feeds and can meet the needs and desires of the end user.” Ex. 1001, 1:59–62. The '437 patent purports to solve these problems as follows:

The current invention solves these problems through the use of an integrated information management and processing system that provides for the handling, sorting and storage of large amounts of data that is a user-defined and user resident environment. It allows this management to occur both during and after the actual feed is being received, while also allowing various decisions to be made about the suitability, quality, and other content of the information being received. The invention also has the capability to be

securely accessed and utilized from a remote location, including telephone, Internet, and remote computer/television access. This would allow services to provide virtual user transaction zones.

Ex. 1001, 3:19–30.

E. Illustrative Claim

Petitioner challenges claims 1, 9, 10, and 13–16 of the '437 patent. Claim 1, the only independent claim, is illustrative of the challenged claims, and is reproduced below:

1. A system for the processing, recording, and playback of audio or video data, comprising:
 - a. receiver apparatus for receiving audio or video data from at least one data feed;
 - b. memory circuitry comprising a storage device built in to the system and which is not removable from the system;
 - c. processing circuitry for processing the data and for storing the processed data in the built in storage device;
 - d. a user interface operatively connected to the processing circuitry for programming which processing functions are to be applied to the received data by the processing circuitry;

e. playback circuitry, which reads the data from the built in storage device and which converts the data to electronic signals for driving a playback apparatus; and

f. a microprocessor having software programming to control the operation of the processing circuitry and the playback circuitry enabling the recording of rented data and enacting a simulated return of said rented data by deleting or scrambling said data from said built in storage device or blocking further access to said data, and notifying a data supplier of said simulated return.

F. Covered Business Method Patent

Section 18(d)(1) of the AIA defines a covered business method patent as “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.” *See also* 37 C.F.R. § 42.301(a) (stating the same). To determine whether a patent is a covered business method patent, “the statutory definition of a CBM patent requires that the patent have a claim that contains, however phrased, a financial activity element.” *Secure Access, LLC v. PNC Bank Nat’l Ass’n*, 848 F.3d 1370, 1381 (Fed. Cir. 2017); *see also Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331,

1340 (Fed. Cir. 2016) (stating that “§ 18(d)(1) directs us to examine the claims when deciding whether a patent is a [Covered Business Method] patent”); *Unwired Planet, LLC v. Google, Inc.*, 841 F.3d 1376, 1382 (Fed. Cir. 2016) (“CBM patents are limited to those with claims that are directed to methods and apparatuses of particular types and with particular uses ‘in the practice, administration, or management of a financial product or service.’”).

Based on this record and for the reasons discussed below, we agree with Petitioner that the ’437 patent is a covered business method patent eligible for review.

1. Financial Product or Service

Petitioner asserts that “[t]he claims here are directed to video-on-demand (‘VOD’) service, which is a well-known method for distributing digital content to subscribers for payment of a fee.” Pet. 5. Petitioner directs our attention to claim 1’s recitation of software programming “enacting a simulated return of said rented data.” Pet. 6.

According to Patent Owner, the claimed “manipulation of rented data” does not “demonstrate that the sale of rented data is an express financial component that is central to the operation of the claimed invention of the ’437 Patent.” Prelim. Resp. 12. Patent Owner argues that “the claim[ed] ‘rented data’ is only incidental to [a] financial activity and [the] remainder of the claims and claim elements are not directed to any financial activity.” Prelim. Resp. 8. Patent Owner states “[t]he claims of the ’437 Patent do not recite selling anything.” Prelim. Resp. 14.

Contrary to Patent Owner’s argument, the claims of the ’437 patent do explicitly recite a financial activity—renting or purchasing data. Dependent claim 17 recites “wherein said system includes an electronically based payment system making rental charges to a user’s credit or debit account.” Dependent claim 18 recites “wherein said credit or debit account comprises a credit card account, a checking account, or an ATM account.” Dependent claim 27 recites “said software programming further enabling access to an Internet based subscription service and automatic downloading of data for rental or purchase.”² The “said software programming” limitation, recited in dependent claim 27, refers to the following limitation recited in independent claim 1 (emphasis added):

a microprocessor having *software programming* to control the operation of the processing circuitry and the playback circuitry enabling the recording of rented data and enacting a simulated return of said rented data by deleting or scrambling said data from said built in storage device or blocking further access to said data, and notifying a data supplier of said simulated return.

² We acknowledge that Petitioner does not rely expressly on dependent claims 17, 18, and 27 for the first prong. *See generally* Pet. 3–7. Patent Owner will have the opportunity to respond during trial.

We are persuaded that the claims of the '437 patent satisfy the “financial product or service” component of the definition for a covered business method patent set forth in § 18(d)(1) of the AIA. The rental or purchase of data, including charging a fee to a user’s account, is a financial activity and a financial service. *See SightSound Techs., LLC v. Apple Inc.*, 809 F.3d 1307, 1315–16 (Fed. Cir. 2015) (finding a method claiming selling digital video or audio signals for a fee is a financial service).

A patent need have only one claim directed to a covered business method to be eligible for review. *See* Transitional Program for Covered Business Method Patents—Definitions of Covered Business Method Patent and Technological Invention, 77 Fed. Reg. 48,734, 48,736 (Aug. 14, 2012) (Comment 8); *see also Emerson Electric. Co. v. SIPCO LLC*, Case CBM2016-00095, slip op. at 7 n.2 (PTAB Jan. 23, 2017) (Paper 12) (“Although the patentability of claims 3 and 4 are not challenged by Petitioner in this proceeding, there is no requirement that only challenged claims may be considered for purposes of determining a patent is eligible for covered business method patent review. As discussed above, a patent is eligible for review if it has at least one claim directed to a covered business method. 77 Fed. Reg. at 48,736 (Response to Comment 8).”).

2. *Technological Invention*

As set forth above, the definition for “covered business method patent” does not include patents for “technological inventions.” AIA § 18(d)(1); *see also* 37

C.F.R. § 42.301(a) (stating the same). To determine whether a patent falls within this exception, our rules prescribe a two-prong approach whereby we consider “whether the claimed subject matter as a whole [(1)] recites a technological feature that is novel and unobvious over the prior art; and [(2)] solves a technical problem using a technical solution.” 37 C.F.R. § 42.301(b). Further, the following claim drafting techniques would not typically render a patent a “technological invention”:

(a) Mere recitation of known technologies, such as computer hardware, communication or computer networks, software, memory, computer-readable storage medium, scanners, display devices or databases, or specialized machines, such as an ATM or point of sale device.

(b) Reciting the use of known prior art technology to accomplish a process or method, even if that process or method is novel and non-obvious.

(c) Combining prior art structures to achieve the normal, expected, or predictable result of that combination.

Office Patent Trial Practice Guide (“Trial Practice Guide”), 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012).

Pursuant to the two-prong framework, Petitioner argues that the claims of the ’437 patent do not meet either prong. Pet. 7–9 (citing Ex. 1001). Patent Owner disagrees for several reasons. Prelim. Resp. 16–18

(citing Exs. 1001, 2001). We have considered Patent Owner’s arguments, but we are persuaded, on this record, that Petitioner has shown sufficiently that the claimed invention of the ’437 patent is not for a technological invention.

In regard to the first prong, which considers whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art, Petitioner asserts that the claims recite only generic computer components performing generic computer functions that were well known in the art at the time of the invention. Pet. 8 (citing Ex. 1001). Patent Owner does not appear to challenge this prong. *See generally* Prelim. Resp. 16–18.³ After considering Petitioner’s assertions, on this record, we are persuaded they are correct.

Turning to the second prong for determining whether a patent is for a “technological invention,” we recognize that Patent Owner presents assertions directed to whether the claimed invention solves a technical problem using a technical solution. Prelim. Resp. 16–18; *see also id.* at 26– 38 (in the context of a ground of unpatentability under 35 U.S.C. § 101, assertions that patents are directed to a technological

³ The sub-heading at page 16 of the Preliminary Response reads “3. Claim 1 solves a technical problem using a technical solution,” which, by its express terms, is only being directed to the second factor. The arguments on pages 16–18 are consistent with that assessment.

solution to a technological problem). We, however, need only assess whether one of the prongs set forth in 37 C.F.R. § 42.301(b) is deficient to determine whether the claims of the '437 patent are not for a “technological invention.” See *Apple Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016) (“We need not address this argument regarding whether the first prong of 37 C.F.R. § 42.301(b) was met, as we affirm the Board’s determination on the second prong of the regulation—that the claimed subject matter as a whole does not solve a technical problem using a technical solution”).⁴ As set forth above, based on the current record, we are persuaded by Petitioner’s explanation as to why the claimed subject matter, as a whole, does not recite a technological feature that is novel and non-obvious over the prior art, and, therefore, we are satisfied that Petitioner has met its burden of demonstrating that the '437 patent is not for a “technological invention.”

⁴ Although we acknowledge there may be differences between prong two and the “significantly more” analysis under 35 U.S.C. § 101, as a practical matter, and on the facts of this case, we discern our below analysis in Section II.A.3 would also be applicable here, i.e., “[w]e are unpersuaded, as we discern that the focus of ‘delivering rented audio/video electronic content to a user’ is the ‘rental’ aspect, which concerns a business problem in the abstract, as opposed to a technological one.”

G. Asserted Ground of Unpatentability

Petitioner challenges claims 1, 9, 10, and 13–16 as follows:

Reference(s)	Basis	Challenged Claims
	§ 101	1, 9, 10, and 13–16
Ginter ⁵	§ 102(b)	1, 9, 10, and 13–16
Ginter and Stefik ⁶	§ 103(a)	1, 9, 10, and 13–16

Petitioner relies on the Declaration of Anthony Wechselberger (Ex. 1004). Patent Owner relies on the Declaration of Dr. Jay P. Kesan (Ex. 2001).

II. ANALYSIS

*A. Claims 1, 9, 10, and 13–16 as Directed to
Non-Statutory Subject Matter
Under 35 U.S.C. § 101*

Petitioner contends that claims 1, 9, 10, and 13–16 do not recite patent eligible subject matter under 35 U.S.C. § 101, because they are directed to an

⁵ WO 96/27155, pub. Sept. 6, 1996 (Ex. 1002, “Ginter”).

⁶ U.S. Patent No. 5,634,012, iss. May 27, 1997 (Ex. 1003, “Stefik”).

unpatentable abstract idea and do not contain an “inventive concept” that amounts to significantly more than the abstract idea. Pet. 23–39 (citing Exs. 1001, 1004). Patent Owner disagrees. Prelim. Resp. 25–38 (citing Exs. 1001, 1004, 2001).

1. *Relevant Law*

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g.*, *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014).

In determining whether a claim falls within the abstract ideas exception, we are guided in our analysis by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 2355 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1296–97 (2012)). In accordance with that framework, we first determine whether the claim is “directed to” a patent-ineligible abstract idea. *See Alice*, 134 S. Ct. at 2356. We evaluate “the focus of the claimed advance over the prior art to determine if the claim’s character as a whole is directed to excluded subject matter.” *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (internal quotation marks omitted). “[W]hen considering claims purportedly directed to ‘an improvement of computer functionality,’ we ‘ask whether the focus of the claims is on the specific

asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Smartflash LLC v. Apple, Inc.*, No. 2016-1059, slip op. at 9 (Fed. Cir. Mar. 1, 2017) (quoting *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016)).

The following method is then used to determine whether what the claim is “directed to” is an abstract idea:

[T]he decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided. *See, e.g., Elec. Power Grp.*, 830 F.3d at 1353–54 That is the classic common law methodology for creating law when a single governing definitional context is not available. *See generally* Karl N. Llewellyn, *The Common Law Tradition: Deciding Appeals* (1960). This more flexible approach is also the approach employed by the Supreme Court. *See Alice*, 134 S.Ct. at 2355–57. We shall follow that approach here.

Amdocs (Israel) Limited v. Openet Telecom, Inc., 841 F.3d 1288, 1294 (Fed. Cir. 2016) (footnote omitted).

If the claim is “directed to” a patent-ineligible abstract idea, we then consider the elements of the claim—both individually and as an ordered

combination—to assess whether the additional elements transform the nature of the claim into a patent-eligible application of the abstract idea. *Alice*, 134 S. Ct. at 2355. This is a search for an “inventive concept”—an element or combination of elements sufficient to ensure that the claim amounts to “significantly more” than the abstract idea itself. *Id.*

*2. Whether the Claims Are Directed
to an “Abstract Idea”*

Petitioner asserts the following:

Claim 1 of the ’437 Patent is directed to the abstract idea of delivering rented audio/video content to a user. Ex. 1004 at ¶ 105. The remaining elements of the claim merely identify the generic technological environment (i.e., the “receiver apparatus,” “memory circuitry,” “processing circuitry,” “user interface,” “playback circuitry,” and “microprocessor”) and add routine and conventional post-solution activity. *Id.* at ¶ 109.

Pet. 28. Patent Owner asserts that (1) the ’437 patent is directed to the field of telecommunications and to systems and methods for processing, recording, and playing back audio and video data, (2) that the claims are directed to a specific interconnection and operation of circuitry and devices, which are not an abstract idea, and (3) that the Petitioner failed to consider the claim limitations as an ordered combination, and in view of the specific technological

problem to be solved. Prelim. Resp. 32–38. While we agree with some aspects of each of Petitioner’s and Patent Owner’s assertions, in the aggregate, we agree with Petitioner.

Under step one of *Alice*, we begin by analyzing what the claims are “directed to,” and then determine whether what the claim is “directed to” is an abstract idea. In doing so, our reviewing court has cautioned against overgeneralizing what the claims are “directed to.” *Enfish*, 822 F.3d at 1337. As the parties focus their analysis on independent claim 1, we also do the same.

Any analysis concerning what a claim is “directed to” should begin with the express claim language. *Id.* To that end, in asserting that independent claim 1 is directed to “delivering rented audio/video content to a user,” Petitioner places great weight on one claim limitation, “a microprocessor having software programming [for] enacting a simulated return of said rented data,” and regards all other claim limitations as ancillary computer components that perform functions that are “generic,” “routine” and “conventional.” Pet. 28.

Patent Owner essentially asserts that Petitioner improperly fails to account for the preamble of independent claim 1, which reads as follows: “system for the processing, recording, and playback of audio or video data.” Prelim. Resp. 33. We are unpersuaded by this assertion, as we discern that “delivering rented audio/video content to a user” adequately accounts for

“processing, recording, and playback of audio or video data.”

Patent Owner also asserts that Petitioner improperly fails to account for the specific interconnection and operation of circuitry and devices recited in the claim. Prelim. Resp. 33–36. We agree with Patent Owner in part. In reviewing the identified portions of the claim, we are generally more persuaded by Petitioner’s implication that the technical components, and their interconnections, are ancillary to “delivering rented audio/video content to a user.” More specifically, in practical terms, when we remove the “rental” related limitations, we agree with Petitioner that independent claim 1 does not appear to recite much more than technical components storing and processing generic data. We do agree with Patent Owner’s general point, however, that the overall recitation of interconnections between multiple technical components that make up the vast majority of the claim, as well as the details concerning the technical problems and components set forth in the vast majority of the overall Specification, indicate that the data stored and processed is electronic. Accordingly, we amend Petitioner’s assertion as to what the claims are directed to as follows: “delivering rented audio/video *electronic* content to a user.”

Patent Owner asserts further that Petitioner overgeneralizes and improperly fails to account for the claim limitations as an ordered combination. Prelim. Resp. 36. We disagree. We discern that independent claim 1 recites components for renting and returning

digital content in the order that such an operation would occur.

Having now considered the claim language, we turn to the Specification, and its role in determining what the claim is “directed to.” To that end, Petitioner cites two portions of the Specification, each of which we will evaluate in turn.

Petitioner cites “[i]n order to avoid late charges or fees for rental transactions, the user must ‘return’ the data product by selecting a return option from the electronic menu.” Pet. 29 (citing Ex. 1001, 35:52–54). This citation generally supports Petitioner’s assertion that the claims are directed to “delivering rented audio/video electronic content to a user,” and the use of the terms “a return option from the *electronic* menu” indicates that our determination to add the “electronic” to Petitioner’s assertion as to what the claim is “directed to” is proper. We discern the same is true for Petitioner’s additional citation to “[r]ecently, *electronic* commerce has blossomed on the Internet.” Pet. 29 (citing Ex. 1001, 2:62–63) (emphasis added).

Having determined that independent claim 1 is directed to “delivering rented audio/video electronic content to a user,” we now assess whether this is an abstract idea. To that end Petitioner asserts the following:

The alleged “invention” of the ’437 Patent is nothing more than a computer and Internet enabled application of the well-known and long-established concept of renting media content such as

videos. *Id.* at ¶ 110. Specifically, claim 1 requires “a microprocessor having software programming [for] enacting a simulated return of said rented data.” Ex. 1001 at 46:31–34. Not only does the claim specifically refer to the content as “rented data,” but the specification only discusses the idea of a “return” in relation to rental transaction embodiments. *See, e.g., id.* at 35:52–54 (“In order to avoid late charges or fees for rental transactions, the user must ‘return’ the data product by selecting a return option from the electronic menu.”). The concept of renting and returning movies to brick and mortar video rental stores was well known at the time of the purported invention of the ’437 Patent. Ex. 1004 at ¶ 130. . . .

The Federal Circuit recently affirmed a district court’s finding that “the concept of delivering user-selected media content to portable devices is an abstract idea, as that term is used in the section 101 context.” *Affinity Labs*, 2016 WL 5335502, at *2. The district court had found that “[t]he process of selecting media, receiving that media, and subsequently playing that media describes an abstract idea, devoid of a concrete or tangible application.” *Affinity Labs of Texas, LLC v. Amazon.Com, Inc.*,

No. 6:15-CV-0029-WSS-JCM, 2015 WL 3757497, at *8 (W.D. Tex. June 12, 2015).

Pet. 28–29. Patent Owner responds as follows:

Similarly, Petitioner’s attempt to analogize Claim 1 of the ’437 Patent to the claims in *Affinity Labs* fails. The media system of Claim 14 of the patent-at-issue in *Affinity Labs*, for example, includes (1) a network based media managing system, (2) a collection of instructions stored in a non-transitory medium and configured for execution by a processor of a handheld wireless device, and (3) a network based delivery resource. *Affinity Labs* at *3–4. The three elements of Claim 14 of *Affinity Labs* are not circuitry or devices, like the elements of Claim 1 of the ’437 Patent, which is critical given the CAFC’s repeated emphasis on the specific structure and architecture in the limitations. *See, e.g., BASCOM*, 827 F.3d at 1350.

Prelim. Resp. 38. At this stage of the proceeding, and on this record, we agree with Petitioner. Specifically, we agree that “delivering rented audio/video electronic content to a user” is little more than a generic “computerization” of “the well-known and long-established concept of renting media content such as videos.” Pet. 28 (citing Ex. 1004 ¶ 110).

We also agree that we discern little daylight between that which independent claim 1 is directed to, and the concept determined to be patent- ineligible in *Affinity Labs*, i.e., “delivering user-selected media content to portable devices.” Similarly, in *Smartflash*, the Federal Circuit determined that claims reciting a method and a terminal for controlling access to and retrieving multimedia content were directed to the abstract idea of “conditioning and controlling access to data based on payment.” *Smartflash*, No. 2016-1059, slip op. at 4–6. Like the claims at issue here, the claims at issue in *Smartflash* recited the use of components of a computer, such as a processor having code to receive multimedia content and code to control access to the multimedia content according to use rules, a user interface, a memory, and an audio/video player. *Id.* at 4–6. The Federal Circuit determined that the claims “invoke computers merely as tools to execute fundamental economic practices.” *Id.* at 10; see also *Ultramerical, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014) (finding computer- implemented system claim merely recited the abstract idea of offering media content in exchange for viewing an advertisement, along with routine additional steps such as restrictions on public access).

*3. Whether the Claims Recite “Significantly More”
than an Abstract Idea*

Petitioner goes into detail concerning each of claims 1, 9, 10, and 13– 16, and why each of these claims does not contain an inventive concept that amounts to “significantly more” than an abstract idea. Pet. 30–39. Patent Owner asserts that specific interconnection of

circuitry and devices set forth in the claims amount to “significantly more.” While we acknowledge that specific interconnections of circuitry and devices are recited in independent claim 1, Petitioner asserts that they are all conventional, and, on this record and at this stage of the proceeding, we are persuaded that Petitioner is correct. For example, Patent Owner asserts that the separation of functions between the processing circuitry and microprocessor is “significantly more.” Prelim. Resp. 36. Petitioner asserts that the recited “processing circuitry” is identified in the ’437 patent as being generic (Pet. 32 (citing Ex. 1001, 14:46–48 (“[p]rocessing means 13 may include any number of circuits, signal processors, filters, or other data manipulation devices known in the art”))), and that “microprocessors were commonly used in electronic appliances before the purported invention of the ’437 Patent.” Pet. 34 (citing Ex. 1004 ¶ 127). On this record and at this stage of the proceeding, we are persuaded that Petitioner has demonstrated that it is more likely than not to prevail, in that we are unable to readily discern the alleged “unconventionality” present in what would otherwise seem to be a typical interconnection of two otherwise seemingly generic components. Patent Owner’s assertions that the claims are directed to using conventional components in an unconventional manner (Prelim. Resp. 37–38) are equally unpersuasive for the same reasons.

Patent Owner asserts further that the specific interconnections of circuitry and devices constitute a technological solution to a technological problem.

Prelim. Resp. 37. We are unpersuaded, as we discern that the focus of “delivering rented audio/video electronic content to a user” is the “rental” aspect, which concerns a business problem in the abstract, as opposed to a technological one.

4. Conclusion

For the foregoing reasons, we determine that Petitioner has demonstrated that it is more likely than not that Petitioner would prevail in showing that claims 1, 9, 10, and 13–16 are unpatentable on this ground.

B. Claims 1, 9, 10, and 13–16 as Anticipated by Ginter

Petitioner asserts that Ginter anticipates claims 1, 9, 10, and 13–16. Pet. 39–54 (citing Exs. 1002, 1004). Patent Owner disagrees. Prelim. Resp. 39–45 (citing Exs. 1002, 2001). In particular, Patent Owner asserts that Petitioner does not account adequately for the “processing circuitry” and the “microprocessor having software programming to control the operation of the processing circuitry” recited in independent claim 1. We agree with Patent Owner.

Petitioner asserts that the following disclosures in Ginter account for the recited “processing circuitry”:

The electronic appliance of *Ginter* comprises one or more “conventional general purpose central processing units” (“CPUs”), identified as CPU 654. Ex. 1002 at 125:20–23. “CPU 654 may provide storage, database, and

communications services.” *Id.* at 227:3–5. The electronic appliance of *Ginter* further comprises an I/O controller that “permits CPU 654 . . . to read from and write to secondary storage 662.” *Id.* at 186:21– 187:2. As discussed above in relation to Limitation [1c], secondary storage 662 comprises the storage device that is not removable from the system. A person of ordinary skill in the art would understand that a CPU is processing circuitry. Ex. 1004 at ¶ 158.

Pet. 42.

Petitioner further asserts that the following disclosures in *Ginter* account for the recited “microprocessor”:

The electronic appliance of *Ginter* has “one or more conventional general purpose central processing units (CPUs) 654 [that] are connected to bus 653.” Ex. 1002 at 185:21–22. These CPUs “may be any centrally controlling logic arrangement, such as for example, a microprocessor, other microcontroller, and/or array or other parallel processor.” *Id.* at 193:14-17. *Ginter’s* appliance includes an operating system that “manages the resources of electronic appliance 600, and provides a commonly used set of functions for programmers writing applications 608 for the

electronic appliance.” Ex. 1002 at 226:7–10. Specifically, the operating system may “manage[] the hardware (e.g., CPU(s) and memory(ies)) . . . within one or more general purpose processors within electronic appliance 600” and the “other electronic appliance hardware resources, such as peripheral devices attached to an electronic appliance” such as “keyboard 612, display 614, modem 618, disk drive 620, printer 622, scanner 624.” Ex. 1002 at 226:11–19. It “may also manage secure database 610 and a storage device (e.g., “secondary storage” 652) used to store secure database 610.” Ex. 1002 at 226:20–23.

Pet. 45.

Patent Owner asserts that Petitioner impermissibly maps two distinct claim terms, “processing circuitry” and “microprocessor,” to the same CPU 654 of Ginter. We agree. *See Unique Concepts, Inc. v. Brown*, 939 F.2d 1558, 1563 (Fed. Cir. 1991) (two distinct claim elements should each be given full effect). Indeed, to determine otherwise would impermissibly read one of “processing circuitry” and “microprocessor” out of the claim. *See Tex. Instruments Inc. v. U. S. Int’l Trade Comm’n*, 988 F.2d 1165, 1171 (Fed. Cir. 1993) (explaining claim language cannot be mere surplusage, an express limitation cannot be read out of the claim). Mapping both claim terms to CPU 654 of Ginter is especially problematic for the “microprocessor” limitation, which reads, in context,

“a *microprocessor* having software programming to control the operation of the *processing circuitry*” (Claim 1 (emphasis added)).

In making our determination, we acknowledge that Ginter discloses “*one or more* conventional general purpose central processing units (‘CPUs’) 654 . . .” Ex. 1002, 185:21–22 (emphasis added). Accordingly, it is plausible that Petitioner intended for one of CPUs 654 to correspond to the recited “processing circuitry” and another of CPUs 654 to correspond to the recited “microprocessor.” We are unpersuaded, however, that Petitioner has articulated that intention with sufficient particularity in the aforementioned portion of the Petition. *See* 35 U.S.C. § 312(a)(2) (“A petition filed under section 311 may be considered only if . . . the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim”).

The aforementioned portion of the Petition concerning the recited “processing circuitry” also cites to paragraph 158 of Mr. Wechselberger’s Declaration. A portion of that paragraph reads as follows:

Ginter’s electronic appliance further comprises an I/O controller for processing and storing the data: “I/O controller 660 permits CPU 654 and SPU 500 to read from and write to secondary storage 662, keyboard/display 612, 614, communications controller 666, and

backup storage device 668.” A person of ordinary skill in the art would understand that the I/O controller is a computer circuitry component that is used to process and store the VDE objects of Ginter in the secondary storage.”

Ex. 1004 ¶ 158 (footnote omitted). According to the above, Mr. Wechselberger appears to be mapping I/O controller 660 of Ginter to the recited “processing circuitry,” and not CPU 654. The relevant portion of the

Petition, however, is unambiguous that Petitioner considers CPU 654, and not I/O controller 660, as corresponding to the recited “processing circuitry.” See Pet. 42 (“The electronic appliance of *Ginter* further comprises an I/O controller that ‘permits CPU 654 . . . to read from and write to secondary storage 662,’ A person of ordinary skill in the art would understand that a CPU is processing circuitry.”). We rely on the mapping set forth in the Petition. See 35 U.S.C. § 312(a)(2) (“A petition filed under section 311 may be considered only if the *petition* identifies, in writing and with particularity. ”) (emphasis added); 37 C.F.R. § 42.6(a)(3) (“Arguments must not be incorporated by reference from one document into another document.”).

For the foregoing reasons, we determine that Petitioner has not demonstrated that it is more likely than not that Petitioner would prevail in showing that

at least one of claims 1, 9, 10, and 13–16 is unpatentable on this ground.

*C. Claims 1, 9, 10, and 13–16 as
Obvious Over Ginter and Stefik*

Petitioner asserts that a combination of Ginter and Stefik renders obvious claims 1, 9, 10, and 13–16. Pet. 54–67 (citing Exs. 1002–1004). Patent Owner disagrees. Prelim. Resp. 45–51 (citing Exs. 1003, 2001). In particular, Patent Owner asserts that Petitioner does not account adequately for the “processing circuitry” and the “microprocessor” recited in independent claim 1, and also that the ASIC chip of processing means 1200 of Stefik cannot correspond to the recited “microprocessor.” We agree with Patent Owner.

Petitioner asserts that the following disclosures in Stefik account for the recited “processing circuitry”:

Stefik teaches that the hardware of a repository includes “processing means 1200 . . . comprised of a processor element 1201 and processor memory 1202.” Ex. 1003 at 14:13–15. “The processing means 1201 provides controller, repository transaction and usage rights transaction functions for the repository.” *Id.* at 14:15–17. *Stefik* explicitly teaches that “repositories are used to store digital works.” *Id.* at 6:57–58. Claim 1 of *Stefik* includes the element of a “storage means for storing digital works having attached usage

rights and fees.” *Id.* at 54:5–6. Moreover, Claim 8 of *Stefik* also recites the step of “storing said digital work and said attached one or more usage rights in a server repository.” *Id.* at 55:25–26. A person of ordinary skill in the art would understand that repository transactions include processing and storing digital data. Ex. 1004 at ¶ 216.

Pet. 55–56.

Petitioner further asserts that the following disclosures in *Stefik* account for the recited “microprocessor”:

As discussed above, *Stefik* teaches that the hardware of a repository may comprise a processing means. Ex. 1003 at 14:13–15. *Stefik* teaches that the functional component of a repository “is typically software executing on the hardware embodiment.” *Id.* at 14:1–3. This functional software “may be embedded in the hardware embodiment such as an Application Specific Integrated Circuit (ASIC) chip.” *Id.* at 14:3–6. A person of ordinary skill in the art would know that an ASIC chip is a microprocessor. Ex. 1004 at ¶ 223. The functional embodiment comprises “an operating system 1301, core repository services 1302, usage transaction handlers 1303, repository specific

functions, 1304 and a user interface 1305.” Ex. 1003 at 14:53–55. *Stefik* further teaches that the operating system “provide[s] the basic services for controlling and interfacing between the basic components of the repository.” *Id.* at 14:59-61. As discussed above, the basic components of the repository include processing circuitry and playback circuitry. *See supra* at VI.C.1.d, VI.C.1.f. Therefore, *Stefik* discloses software to control the processing circuitry and playback circuitry.

Pet. 58–59.

Patent Owner asserts that Petitioner impermissibly maps two distinct claim terms, “processing circuitry” and “microprocessor,” to the same processing means 1200 of *Stefik*. We agree. *See Unique Concepts*, 939 F.2d at 1563 (two distinct claim elements should each be given full effect). Indeed, to determine otherwise would impermissibly read one of “processing circuitry” and “microprocessor” out of the claim. *See Texas Instr.*, 988 F.2d at 1171 (explaining that claim language cannot be mere surplusage, an express limitation cannot be read out of the claim). Mapping both claim terms to processing means 1200 of *Stefik* is especially problematic for the “microprocessor” limitation, which reads, in context, “a *microprocessor* having software programming to control the operation of the *processing circuitry*” (Claim 1 (emphasis added)).

In making our determination, we acknowledge that it is perhaps plausible that Petitioner is mapping “processing circuitry” and “microprocessor” to processing means 1200 and processor element 1201, respectively, where processor element 1201 is a component of processing means 1200. We are unpersuaded, however, that Petitioner has articulated that mapping with sufficient particularity in the aforementioned portions of the Petition. *See* 35 U.S.C. § 312(a)(2) (“A petition filed under section 311 may be considered only if . . . the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim . . .”). Moreover, as each of “processing circuitry” and “microprocessor” are recited as performing functions, if anything, it would appear that both “processing circuitry” and “microprocessor” should be mapped to processor element 1201, which would still be deficient for the reasons set forth above concerning processing means 1200.

Patent Owner also asserts that Petitioner maps the ASIC chip of processing means 1200, which appears to be the same as processor element 1201, of Stefik to the recited “microprocessor,” but that an ASIC chip cannot correspond properly to a “microprocessor.” We agree. Patent Owner cites to a link to a webpage which defines ASIC as follows:

(Application Specific Integrated Circuit) Pronounced “a- sick.” A chip that is custom designed for a specific

application rather than a general-purpose chip such as a microprocessor. The use of ASICs improve performance over general-purpose CPUs, because ASICs are “hardwired” to do a specific job and do not incur the overhead of fetching and interpreting stored instructions.

Ex. 2003; *see also Dictionary.com Unabridged*, Random House, Inc. <http://www.dictionary.com/browse/microprocessor> (accessed: June 12, 2017) (Ex. 3001) (microprocessor is “an integrated circuit that performs all the functions of a CPU”). Based on the above, we find that an ASIC is not a microprocessor. Against this objective evidence, Petitioner only provides a citation to paragraph 223 of Mr. Wechselberger’s Declaration, and the relevant portion of that paragraph merely repeats the same line in the Petition, “[a] person of ordinary skill in the art would know that an ASIC chip is a microprocessor,” without further relevant explanation or analysis.

For the foregoing reasons, we determine that Petitioner has not demonstrated that it is more likely than not that Petitioner would prevail in showing that at least one of claims 1, 9, 10, and 13–16 is unpatentable on this ground.

D. Conclusion

On this record, Petitioner has demonstrated sufficiently “that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” We, thus, institute a covered business

method patent review of claims 1, 9, 10, and 13–16 of the '437 patent, but only on the ground of unpatentability based on 35 U.S.C. § 101.

III. ORDER

After due consideration of the record before us, and for the foregoing reasons, it is:

ORDERED that, pursuant to 35 U.S.C. § 324, a covered business method patent review is hereby instituted as to claims 1, 9, 10, and 13–16 of the '437 patent as unpatentable under 35 U.S.C. § 101;

FURTHER ORDERED that no other grounds are instituted; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 324(a), a covered business method patent review of the '437 patent is hereby instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 324(d) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case CBM2017-00019

Patent 7,840,437

DISH NETWORK CORPORATION, DISH NETWORK LLC,
PETITIONERS

v.

CUSTOMEDIA TECHNOLOGIES, LLC,
PATENT OWNER

Entered: Jun. 12, 2017

DECISION

*Granting Institution of
Covered Business Method Patent Review
35 U.S.C. § 324(a) and 37 C.F.R. § 42.208*

PETRAVICK, *Administrative Patent Judge,*
concurring.

I concur in the majority's reasoning and conclusion that the Petition does not demonstrate that it is more likely than not that Petitioner would prevail in showing that claims 1, 9, 10, and 13–16 are unpatentable under 35 U.S.C. § 103 over Ginter and Stefik.

I also concur in the majority's conclusion that the Petition demonstrates that it is more likely than not that Petitioner would prevail in showing that claims 1, 9, 10, and 13–16 are unpatentable under 35 U.S.C. § 101. I, however, respectfully disagree with the majority's amendment to the abstract idea set out in the Petition. Petitioner asserts that the claims of the '437 patent are directed to the abstract idea of "delivering rented audio/video content to a user." Pet. 28. The majority amended Petitioner's abstract idea to be "delivering rented audio/video *electronic* content to a user." The majority cited Patent Owner's argument concerning the processing circuitry being set apart from the microprocessor. *See* Prelim. Resp. 33–36. At this stage of the proceeding, I do not agree that that Patent Owner's argument should be the basis for this *sua sponte* amendment to the abstract idea set out in the Petition.

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APPENDIX G

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

Case CBM2017-00019

Patent 7,840,437

DISH NETWORK CORPORATION, DISH NETWORK LLC,
PETITIONERS

v.

CUSTOMEDIA TECHNOLOGIES, LLC,
PATENT OWNER

Entered: Jul. 25, 2018

FINAL WRITTEN DECISION

35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

Before MEREDITH C. PETRAVICK, MICHAEL W.
KIM, and KALYAN K. DESHPANDE, *Administrative
Patent Judges.*

KIM, *Administrative Patent Judge.*

I. INTRODUCTION

A. Background

DISH Network Corporation and DISH Network L.L.C. (collectively, “Petitioner”) filed a Petition to institute a covered business method patent review of claims 1, 9, 10, and 13–16 U.S. Patent No. 7,840,437 (Ex. 1001, “the ’437 patent”) on grounds of unpatentability under 35 U.S.C. §§ 101, 103. Paper 1 (“Pet.”). Customedia Technologies, L.L.C. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

On June 12, 2017, we instituted an *inter partes* review of claims 1, 9, 10, and 13–16, but only on the ground of unpatentability under § 101 set forth in the Petition. Paper 11 (“Dec.”). After institution of trial, Patent Owner filed a Patent Owner Response (Paper 21, “PO Resp.”) and Petitioner filed a Reply (Paper 32, “Pet. Reply”). With authorization, Patent Owner filed a Sur-Reply (Paper 42, “PO Sur.”) and Petitioner filed a Sur-Sur-Reply (Paper 43, “Pet. Sur.”).

An oral hearing was held on March 5, 2018. Paper 48 (“Tr.”). On May 2, 2018, in view of *SAS Inst., Inc. v. Iancu*, 2018 WL 1914661, at *10 (U.S. Apr. 24, 2018), the we modified our Decision on Institution to institute on all of the grounds set forth in the Petition. Paper 49. Patent Owner filed a Supplemental Brief Regarding Board’s Decision to Institute Review of All Challenged Claims, asserting, “with respect to the newly instituted grounds, Patent Owner hereby incorporates by reference the arguments in its Preliminary Response (Paper 6) and the Board’s

reasons in the Institution Decision (Paper 11) for denying institution of those grounds.” Paper 51, 2 (“PO Supp.”). On June 1, 2018, in view of *SAS Inst., Inc.*, the Chief Administrative Patent Judge “determined that good cause exists to extend the one-year period for issuing a Final Written Decision.” Paper 52. On June 15, 2018, Petitioner submitted a Supplemental Reply Regarding Newly Instituted Grounds. Paper 55 (“Pet. Supp.”).

We have jurisdiction under 35 U.S.C. § 6. In this Final Written Decision, after reviewing all relevant evidence and assertions, we determine that Petitioner has met its burden of showing, by a preponderance of the evidence, that claims 1, 9, 10, and 13–16 of the ’437 patent are unpatentable.

B. Related Proceedings

Petitioner and Patent Owner identify the following district court proceeding concerning the ’437 patent: *Customedia Technologies, L.L.C v. DISH Network L.L.C.*, Civil Action No. 2:16-CV-00129 (E.D. Tex). Pet. 1; Paper 5, 2. The following proceeding, before the Board, also involves the same parties and the ’437 patent: IPR2017-00936 (institution denied). U.S. Patent No. 8,955,029 (“the ’029 patent”) is related by continuity to the ’437 patent, and the ’029 patent is involved in the following proceedings before the Board, and also involves the same parties: CBM2017-00031 (terminated), IPR2017-00638 (terminated), IPR2017-00639 (terminated).

C. Standing

Section 18 of the American Invents Act governs the transitional program for covered business method patent reviews. Leahy-Smith America Invents Act (“AIA”) § 18, Pub. L. No. 112-29, 125 Stat. 284, 329–31 (2011); *see also* 37 C.F.R. §§ 42.300–304 (2016) (setting forth the rules governing the transitional program for covered business method patents).

Section 18(a)(1)(B) of the AIA limits such reviews to persons, or their privies, that have been sued or charged with infringement of a covered business method patent. *See also* 37 C.F.R. § 42.302 (setting forth who may petition for a covered business method patent review). Petitioner asserts that, because it has been sued for infringement of the ’437 patent, it has standing to file this Petition. Pet. 2 (citing Exs. 1005, 1008). Based on the record before us, we agree.

D. The ’437 patent

The ’437 patent discloses that the claimed invention relates generally to “renting or purchasing data products for immediate, on-demand delivery, which may be formatted and transferred to a portable medium for use in any existing playback device.” Ex. 1001, 1:29–33. According to the ’437 patent, an “information explosion” has created “a serious need for an integrated system that manages and handles the growing amount of information available over the various data feeds and can meet the needs and desires of the end user.” Ex. 1001, 1:59–62. The ’437 patent purports to solve these problems as follows:

The current invention solves these problems through the use of an integrated information management and processing system that provides for the handling, sorting and storage of large amounts of data that is a user-defined and user resident environment. It allows this management to occur both during and after the actual feed is being received, while also allowing various decisions to be made about the suitability, quality, and other content of the information being received. The invention also has the capability to be securely accessed and utilized from a remote location, including telephone, Internet, and remote computer/television access. This would allow services to provide virtual user transaction zones.

Ex. 1001, 3:19–30.

E. Illustrative Claim

Petitioner challenges claims 1, 9, 10, and 13–16 of the '437 patent. Claim 1, the only independent claim, is illustrative of the challenged claims, and is reproduced below:

1. A system for the processing, recording, and playback of audio or video data, comprising:

- a. a receiver apparatus for receiving audio or video data from at least one data feed;
- b. memory circuitry comprising a storage device built in to the system and which is not removable from the system;
- c. processing circuitry for processing the data and for storing the processed data in the built in storage device;
- d. a user interface operatively connected to the processing circuitry for programming which processing functions are to be applied to the received data by the processing circuitry;
- e. playback circuitry, which reads the data from the built in storage device and which converts the data to electronic signals for driving a playback apparatus; and
- f. a microprocessor having software programming to control the operation of the processing circuitry and the playback circuitry enabling the recording of rented data and enacting a simulated return of said rented data by deleting or scrambling said data from said built in storage device or blocking further access to said data, and notifying a data supplier of said simulated return.

F. Covered Business Method Patent

Section 18(d)(1) of the AIA defines a covered business method patent as “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.” *See also* 37 C.F.R. § 42.301(a) (stating the same). To determine whether a patent is a covered business method patent, “§ 18(d)(1) directs us to examine the claims when deciding whether a patent is a [covered business method] patent.” *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1340 (Fed. Cir. 2016) (stating that “the claims at issue in the instant case have an express financial component in the form of a subsidy, or financial inducement, that encourages consumers to participate in the distribution of advertisements”); *Unwired Planet, LLC v. Google, Inc.*, 841 F.3d 1376, 1382 (Fed. Cir. 2016) (“CBM patents are limited to those with claims that are directed to methods and apparatuses of particular types and with particular uses ‘in the practice, administration, or management of a financial product or service.’”).

In our Institution Decision, we determined that Petitioner had shown that the ’437 patent is eligible for CBM review. Dec. 5–11. Patent Owner urges us to reconsider and determine that the ’437 patent is not eligible for CBM review. *See* PO Resp. 1–41. We, however, are not persuaded to change our original determination.

1. *Financial Product or Service*

Petitioner asserts that “[t]he *claims* here are directed to video-ondemand (‘VOD’) service, which is a well-known method for distributing digital content to subscribers for payment of a fee.” Pet. 5; emphasis added. “In particular, the *claims* recite a system for processing audio/video data that is ‘rented data.’” Pet. 6 (citing Ex. 1001, 46:31–34) (emphasis added).

In our Decision on Institution, we found the following:

Contrary to Patent Owner’s argument, the claims of the ’437 patent do explicitly recite a financial activity—renting or purchasing data. Dependent claim 17 recites “wherein said system includes an electronically based payment system making rental charges to a user’s credit or debit account.” Dependent claim 18 recites “wherein said credit or debit account comprises a credit card account, a checking account, or an ATM account.” Dependent claim 27 recites “said software programming further enabling access to an Internet based subscription service and automatic downloading of data for rental or purchase.”

Dec. 6–7. In doing so, we also indicated the following in a footnote: “We acknowledge that Petitioner does not rely expressly on dependent claims 17, 18, and 27 for the first prong. *See generally* Pet. 3–7. Patent Owner will have the opportunity to respond during

trial.” Dec. 7, n. 3. After institution of trial, Patent Owner disclaimed claims 17, 18, and 27. PO Resp. 15 (citing Ex. 2004). Patent Owner presents several assertions with respect to relying on these now disclaimed claims as the jurisdictional basis for conducting a covered business method review. PO Resp. 2–18.

a. Statutory and Regulatory Jurisdiction

Patent Owner first asserts that the Board’s analysis, with respect to dependent claims 17, 18, and 27, were not based on arguments set forth in the Petition, exceeded statutory jurisdiction, was inconsistent with the express language of 35 U.S.C. § 324 and 37 C.F.R. § 42.208(c), was raised improperly *sua sponte*, and presents substantial due process issues. PO Resp. 2–8, 14–15. Patent Owner asserts further that the express language of 35 U.S.C. § 324 and 37 C.F.R. § 42.208(c) supports their position. PO Resp. 2–8, 14–15. Petitioner disagrees generally, and, with respect to Patent Owner’s assertions concerning statutory and regulatory language, responds as follows:

Patent Owner cites to the Supreme Court’s decision in *Cuozzo Speed Technologies, LLC v. Lee* for the proposition that the Board’s decision to institute CBM review is limited to the particular language used by petitioner in its petition. PO Response at 3. To the contrary, as noted above, *Cuozzo* rejected that argument and affirmed the PTAB’s decision to institute an IPR as to claims

not specifically mentioned as being challenged in the petition. *See also In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1274 (Fed. Cir. 2015). Moreover, Patent Owner's statutory analysis is flawed because the sections it cites relate to grounds for unpatentability, not for CBM eligibility. *See* PO Response at 4–5.

Pet. Reply 3–4. We agree with Petitioner.

i. Applicable Law

We do not read the express language of 35 U.S.C. § 324 and 37 C.F.R. § 42.208(c) in the limited manner advocated by Patent Owner. The relevant language of 35 U.S.C. § 324 is as follows:

The Director may not authorize a post-grant review to be instituted unless the Director determines that the information presented in the petition filed under section 321, if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.

As an initial matter, and as noted by Petitioner, the language of 35 U.S.C. § 324 only speaks, with explicit specificity, to unpatentability. The instant issue is jurisdiction.¹

¹ Our analysis is the same with respect to 37 C.F.R. § 42.208(c).

We agree with Patent Owner that a decision on institution, even concerning jurisdiction, should certainly be *based on* information presented in the petition. It does not follow, however, that a decision on institution *is narrowly limited to information expressly identified only within the four corners* of the petition, for the reasons set forth below.

We begin our analysis with the wording of 35 U.S.C. § 324, which, in relevant part, recites “the information presented in the petition filed under section 321, *if such information is not rebutted . . .*” By its express wording, the statute contemplates taking into account rebuttal information, which, by all accounts, is the information set forth in the preliminary response to the petition. *See* 35 U.S.C. § 323 (explaining that a preliminary response may “set[] forth reasons why no post-grant review should be instituted based upon the failure of the petition to meet any requirement of this chapter.”). Information set forth in a preliminary response to the petition is not *narrowly limited to information expressly identified only within the four corners* of the petition.² In particular, a preliminary response may raise issues relevant to institution that a petition may not have raised.

² The relevant portion of the corresponding statute for *inter partes* review reads as follows: “the information presented in the petition filed under section 311 and any response filed under section 313 . . .” 35 U.S.C. § 314(a).

A latter portion of 35 U.S.C. § 324 recites, in relevant part, determining whether the information presented in the petition “would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.” The use of the word “would” indicates that the decision on institution is a prediction in the future as to whether or not a claim *will* be held unpatentable, and within the context of the other relevant statutes, the point in time for which such a prediction is being made is at the time of final written decision. *See* 35 U.S.C. § 328(a). Under 35 U.S.C. § 326(a)(11), such a final written decision must be rendered within a specified time period following the decision on institution. During that specified time period, 35 U.S.C. § 326 contemplates a myriad of evidence and papers to be potentially entered, and considered, in coming to a final written decision. *See, e.g.,* 35 U.S.C. § 326(a)(3) (supplemental information), (a)(4) (evidence from discovery), (a)(8) (patent owner response with affidavits or declarations, and “any additional factual evidence and expert opinions”). Accordingly, when all of the above is considered together, a decision on institution is made, certainly based on the information presented in the petition, but also with a prediction as to the information that may be submitted during trial, for example, the evidence and papers enumerated above. Such evidence and papers are not *narrowly limited to information expressly identified only within the four corners* of the petition.

In that respect, the guidance from *Cuozzo* is consistent and instructive. Specifically, in *Cuozzo*, the

Supreme Court set forth the procedural posture of the proceeding, as follows:

The Board agreed to reexamine claim 17, as well as claims 10 and 14. The Board recognized that Garmin had not expressly challenged claim 10 and claim 14 on the same obviousness ground. But, believing that “claim 17 depends on claim 14 which depends on claim 10,” the Board reasoned that Garmin had “implicitly” challenged claims 10 and 14 on the basis of the same prior inventions, and it consequently decided to review all three claims together. App. to Pet. for Cert. 188a.

Cuozzo Speed Technologies, LLC v. Lee, 136 S. Ct. 2131, 2138 (2016). While certainly any analysis of whether to institute review must be *based on* the petition, the decision to institute may also be based on information that *implicitly flows from* the information set forth in the petition. Given the patent is evidence squarely before us, implicitly flowing from every petition challenging a patent is the information contained within the patent itself. In other words, when a petition is filed against a patent, the patent is evidence, and it is not unreasonable to expect Patent Owner to be familiar with all of the information contained in the patent, which would include all dependent claims, challenged in the petition or otherwise. *Cf. Riverwood Intern. Corp. v. R.A. Jones & Co., Inc.*, 324 F.3d 1346, 1355 (Fed. Cir. 2003) (*quoting Reading & Bates Const. Co. v. Baker Energy Resources*

Corp., 748 F.2d 645, 650 (Fed. Cir. 1984) (“It is common sense that an inventor, regardless of an admission, has knowledge of his own work.”). In that respect, we note that Section 18(d)(1) of the AIA defines a covered business method patent as “a patent that claims . . . ,” and does not recite any further requirements concerning the nature of the claim, e.g., that the claim must be explicitly challenged in the petition. *See also* Transitional Program for Covered Business Method Patents—Definitions of Covered Business Method Patent and Technological Invention, 77 Fed. Reg. 48,734, 48,736 (Aug. 14, 2012) (Comment 8) (“A patent having one or more claims directed to a covered business method is a covered business method patent for purposes of the review, even if the patent includes additional claims.”).

ii. Analysis

As set forth above, we disagree with Patent Owner that a decision on institution is narrowly limited to information expressly identified only within the four corners of the petition, because Patent Owner ignores the statutory language “based.” When the actual statutory language is applied, it is clear that our identification of dependent claims 17, 18, and 27 is *based* on information expressly identified in the four corners of the Petition. More specifically, Petitioner asserts that “[t]he claims here are directed to video-on-demand (‘VOD’) service, which is a well-known method for distributing digital content to subscribers for payment of a fee.” Pet. 5. Here, Petitioner refers to “claims” in the plural. *See also* Pet. 5 (“Just as in *SightSound*, the *claims* of the ’437 patent fall squarely

within the statutory definition of a covered business method patent) (latter emphasis added). By identifying “claims” in the plural, Petitioner is referring, explicitly, to more than one claim. Patent Owner acknowledges that Petitioner is referring to plural claims. PO Resp. 29 (“The elements of Claims 1, 9, 10, and 13–16 of the ’437 patent cited by Petitioner are not express financial components that are central to the operation of the claims.”).

The aforementioned sentence from the Petition that refers to “claims” in the plural is, furthermore, set forth under the following heading: “The ’437 patent’s *Claims* are Directed to Financial Transactions.” Pet. 3 (emphasis added). The Petition’s analysis cites case law that “[t]he ‘presence of a single claim is sufficient to institute a covered business method review.’” Pet. 3–4 (citing *SAP America, Inc. v. Versata Development Group, Inc.*, CBM2012-00001, No. 36 at p. 26 (PTAB Jan. 9, 2013)). We read that, in the aggregate, as asserting, explicitly, that any one of the plurality claims of the ’437 patent is a proper basis for CBM eligibility.³

The Petition then asserts the following: “In particular, the *claims* recite a system for processing audio/video data that is ‘rented data.’” Pet. 6 (citing Ex. 1001, 46:31–34) (emphasis added). As an initial matter, we note that the sentence begins with the

³ In some respects, it is appropriate to end our inquiry concerning the Petition’s identification of dependent claims 17, 18, and 27 here.

phrase “[i]n particular,” indicating that whatever follows is merely an example, and not an exclusive identification, of language in a claim of the ’437 patent that Petitioner asserts may meet the financial prong of CBM eligibility. The citation to the ’437 patent is to language in independent claim 1. Each of the rest of the claims in the ’437 patent, i.e., claims 2–29, depend, either directly or indirectly, from independent claim 1, and accordingly, also include the language of independent claim 1. While Petitioner’s assertions concerning this issue begin on page 3 of the Petition, the first time the Petition refers only to independent claim 1 is not until page 6 of the Petition. Pet. 6 (“Claim 1 also recites the step of ‘enacting a simulated return of said rented data.’ *Id.* at 46:34.”). Accordingly, the Board reads the above portions of the Petition, collectively, as, at a minimum, implicitly referring to all of claims 1–29 of the ’437 patent.

We acknowledge that the only claim limitations cited expressly, on pages 3–7 of the Petition, are from independent claim 1. In construing “rented data,” however, the construction for which is set forth below, the Board considered the entire patent, which includes each and every one of claims 1–29. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc) (claim construction requires a determination as to how a person of ordinary skill in the art would understand a claim term “in the context of the entire patent, including the specification.”). Given the above, the Board was led to, and did indeed read, each and every claim. The limitations identified expressly by Petitioner are “rented data” and “enacting a simulated

return of said rented data.” Pet. 6. With respect to “rented data,” the Petition provides the following analysis:

This understanding of “rented data” is confirmed by the specification. The Summary of the Invention states that an object of the patent “is to provide a system that creates a **transaction or commercial zone** for data to be received, manipulated, stored, retrieved, and accessed by a user.” Ex. 1001 at 3:34–37 (emphasis added). The system may be used to “[p]urchase or rent data products (movie, TV show, etc.)” *Id.* at 4:15 (emphasis ‘**virtual store**’ for purchasing and/or **renting audio/video products** or computer software on demand.” *Id.* at 4:59–61 (emphases added). Payment for these rentals may be made using “Visa, MasterCard, Discover, American Express, Diner’s Club, or any other credit card or banking institution that offers credit or debit payment systems.” *Id.* at 4:28–31.

Pet. 6. Although this portion of the Petition only refers expressly to the Specification, the Board, nevertheless, read all of the claims with a Petition-driven emphasis on the express claim terms “rented data,” but also with an awareness of other claim terms identified expressly in the Petition as related to “rented data,” among them, “transaction,” “purchase,” “rent,” “credit card,” and “credit or debit account.” *Cf.*

In re NuVasive, 841 F.3d 966, 971–972 (Fed. Cir. 2016) (“Although the Board is not limited to citing only portions of the prior art specifically drawn to its attention . . . , [Patent Owner] was entitled to an adequate opportunity to respond . . .”).

Furthermore, the Petition presents “rented data” in a claim construction context, both expressly (Pet. 21) and implicitly (Pet. 5–7). As a part of construing “rented data,” the Board considers all relevant portions of the specification, cited expressly or otherwise, which includes all dependent claims. Given that guidance from the Petition, the Board identified dependent claims 17, 18, and 27, each of which includes one or more of the aforementioned claim terms, and set forth that identification expressly in the Decision on Institution, and noted, also, and expressly, that “Patent Owner will have the opportunity to respond during trial.” Dec. 7, n. 2.

Furthermore, Patent Owner asserts the following:

For the Board to institute CBM review on the basis of dependent claims not identified in the petition and then find that the patent owner’s disclaimer was too late is arbitrary and capricious, and a due process concern.

PO Resp. 15. For the reasons set forth above, we are unpersuaded our identification of dependent claims 17, 18, and 27 was not based on information expressly identified in the four corners of the Petition.

Furthermore, due process requires notice and an opportunity to be heard by an impartial decision-

maker. *Abbott Labs. v. Cordis Corp.*, 710 F.3d 1318, 1328 (Fed. Cir. 2013). As formal administrative adjudications, AIA trial proceedings are subject to the Administrative Procedure Act (“APA”). *SAS Institute, Inc. v. ComplementSoft, LLC*, 825 F.3d 1341, 1351 (Fed. Cir. 2016). Under the APA, the Board must inform the parties of “the matters of fact and law asserted.” 5 U.S.C. § 554(b)(3). It also must give the parties an opportunity to submit facts and arguments for consideration. *Id.* § 554(c). Each party is entitled to present oral and documentary evidence in support of its case, as well as rebuttal evidence. *Id.* § 556(d).

Here, in compliance with the Administrative Procedure Act, notice concerning facts and law applicable to this issue were expressly set forth on pages 6–8 of the Decision on Institution. Dec. 6–7 (expressly identifying claims and applicable case law, and stating, “Patent Owner will have the opportunity to respond during trial.”). As stated, Patent Owner has been provided the “opportunity to submit facts and arguments for consideration” on this issue, for example, in its Patent Owner Response. In fact, Patent Owner has done so. *See* PO Resp. 1–18. Accordingly, we are not persuaded by Patent Owner’s argument directed towards a due process violation.

iii. Conclusion

For the above reasons, we are unpersuaded, by Patent Owner’s assertions that the Board’s analysis, with respect to dependent claims 17, 18, and 27, were not based on arguments set forth in the Petition, exceeded statutory jurisdiction, was inconsistent with

the express language of 35 U.S.C. § 324 and 37 C.F.R. § 42.208(c), was improperly raised *sua sponte*, and presents substantial due process issues.⁴

b. Effect of Disclaimer

Patent Owner asserts that, regardless of whether or not dependent claims 17, 18, and 27 meet the finance prong for CBM eligibility, because Patent Owner disclaimed those claims, pursuant to 35 U.S.C. § 253, those claims must be treated as never having existed, and cannot constitute the basis for CBM eligibility. PO Resp. 8–18. Patent Owner asserts further that, in as much as Petitioner may rely on *J.P. Morgan Chase & Co. v. Intellectual Ventures II LLC*, Case No. CBM2014-00157, (PTAB Jan. 12, 2016) (Paper 40) for the proposition that post-institution disclaimers should be treated differently, the reasoning in *J.P. Morgan Chase* is erroneous, and should not be followed. Petitioner does cite *J.P. Morgan Chase*, and also asserts the following:

Patent Owner compounds its misapplication of law by arguing that post-institution disclaimer of claims strips the Board of its authority to consider those claims. PO Response at 8–

⁴ We provided notice of the following in a footnote of the Decision on Institution: “We acknowledge that Petitioner does not rely expressly on dependent claims 17, 18, and 27 for the first prong. *See generally* Pet. 3–7. Patent Owner will have the opportunity to respond during trial.” Dec. 7, n. 3.

18. This argument is also foreclosed by the Board’s precedential decision in *Facebook, Inc. v. Skky*, CBM2016-00091 (Paper 12) (PTAB Sep. 28, 2017). There, an expanded panel held that CBM eligibility is “determined based on the claims of the challenged patent as they exist ***at the time of the decision whether to institute.***” *Id.* at 6.

...

Even more, the Federal Circuit has recently affirmed the Board’s authority to issue an adverse judgement against a Patent Owner who disclaimed claims even before institution. *Arthrex, Inc. v. Smith & Nephew, Inc.*, ___ F.3d ___, No. 2017-1239, 2018 WL 522366, at *4 (Fed. Cir. Jan. 24, 2018) (“37 C.F.R. § 42.73(b) permits the Board to enter an adverse judgment when a patent owner cancels all claims at issue after an IPR petition has been filed, but before an Decision on Institution.”). Thus, binding authority of both the Federal Circuit and the Board establish that the jurisdiction over this CBM proceeding is proper.

Pet. Reply 3–4 (footnote omitted). On the merits, we agree with Petitioner.

i. Applicable Law

In our Decision on Institution, we indicated:

A patent need have only one claim directed to a covered business method to be eligible for review. *See* Transitional Program for Covered Business Method Patents—Definitions of Covered Business Method Patent and Technological Invention, 77 Fed. Reg. 48,734, 48,736 (Aug. 14, 2012) (Comment 8); *see also* *Emerson Electric. Co. v. SIPCO LLC*, Case CBM2016-00095, slip op. at 7 n.2 (PTAB Jan. 23, 2017) (Paper 12) (“Although the patentability of claims 3 and 4 are not challenged by Petitioner in this proceeding, there is no requirement that only challenged claims may be considered for purposes of determining a patent is eligible for covered business method patent review. As discussed above, a patent is eligible for review if it has at least one claim directed to a covered business method. 77 Fed. Reg. at 48,736 (Response to Comment 8).”).

Dec. 7–8. Since our Decision, a final written decision has issued in *Emerson Electric. Co. v. SIPCO LLC*, Case CBM2016-00095, (PTAB Jan. 16, 2018) (Paper 39).⁵ Furthermore, the Board identified more relevant case law in our Order of August 9, 2017. Paper 17 (citing *Rembrandt Wireless Technologies, LP*

⁵ A copy of the final written decision in that proceeding has been entered as Exhibit 3003.

v. Samsung Electronics Co., Ltd., 853 F.3d 1370, 1383–84 (Fed. Cir. 2017); *J.P. Morgan Chase*, slip op. at 9–15; *Facebook, Inc. v. Skky, LLC*, Case CBM2016-00091, slip op. at 8–12 (PTAB Sept. 28, 2017) (Paper 12) (precedential); *Westlake Services, LLC v. Credit Acceptance Corp.*, Case CBM2014-00176 slip op. at 2–5 (PTAB Sept. 3, 2015) (Paper 41)).

Belated post-institution disclaimer of claims reciting a “financial activity element” does not affect our CBM patent review eligibility determination. “CBM patent review eligibility is determined based on the claims of the challenged patent ***as they exist at the time of the decision whether to institute.***” *Facebook*, slip op. at 11 (emphasis added). Section 18(a)(1)(E) of the AIA provides that “[t]he Director may *institute* a transitional proceeding only for a patent that is a covered business method patent” (emphases added). Section 18(d)(1) of the AIA defines a “covered business method patent” as “a patent that *claims* a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service” (emphasis added). Hence, the decision whether to institute a CBM patent review is based on whether a patent “is” a covered business method patent, which in turn is based on what the patent “claims” *at the time of the Decision on Institution*—not as the claims may exist at some later time after institution. *See Facebook*, slip op. at 6. In other words, *Facebook* instructs us as to the effect of disclaimed claims at the time of the decision to institute review, but does not instruct us as to the treatment of

disclaimed claims after a patent has been determined to be eligible for CBM review and a trial has been instituted.

When the relevant claims are a part of the relevant patent at the time of the decision on institution, they may be considered in determining whether that patent is eligible for CBM patent review at the time of institution. Any belated disclaimer is an improper attempt to seek the specific relief set forth in 37 C.F.R. § 42.207 without complying with the rule's timeliness requirement. Specifically, under 37 C.F.R. § 42.207 titled "Preliminary response to petition," a "patent owner may file a preliminary response to the petition . . . setting forth the reasons why no post grant review should be instituted." The rule also provides that "[t]he patent owner may file a statutory disclaimer under 35 U.S.C. 253(a) in compliance with § 1.321(a) of this chapter, disclaiming one or more claims in the patent," and "[n]o post-grant review will be instituted based on disclaimed claims." In short, when a patent owner timely files a statutory disclaimer before institution, "[n]o post-grant review will be instituted based on disclaimed claims."

Disclaimed claims are not considered in determining whether a patent is eligible for CBM patent review if a patent owner timely files a statutory disclaimer before institution. *See Facebook*, slip op. at 4 (denying institution on the sole ground that the patent is not eligible for CBM patent review because, when the patent owner filed a statutory disclaimer before its preliminary response, the panel treated the disclaimed claims as if they never existed and declined

to consider petitioner's arguments that were based on the disclaimed claims). In such a situation, the Board and parties can avoid the cost and expense of the instant trial, assuming no other claim can provide standing.

The Board's rules are "construed to secure the just, speedy, and inexpensive resolution of every proceeding." 37 C.F.R. § 42.1(b). The rules, including 35 C.F.R. §§ 42.1(b) and 42.207, were promulgated with the consideration of "the effect of any such regulation on the economy, the integrity of the patent system, the efficient administration of the Office, and the ability of the Office to timely complete proceedings instituted under this chapter." 35 U.S.C. § 326(b). We decline to construe our rules and procedures to encourage dilatory tactics.

A patent owner's reliance on 35 U.S.C. § 253, to persuade us that post-institution claim disclaimer can eliminate our CBM jurisdiction, is misplaced. While our reviewing court has "held that a disclaimer relinquishes the rights of the patent owner," its "precedent and that of other courts have not readily extended the effects of disclaimer to situations where others besides the patentee have an interest that relates to the relinquished claims." *Rembrandt Wireless Techs.*, 853 F.3d at 1383–84. That is relevant here because a denial of institution does not affect a petitioner's position, in that petitioner is still free to challenge the patent in other forums, such as district court, and on all grounds. But, after institution of a CBM patent review, we are required by 35 U.S.C. § 328(a) "to issue a final written decision with respect to

the patentability of” the challenged claims in the instituted CBM patent review. Once that final written decision is issued, petitioner is subject to certain estoppels. AIA § 18(a)(1)(D) (“The petitioner . . . may not assert, either in a civil action . . . or in a proceeding before the International Trade Commission . . . that the claim is invalid on any ground that the petitioner raised during that transitional proceeding.”). Accordingly, because, after institution, both the petitioner and the Board also have interests that relate to the relinquished claims (*Rembrandt Wireless Techs.*, 853 F.3d at 1383–84), we are persuaded that related post-institution disclaimer of claims reciting a “financial activity element” does not affect our CBM patent review eligibility determination. *Cf. Guinn v. Kopf*, 96 F.3d 1419, 1422 (Fed. Cir. 1996) (holding disclaimer of an allegedly interfering claim did not divest the Board of jurisdiction over the declared interference proceeding).

ii. Analysis

There is no dispute that dependent claims 17, 18, and 27 were not disclaimed at the time of institution. *Compare* Dec. 7 (entered June 12, 2017); Ex. 2004 (entered Aug. 3, 2017). Accordingly, their consideration in determining whether the ’437 patent is CBM eligible, at the time of institution, was proper, and the subsequent disclaimer does not deprive us of jurisdiction here.

*c. Whether Any Claim Contains
“Express Financial Component”*

Patent Owner asserts that the '437 patent claim elements neither contain “an express financial component,” nor claim “selling” or “renting” data. PO Resp. 18–32. Patent Owner, however, largely limits their analysis to independent claim 1 only.⁶ After reviewing all of the relevant assertions and evidence anew, we see no reason to alter the following analysis, set forth in our Decision on Institution.

Contrary to Patent Owner’s argument, the claims of the '437 patent do explicitly recite a financial activity—renting or purchasing data. Dependent claim 17 recites “wherein said system includes an electronically based payment system making rental charges to a user’s credit or debit account.” Dependent claim 18 recites “wherein said credit or debit account comprises a credit card account, a checking account, or an ATM account.” Dependent claim 27 recites “said software programming further enabling access to an Internet based subscription service and automatic downloading of data for rental or purchase.”

Dec. 6–7.

⁶ Patent Owner does refer, in passing, to dependent claims 9, 10, and 13–16. PO Resp. 29.

*d. Whether Independent Claim 1 Contains
“Express Financial Component”*

Petitioner asserts that “[t]he claims here are directed to video-on-demand (‘VOD’) service, which is a well-known method for distributing digital content to subscribers for payment of a fee.” Pet. 5. “In particular, the claims recite a system for processing audio/video data that is ‘rented data.’” Pet. 6 (citing Ex. 1001, 46:31–34). Petitioner further asserts that “[c]laim 1 also recites the step of ‘enacting a simulated return of said rented data.’” Pet. 6 (citing Ex. 1001, 46:34) “A person of ordinary skill in the art at the time of the purported invention of the ’437 patent would understand that ‘renting’ content involved exchanging money for temporary access to material.” Pet. 6 (citing Ex. 1004 ¶ 106). “The electronic sale of something, including charging a fee to a party’s account, is a financial activity, and allowing such a sale amounts to providing a financial service.” Pet. 5 (citing *Apple Inc. v. Sightsound Technologies, LLC*, Case CBM2013-00023, slip op. at 13 (PTAB Oct. 8, 2013) (Paper 12)).

Patent Owner asserts that “[a] patent claim is not directed to a covered business method merely because it contains a limitation for rented data.” PO Resp. 24. Instead, Patent Owner asserts that the claim must recite elements that are “an express financial component that is central to the operation of the claimed invention.” PO Resp. 28. To that end, concerning “rented data,” Patent Owner asserts the following:

To the contrary, “rented data” in the claims is used in reference to a simulated return that deletes or scrambles the data, or blocks access to the data on a storage device. *See, e.g., infra* Part IV.B.1.b. Deleting, scrambling, and blocking data are not financial activities.

Such use of rented data does not give rise to a CBM review. As the *Unwired Planet* court found, “it cannot be the case that a patent covering a method and corresponding apparatuses becomes a CBM patent because its practice could involve a potential sale of a good or service. All patents, at some level, relate to potential sale of a good or service.” *Unwired Planet*, 841 F.3d at 1382. As a result, that the term “rented data” could involve a potential sale or exchange of money for that rented data is not enough to render Claim 1 a CBM under the law. Absent an express limitation about the actual sale of the rented data in an invention where that sale is an express financial component central to the operation of the invention, the claims cannot be found to be directed to a financial activity.

PO Resp. 28. Patent Owner asserts further that, unlike the claims in *SightSound*, independent claim 1 does not recite the actual act of “selling” or “renting” data. PO Resp. 29–30.

Petitioner replies that Patent Owner’s proffered standard is too narrow, in that while a claim must contain, “however phrased, a financial activity element,’ . . . [t]he Federal Circuit has never held that the financial element must be ‘central’ to the claims . . .” Pet. Reply 4–5 (citing *Secure Access, LLC v. PNC Bank National Association*, 848 F.3d 1370, 1381 (Fed. Cir. 2017) *vacated as moot* 2018 WL 2186184 (Mem) *1).⁷ Petitioner further replies that, even under Patent Owner’s erroneous standard, the limitation of “rented data,” recited in independent claim 1, meets that standard, because, as Patent Owner’s own expert

⁷ Petitioner presents the language “financial activity element,” citing *SecureAccess, LLC v. PNC Bank National Association*, 848 F.3d 1370, 1381 (Fed. Cir. 2017). Pet. Reply 4–5. That decision, however, was recently vacated as moot by the Supreme Court. *Secure Access, LLC v. PNC Bank National Association*, 2018 WL 2186184 *1 (May 14, 2018) (Mem.) (“The petition for a writ of certiorari [is] granted. The judgment is vacated as moot, and the case is remanded to the United States Court of Appeals for the Federal Circuit with instructions to remand the case to the Patent Trial and Appeal Board to vacate the Board’s order.”). Patent Owner uses the language “express financial component,” as set forth in *Blue Calypso*, 815 F.3d at 1340. We discern little substantive difference between that phrase and “financial activity element.” Accordingly, we substitute all further references to “financial activity element” with “express financial component.”

admits, “rented” is a financial term, and it is “central” to the claims, in that “a ‘simulated return’ is meaningless unless the data is rented—free data or purchased data is not returned.” Pet. Reply 5–6 (citing Ex. 1016, 34:3–24). While we agree with each party on certain issues, overall, we agree with Petitioner.

i. Whether the Recited “Express Financial Component” Must Be “Central” to the Claim

As an initial matter, the parties are in agreement that the claims themselves, and not the Specification, must recite an “express financial component.” PO Resp. 25–29; Pet. Reply 4–5. We disagree with Patent Owner, however, that the “express financial component” must be “central” to the claim. The primary case law support for this proposition, on which Patent Owner relies, is *Blue Calypso*. The manner in which the “central” language is set forth in *Blue Calypso* is that whether an express limitation “subsidy” was central to the claim was an explicit underlying factual finding made, by the Board, in support of an overall determination that a patent at issue in that proceeding was a covered business method patent. See *Blue Calypso*, 815 F.3d at 1339–1340 (“The *Board* further observed that the subsidy concept was ‘central to the claims’”) (emphasis added); *Id.* At 1340 (“As the *Board* noted, the subsidy is central to the operation of the claimed invention.”) (emphasis added). While *Blue Calypso* states that such an underlying factual finding was relevant in that case to the overall determination that the patent at issue there was a covered business method patent,

we do not read it as a requirement that such be considered in all cases.

Patent Owner additionally cites *Unwired Planet* in support of its position, contending that *Unwired Planet* stands for the proposition that “claimed ‘activities ‘incidental to’ or ‘complementary to’ a financial activity’ [is] not ‘the legal standard to determine whether a patent is a CBM,’” which, according to Patent Owner, underscores the requirements that any “express financial component” must be “central” to the claim. PO Resp. 26–27 (citing *Unwired Planet*, 841 F.3d at 1382). Patent Owner’s reliance on *Unwired Planet* is misplaced, however, as *Unwired Patent* does not even discuss express claim language, let alone a requirement that some of that express claim language be “central” to the claim.

*ii. Whether the “Rented Data” is an
“Express Financial Component”*

Turning to the instant proceeding, Petitioner asserts that “rented data,” as recited in independent claim 1, is an express financial component, in that “renting” content involves exchanging money for temporary access to material. Pet. 5–6 (citing Ex. 1004 ¶ 106). Petitioner further cites portions of the Specification as confirming that “rented data” is an express financial component. Pet. 6 (citing Ex. 1001, 3:34–37, 4:15, 4:28–31, 4:59–61).

Although Patent Owner sets forth the following heading, “[t]he ’437 patent claim elements cited by DISH do not contain ‘an express financial component’” (PO Resp. 24), in the subsequent analysis, Patent

Owner does not substantively dispute that “rented data” is an express financial component, instead focusing its assertions on other aspects. *See generally* PO Resp. 24–29. We address those assertions below.

Petitioner further asserts the following: “Patent Owner’s expert admits that ‘rented’ is a financial term that involves paying money in exchange for a period of use of an object.” Pet. Reply 6 (citing Ex. 1016, 34:3–24 (“You -- you somehow -- you – you somehow obtained temporary possession of something and -- and you obviously have -- one way or the other, you have provided compensation for that – for that period of time and you’ve possessed whatever you have possessed.”)). Patent Owner responds, “[h]ow that temporary use was established, i.e. for free, in exchange for watching a targeted advertisement, or some other means, is not relevant to the claim.” PO Sur-Reply 5.

While Patent Owner’s last assertion has some merit, based on all of the evidence identified above, we find that “rented data” is an “express financial component.”⁸

⁸ This finding is also consistent with the plain and ordinary meaning of “rent,” which is periodic payment for use of another’s property. *See Collins English Dictionary* (12th ed.), London, UK: Collins (2014), Retrieved from <https://search.credoreference.com/content/entry/hcengdict/rent1/0?institutionId=743> (“rent” is defined as “a payment made periodically by a tenant to a landlord or owner for the occupation or

*iii. Whether the “Rented Data” is
“Central” to Independent Claim 1*

Even assuming that Patent Owner’s statement of law concerning “central” is correct, we are persuaded, for the reasons asserted by Petitioner, that “rented data” is “central” to independent claim 1. Pet. Reply 6 (citing Ex. 1001, 3:34–37, 4:15, 8:4–6). Specifically, Petitioner asserts, and we agree, that the aforementioned portions of the Specification are consistent with the following limitation being the “center” of the claim:

a microprocessor having software programming to control the operation of the processing circuitry and the playback circuitry enabling the recording of rented data and enacting a simulated return of

use of land, buildings, or by a user for the use of other property, such as a telephone”) (last accessed July 18, 2018) (Ex. 3004); *The Chambers Dictionary* (13th ed.), London, UK: Chambers Harrap (2015), Retrieved from [https:// search.credoreference.com/ content/entry/chambdict/rent1/0?institutionId=743](https://search.credoreference.com/content/entry/chambdict/rent1/0?institutionId=743) (“rent” is defined as “periodical payment for use of another's property, *esp* houses and lands; revenue.”) (last accessed July 18, 2018) (Ex.3005); *The Columbia Encyclopedia* (7th ed.), New York, NY: Columbia University Press (2017), Retrieved from <https://search.credoreference.com/content/entry/columency/rent/0?institutionId=743> (“rent” is defined as “periodic payment by a tenant for the use of another’s property.”) (last accessed July 18, 2018) (Ex. 3006).

said rented data by deleting or scrambling said data from said built in storage device or blocking further access to said data, and notifying a data supplier of said simulated return.

Ex. 1001, 46:16–37. We further agree with Petitioner that, analogous to the recitation of “subsidy” in *Blue Calypso*, “[w]ithout the ‘rented’ aspect of the claims, there is no reason for the other claim elements, including a simulated return,” as “a ‘simulated return’ is meaningless unless the data is rented — free data or purchased data is not returned.” Pet. Reply 6.

iv. Whether the Claim Must Include an Action Constituting a Financial Activity

Patent Owner asserts that, under *SightSound*, the claim must include an action constituting a financial activity (i.e., a verb), such as “selling,” “purchasing,” or “renting,” and that “rented data” is not a financial activity. PO Resp. 28–30. The assertion is misplaced. As set forth above, *Blue Calypso* indicates that the claims must recite an “express financial component.” *Id.*, 815 F.3d at 1340. By its own explicit terms, an “express financial component” does not include or require a financial activity.⁹

⁹ Even assuming that the proper terminology was “financial activity element,” by appending the word “element” to “financial activity,” we opine that the claims are not limited to only those containing a “financial activity,” but also may encompass an “element,” i.e., a noun, related to a “financial activity.”

Patent Owner asserts further that Petitioner's citations to the Specification concerning financial activities cannot substitute for their absences from the claims. PO Resp. 30–32. We agree. Patent Owner's assertions are misplaced, however, as, for the reasons set forth above, we find that the claim term “rented data” is an “express financial component.”

e. Conclusion

For the foregoing reasons, we determine that Petitioner has met its burden of demonstrating that at least one of claims 1, 17, 18, and 27 are, or were at the time of the Decision on Institution, directed to an apparatus for performing data processing used in the practice, administration, or management of a financial product or service. Consequently, the '437 patent satisfies the “financial product or service” component of the definition for a covered business method patent under § 18(d)(1) of the AIA.”

2. Technological Invention

As set forth above, the definition for “covered business method patent” does not include patents for “technological inventions.” AIA § 18(d)(1); *see also* 37 C.F.R. § 42.301(a) (stating the same). To determine

To that end, for the reasons discussed above, we find that “rent” is a “financial activity.” We also find that “data” is an “element” (*see, e.g.*, Ex. 1001, 1:23 (“data received on one or more data feeds”), 2:16 (“storing the data”)) and, thus, agree with Petitioner that the combined term, “rented data,” is a “financial activity element.”

whether a patent falls within this exception, our rules prescribe a two-prong approach whereby we consider “whether the claimed subject matter as a whole [(1)] recites a technological feature that is novel and unobvious over the prior art; and [(2)] solves a technical problem using a technical solution.” 37 C.F.R. § 42.301(b). Further, the following claim drafting techniques would not typically render a patent a “technological invention”:

(a) Mere recitation of known technologies, such as computer hardware, communication or computer networks, software, memory, computer-readable storage medium, scanners, display devices or databases, or specialized machines, such as an ATM or point of sale device.

(b) Reciting the use of known prior art technology to accomplish a process or method, even if that process or method is novel and non-obvious.

(c) Combining prior art structures to achieve the normal, expected, or predictable result of that combination.

Office Patent Trial Practice Guide (“Trial Practice Guide”), 77 Fed. Reg. 48,756, 48,764 (Aug. 14, 2012).

Pursuant to the two-prong framework, Petitioner argues that the claims of the ’437 patent do not meet either prong. Pet. 7–9 (citing Ex. 1001). Patent Owner disagrees for several reasons. Prelim. Resp. 32–41 (citing Ex. 1001). We have considered Patent Owner’s

arguments, but we are persuaded that Petitioner has shown sufficiently that the claimed invention of the '437 patent is not for a technological invention.

Turning to the first prong, we consider whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art, Petitioner asserts that the claims recite only generic computer components performing generic computer functions that were well known in the art at the time of the invention. Pet. 8 (citing Ex. 1001).

Patent Owner asserts that Petitioner has not met its burden of showing that this is correct, because, as set forth in the Decision on Institution, Petitioner failed to meet its burden of showing that the challenged claims are anticipated or obvious in view of Ginter and Stefik. PO Resp. 33–36; *see also* PO Resp. 37–38 (asserting that, through its arguments concerning Ginter and Stefik, Patent Owner did contest this prong in its Preliminary Response). Patent Owner asserts further the following:

But the 'technological feature' component of the regulation cannot abrogate the burden placed on DISH by Section 326, and merely asserting that features are not 'technological' is not sufficient to satisfy 37 C.F.R. § 42.301(b): DISH must demonstrate that such features are not 'novel and unobvious over the prior art.' Having failed to do that, the Board cannot conclude that DISH has satisfied the first prong of the

technological invention test for CBM review.

PO Resp. 37.

Petitioner replies as follows:

Patent Owner mistakenly argues that Petitioner must show that the features are not ‘technological’ and that they are not ‘novel and unobvious over the prior art.’ *Id.* at 37. The plain language of the exception requires a technological feature, and thus a showing of no technological feature is sufficient. *See* 37 C.F.R. § 42.301(b).”

Pet. Reply 7. While we disagree with much of Petitioner’s analysis in its Reply, we are persuaded, based on the assertions set forth in the Petition, that Petitioner has met its burden of showing that the claimed subject matter, as a whole, recites a technological feature that is not novel and unobvious over the prior art.

As an initial matter, Patent Owner’s assertions concerning Ginter and Stefik are misplaced. A showing that a claim is not anticipated or obvious over the cited prior art is not commensurate with a determination that the claimed subject matter, as a whole, recites a technological feature that is novel and unobvious over the prior art. *See* 37 C.F.R. § 42.301(b). While the former analysis focuses on the novelty or obviousness of the claim as a whole, the latter analysis focuses on the novelty or non-obviousness of *specific, discrete* technological features recited in the claim as

a whole. For the reasons set forth in the Decision on Institution, we agree with Patent Owner that Petitioner failed as to the former. Dec. 19–26. As set forth below, however, we are persuaded that Petitioner has met its burden with respect to the establishing specific, discrete technological features recited in the claim as a whole are not novel or non-obvious.

Specifically, the Petition expressly identifies examples of the specific, discrete technological features recited in independent claim 1, namely, “receiver,” “circuitry,” “user interface,” and “microprocessor.” The Petition further asserts, with explicit citations to the Specification, i.e., intrinsic evidence, that each of these and other generic computer-related terms recited in independent claim 1, were already “known” in the art. Pet. 8 (citing Ex. 1001, Abs.; 4:63–64; 5:8–10; 13:25–31; 13:54–60; 13:66–14:2; 14:5–8; 14:29–35; 14:35–40; 14:46–50; 15:4–6; 15:11–14; 15:14–18; 15:43–46; 18:20–23; 18:42–46; 24:29–37; 25:4–10; and 37:33–36).

For example, the citation to Exhibit 1001, 14:46–50, reads as follows: “Processing means 13 may include any number of circuits, signal processors, filters, or other data manipulation devices *known in the art* for providing any electronic features or functions that may exist in standard televisions and other such displays known in the art” (emphasis added). Independent claim 1 recites “processing circuitry for processing the data and for storing the processed data in the built in storage device.” When considered together, we are persuaded that Petitioner has met its

burden of showing, through explicit guidance from the Petition, that the recited “processing circuitry” was generic and well-known in the art.

In another example, the citation to Exhibit 1001, 15:11–14, reads as follows: “Playback device 15 may include any technology known in the art for playing back audio/video data from any storage device *known in the art* (e.g., video tape, DVD, laser disc, etc.)” (emphasis added). Independent claim 1 recites “playback circuitry, which reads the data from the built in storage device and which converts the data to electronic signals for driving a playback apparatus.” Again, when considered together, we are persuaded that Petitioner has met its burden of showing, through explicit guidance from the Petition, that the recited “playback circuitry” was generic and well known in the art.

In this regard, after considering each limitation of independent claim 1, as well as each explicit citation to the Specification expressly set forth in the Petition, we are persuaded that Petitioner has met its burden of showing, via analysis and evidence explicitly set forth on page 8 of the Petition, that independent claim 1, as a whole, does not recite a technological feature that is novel or unobvious.¹⁰

¹⁰ In view of this determination, which is based on Petitioner’s express analysis and evidence set forth explicitly on page 8 of the Petition, Patent Owner’s more specific arguments, e.g., the determination is arbitrary and capricious (PO Resp. 33–34), the burden

Turning to the second prong for determining whether a patent is for a “technological invention,” we recognize that Patent Owner presents assertions directed to whether the claimed invention solves a technical problem using a technical solution. PO Resp. 38–41; *see also id.* at 51–65 (in the context of a ground of unpatentability under 35 U.S.C. § 101, assertions that patents are directed to a technological solution to a technological problem). We, however, need only assess whether one of the prongs set forth in 37 C.F.R. § 42.301(b) is deficient to determine whether the claims of the ’437 patent are not for a “technological invention.” *See Apple Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016) (“We need not address this argument regarding whether the first prong of 37 C.F.R. § 42.301(b) was met, as we affirm the Board’s determination on the second prong of the regulation—that the claimed subject matter as a whole does not solve a technical problem using a technical solution”). As set forth above, we are persuaded by Petitioner’s explanation as to why the claimed subject matter, as a whole, does not recite a technological feature that is novel and non-obvious over the prior art, and, therefore, we are satisfied that Petitioner has met its

of persuasion is improperly shifted to Patent Owner (PO Resp. 34–35), that the determination lacks adequate reasoning (PO Resp. 35–36), that the determination is not based on evidence (PO Resp. 36), and that the Petition’s analysis is inadequate (PO Resp. 36–37), also fall away.

burden of showing that the '437 patent is not for a “technological invention.”

3. Conclusion

For the reasons set forth above, we are persuaded that Petitioner has met its burden of demonstrating that the '437 patent is covered business method patent eligible for review.

G. Grounds of Unpatentability

The Board instituted trial on claims 1, 9, 10, and 13–16 on the following grounds.

Reference(s)	Basis	Challenged Claims
	§ 101	1, 9, 10, and 13–16
Ginter ¹¹	§ 102(b)	1, 9, 10, and 13–16
Ginter and Stefik ¹²	§ 103(a)	1, 9, 10, and 13–16

Dec. 2, 26. Petitioner relies on the Declarations of Anthony Wechselberger. Exs. 1004, 1017, 1022. Patent Owner relies on the Declaration of Dr. Jay P.

¹¹ WO 96/27155, pub. Sept. 6, 1996 (Ex. 1002, “Ginter”).

¹² U.S. Patent No. 5,634,012, iss. May 27, 1997 (Ex. 1003, “Stefik”).

Kesan (Exs. 2001, 2005), who was deposed (Exs. 1016, 1021).

II. ANALYSIS OF GROUNDS OF UNPATENTABILITY

A. Claims 1, 9, 10, and 13–16 as Directed to Non- Statutory Subject Matter Under 35 U.S.C. § 101

Petitioner contends that claims 1, 9, 10, and 13–16 do not recite patent eligible subject matter under 35 U.S.C. § 101, because they are directed to an unpatentable abstract idea and do not contain an “inventive concept” that amounts to significantly more than the abstract idea. Pet. 23–39 (citing Exs. 1001, 1004). Patent Owner disagrees. PO Resp. 41–78 (citing Exs. 1001, 2005–2007). Petitioner replies. Pet. Reply 8–23. Patent Owner further responded. PO Sur. 1–5. Petitioner did the same. Pet. Sur. 1–5.

1. Relevant Law

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g., Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014).

In determining whether a claim falls within the abstract ideas exception, we are guided in our analysis by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 2355 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S.

Ct. 1289, 1296–97 (2012)). In accordance with that framework, we first determine whether the claim is “directed to” a patent-ineligible abstract idea. See *Alice*, 134 S. Ct. at 2356. We evaluate “the focus of the claimed advance over the prior art to determine if the claim’s character as a whole is directed to excluded subject matter.” *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (internal quotation marks omitted). “When considering claims purportedly direct to ‘an improvement of computer functionality,’ we ‘ask whether the focus of the claims is on the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Smartflash LLC v. Apple, Inc.*, 680 Fed. App’x. 977, 982–83 (Fed. Cir. 2017) (quoting *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016)).

The following method is then used to determine whether what the claim is “directed to” is an abstract idea:

[T]he decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided. See, e.g., *Elec. Power Grp.*, 830 F.3d at 1353–54.2 That is the classic common law methodology for creating law when a single governing definitional context is not available. See generally

Karl N. Llewellyn, *The Common Law Tradition: Deciding Appeals* (1960). This more flexible approach is also the approach employed by the Supreme Court. *See Alice*, 134 S.Ct. at 2355–57. We shall follow that approach here.

Amdocs (Israel) Limited v. Openet Telecom, Inc., 841 F.3d 1288, 1294 (Fed. Cir. 2016).

If the claim is “directed to” a patent-ineligible abstract idea, we then consider the elements of the claim—both individually and as an ordered combination—to assess whether the additional elements transform the nature of the claim into a patent-eligible application of the abstract idea. *Alice*, 134 S. Ct. at 2355. This is a search for an “inventive concept”—an element or combination of elements sufficient to ensure that the claim amounts to “significantly more” than the abstract idea itself. *Id.*

*2. Whether the Claims Are
Directed to an “Abstract Idea”*

Petitioner asserts the following:

Claim 1 of the ’437 patent is directed to the abstract idea of delivering rented audio/video content to a user. Ex. 1004 at ¶ 105. The remaining elements of the claim merely identify the generic technological environment (i.e., the “receiver apparatus,” “memory circuitry,” “processing circuitry,” “user interface,” “playback circuitry,” and “microprocessor”) and add routine and

conventional post-solution activity. *Id.* at ¶ 109.

Pet. 28. In response to the assertions set forth in the Patent Owner Preliminary Response, in the Decision on Institution, we modified Petitioner’s assertion as to what independent claim 1 is directed to, as follows: “delivering rented audio/video *electronic* content to a user.” Dec. 14–15; *but see* concurring opinion (disagreeing with the majority’s inclusion of the word “electronic”). Petitioner expressly adopts that formulation. Pet. Reply 9.

i. Whether the Majority’s Addition of “Electronic” was Procedurally Proper

Patent Owner asserts that, analogous to the Board’s consideration of dependent claim 17, 18, and 27, adding the word “electronic” was improper because it was “considering arguments beyond the Petition.” PO Resp. 65–67. For all the same reasons set forth above, Patent Owner’s assertions are unpersuasive. Certainly, Petitioner’s assertions must be based on the Petition, in that any omission by Petitioner is made at their own peril. We disagree, however, that a decision on institution is *narrowly limited to information expressly identified only within the four corners* of the petition.

Indeed, the most overt exception to the information set forth in the petition, as indicated above, is the preliminary response to petition. 35 U.S.C. § 324 (“the information presented in the petition filed under section 321, if such information is not rebutted . . .”). Here, as acknowledged by Patent Owner, the majority

based their determination on assertions set forth in Patent Owner's Preliminary Response. PO Resp. 66 (citing Dec. 14–15).

Patent Owner may perhaps be asserting that, based on the relevant statutes, any deviation from a petition made, or at least those due to assertions advanced by a patent owner, are fatal, or that only such assertions detrimental to the petition should be taken into account. We disagree with both assertions. With respect to the latter, as a practical matter, we determine it would be difficult to sort what is or is not detrimental to the petition. Furthermore, a party, whether petitioner or patent owner, is free to set forth, or not set forth, any assertion, with the understanding that such an assertion, or omission, is done at their own peril. In any case, we discern that the better rule is to address all relevant assertions made, without any regard as to whether any resulting consequences favor one party or another.

With regards to the former, certainly we expect that most deviations from the petition made, at the behest of a patent owner, will be detrimental, and, in some cases, fatal, to the petition. Nevertheless, that is not always the case, and, here, Petitioner was fortunate that the case cited in the Petition, *Affinity Labs of Texas, LLC v. Amazon.Com, Inc.*, No. 6:15-CV-0029-WSSJCM, 2015 WL 3757497, at *8 (W.D. Tex. June 12, 2015) (*aff'd* 2016 WL 5335502, at *2), was sufficient to show that both its original formulation as to what independent claim is “directed to,” and the formulation revised in light of Patent Owner's

arguments, were directed to an unpatentable abstract idea. Dec. 16–17 (citing Pet. 28–29).

In this case, we are persuaded that Petitioner has met their burden of showing that independent claim 1 is directed to “delivering rented audio/video electronic content to a user,” and that such a concept is an unpatentable abstract idea. Our reasoning is set forth below.

*ii. Whether the Petitioner’s Assertion
as to What Independent Claim 1 is
“Directed To” is Too Narrow*

Patent Owner asserts that “delivering rented audio/video content to a user,” electronic or otherwise, does not capture the full scope of independent claim 1. PO Resp. 67. Specifically, Patent Owner asserts that such a formulation of what independent claim 1 is “directed to” does not account for “operational parameters (*e.g.* control of the rented audio/video content *after* it is delivered) that solve problems created by the onward march of computer networking technology and the evolving distribution channels for rented data.” PO Resp. 67 (citing *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253 (Fed. Cir. 2017)). Petitioner responds, “the ‘technological’ limitations of claim 1 are ancillary to the abstract idea of ‘delivering rented audio/video electronic content to a user.’” Pet. Reply 10. Although we agree with certain points made by both parties, in the aggregate, we agree with Petitioner.

Patent Owner first asserts that, in the related district court proceeding, Petitioner's damages expert admitted the following:

I understand that the '437 patent and the '029 patent relate to simulated and virtual return notification for time-restricted video content. Specifically, the '437 patent and '029 patent generally describe a digital STB and relate to notification/monitoring of the virtual return/simulated return of limited-use digital data/rented digital data.

PO Resp. 67 (quoting Ex. 2006 ¶ 68) (emphasis omitted); *see also* Ex. 2006 ¶¶ 111, 193 (asserting the same). While we acknowledge Patent Owner's general point, we are persuaded by Petitioner's assertion that it is not dispositive, as (1) the testimony refers to patents, and not claims, and (2) that the testimony is in the context of infringement and damages, both of which concern inquiries different than what a claim is "directed to." Tr. 75:22–76:2, 88:22–89:17, 90:4–15.

Patent Owner next asserts that Petitioner's analogy to rental of physical tapes generally is incorrect, as follows:

But DISH is only able to make the analogy because DISH impermissibly ignores the specification. As the specification notes, there are several problems with the transfer and exchange of *digital* files that are *unique* to computer networking. For example, the

specification repeatedly details the technological problems with piracy and unauthorized use of data, as pirates are able to intercept, steal, and mass distribute files to thousands of people without the content provider or end user knowing that the files were intercepted. *See supra* Part I.B.1.a. There simply is no analogue to such activity in the video store analogy. To make it more exact, one would have to imagine an absurd scenario where the rented video is secretly stolen out of the customer's car *while they are driving* to or from the video store, copied, distributed to millions of other people, and returned to the customer's car without the customer or video store ever knowing.

PO Resp. 68–69; *see also* PO Resp. 52 (“[t]here is no historical analogue to a ‘simulated’ or ‘virtual’ return described in the patents.”). Petitioner responds that the above technical aspects are implementation details of the abstract idea of “delivering rented audio/video electronic content to a user,” using “pre-existing computer functions and generically recited ‘software,’ and that the technical aspects identified by Patent Owner are those that fall on the side of generic computer components that should not be included in what a claim is “directed to,” rather than an improvement in computer functionality of networking. Pet. Reply 10, 12–14. We agree with Petitioner.

We acknowledge that, of course, this is the difficulty of conducting this inquiry under the framework set forth in the *Alice*: that claims recite many limitations, yet, in determining what the claims are “directed to,” choices must be made as to include or omit, and there is no clear guidance concerning where such lines should be drawn. See *Visual Memory*, 867 F.3d at 1259 (“With these guideposts in mind, and cognizant of the difficulty inherent in delineating the contours of an abstract idea, we turn to the claims at issue here.”). Having said that, we determine that the clearest indication that Petitioner is correct, that Petitioner’s adopted formulation is not too narrow, is from an analysis flowing from the formulation itself.

Specifically, we begin with “delivering rented audio/video electronic content to a user,” and an inquiry as to the minimum steps needed, theoretically, as to how to implement such a concept. The minimum steps needed would appear to be (a) identifying the electronic content to be rented on a remote storage device, (b) transferring that electronic content to a local storage device, (c) utilizing the electronic content on a local processing device, and, (d) when the rental period has concluded, somehow “returning” the electronic content to the remote storage device. Given those minimum steps needed, we review independent claim 1, and determine that the steps recited therein largely mirror those minimum steps. Indeed, the only limitations not arguably subsumed within those minimum steps are the specifics of “enacting a simulated return,” however, three options are then provided, namely,

“deleting,” “scrambling,” or “blocking.” We discern that it would appear, at best, awkward to place multiple options into what should be a unitary determination of what a claim is “directed to,” which, to us, indicates that those are, as Petitioner suggests, implementation details that should be excluded.¹³ Indeed, Patent Owner admits as much by indicating, “the Patent accomplishes that task with innovative technological solutions, *like* scrambling the data to limit access to it.” PO Resp. 70; emphasis added. We are persuaded that it is not appropriate to add, to a determination of what a claim is “directed to,” an implementation that is merely exemplary.

By contrast, Patent Owner’s assertions that independent claim 1 is directed to a specific, discrete implementation of a technological solution is unconvincing because, among other reasons, Patent Owner does not set forth a counter-assertion as to what independent claim 1 is “directed to,” from which an analysis counter to that of Petitioner’s can be performed. For example, Patent Owner asserts that independent claim 1 solves a problem “unique to the network-connected digital world” by providing “a

¹³ In their Sur-Reply, Patent Owner asserts that the step of “return” cannot be subsumed within “delivering rented audio/video electronic content to a user,” because, by its own literal terms, it only involves “delivery.” PO Sur-Reply 3. While that assertion has some merit, in the end, we determine that the “return” is subsumed within “rented,” as we are unclear how something can be “rented” without a “return.”

microprocessor with discrete operational parameters that prohibit the unauthorized use and distribution of restricted (rented) digital data in a multifaceted network connected environment.” PO Resp. 51–52. The problem is that Patent Owner does not identify those “discrete operational parameters,” or how they would compel any changes to “delivering rented audio/video electronic content to a user.” And insofar as Patent Owner is asserting that “enacting a simulated return,” i.e., “deleting,” “scrambling,” or “blocking,” are those operational parameters, we are persuaded that they are already subsumed within “delivering rented audio/video electronic content to a user,” for the reasons set forth above.

Patent Owner further asserts that the claims concern “limitation[s] narrowing the scope of the claim to restricted digital data in a networked environment and a solution to the problem of enforcing the restrictions on that data after it is received at the end user’s location,” and that “[i]t is only because of the ability to distribute content (rented data) over networked communications systems that the unique piracy and unauthorized use and distribution problems arose.” PO Resp. 51–52. The assertions are misplaced, as we are unclear how such an assertion is contrary to a determination that independent claim 1 is directed to “delivering rented audio/video electronic content to a user.” Indeed, if anything, they appear to be co-extensive with, and support, Petitioner’s position.

Patent Owner next goes into extensive detail concerning the technological problems set forth in the

Specification, and also cites Dr. Kesan’s analysis of those technological problems. PO Resp. 52–55 (citing Ex. 1001, 1:44–62, 2:13–20, 9:65–10:1; Ex. 2005 ¶¶ 1022, 1050, 1052, 1054). We have reviewed them, and agree with Patent Owner that many of these factual assertions, on their own, have merit. However, we also determine that these factual assertions are consistent with a determination that independent claim 1 is directed to “delivering rented audio/video electronic content to a user,” in that the presence of the word “electronic” presupposes electronic devices, and that any implementation of a business problem in another technological environment will inevitably involve some execution issues. The Supreme Court has made clear that “if a patent’s recitation of a computer amounts to a mere instruction to “implemen[t]’ an abstract idea ‘on . . . a computer,’ that addition cannot impart patent eligibility.” *Alice*, 134 S. Ct. at 2358. The relevant question then, is whether the problem is, indeed, primarily technological by itself, which would weigh toward patent eligibility, or fundamentally a business problem with readily foreseeable technological execution issues, which would not. We admit that teasing such nuance out of claim limitations is, at times, difficult. Ultimately, however, we determine that the proper conclusion here is the latter – that the identified technological problems are readily foreseeable technological execution issues of fundamentally a business problem. The above analysis also applies for Patent Owner’s further assertions that independent claim 1 is directed to a “discrete, specific implementation of a technological solution to address the technological problems

described in the specification.” PO Resp. 55–60 (citing Ex. 1001, 4:3–8, 7:18–24, 8:14–17, 12:65–13:3, 34:34–38, 35:32–34, 35:54–67, 37:63–38:28, 38:39–44; Ex. 2005 ¶¶ 82, 1050).

Patent Owner additionally mentions that “[c]ontrolling access of proprietary data to authorized end users—and (more importantly to the data provider) preventing unauthorized users from accessing that data—had been a technological dilemma confounding the industry since the information explosion described in the ’437 Patent specification,” and that standards have been developed to deal with this, such as MPEG-21. PO Resp. 60–65 (citing Ex. 2005 ¶ 5; Ex. 2007). While we agree generally, we are unclear as to the relevance to our conclusion as to what independent claim 1 is “directed to.” For example, we note that the word “rent,” or any variant thereof, is not mentioned in any portion of this analysis. By use of italics in the aforementioned portion of the Patent Owner Response, we speculate that perhaps Patent Owner meant for terms such as “management,” “manipulation,” and “protection” to be proxies for “rented.” Patent Owner has not, however, provided sufficient analysis to bridge that gap, and we are unable to discern it for ourselves.

Indeed, when the above assertions are taken as a whole, what Patent Owner appears to be asserting is that an identification of any technological problem, and any corresponding technological solution, *by itself* takes a claim outside the realm of an abstract idea. While that idea will be explored in more detail in the

next portion of our analysis, as a general matter, that, of course, cannot be correct. In particular, both Petitioner and the Board have identified case law that, while arguably involving a technological problem with a technological solution, was, nevertheless, found to be “directed to” an abstract idea under the *Amdocs* framework. See *Affinity Labs of Texas*, 2015 WL 3757497, at *8; *Smartflash*, 680 Fed. App’x. at 982–83; *Ultramerical, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014); see also *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307 (Fed. Cir. 2016) (“claim 7 involves an idea that originated in the computer era—computer virus screening. . . . By itself, virus screening is well-known and constitutes an abstract idea.”). Instead, “[w]hen considering claims purportedly directed to ‘an improvement of computer functionality,’ we ‘ask whether the focus of the claims is on the specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Smartflash*, 680 Fed. App’x. at 982–83 (quoting *Enfish*, 822 F.3d at 1335–36). Essentially, Petitioner asserts the latter, a position we determine is credible and adequately supported, and Patent Owner does not persuasively identify specific flaws in Petitioner’s formulation of what independent claim 1 is “directed to,” or, in the alternative, provide their own more persuasive formulation.

In view of the above, we find that independent claim 1 is properly directed to “delivering rented audio/video electronic content to a user.”

ii. Whether “Delivering Rented Audio/Video Electronic Content to a User” is an Abstract Idea

Petitioner identifies *Affinity Labs of Texas, LLC*, 2015 WL 3757497, at *8 (aff’d 2016 WL 5335502, at *2) for support that “[t]he process of selecting media, receiving that media, and subsequently playing that media describes an abstract idea, devoid of a concrete or tangible application.” Pet. 28–29. Under the *Amdocs* framework, Petitioner asserts that this is similar to “delivering rented audio/video electronic content to a user.” The Decision on Institution also provides the following analysis:

Similarly, in *Smartflash*, the Federal Circuit determined that claims reciting a method and a terminal for controlling access to and retrieving multimedia content were directed to the abstract idea of “conditioning and controlling access to data based on payment.” *Smartflash*, No. 2016-1059, slip op. at 4–6. Like the claims at issue here, the claims at issue in *Smartflash* recited the use of components of a computer, such as a processor having code to receive multimedia content and code to control access to the multimedia content according to use rules, a user interface, a memory, and an audio/video player. *Id.* at 4–6. The Federal Circuit determined that the claims “invoke computers merely as tools to execute fundamental economic practices.” *Id.* at 10; *see also*

Ultramerical, Inc. v. Hulu, LLC, 772 F.3d 709, 716 (Fed. Cir. 2014) (finding computer-implemented system claim merely recited the abstract idea of offering media content in exchange for viewing an advertisement, along with routine additional steps such as restrictions on public access).

Dec. 17.

Patent Owner asserts that Petitioner's citation to *Affinity Labs* is inapposite, and asserts that *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014) is more appropriate. PO Resp. 69. As an initial matter, we are unclear as to why Petitioner's citation to *Affinity Labs* is inapposite. In particular, independent claim 1 is directed to "delivering rented audio/video electronic content to a user," and similarly *Affinity Labs* reads that "[t]he process of selecting media, receiving that media, and subsequently playing that media describes an abstract idea, devoid of a concrete or tangible application." *Affinity Labs of Texas, LLC*, 2015 WL 3757497, at *8 (aff'd 2016 WL 5335502, at *2). In our view, the comparison between the two seems, if nothing else, relevant.

Concerning *DDR Holdings*, however, Patent Owner appears to be asserting that, like the inappropriateness of analogizing kiosk shopping in the physical world into the digital world, as held in *DDR Holdings*, it is equally inappropriate, here, to analogize physical video rentals into the digital world. Patent Owner's assertion is misplaced, in that it rests

on the belief that Petitioner was relying only on its theory that “renting videos from a brick and mortar retail store” is an abstract idea. If that were the case, Patent Owner’s assertion may have some merit. However, Petitioner also relies on *Affinity Labs*, which having claims very similar to those at issue here, that our reviewing court found as being directed to an abstract idea, an analysis to which Patent Owner does not respond with, at least as far as we are able to ascertain, an express challenge. Put another way, while *DDR Holdings* may provide support for Patent Owner’s general point, as a practical matter, we are persuaded by Petitioner’s assertions that the “directed to” formulations in *Affinity Labs* and independent claim 1 are very similar, which, under *Amdocs*, is the controlling inquiry as to whether or not something is an abstract idea.

With respect to *Smartflash*, Patent Owner asserts the following:

The Board cites *Smartflash LLC v. Apple Inc.*, 680 Fed. App’x 977 (Fed. Cir. Mar. 1, 2017)—an unpublished opinion—for the proposition that, “[l]ike the claims at issue here, the claims at issue in *Smartflash* recited the use of components of a computer, such as a processor having code to receive multimedia content and code to control access to the multimedia content according to use rules, a user interface, a memory, and an audio/video player.” Paper 11, at 17. But that analogy fails to

reconcile the fact that the Patent is directed to solving problems that are *unique to* the technological environment and solve a long-felt problem with unauthorized access to data, and that the Patent accomplishes that task with innovative technological solutions, like scrambling the data to limit access to it. Further, the patent-at-issue in *Smartflash* explicitly recited multiple steps in a financial transaction and then just put them into a computer, *see* 680 Fed. App'x at 980, which is not the case here.

PO Resp. 70. Patent Owner's assertions are inapposite, because, even crediting Patent Owner's factual assertions, that does not disturb our previous findings that (1) *Smartflash* is directed to "claims reciting a method and a terminal for controlling access to and retrieving multimedia content[, which] were directed to the abstract idea of 'conditioning and controlling access to data based on payment'" (Dec. 17 (*citing Smartflash*, No. 2016-1059, slip op. at 4–6)), and (2) there is little difference between that, and "delivering rented audio/video electronic content to a user," as set forth in independent claim 1. Indeed, the only claim limitation identified expressly by Patent Owner as a potential difference is "scrambling the data," however, for the reasons set forth above, we are persuaded that is properly omitted from the formulation of what independent claim 1 is "directed to." Patent Owner also does identify that *Smartflash*

is directed to “multiple steps in a financial transaction,” but we are unpersuaded that illuminates a sufficient substantive difference between the relevant formulations, as “delivering rented audio/video electronic content to a user” also involves a financial activity, as noted above.

Patent Owner makes assertions, similar to those set forth for *Smartflash*, for *Ultramercial*, with the only substantive difference, that we are able to discern, being that *Ultramercial* is in the field of advertising. PO Resp. 70–71. While Patent Owner is correct on that factual point, again, that is insufficient to substantively determine that while offering media content in exchange for viewing an advertisement, along with routine additional steps such as restrictions on public access, as set forth in *Ultramercial*, is an abstract idea, “delivering rented audio/video electronic content to a user,” as in the instant independent claim 1, is not.

Indeed, we determine that the case law most favorable to Patent Owner, and closest to the concept of “delivering rented audio/video electronic content to a user,” is *Visual Memory*. PO Resp. 41–43. When we delve into the details, however, we see that analogy fails, or, at a minimum, does not override our above conclusions concerning *Affinity Labs*, *Smartflash*, and *Ultramercial*. Specifically, in *Visual Memory*, the Federal Circuit held the following:

Our review of the ’740 patent claims demonstrates that they are directed to an improved computer memory system,

not to the abstract idea of categorical data storage. Claim 1 requires a memory system “having one or more programmable operational characteristics, said characteristics being defined through configuration by said computer based on the type of said processor,” and “determin[ing] a type of data stored by said cache.”

Visual Memory, 867 F.3d at 1259. We are unable to identify any of these relevant traits in independent claim 1. For example, we are unclear what part of a computer is improved by “delivering rented audio/video electronic content to a user.” By its own terms, it would seem that any “improvement” would accrue to the user, and not a computer. In another example, we are unclear what part of a computer would have configuration characteristics defined by data. In “delivering rented audio/video electronic content to a user,” the only data recited is “audio/video electronic content,” however, as best as we are able to ascertain, such “content” would be delivered in the same manner, regardless of the “type” of content.

Finally, Petitioner asserts that it is clear from the prosecution history that independent claim 1 was allowed based on the inclusion of its “notifying” limitation, and that Patent Owner’s assertions made in district court “preclude[] a finding that the claims are not directed to an abstract idea.” Pet. Reply 10–16. Nominally, Petitioner argues that this assertion is in response to Patent Owner’s assertion that certain claim limitations “solve[] issues of accessibility,

piracy and data protection.” Pet. Reply 10 (citing PO Resp. 57–58); *see also* Pet. Sur. 1–2 (asserting that arguments are also responsive to those made on pages 72–74 of Patent Owner Response, which concern step two of *Alice*). As an initial matter, we are in agreement with Patent Owner, in that we are skeptical of the proffered justification for Petitioner’s assertions concerning “notifying,” as the claim limitations immediately preceding this portion of Petitioner’s Reply only include “simulated return” and “scrambling,” and related terms “encryption” and “encoding,” and not “notifying.” PO Sur. 1. Even when considered, however, we are unclear as to their relevance to step one of *Alice*, in that Petitioner does not appear to advocate for any changes as to what independent claim 1 is “directed to” based on the “notifying” limitation, and we are unclear as to how the “abstractness” of “notifying” assists in determining whether “delivering rented audio/video electronic content to a user” is an abstract idea.

In view of the above, we find that “delivering rented audio/video electronic content to a user” is an abstract idea.

iii. Conclusion

We are persuaded that Petitioner has met its burden of showing that independent claim 1 is directed to “delivering rented audio/video electronic content to a user,” and that “delivering rented audio/video electronic content to a user” is an abstract idea. We are persuaded that Petitioner has met the same for dependent claims 9, 10, and 13–16. Pet. 35.

*3. Whether the Claims Recite
“Significantly More” than an Abstract Idea*

Petitioner goes into detail concerning each of claims 1, 9, 10, and 13–16, and why each of these claims does not, in their view, contain an inventive concept that amounts to “significantly more” than an abstract idea. Pet. 30–39. Patent Owner asserts that Petitioner has failed to meet its burden of showing, under the guidance set forth in *Berkheimer v. HP, Inc.*, 881 F.3d 1360 (Fed. Cir. 2018), a sufficient evidentiary basis for its assertions that certain claims elements are “well-understood, conventional and routine.” PO Sur. 3–5. Petitioner disagrees, asserting, among other arguments, that its assertions with respect to “well-understood, conventional and routine” are sufficiently supported by evidence, for example, by the prior art cited in the Petitioner, the testimony of Mr. Wechselberger, and “the inventor’s own admissions that the majority of the claim elements were conventional.” Pet. Sur. 4–5 (citing Pet. 30–35; Ex. 1004 ¶¶ 107–146; Ex. 1017 ¶¶ 6–38). As a general procedural matter, we agree with Petitioner that none of their assertions concerning “well-understood, conventional and routine” are so devoid of evidentiary support as to compel a determination that Petitioner has not met their burden on this basis alone. Accordingly, we, instead, evaluate each of Patent Owner’s assertions, concerning an evidentiary deficiency with respect to a particular claim element, individually, in light of Petitioner’s assertions. *Berkheimer*, 881 F.3d at 1368 (“[N]ot every § 101

determination contains genuine disputes over the underlying facts material to the § 101 inquiry.”).

To that end, Patent Owner first asserts that “[c]laim 1’s architecture of separating the processing circuitry from the microprocessor and assigning specific operations to that processing circuitry was unconventional and nongeneric,” with the functions of the processing circuitry identified being (1) processing data, (2) storing data, and (3) receiving programming functions from the user interface. PO Resp. 72–74 (citing Ex. 2005 ¶¶285–86, 1056–57). Petitioner replies as follows:

The three functions that Patent Owner assigns to the claimed processing circuitry are processing, storing, and receiving data. *Id.* These three functions were well-known in the art, as shown by the combination of Goldwasser and Tsukamoto cited during prosecution. Ex. 1017, ¶ 38. Moreover, it is hard to think of any more conventional and routine functions of computer processing circuitry.”

Pet. Reply 17–18; *see also* Pet. 32–34 (citing Ex. 1001, 14:23–33, 14:46–48; Ex. 1004 ¶¶ 123, 127). We agree with Petitioner. The ’437 patent discloses that “[p]rocessing means 13 may include any number of circuits, signal processors, filters, or other data manipulation devices known in the art The microprocessor may also include, but is not limited to, one or more the following processing circuits or

devices” Ex. 1001, 14:46–48. We agree that this directly supports Petitioner’s assertion that the separation of the processing circuitry from the microprocessor was “well-understood, conventional and routine.” We further agree with Petitioner that there cannot be any reasonable dispute that processors, or whatever equivalent terms may be used, process data and store data. We additionally agree with Petitioner that, for receiving programming functions from a user interface, Petitioner provides a sufficient factual support for that function being “well understood, conventional and routine, in that the ’437 patent discloses that such programming functions are received from user interface 17 using “any . . . computer interface known in the art.” Ex. 1001, 14:29–33.

Patent Owner asserts further that “DISH’s prior art references (for challenges that were rejected by this Board) further demonstrate the point that such architecture was both unconventional and a solution over the prior art.” PO Resp. 72–73. Petitioner responds, “Patent Owner again conflates the Board’s decision not to institute on Petitioner’s prior art based grounds with a proper analysis of unpatentability under Section 101.” Pet. Reply 17. We agree with Petitioner. “Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry.” *Ass’n. for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013). A novel and non-obvious claim directed to a purely abstract idea is, nonetheless, patent ineligible. *See Mayo*, 566 U.S. at 90; *see also Diamond v. Diehr*, 450 U.S. 175, 188–

89 (1981) (“The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”).

Patent Owner asserts additionally that the recited “simulated” or “virtual” returns, by “deleting or scrambling limited-use data, and allowing for the capability of notifying the data supplier that the data had been rendered inaccessible” was also unconventional and non-generic. PO Resp. 73. Petitioner asserts that “[d]uring prosecution, the inventor of the ’437 Patent admitted that the idea of ‘enacting a simulated return of said rented data by deleting or scrambling said data from said built in storage device or blocking further access to said data’ was disclosed by the prior art.” Pet. 34 (citing Ex. 1009, 150–52); *see also* Pet. Reply 18 (citing Ex. 1009, 151; Ex. 1016, 64:11–16) (asserting the same). Petitioner asserts further that “[o]ne of ordinary skill in the art would understand that in order to bill the user for late fees, the user must notify the data provider of when the data has been ‘returned.’ Ex. 1004 at ¶ 130. Moreover, the concept of providing rental fees upon late notification of a late return was a well-known practice in brick-and-mortar rental stores. *Id.*” Pet. 34–35; *see also* Pet. Reply 18–19 (citing Ex. 1009, 151; Ex. 1016, 70:24–71:20) (asserting the same). We agree with Petitioner, in part because Patent Owner does not provide countervailing evidentiary or analytical support for their assertion.

Patent Owner asserts that Petitioner's analysis is similarly deficient for certain limitations recited in some dependent claims. PO Resp. 74–78. For example, for dependent claim 9, Patent Owner identifies “limitations of recording the rented data onto a portable storage device and a restriction on the number of programs that can be recorded onto that device,” and that this is an “inventive concept” because it is a specific, “discrete implementation that improves upon the authorized use and playback of data on portable storage devices.” PO Resp. 75. Petitioner responds that Patent Owner does not dispute that portable storage devices were already known in the art, an assessment with which we agree, and that “controlling authorized use and playback of data, even on portable media, was already a well-known technique in the art using [digital rights management, i.e.,] DRM.” Pet. Reply 20 (citing Ex. 1004 ¶¶ 11, 56–61, 142; *see also* Pet. 35–36 (citing Ex. 1001, 13:28–31; Ex. 1004 ¶ 134) (addressing the portable storage devices recited in dependent claim 9)). We agree with Petitioner. In particular, we credit paragraph 142 of Dr. Wechselberg's Declaration, which addresses DRM on portable devices.

Patent Owner next identifies dependent claim 10, which “limits the portable storage device to one of ten discrete and specific media, including a mini-disk, a DVD, and a PDA,” and asserts that “those devices were not known in the art to augment a VPR/DMS system (as set out in claim 1) or include the ability to record rented data from the VPR/DMS system (as set out in claim 9).” PO Resp. 75–76. Petitioner asserts

that the '437 patent itself admits that these are known (Pet. 36), and that “augmenting” a system with conventional portable storage devices cannot be viewed as an inventive concept. Pet. Reply 21. We agree with Petitioner. The DRM functionality on portable devices generally was addressed by Petitioner in its analysis of dependent claim 9. We are persuaded that citing a laundry list of specific portable devices, admitted in the '437 patent as known (Ex. 1001 13:26–31), is also insufficient to constitute an inventive concept, especially where neither the specification nor the claim sets forth the relevance of the different types of portable storage devices to the function of the system.

For dependent claim 13, Patent Owner asserts that the requirement that “the simulated return that deletes or scrambles (from Claim 1) on the portable storage device” is an inventive concept, because it “it limits the simulated return—itsself a technological solution to a technological problem and an inventive concept—to a portable storage device.” PO Resp. 76. Petitioner asserts that “[a] person of ordinary skill in the art would understand that deleting or scrambling data from a portable storage device was a well-known activity at the time of the purported invention of the '437 Patent.” Pet. 37 (citing Ex. 1004 ¶ 138); *see also* Pet. Reply 21 (“Patent Owner does not assert that deleting, scrambling, or blocking access to data on a portable storage device itself is an inventive concept.”). We agree with Petitioner, in part, because we credit the undisputed content of paragraph 138 of Dr. Wechselberg’s Declaration.

Patent Owner purportedly addresses together dependent claim 14 (“portable storage device . . . connected to the processing circuitry for the deleting or scrambling of the rented data”) and dependent claim 15 (“copy protection of the data and a confirmation that the data transferred from the non-movable storage of the VPR/DMS (of Claim 1) to the portable storage device has been deleted or rendered inaccessible”), but then merely asserts that “[b]oth claims are beyond *BASCOM*’s requirement at step two,” before summarizing dependent claim 15. PO Resp. 76–77. The substance of these arguments are addressed by Petitioner (Pet. 37–38 (citing Ex. 1004 ¶¶ 140, 142); Pet. Reply 22) using reasoning similar to those identified above for similar claim limitations. For the same reasons, we agree with Petitioner.

Finally, Patent Owner identifies claim 16, which “limits the manner in which the rented data is received to particular transmission technologies (e.g., UHF/VHF),” and while admitting that “[o]f course UHF/VHF was known in the art,” asserts that Petitioner “DISH has provided no evidence that those particular transmission technologies were used in the art to deliver rented data to a VPR/DMS with the specific components, circuits, and capabilities of Claim 1, including the ability to enact a simulated return of the rented data.” PO Resp. 77–78. Petitioner responds as follows:

Claim 16 merely lists various types of information sources that may provide the rented data. Ex. 1001 at Claim 16. Patent Owner again bases its argument

on the fact that it was not known to use these transmission technologies with a “VPR/DMS” as claimed in claim 1. PO Response at 77. But giving a known prior art system an acronym does not transform the equipment and functionality into something more than the abstract idea.

Pet. Reply 22; *see also* Pet. 39 (citing Ex. 1001, 1:53–56). We are persuaded that Petitioner has shown adequately that the information source of the “rented data” is insufficient to constitute an inventive concept, especially where neither the specification nor the claim sets forth the relevance of the different types of information source to the function of the system.

4. Conclusion

For the foregoing reasons, we determine that the Petitioner has shown, by a preponderance of the evidence, that claims 1, 9, 10, and 13–16 are unpatentable under 35 U.S.C. § 101.

B. The Parties’ Post-Institution Arguments

Petitioner asserts that claims 1, 9, 10, and 13–16 are either anticipated by Ginter, or rendered obvious in view of Ginter and Stefik. Pet. 39–67. We must now determine whether Petitioner has established by a preponderance of the evidence that the specified claims are unpatentable over the cited prior art. 35 U.S.C. § 316(e). We previously instructed Patent Owner that “any arguments for patentability not raised in the [Patent Owner Response] will be deemed waived.” Paper 12, 6; *see also* 37 C.F.R. § 42.23(a)

“Any material fact not specifically denied may be considered admitted.”). Additionally, the Board’s Trial Practice Guide states that the Patent Owner Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012).

In its Preliminary Response (Paper 6) and Supplemental Response (Paper 51), Patent Owner did not dispute Petitioner’s contentions that certain claim limitations are described in the prior art. We find that the Petition identifies where each of these uncontested limitations is disclosed or suggested in the prior art, for the grounds instituted. *See* Pet. 39–67 (citing Exs. 1002–1004) (unchallenged portions only). Based on the preponderance of the evidence before us, we conclude that the prior art identified by Petitioner describes all limitations of the reviewed claims that were not contested by the Patent Owner in either its Preliminary Response or Response. *In re NuVasive*, 841 F.3d 966, 974 (2016). We address only the contested limitations below.

*C. Claims 1, 9, 10, and 13–16 as
Anticipated by Ginter*

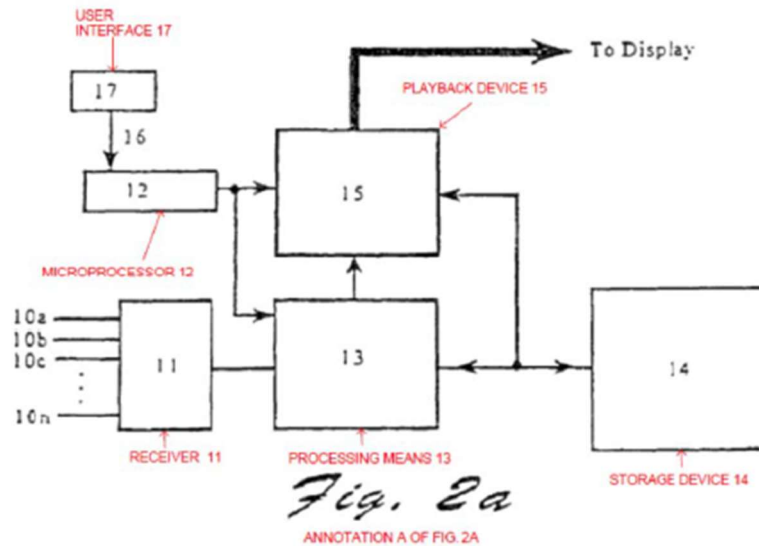
Petitioner asserts that Ginter anticipates claims 1, 9, 10, and 13–16. Pet. 39–54 (citing Exs. 1002, 1004). Patent Owner disagrees. PO Supp. 1 (referring to Prelim. Resp. 20–23, 39–45 (citing Exs. 1002, 2001) and Dec. 19–22). Petitioner replies. Pet. Supp. 1–10 (citing Exs. 1001, 1004, 1015, 2001).

1. Ginter (Ex. 1002)

Ginter is directed to a computer-based technology that ensures that information is accessed and/or otherwise used only in authorized ways, and maintains the integrity, availability, and/or confidentiality of such information and process related to such use. Ex. 1002, 1:6–12. Ginter discloses the use of “electronic appliances,” such as computers, to ensure that information is accessed only in authorized ways. Ex. 1002, Abstract Ginter further uses subsystems with the “electronic appliances” to create a virtual distribution environment (VDE) that controls or monitors the use of electronically stored information. Ex. 1002, Abstract.

2. Relevant Claim Construction

Independent claim 1 recites “processing circuitry for processing the data and for storing the processed data in the built in storage device” and “a microprocessor having software programming to control the operation of the processing circuitry and the playback circuitry enabling the recording of rented data.” Through its assertions concerning the prior art, Patent Owner argues that the recited “processing circuitry” must be construed as being separate from the recited “microprocessor.” Prelim. Resp. 39–40 (citing Ex. 1001, Figs. 2a, 7; Ex. 2001, 23. In support, Patent Owner provides the following annotated version of Figure 2a, which shows processing means 13 and microprocessor 12 separately:



Prelim. Resp. 40. Figure 2a is block diagram of a television unit. As noted in our Decision on Institution, two distinct claim elements should each be given full effect. Dec. 20.

Petitioner responds that “microprocessor” and “processing circuitry” need not be physically distinct elements, despite being named as different elements. Pet. Supp. 3. In support, Petitioner offers several pieces of evidence, each of which we evaluate in turn.

Petitioner first asserts that Dr. Kesan admitted that the “microprocessor” and “processing circuitry” need not be physically separate, and that the ’437 patent’s only disclosures of the exact term “processing circuitry” is consistent with that admission. Pet. Supp. 3–4 (citing Ex. 1001, 8:57–59, 40:60–62; Ex. 1021, 104:7–105:24). We do not agree. In his testimony, Dr. Kesan indicates that while the

“microprocessor” and “processing circuitry” may be fixed physically relative to each other, for example, on the same motherboard, that they are, nevertheless, separate components. Ex. 1021, 104:18–20 (“So that means there is another circuitry – the processing circuitry, that must be controlled by the microprocessor.”). The cited portion of the ’437 patent is consistent with that assertion, as it reads “[t]his microprocessor has software programming to control the operation of the processing circuitry and the playback circuitry.” Ex. 1001, 8:57–59, 40:60–62. While certainly possible, it, nevertheless, requires some mental gymnastics to comprehend why a component controlling a portion of itself would name that portion something else.

Petitioner next asserts that Figure 1 of the ’437 patent does not disclose that the “microprocessor” and “processing circuitry” are physically separate, in that there is no separate block for “processing circuitry,” and, instead, discloses that microprocessor 3 has the circuitry for performing all processing functions. Pet. Supp. 4–5 (citing Ex. 1001, 12:65–13:8, Fig. 1; Ex. 1021, 111:4–8). As an initial matter, we agree that microprocessor 3 is capable of performing all processing functions, and note, expressly, that the cited portions of the ’437 patent and Dr. Kesan’s testimony directly supports that finding. That finding, however, does not support Petitioner’s assertion, as the fact that microprocessor 3 has that capability does not indicate that when separate “processing circuitry” is identified, that such “processing circuitry” must be located within microprocessor 3.

Petitioner further identifies microcontroller 31 in Figure 7 of the '437 patent, and asserts that any data in Figure 7 is processed by microprocessor 12, and not by microcontroller 31. Pet. Supp. 5 (citing Ex. 1001, Fig. 7; Ex. 1021, 127:16–129:21; Ex. 1022 ¶ 7). While we agree with Petitioner's factual assertion, it is, again, misplaced, as we are unclear what relevance the function of microcontroller 31 has in determining the relationship between the recited "microprocessor" and "processing circuitry."

With respect to Figure 2a, the embodiment relied on by Patent Owner for its position, Petitioner asserts the following:

Dr. Kesan only cites to one figure—Fig. 2a—where the "processing means 13" and microprocessor are shown as separate blocks. Again, the phrase "processing circuitry" is never exactly identified in its own block in any drawing. Rather, "processing circuitry" is used to refer to circuitry that may also be included in the microprocessor. Ex. 1001 at 14:13–18, 14:41–45.

Pet. Supp. 5–6. We disagree, in that we are unpersuaded that it is credible to assert that "processing means 13" cannot correspond to the recited "processing circuitry." This is especially so where independent claim 1 recites "processing circuitry for processing the data," where the data is received by the recited "receiver apparatus," and the '437 patent discloses, correspondingly, that

“processing functions [are] applied to the received data as it is transmitted through the processing means 13.” *See also* Ex. 1001, 14:46–50 (“Processing means 13 may include any number of circuits, signal processors, filters, or other data manipulation devices known in the art for providing any electronic features or functions that may exist in standard televisions and other such displays known in the art.”). Relatedly, while the portions of the ’437 patent cited by Petitioner do disclose that “microprocessor 12 controls which processing functions (if any) are applied to the received data,” we find that it is clear from the context of the surrounding portions of the ’437 patent that the such processing functions, while controlled by microprocessor 12, are actually performed, at least in this embodiment, by separate processing means 13. *See generally* Ex. 1001, 14:11–65 (consistently refers to separate microprocessor 12 and processing means 13).

Finally, Petitioner asserts that “Patent Owner’s position requires importation of a single embodiment (Fig. 2a) while excluding the three alternate embodiments (Figs. 1, 7, and 8).” Pet. Supp. 6. Petitioner’s assertion is misplaced, as this is not a situation where there are many embodiments including “processing circuitry.” and it is impermissible to limit the construction of “processing circuitry” such that it is only consistent with one of those embodiments. Here, one embodiment clearly discloses “processing circuitry;” and to find such corresponding “processing circuitry” in other embodiments requires mental gymnastics, an exercise

in which we decline to partake for the reasons set forth above. Under these circumstances, construing “microprocessor” and “processing circuitry,” primarily in view of the one disclosed embodiment that clearly discloses “processing circuitry,” i.e., Figure 2a, is appropriate.

For these reasons, we construe the “microprocessor” and “processing circuitry” limitations of independent claim 1 as being physically separate, in that the recited “processing circuitry” cannot be a physical subset of the recited “microprocessor.”¹⁴

Additionally, for “processing circuitry,” Dr. Kesan asserts the following:

One particularly novel aspect of claim 1 is the operation of the processing circuitry. It performs three functions. It (1) processes data from the receiver, (2) stores the processed data in the storage device of the memory circuitry, and (3) receives programming functions from the user interface.

Ex. 2001 ¶ 23 (cited at Prelim. Resp. 36); *see also* Ex. 2001 ¶ 28 (indicating the same). Petitioner proposes adopting Patent Owner’s position as the proper construction for “processing circuitry.” PO Supp. 6. We

¹⁴ This is to distinguish from the situation where the recited “microprocessor” and “processing circuitry” are permitted to be physically connected on the same motherboard.

agree that it is consistent with the claim language, and, thus, adopt it as our own.

3. Analysis

Patent Owner asserts that Petitioner does not account adequately for the “processing circuitry” and the “microprocessor having software programming to control the operation of the processing circuitry” recited in independent claim 1. In particular, Patent Owner asserts that Petitioner impermissibly maps two distinct claim terms, “processing circuitry” and “microprocessor,” to the same CPU 654 of Ginter. Prelim. Resp. 39–44. Petitioner responds that the Petition makes clear that while CPU 654 of Ginter does correspond to the recited “microprocessor,” that it is actually a combination of CPU 654 and I/O controller 660 correspond to the recited “processing circuitry.” Pet. Supp. 6–8 (citing Ex. 1002, 125:20–23, 186:21–187:2, 227:3–5; Ex. 1004 ¶ 58; Ex. 1021, 138:17–23; Ex. 2001 ¶ 28). As an initial matter, we agree with Petitioner that combination of CPU 654 and I/O controller 660 performs the functions required of the recited “processing circuitry.” We agree with Patent Owner, however, that the mapping is inadequate for the reasons it has identified. As set forth above, we construe the “microprocessor” and “processing circuitry” limitations of independent claim 1 as being physically separate, in that the recited “processing circuitry” cannot be a physical subset of the recited “microprocessor.” While Petitioner’s mapping does present some difficulties in application, in that CPU 654 is cited as only a part of the recited “processing circuitry,” it, nevertheless, is

cited for at least portions of both the recited “microprocessor” and “processing circuitry,” and, thus, cannot meet the above construction, which does not allow for such overlap.

In the alternative, Petitioner asserts that I/O controller 660 of Ginter alone corresponds properly the recited “processing circuitry,” because it is (a) separate from CPU 654 (i.e., the purported “microprocessor”), and (b) performs all three functions set forth in the adopted construction of “processing circuitry.” Pet. Supp. 8–10 (citing Ex. 1002, Fig. 8; Ex. 1021, 156:22–157:3; Ex. 1022 ¶¶ 56, 58; Ex. 1023, 131:21–132:17; Ex. 2001 ¶ 28). This assertion hinges on whether I/O controller 660 processes data from a receiver, as Petitioner asserts, and we agree, that Dr. Kesan acknowledges that I/O controller 660 performs the other functions required of the recited “processing circuitry.” Ex. 2001 ¶ 28 (“I/O controller 660 of *Ginter* permits CPU 654 and SPU 500 to read and write to secondary storage 652 and keyboard/display 612, 614. Therefore, I/O controller 660, arguably, performs functions (2) and (3).”).

To that end, Petitioner asserts that Dr. Kesan “moving data bit-from-bit from the receiver to the storage device” meets the required function of processing data from the receiver. PO Supp. 8–9. Factually, we agree with Petitioner that Ginter discloses I/O controller 660 “moving data bit-from-bit from the receiver to the storage device.” We are unpersuaded, however, that this is sufficient to constitute the required processing of data from the receiver. While Petitioner does cite a portion of Dr.

Kesan's testimony in support of that position (Ex. 1021, 156:22–157:3), Dr. Kesan's later testimony does not support that assertion, as follows:

Q. Okay. Let's go back, then, to claim 1. If a processing circuitry performs moving data from the receiver bit by bit to the built-in storage device, does it at least satisfy claim 1, element processing circuitry?

A. No, it doesn't. And that's what I was indicating, that a person of ordinary skill in the art would understand here, that claim 1 recites the microprocessor and then it separately recites another circuit element processing circuitry. And that processing circuitry processes the received audio or video data and should be capable of doing a whole variety of kinds of processing and data manipulation to the received audio or video data.

Ex. 1021, 161:5–20.¹⁵ Moreover, we are unpersuaded that “moving data bit-from-bit from the receiver to the

¹⁵ The factual underpinnings of Mr. Wechselberger's cited testimony specific to this issue relies on Dr. Kesan's testimony. Ex. 1022 ¶ 56 (“Even apart from the text of the Ginter specification, a POSITA would understand that the Fig. 8 ‘I/O controller 660 processes data received by a receiver,’ under Dr. Kesan's testimony that that ‘processing data’ is met

storage device” is not subsumed within the function of “stor[ing] the processed data in the storage device of the memory circuitry,” which is separate from the processing function at issue. Indeed, in construing “microprocessor” and “processing circuitry,” Petitioner indicates, “the data is processed by the microprocessor and not the microcontroller. Instead, the microcontroller would appear to a POSITA to be used solely to offload control functions from the microprocessor.” Pet. Supp. 5 (citing Ex. 1001, Fig. 7; Ex. 1022 ¶ 21). This is inconsistent with an assertion that I/O controller 660 of Ginter performs data processing functions, at least without further explanation as to how I/O controller 660 differs from microcontroller 31 of the ’437 patent, which Petitioner did not provide.

For these reasons, we are unpersuaded that Petitioner has met its burden of showing that Ginter discloses “processing circuitry,” as recited in independent claim 1. Accordingly, we are unpersuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that Ginter anticipates independent claim 1, or claims 9, 10, and 13–16, each of which depend ultimately from independent claim 1.

simply by moving received data to storage.”). It is unpersuasive for the same reason.

*D. Claims 1, 9, 10, and 13–16 as
Obvious Over Ginter and Stefik*

Petitioner asserts that a combination of Ginter and Stefik renders obvious claims 1, 9, 10, and 13–16. Pet. 54–67 (citing Exs. 1002–1004). Patent Owner disagrees. PO Supp. 1 (referring to Prelim. Resp. 20–24, 45–51 (citing Exs. 1002–1004, 2001, 2003) and Dec. 22–26). In particular, Patent Owner asserts that Petitioner does not account adequately for the “processing circuitry” and the “microprocessor” recited in independent claim 1, and also that the ASIC chip of processing means 1200 of Stefik cannot correspond to the recited “microprocessor.” We agree with Patent Owner.

Petitioner asserts that the following disclosures in Stefik account for the recited “processing circuitry”:

Stefik teaches that the hardware of a repository includes “processing means 1200 . . . comprised of a processor element 1201 and processor memory 1202.” Ex. 1003 at 14:13–15. “The processing means 1201 provides controller, repository transaction and usage rights transaction functions for the repository.” *Id.* at 14:15–17. *Stefik* explicitly teaches that “repositories are used to store digital works.” *Id.* at 6:57–58. Claim 1 of *Stefik* includes the element of a “storage means for storing digital works having attached usage rights and fees.” *Id.* at 54:5–6. Moreover,

Claim 8 of *Stefik* also recites the step of “storing said digital work and said attached one or more usage rights in a server repository.” *Id.* at 55:25–26. A person of ordinary skill in the art would understand that repository transactions include processing and storing digital data. Ex. 1004 at ¶ 216.

Pet. 55–56.

Petitioner further asserts that the following disclosures in *Stefik* account for the recited “microprocessor”:

As discussed above, *Stefik* teaches that the hardware of a repository may comprise a processing means. Ex. 1003 at 14:13–15. *Stefik* teaches that the functional component of a repository “is typically software executing on the hardware embodiment.” *Id.* at 14:1–3. This functional software “may be embedded in the hardware embodiment such as an Application Specific Integrated Circuit (ASIC) chip.” *Id.* at 14:3–6. A person of ordinary skill in the art would know that an ASIC chip is a microprocessor. Ex. 1004 at ¶ 223. The functional embodiment comprises “an operating system 1301, core repository services 1302, usage transaction handlers 1303, repository specific functions, 1304 and a user interface

1305.” Ex. 1003 at 14:53–55. *Stefik* further teaches that the operating system “provide[s] the basic services for controlling and interfacing between the basic components of the repository.” *Id.* at 14:59-61. As discussed above, the basic components of the repository include processing circuitry and playback circuitry. *See supra* at VI.C.1.d, VI.C.1.f. Therefore, *Stefik* discloses software to control the processing circuitry and playback circuitry.

Pet. 58–59.

Patent Owner asserts that Petitioner impermissibly maps two distinct claim terms, “processing circuitry” and “microprocessor,” to the same processing means 1200 of *Stefik*. We agree. *See Unique Concepts, Inc. v. Brown*, 939 F.2d 1558, 1563 (Fed. Cir. 1991) (two distinct claim elements should each be given full effect). Indeed, to determine otherwise would impermissibly read one of “processing circuitry” and “microprocessor” out of the claim. *See Tex. Instruments Inc. v. U. S. Int’l Trade Comm’n*, 988 F.2d 1165, 1171 (Fed. Cir. 1993) (explaining that claim language cannot be mere surplusage, an express limitation cannot be read out of the claim). Mapping both claim terms to processing means 1200 of *Stefik* is especially problematic for the “microprocessor” limitation, which reads, in context, “a *microprocessor* having software programming to control the operation of the *processing circuitry*” (Claim 1 (emphasis added)).

In making our determination, we acknowledge that it is perhaps plausible that Petitioner is mapping “processing circuitry” and “microprocessor” to processing means 1200 and processor element 1201, respectively, where processor element 1201 is a component of processing means 1200. We are unpersuaded, however, that Petitioner has articulated that mapping with sufficient particularity in the aforementioned portions of the Petition. *See* 35 U.S.C. § 312(a)(2) (“A petition filed under section 311 may be considered only if . . . the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim . . .”). Moreover, as each of “processing circuitry” and “microprocessor” are recited as performing functions, if anything, it would appear that both “processing circuitry” and “microprocessor” should be mapped to processor element 1201, which would still be deficient for the reasons set forth above concerning processing means 1200.

Patent Owner also asserts that Petitioner maps the ASIC chip of processing means 1200, which appears to be the same as processor element 1201, of Stefik to the recited “microprocessor,” but that an ASIC chip cannot correspond properly to a “microprocessor.” We agree. Patent Owner cites to a link to a webpage which defines ASIC as follows:

(Application Specific Integrated Circuit) Pronounced “a-sick.” A chip that is custom designed for a specific

application rather than a general-purpose chip such as a microprocessor. The use of ASICs improve performance over general-purpose CPUs, because ASICs are “hardwired” to do a specific job and do not incur the overhead of fetching and interpreting stored instructions.

Ex. 2003; *see also* *Dictionary.com Unabridged*, Random House, Inc. <http://www.dictionary.com/browse/microprocessor> (accessed: June 12, 2017) (Ex. 3001) (microprocessor is “an integrated circuit that performs all the functions of a CPU”). Based on the above, we find that an ASIC is not a microprocessor. Against this objective evidence, Petitioner only provides a citation to paragraph 223 of Mr. Wechselberger’s Declaration, and the relevant portion of that paragraph merely repeats the same line in the Petition, “[a] person of ordinary skill in the art would know that an ASIC chip is a microprocessor,” without further relevant explanation or analysis.

For these reasons, we are unpersuaded that Petitioner has met its burden of showing that a combination of Ginter and Stefik accounts for both “microprocessor” and “processing circuitry,” as recited in independent claim 1. Accordingly, we are unpersuaded that Petitioner has met its burden of showing, by a preponderance of the evidence, that a combination of Ginter and Stefik renders obvious independent claim 1, or claims 9, 10, and 13–16, each of which depend ultimately from independent claim 1.

E. Conclusion

Petitioner has met its burden of (1) demonstrating that the '437 patent is covered business method patent eligible for review, and (2) showing, by a preponderance of the evidence claims 1, 9, 10, and 13–16 of the '437 patent are unpatentable under 35 U.S.C. § 101. Petitioner has not, however, met its burden of showing that claims 1, 9, 10, and 13–16 are either (1) anticipated by Ginter or (2) obvious in view of Ginter and Stefik.

III. ORDER

After due consideration of the record before us, and for the foregoing reasons, it is:

ORDERED that claims 1, 9, 10, and 13–16 of the '437 patent are held unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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139a

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140a

APPENDIX H

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES PATENT NO. 7,840,437

SYSTEM FOR DATA MANAGEMENT AND ON-DEMAND
RENTAL AND PURCHASE OF DIGITAL DATA PRODUCTS

WILLIAM HENRY LEWIS, INVENTOR

Filed: Sep. 3, 2004

Priority: Jun. 12, 1997

Issued: Nov. 23, 2010



US007840437B2

(12) **United States Patent**
Lewis

(10) **Patent No.:** **US 7,840,437 B2**
(45) **Date of Patent:** **Nov. 23, 2010**

(54) **SYSTEM FOR DATA MANAGEMENT AND ON-DEMAND RENTAL AND PURCHASE OF DIGITAL DATA PRODUCTS**

(76) Inventor: **William Henry Lewis**, 170 Banfill Rd., Grayton Beach, FL (US) 32459

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1729 days.

(21) Appl. No.: **10/933,875**

(22) Filed: **Sep. 3, 2004**

(65) **Prior Publication Data**
US 2005/0198677 A1 Sep. 8, 2005

Related U.S. Application Data
(60) Continuation of application No. 10/126,829, filed on Apr. 19, 2002, now abandoned, which is a division of application No. 09/383,994, filed on Aug. 26, 1999, now abandoned, which is a continuation-in-part of application No. 08/873,584, filed on Jun. 12, 1997, now abandoned.

(51) **Int. Cl.**
G06Q 30/00 (2006.01)
G06F 15/16 (2006.01)
(52) **U.S. Cl.** **705/14.26; 705/14.35; 709/217**
(58) **Field of Classification Search** **705/14.26, 705/14.35; 709/217**

See application file for complete search history.

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2005/0198677 A1 * 9/2005 Lewis 725/87

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"Eastman Kodak: Kodak Picture Network Sends Prints Home From the Holidays", Business Wire, Dec. 29, 1997.*

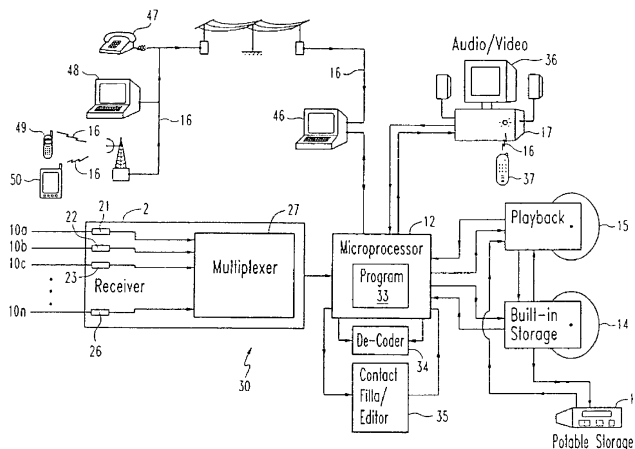
* cited by examiner

Primary Examiner—Donald L. Champagne
(74) *Attorney, Agent, or Firm*—Owens Tarabichi LLP

(57) **ABSTRACT**

A system for handling data and transactions involving data through the use of a virtual transaction zone, which virtual transaction zone removes the dependency of such transaction on the delivery medium of the product. The invention may reside and operate on a variety of electronic devices such as televisions, VCRs, DVDs, personal computers, WebTV, any other known electronic recorder/player, or as a stand alone unit. The transaction zone also provides a mechanism for combining mediums, data feeds, and manipulation of those feeds. The transaction zone also provides a mechanism for controlling the content, delivery, and timing of delivery of the end consumer's product.

29 Claims, 20 Drawing Sheets



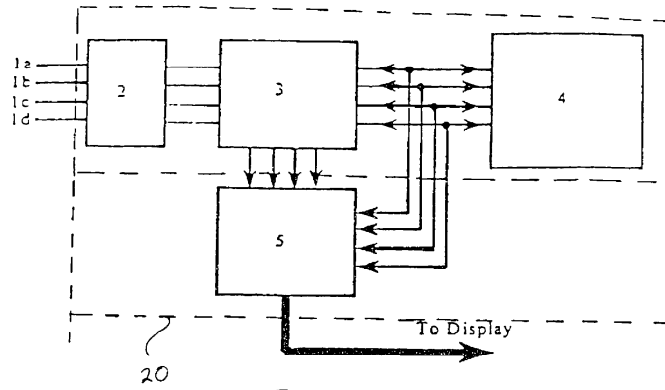


Fig. 1

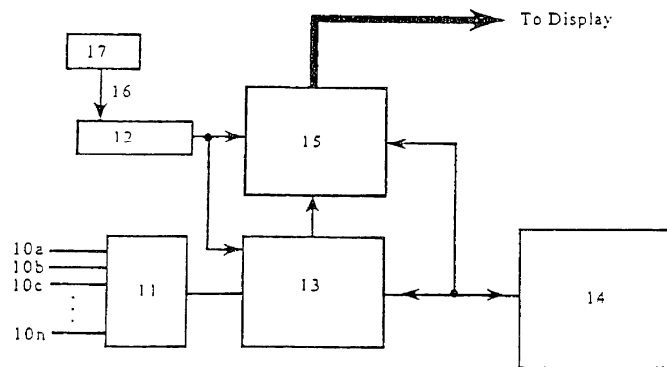


Fig. 2a

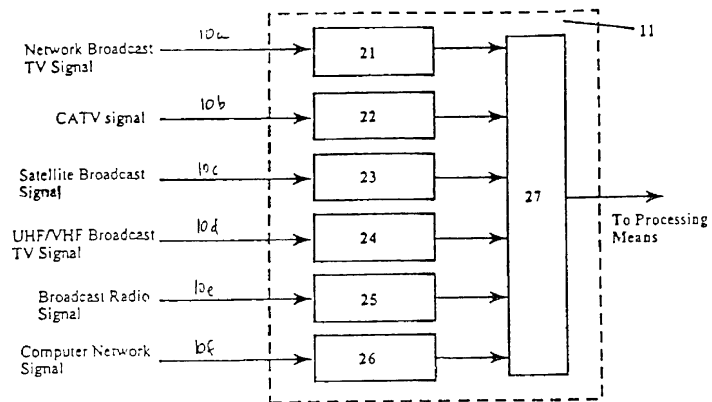


Fig. 26

- Main Menu
1. Virtual Blockbuster
 2. Virtual Music Store
 3. Virtual Book Store
 4. Virtual QVC
 5. Video Magazines
 6. Games/Software

FIG. 3A

- Virtual Blockbuster
1. Select Movie From:
 - a. Internal Storage
 - b. Broadcast Schedule
 - c. On Demand
 - d. Other
 2. Select Movie By:
 - a. Title
 - b. Theme
 - c. Actor
 - d. Genre
 - e. Other
 3. Previews
 4. New Releases

FIG. 3B

<u>Transaction Menu</u>		
<u>Selections</u>	<u>Price</u>	<u>R/O</u>
<u>Star Wars</u>	<u>4.99</u>	<u>R</u>
<u>Die Hard</u>	<u>3.99</u>	<u>R</u>
<u>Dr. Doolittle</u>	<u>19.95</u>	<u>P</u>
<u>Jaws</u>	<u>13.99</u>	<u>P</u>
<u>Total</u>	<u>42.92</u>	
<u>Payment Method:</u>		
	<u>Acct. No.</u>	<u>Exp.</u>
<u>Visa/MC</u>	_____	_____
<u>AMEX</u>	_____	_____
<u>Debit Card</u>	_____	_____
<u>Other</u>	_____	_____

FIG. 3C

<u>Function Menu</u>
Record Movie
Play Movie
Download Movie
Upload Movie
Erase/Auto Return
Custom Edit
Condense
Store in Data Box
Other

FIG. 3D

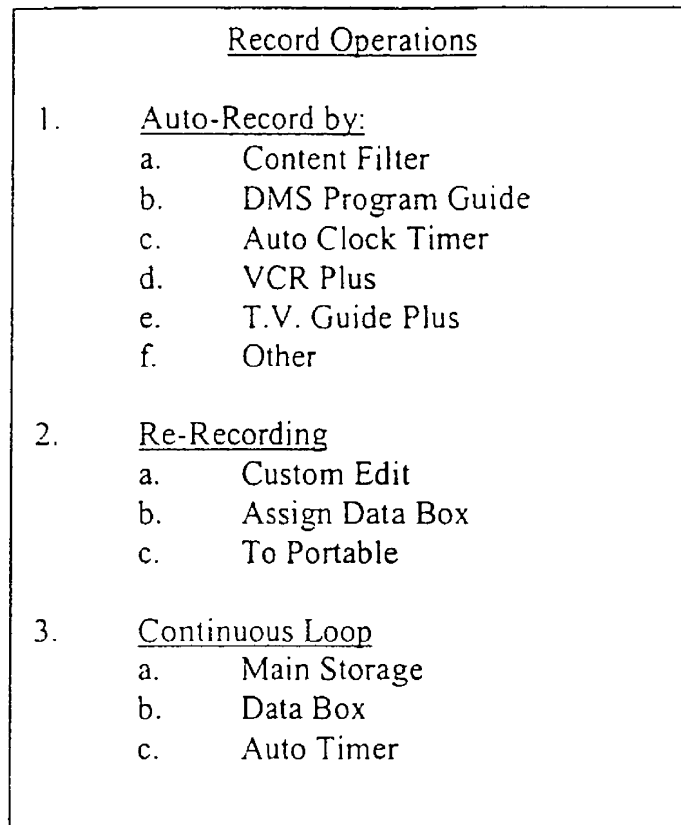


FIG. 3E

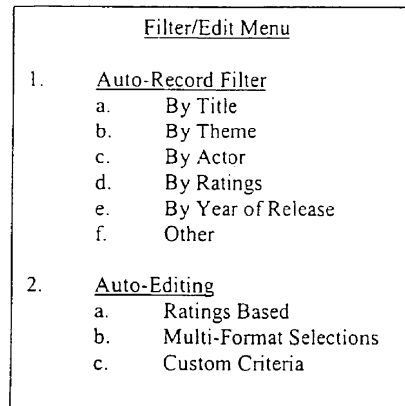


FIG. 3F

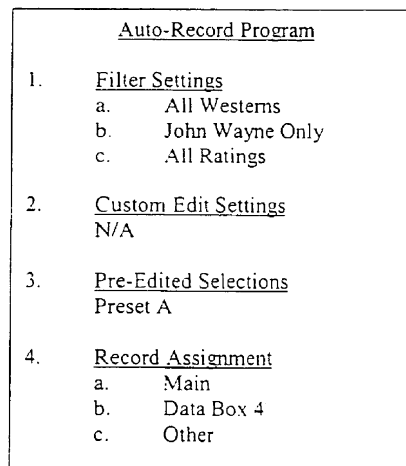


FIG. 3G

<u>Editing Program</u>	
<u>Program 1:</u>	Scarface
a.	Edit to PG-13
b.	Condense - 2 hr. max
c.	Storyline B
d.	Display - letter box
e.	Language - Spanish
f.	Audio - Latino
g.	Quality - B
<u>Program 2:</u>	Fried Green Tomatoes
	Pre-Edited Selection 3

FIG. 3H

<u>Pre-Edited Program</u>	
Program:	Fried Green Tomatoes
Rating Edited:	PG
Time Condense:	N/A - 2 hrs.
Director's Cut:	Storyline B
Music Score:	M-2 Symphonic
Display:	Letterbox
Quality:	A
Language:	English
Previews:	<input checked="" type="checkbox"/> 4:10
Interviews:	<input checked="" type="checkbox"/> Director 3:25

FIG. 3I

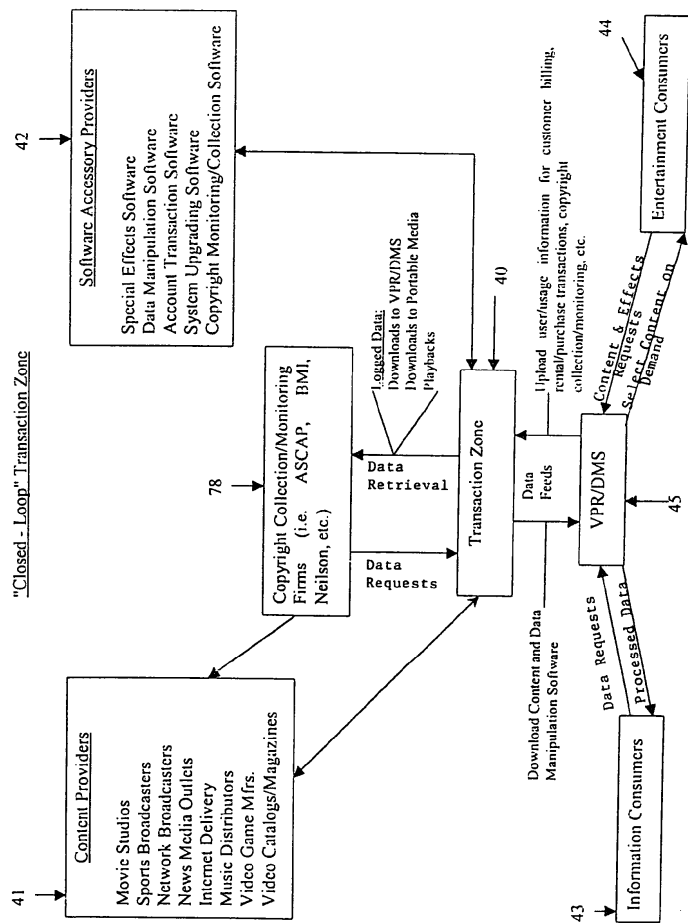


FIG. 4

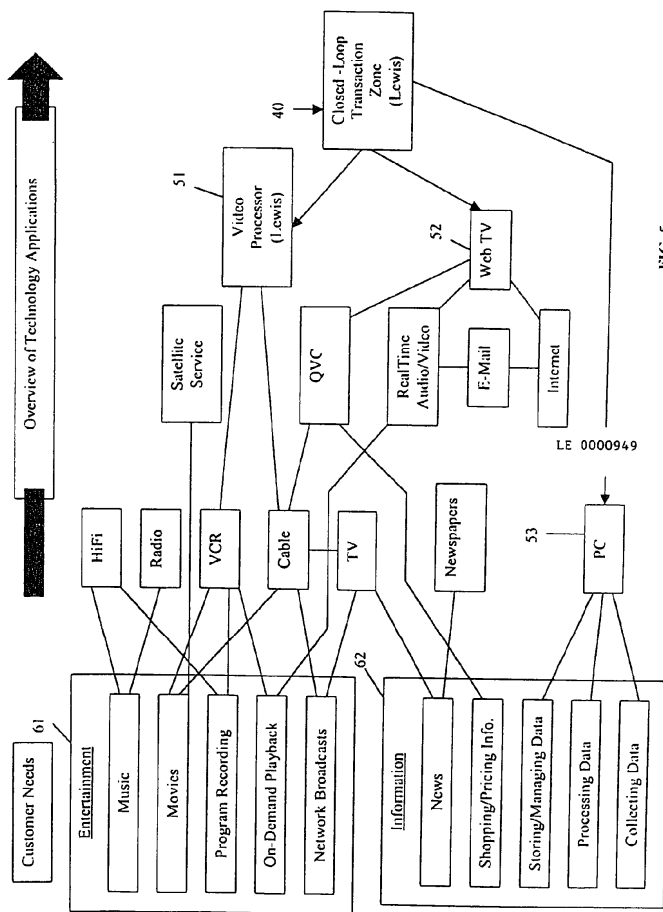


FIG. 5

151a

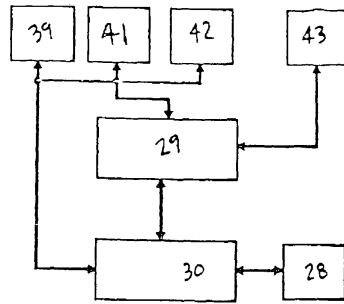


Figure 6

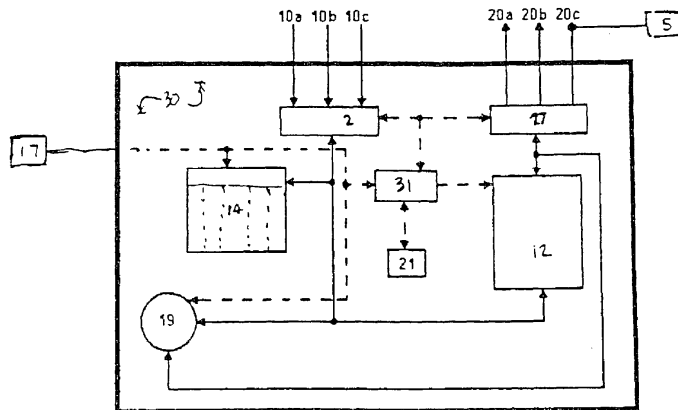


Figure 7

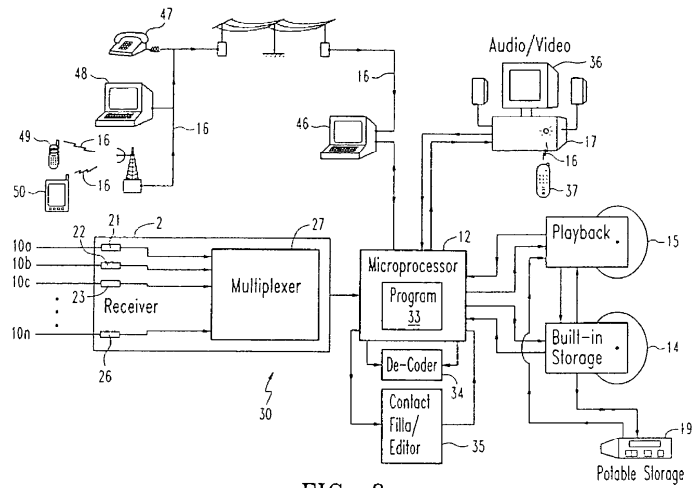


FIG. 8

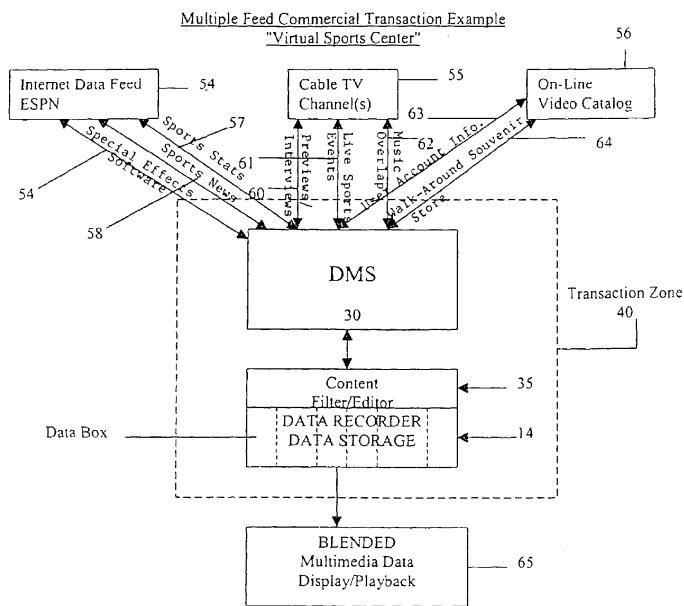


FIG. 9

<p style="text-align: center;"><u>Master Menu</u></p> <ol style="list-style-type: none"> 1. Network Broadcast 2. Cable 3. Satellite 4. UKF/VHF 5. Wireless Cable 6. Internet 7. Local 	<p style="text-align: center;"><u>Data Fields</u></p> <ol style="list-style-type: none"> 1. Sports Events 2. Sports News 3. Statistics 4. Previews 5. Interviews 6. Music 7. Home Shopping 8. Special Effects 	<p style="text-align: center;"><u>Combined Data Prog.</u></p> <ol style="list-style-type: none"> 1. Superbowl - NBC 2. Preview - ESPN2-DSS 3. Stats - ESPN.com 4. Music - Cable 5. Special Eff. - Int. 6. Video Catalog - Int. <table style="width: 100%; border: none;"> <tr> <td style="border: none;"><u>Rent</u></td> <td style="border: none; text-align: right;">✓</td> </tr> <tr> <td style="border: none;"><u>Purch.</u></td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;"><u>Price</u></td> <td style="border: none; text-align: right;">9.95</td> </tr> <tr> <td style="border: none;"><u>Credit Card</u></td> <td style="border: none; text-align: right;">AMEXP</td> </tr> </table>	<u>Rent</u>	✓	<u>Purch.</u>		<u>Price</u>	9.95	<u>Credit Card</u>	AMEXP
<u>Rent</u>	✓									
<u>Purch.</u>										
<u>Price</u>	9.95									
<u>Credit Card</u>	AMEXP									

FIG. 10

FIG. 11

FIG. 12

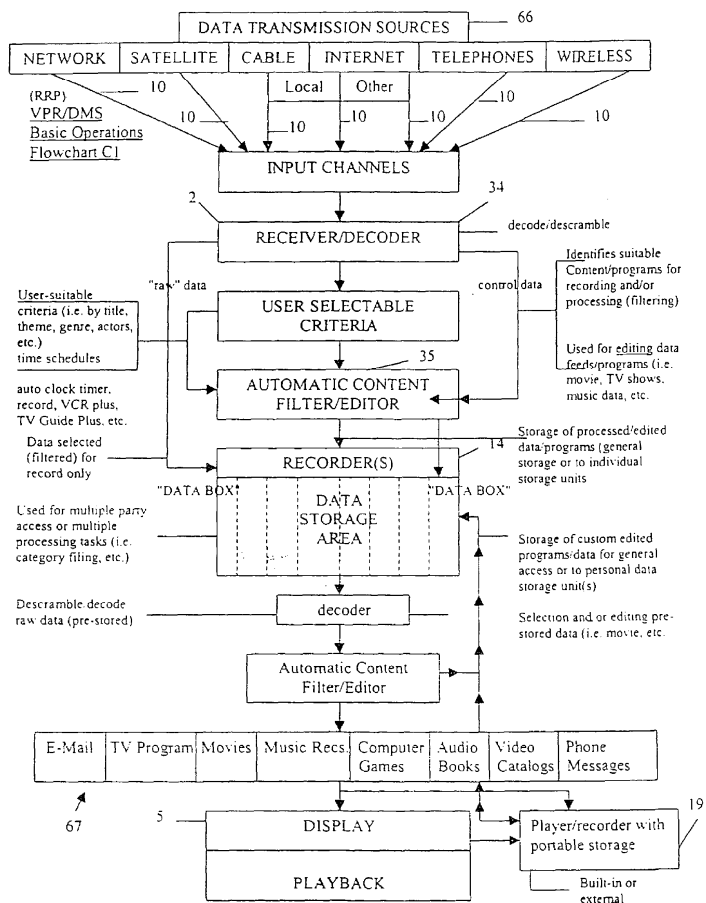
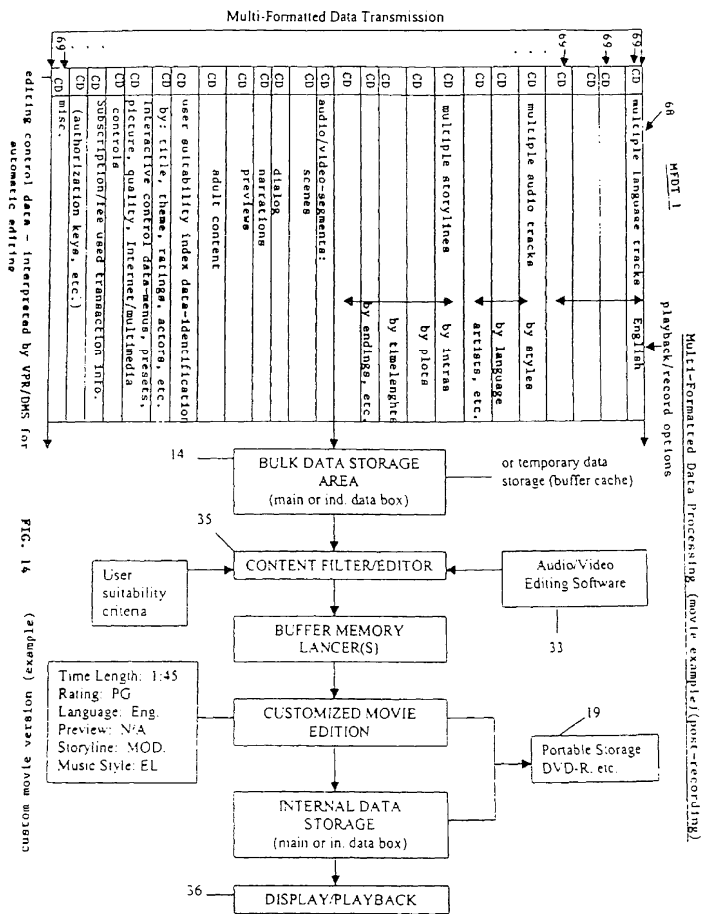


FIG. 13



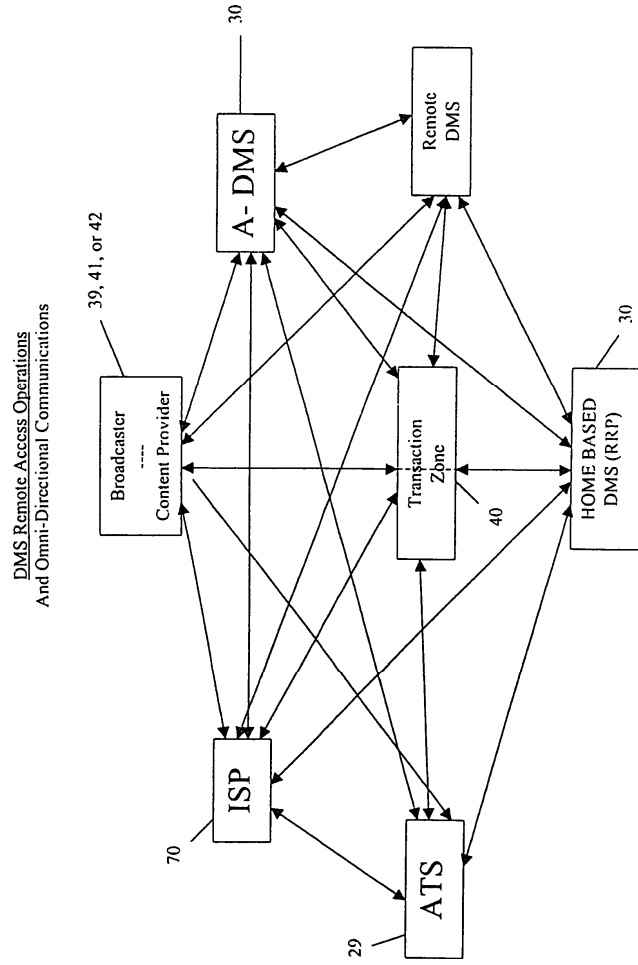


FIG. 15

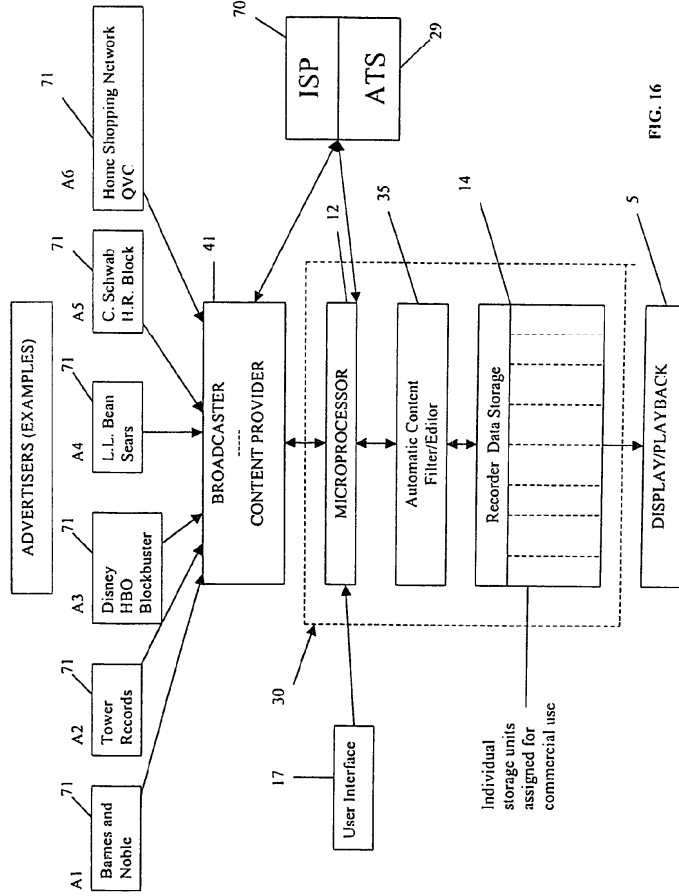


FIG. 16

POST-RECORDING DATA PROCESSING

Rental/Purchase/Pay Per View Programs

(movie example)

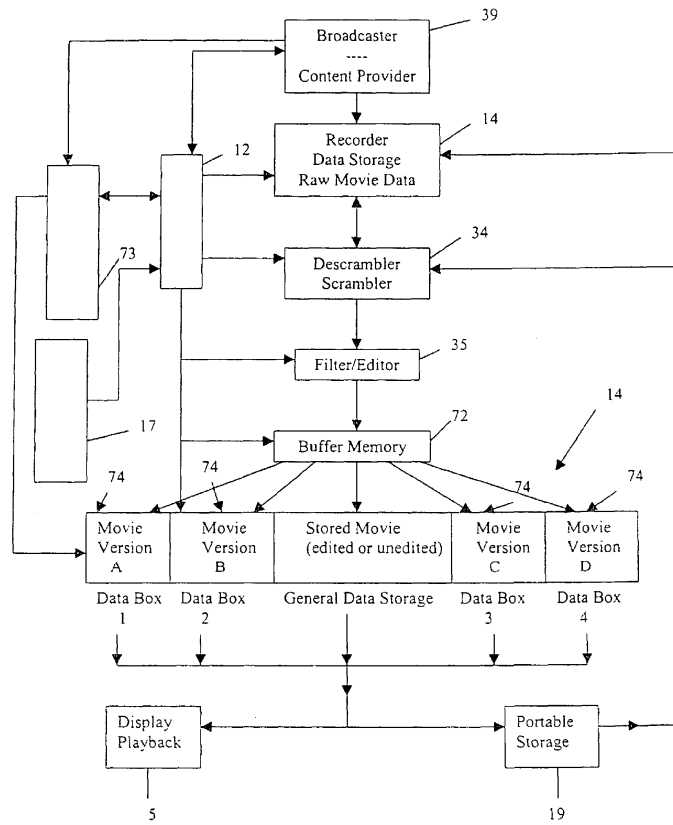


FIG. 17

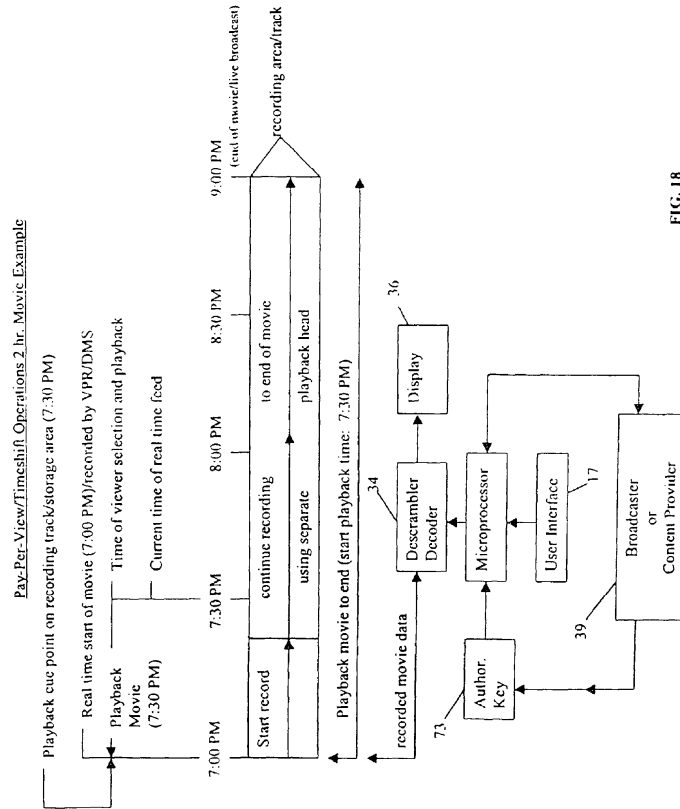


FIG. 18

Continuous Loop Recording Operations
 Playback Movie from Beginning Post Realtime Start
 2 hr. Movie Example

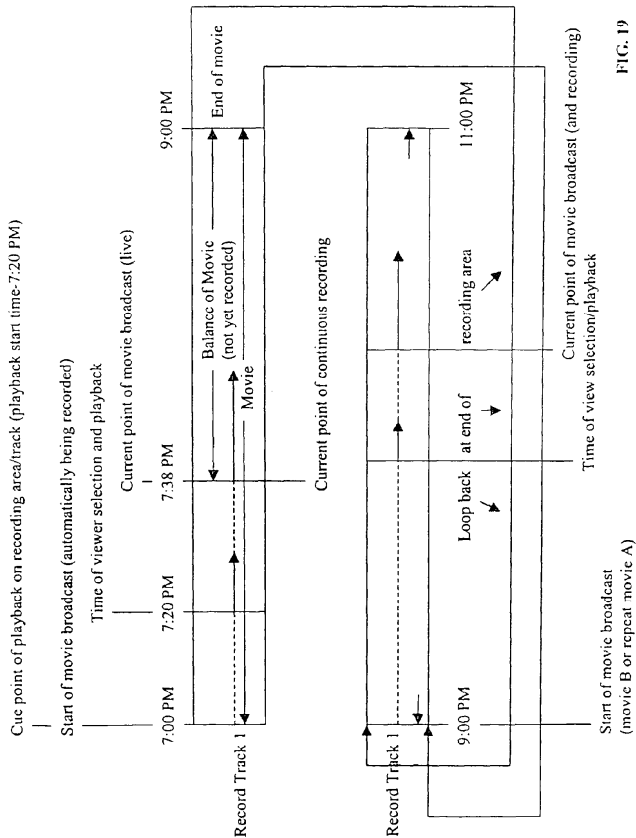


FIG. 19

**Video on Demand System
(V.O.D.)**

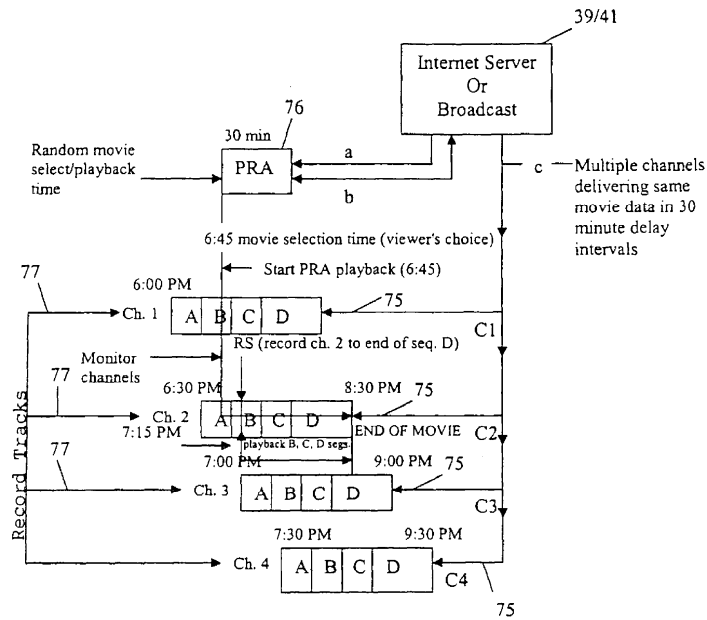


FIGURE 20

1
**SYSTEM FOR DATA MANAGEMENT AND
ON-DEMAND RENTAL AND PURCHASE OF
DIGITAL DATA PRODUCTS**

CROSS-REFERENCE TO RELATED
APPLICATIONS

This application is a continuation of U.S. application Ser. No. 10/126,829 filed Apr. 19, 2002 now abandoned entitled "System for Data Management and On-Demand Rental and Purchase of Digital Data Products," which is a divisional of U.S. application Ser. No. 09/383,994 filed on Aug. 26, 1999 now abandoned entitled "System for Data Management and On-Demand Rental and Purchase of Digital Data Products," which is a continuation-in-part of U.S. application Ser. No. 08/873,584 filed Jun. 12, 1997 now abandoned entitled "Multi-Functional Processing System." The benefit of 35 U.S.C. §120 is claimed for the above referenced applications.

FIELD OF THE INVENTION

The present invention relates to a data handling system for the management of data received on one or more data feeds. More specifically, it relates to a method for management, storage and retrieval of digital information and an apparatus for accomplishing the same. Even more specifically, it relates to a method and system for selecting, receiving and manipulating data products that may be transferred to a portable storage device for use with existing playback systems. Even more specifically, it relates to a system for renting or purchasing data products for immediate, on-demand delivery, which may be formatted and transferred to a portable medium for use in any existing playback device.

DESCRIPTION OF THE PRIOR ART

For the past several years the world has experienced what has been termed an information explosion. Innumerable, varying technologies have arisen in an attempt to manage this flow of information in commercial areas. Examples range from the various protocols and configurations used for managing office local area networks (LANs) and the information that flows over them, to low end hand-held personal organizers.

A new area is finally reaching a point of no return in this world of information overload: the end user of commercial and educational material. This information overload has now become critical with the end users of computers and televisions. This, in turn, creates problems relating to the management of the exponentially increasing global database of information available over data feeds to personal computers, such as the Internet and other modem and cable accessible computer data feeds. It also includes the explosion in data feed sources over and through program broadcasts such as network television, radio, cable television channels; satellite feeds, UHF/VHF channels, videotapes, and even the Internet. Couple this explosion of information with a blurring line between the personal computer, the television, and telephone communications. It is apparent that there is a serious need for an integrated system that manages and handles the growing amount of information available over the various data feeds and can meet the needs and desires of the end user.

In particular, this increasing array of data, data sources, and storage devices has resulted in numerous battles over the format in which the data is delivered and manipulated. For example, one of the more recent format battles is being played out over the fixture format for purchases of video products

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and music and other sound recordings, i.e., Digital Video Express. ("Divx") versus digital video disc ("DVD"); compact discs ("CD") versus digital audio tape ("DAT") versus cassette modes. Yet another example is the battle over which medium, PC's or televisions, will eventually triumph in being the delivery channel for all of this information. Another issue arises when discussing the conduit for receiving the information being provided to end-users.

Regardless of the format of delivery, manipulation processing, storage or play back, there are limitations on the devices utilized to manage the ever increasing and, now in many cases, overlapping information data feeds provided over computer-received and television/radio-received data feeds. Previous attempts to solve the problems caused by this plethora of information, the ability to access this information through different sources, and different methods of storing the data have not solved some of the basic issues surrounding this technology such as timing, commercial transfer and licensing issues as well as security for the person transferring the information.

The creation of new methods of transferring, storing, manipulating and accessing such data do not solve the problems outlined herein. In a sense, prior attempts to provide solutions have focused on the technology of retrieving, storing, or playing back or viewing of the data with a minor emphasis if at all on the overall management of the data. In many instances, the new technology "solution" creates a new format dilemma.

For example, the new Divx video format creates another layer of technology that consumers must purchase to play the video on this new format. Under this format, consumers may purchase a small, compact disc-like medium containing a digital video product in a restrictive, special, non-universal format such as DVD, for a nominal price. The disc is encoded in the Divx format to prevent playing on regular DVD players. However, the disc may be placed in a Divx player that presents the consumer a series of options, including renting or purchasing the video product. Each Divx disc has Divx "control data," including an individualized serial number, which the player reads the first time the disc is inserted and then stores in a memory on the player. Information on the disc and on the player is then used to determine the appropriate price for the movie. When the customer begins playing a movie, the viewing period for that copy of the movie begins. More specifically, the player allows the disc with that particular serial number to be played for a set length of time (which is also stored in secure memory on the player). During this set length of time, the customer may view the movie as many times as desired, but only on this Divx machine. An on-board modem calls the Divx network on a regular schedule for billing purposes, and to refresh existing information on the player. However, Divx is limited in that a disc enabled by one player cannot be played in any other Divx player without re-enabling the disc, or making arrangements through the Divx company to transfer your account to another box. Thus, a video rented or purchased and usable on one Divx machine is useless in another Divx machine or any other kind of player without incurring the time and trouble of dealing with Divx account customer service. Additionally, if Divx technology is accepted, it will render obsolete large collections of video on other media such as DVD, laser disc, and videocassette tapes.

Recently, electronic commerce has blossomed on the Internet. The solution for commerce to date has been to have the user access the web site of the commercial vendor and browse through the items available and then order those items for delivery via delivery service when ordering goods or in some instances downloading the purchase immediately. This

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results in piecemeal transactions over a variety of formats and protocols. Even attempts by the on-line service providers to provide groupings of products and services still requires access to their respective systems.

A comprehensive data management system is needed that forms a transaction (or commercial) zone where and through which data can be selected, purchased or rented, received, stored, manipulated, and downloaded by a user and then downloaded to ultimate storage or use. Utilization of such a system removes the battle over which storage format, delivery system or platform is used and provides the consumer of the information age with data access and manipulation without issues of format compatibility and timing. This same system also interfaces with current financial tools such as credit cards, checking accounts, ATM accounts, and other debit and credit systems to provide easy rental or purchase access. Such a data management system, in effect, separates the distribution media from the storage media.

The current invention solves these problems through the use of an integrated information management and processing system that provides for the handling, sorting and storage of large amounts of data that is a user-defined and user resident environment. It allows this management to occur both during and after the actual feed is being received, while also allowing various decisions to be made about the suitability, quality, and other content of the information being received. The invention also has the capability to be securely accessed and utilized from a remote location, including telephone, Internet, and remote computer/television access. This would allow services to provide virtual user transaction zones.

SUMMARY OF THE INVENTION

An object of this invention is to provide a system that creates a transaction or commercial zone for data to be received, manipulated, stored, retrieved, and accessed by a user, utilizing one or more data feeds from various sources. The system also creates unique arrangements of information or selections of information from distinct user-defined criteria.

Another object of the invention is to provide a system for intermediate service providers to manipulate and repackage data and information for end users in a streamlined, comprehensive package of information.

A further object of this invention is to provide a system for the electronic delivery of data for commercial or other types of communication that can also serve as an electronically based payment system for same.

A further object of this invention is to provide a single integrated system and device with a user-friendly control interface which permits the end user to efficiently and effectively manipulate and manage data feeds.

A further object of this invention is to provide a system and device for spontaneously and automatically capturing and manipulating large amounts of data for both real time playback, and for storing the captured data for subsequent playback without the need for having a readily available, movable, blank storage device.

Another object of this invention is to provide a system and device for spontaneously and automatically capturing and manipulating electronic data, either continuously or at specified times, both for real time playback, and for storage for subsequent playback, without the need for having a readily available, movable, blank storage device, and which can be programmed from a remote location.

Another object of this invention is to provide a system and device for capturing, manipulating and storing open digital

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audio, video and audio/video data to a built-in storage device, and for transferring the data to a selectable portable storage device. This is accomplished while incorporating digital copyright protection to protect he/she artist's work from unlawful pirating. Media formats include data that is scrambled or encrypted, or which is written on disks and devices designed to be compatible with the Data Management System of the present invention.

Other objects of the present invention include:

The use of data boxes to personalize programming to the individual taste of the user.

Rent/lease storage space in users Data Box to personalize and target advertising to the individual preferences of the user.

Purchase or rent data products (movie, TV show, etc.) even after real time broadcast.

In a preferred embodiment of the invention, a digital data management system includes a remote Account-Transaction Server ("ATS"), and a local host Data Management System and Audio/Video Processor Recorder-player ("VPR/DMS") unit. The ATS may be local or placed at the content broadcaster's site. The ATS stores and provides all potential programming information for use with the local VPR/DMS unit. This includes user account and sub-account information, programming/broadcast guides, merchandise information. It may also include data products for direct purchase and/or rental from on-line or virtual stores, and has interfaces with billing authorities such as Visa, MasterCard, Discover, American Express, Diner's Club, or any other credit card or banking institution that offers credit or debit payment systems. The local VPR/DMS unit comprises at least one data feed which includes an interface to the ATS; at least one receiver/transmitter unit for receiving information from a data provider or the ATS, and for transmitting information to the remote ATS; and a plurality of data manipulation and processing devices. These devices may include, but are not limited to, digital signal processors, an automatic discretionary content filter/editor, a V-chip or other such content or ratings-based "content blocker, analog-to-digital converters, and digital-to-analog converters; a one or more built-in, non-movable storage devices; one or more recording units; a microprocessor; a user interface; and a playback unit. The VPR/DMS queries the ATS at regular intervals to obtain the latest broadcast, programming and merchandise information.

Upon user request, a program running on the VPR/DMS creates a virtual "Transaction Zone", whereby the information received from the remote ATS (or from a direct broadcast) is configured in a graphical, hierarchical set of menus. These menus allow the user to access a variety of functions and/or program the VPR/DMS to record scheduled broadcasts or to directly rent or purchase data products.

The local VPR/DMS unit acts as the interface between the data products from the broadcaster/content provider, the ATS, and the end user. The VPR/DMS may be used in a variety of ways, including, but not limited to, a virtual audio/video recorder/player for recording and playback of scheduled broadcast programs; an audio/video duplicating device for capturing, manipulating and storing audio/video programs from other external audio/video sources; or as an interface to a "virtual store" for purchasing and/or renting audio/video products or computer software on demand. The VPR/DMS may also be used in a combination device, such as a TVCR, or as a separate component linking any well known audio or video device to a plurality of input sources.

Audio/video or other data may be received on the data feed lines at the receiver unit. For example, a cable television broadcast may be received on a cable television broadcast

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feed at a CATV receiver located in the receiver unit (notice, that likewise, a satellite television, digital cable, or even a UHF/VHF signal may be received, depending on the type of television connection used). Once the data has been received, it may be converted to digital form (if not already in digital form), compressed and immediately stored on the built-in storage device. For example, the analog or digital TV signal may be converted to mpeg-2 format (the standard used on DVD) and stored on the internal storage device preferably a HDD or RAM optical disk, as is well known in the art. Following storage, user-controlled programming features determine whether or how the digital data will be processed upon playback.

In a preferred embodiment of the invention, the built-in storage device of the VPR/DMS is such that it allows stored data to be accessed as soon as it is stored. This provides for the ability to watch and store a program virtually in real time. As the broadcast program is received it is converted to digital form, stored on the built-in storage device, read from the storage device, processed by the processing circuit, and played back through the playback circuitry and output to an attached television. This operation is similar to recording a television show with a VCR while viewing the program. However, the invention provides the ability to pause, freeze frame, stop, rewind, fast forward or playback while it continues to record the remainder of the show in real time as it is broadcast.

For example, a user may be watching a television show in real time while the VPR/DMS records and processes the broadcast when his viewing is interrupted by a knock at the door. Rather than waiting for the show to finish recording before he/she can go back and see the portion of the program missed by the interruption, the user may pause the simultaneous broadcast/playback while the VPR/DMS continues to record the remainder of the program. Later, he/she can return to a precise cue point marker where the interruption occurred, and continue watching the show, even as the VPR/DMS continues to record the broadcast. In addition, he/she may rewind, fast forward through commercials, watch in slow motion, or perform any other VCR-like function, even while the VPR/DMS continues to record a broadcast. Thus, the system provides a means by which the user may seamlessly integrate real time with delayed playback.

The VPR/DMS also provides a means by which the user may program the local host receiver/player to automatically record certain programs, or other data from specific data feeds. For example, when used as a recording unit to record preferred broadcasts, the user may program the local host/receiver unit to record according to specific times via a built-in auto-clock timer. It may also record specific programs, in much the same way that current VCR technology allows users to manually set recording times, or even program-specific recordings (e.g., VCR+, or TV Guide Plus). However, the preferred embodiment makes significant improvements over the manual timer or VCR+ type recording methods by allowing the user to personalize his or her own parameters for recording broadcast programs. In addition to manual timer recording and VCR+ technology, the system includes a built-in automatic discretionary content filter/editor. This content filter/editor allows a user to program the unit to automatically record broadcast content by selection of a "User Suitability Criteria", which may be defined as a program name, theme, genre, favorite actors or actresses, directors, producers or other parameters, such as key words, television/motion picture rating, etc. The User Suitability Criteria may be used alone or in combination, and can be used to either select or prohibit programming to be recorded. On demand, the VPR/

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DMS will automatically select, according to the User Suitability Criteria input, from among available programs according to a broadcast programming guide provided by the remote ATS, and will be automatically be configured to receive and record programs in accordance with the required parameters. Additionally, the broadcast signal may be supplied with digital control data recognizable by the VPR/DMS.

For example, a user may program the VPR/DMS to selectively and automatically record all broadcast programs in which a particular actor appears. The VPR/DMS will examine the latest programming control data provided by the ATS, recognize programming selection, and automatically configure itself to record the programs in which that actor appears. The system provides the additional benefit of never having to be reprogrammed unless the user desires. For example, if a user has a favorite weekly television show that he/she would like to record, the system may be configured so that every week, it automatically records that show without having to be reprogrammed. However, the VPR/DMS configures itself based on User Suitability Criteria apart from just the program time selection of prior art video recorders. It searches the programming guides for titles, actors, ratings or other User Suitability Criteria, and only records those programs meeting the programmed parameters. Thus if the user's favorite show is preempted in favor of a special program, the system's programming will read the broadcast control data, understand that the program has been preempted and not record at the normally scheduled time.

Additionally, the VPR/DMS may be programmed according to individual, non-related parameters so that multiple programs may be recorded. For example, an adult family member may program the VPR/DMS to record all broadcasts in which a particular actor appears, while another family member, say a child, may program the VPR/DMS to record all programs in which a different actor appears. A single user may also set up multiple individual recording parameters as well. This is accomplished by the creation of individual virtual "Data Boxes" or "personalized custom channels", which may be created for each user. Real time recording and playback or selection of future manual or auto-recordings which flow into the individual Data Boxes may be accomplished based on the User Suitability Criteria. Individual criteria may be completely separate or related to other more system-wide criteria.

Like VCR's, audio tape players, recordable compact disk units and other well known equipment, the invention can capture audio/video data output from other consumer electronics equipment in addition to recording broadcasts or retrieving information. A consumer may connect the VPR/DMS to a consumer electronic device such as a TV, video tape recorder, compact disc player, audio tape player, DVD player, or any other known digital or analog audio/video data player/recorder and record audio/video information directly to the built-in storage device. The VPR/DMS may also be connected to TV antennae, TV cable, or satellite dish receiving systems to receive broadcast media. It may also be attached to the Internet whereby the consumer can retrieve data from a desired website.

For those players like DVD players, CD recorder/players and minidisc recorder/players having digital inputs and outputs, the VPR/DMS incorporates the ability to receive, store, encode, decode and output digital information in these formats. For example, a user may connect the digital output of a CD player or a minidisc player to a digital input on the VPR/DMS. The VPR/DMS may receive and store the digital CD or minidisc data onto the built-in storage device for subsequent use. In the same respect, the user may connect the

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digital output of the VPR/DMS to the digital input of a CD-recordable or minidisc player, and transfer digital data stored on the built-in storage device to a CD or minidisc. With the advent of DVD-RAM and DVD-recordable, both of these options are also available with regard to video, as well as audio data. In any event, the capability of the VPR/DMS to receive and store data from both content providers and other consumer electronic devices, as well as its ability to output both digital and analog data is instrumental in its multitude of uses, including the virtual rental/purchase options.

A variation of the invention offers content providers the capability of direct instant delivering multi-formatted programs (movies, direct Compact Disc or other audio medium, video catalogs, etc.). The data management zone (or ring) would allow for rental (limited use) or purchase to home based or business based customers. It effectively eliminates need for transporting, inventorying, and physical delivery of digital data products. Direct data rental or purchase provides far more convenience, data security, versatility, cost effectiveness, technical quality, accessibility, product variety, product durability (no broken tapes or damaged compact discs) anti-piracy protection, various preview/rental/purchase options, secure transactions, auto return (no late fees), user privacy, etc. It also provides the added benefit to the rental industry of reducing or eliminating retail space and physical inventory.

Under the virtual rental/purchase store, the user has several options. He may choose from products listed in an electronic catalog which is either downloaded from the remote ATS, or received via direct broadcast feed. He may set the content filter/editor to automatically record data. In either case, the data from which is stored on the local VPR/DMS. The VPR/DMS unit interfaces with the ATS to establish two-way communication with a broadcaster/content provider and update itself at regular intervals, providing the home user with the latest available rental/purchase information. For example, the user may browse through available movie titles, audio titles and software titles to select a particular product she would like to purchase or rent. The local VPR/DMS obtains the necessary information from the user to identify the selected product; retrieves stored or spontaneously entered billing information, and then transmits the information to the remote ATS. The remote ATS receives the requested information, and validates the user's account and billing information. It then electronically negotiates the purchase or rental from the content provider, and configures the local VPR/DMS to connect to and receive the requested data from the content provider either on-demand or via a broadcast schedule.

In one type of purchase transaction, the data is received and stored on the built-in storage device where it may be accessed for processing, playback or transfer to other media. The data may be received in a scrambled or encrypted format, and may have either content or access restrictions, but also may be provided without restriction. For example, in a rental or purchase transaction, the remote ATS, the local VPR/DMS, (or both) retain rental control information, which is monitored by the broadcaster/content provider, to restrict the use of downloaded data past the or prior to negotiated rental period. For example, control data indicating rental restrictions for a particular title may be stored by the VPR/DMS upon receipt of the digital data product (i.e., movie, pay TV show, music album, etc.) from a content provider. Once receipt of the data is acknowledged by the VPR/DMS and the transaction is completed, the user may play back the data product, store it, or transfer it to portable medium for use on a stand alone playback unit (e.g., DVD player, VCR, etc.) provided all necessary transactions are completed. If the data product is stored in scrambled form, an authorization "key code" must

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be received from broadcaster/content provider to unlock the rented or purchased program by use of a built-in data descrambler device.

In order to avoid late charges or fees for rental transactions, the user must "return" the data product by selecting a return option from the electronic menu. The VPR/DMS interfaces with the ATS to negotiate the "return", and the data product is erased from the VPR/DMS storage device or re-scrambled (authorization key voided, where the data product remains stored for future access/rental/purchase). The data product has been transferred to portable medium; the control data keeps a record of such transfer, and requires the portable medium to be erased before successfully negotiating the "return." In this way, the system is programmable by the end user and broadcaster/content provider to enact a "virtual return" of data products stored on the non-moveable storage device.

In a preferred embodiment, the user may program the system to process the received data according to the User's Suitability Criteria. For example, the system may be preset to automatically filter, edit, record or not record all or any part of the content of the data based on User's Suitability Criteria, by interpreting control data encoded into a broadcast signal. The data may otherwise be stored in a ROM, PROM, or on a portion of the built-in non-moveable storage device reserved for such control information. The V-chip, which is well known, merely blocks out entire programs that are considered "unsuitable". The present invention may include, as part of the microprocessor, a processing device or circuitry which automatically edits the received data according to the User's Suitability Criteria to omit portions of a received program that may be considered unsuitable. The content that is received from the broadcaster/content provider is sent to a processing circuit, which includes a signal processor for decoding control data that is included in broadcast signals. Alternatively, this content may be stored in a ROM, PROM, or a portion of the built-in non-moveable storage device reserved for such control information, and which is used for determining whether or how the program or data product will be processed by the content filter/editor. Processing may include recording, editing, condensing, rearranging data segments, displaying, or otherwise customizing the content. This is especially useful when the User Suitability Criteria is a ratings based edit. The processor decodes the received content, interprets the control information, updates the previously stored control information, and then automatically edits the signal to censor unsuitable content (e.g., bleep out expletives, or eliminate scenes involving nudity or graphic violent or sexual content). The processed data may then be played back through the playback unit in real time and/or sent to the recording unit to be recorded onto the non-moveable storage device for later access, editing, and/or playback by the playback unit.

In a further preferred embodiment, the user may program the system to capture digital data products (data) from a plurality of broadcast channels or other data feeds at the same time. A microprocessor in the system may be controlled by the broadcaster/content provider and the end user. This microprocessor has software programming to control the operation of the processing circuitry and the playback circuitry. The software programming interacts with the built-in, non-moveable storage device and the playback apparatus to allow recording and processing of the digital data products as they are broadcast from several channels simultaneously. The software programming further interacts with the playback circuitry to allow the data to be played back to a cue point, which is registered within the system's memory. It may be paused on command, and restarted and played back from the cue point.

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while the data are being continuously recorded without interruption. This allows the user to view, pause, and restart a program at his discretion while the program is still being recorded.

The data may be subject to either pay per view, purchase or rental restrictions by the digital data product provider. When this occurs, the data is still received and recorded, but in a format that prohibits viewing by the user until the commercial transaction has been completed. The data may be scrambled, encrypted, or otherwise locked from viewing or playback (audio) until the user agrees to pay for access. However, since the data is already stored on the users local VPR/DMS, the commercial transaction may take place locally on the VPR/DMS, or on a remote ATS. When the user decides to obtain the data, the digital data product provider exchanges an electronic access key to the scrambled, encrypted, or otherwise locked data in exchange for agreement to his commercial terms.

By way of example, the user may come home only to find that his or her premium program of choice started 15 minutes prior to his arrival. In all known prior art devices, the program in this instance would be missed. However, because the user pre-programmed the system to capture either a broad band of programming, or specific selections during the period before the program started, the entire program is still instantly accessible, even while the program is still recording. If required, an access key may be obtained allowing the user convenient and discretionary viewing privileges. Additionally, programs that have been completely recorded earlier may be rented or purchased in this fashion as well. If the scrambled or encrypted digital data isn't accessed from the recorder during a user definable time, the system may record over it later.

In another variation of this invention, the system may be equipped with password protection that serves multiple purposes. First, the password protection limits the utilization of the device to authorized users of the system that have valid passwords. Second, the system may be programmed by an administrator (e.g., a parent) to automatically assign certain processing functions to specific passwords, prohibit certain processing functions from being utilized by specific passwords, or to make certain functions optional according to the administrator's objectives. For example, a parent may program the system to assign an automatic censoring, or editing function to a child's password in order to limit the content that child may view. Consequently, when the child enters his/her password in order to gain access to the system, all data to which the child has access (whether it be real time viewing or previously recorded data) will be automatically edited to screen out unsuitable material as described above.

The creation and use of the virtual individual "Data Boxes" or "custom channels", is especially useful in the present invention. User suitability criteria unique to each data box address may be either completely separate or related to other system-wide criteria. This enables content stored to a first data box to be uniquely configured from second or subsequent data boxes. These Data Boxes may be accessed only by means of a unique password specific to the data box, of the built-in, non-movable storage device. In this manner, the present invention provides for multiple users to have, not only unique processing functions assigned to their accounts based on their password, but also to enjoy storage space to which other passwords have no access. For example, this feature allows parents to have greater control over the programming that may be accessed by their children.

The system may also include the ability to add copyright protection to digital data in order to protect copyright holders from unauthorized duplication by intellectual property

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pirates. For example, Macrovision Corporation offers methods and systems for encoding data on a digital medium which causes disruption during recording from the digital medium to another analog or digital medium and causes the recorded resultant product to be of such poor quality, that it is not commercially useable. Similarly, minidisc and CD players use a system called Serial Code Management System ("SCMS") which, during digital recording, sets certain control bits to prevent further digital copies from being made from the first generation copy. The VPR/DMS's processing and/or playback circuits may include elements for implementing this or similar copyright protection to the data received from content providers. Open data recorded onto the storage device may be encoded such that first generation copies of sufficient quality for personal use, but that copies of first generation copies are either preventable or of such poor quality that they sufficiently prevent pirating.

It should also be noted that the recording means of the invention, which records data onto the high capacity, non-movable storage device, may be set to record in a continuous loop. This is an advantage over prior art devices, like VCR's, that shut off when its storage device has reached maximum capacity. This function may also be available if the built-in non-movable storage device has been divided into Data Boxes. For instance, a user may record data in a continuous loop to her particular Data Box, writing over the first recorded data when the Data Box reaches its capacity. When recording to a particular Data Box, and its full capacity has been reached, the recording device will record over the first recorded data in that Data Box. This may occur even if the built-in, non-movable storage device still has available space. Continuous loop-recording is useful, because it allows the user to continue to record a broadcast or other program although her storage space has been used up prior to the conclusion of the broadcast or program.

It should be noted that the invention as described herein may be "bundled" with a television set, video cassette recorder, digital video disc player, radio, personal computer, receiver, cable box, satellite, wireless cable, telephone, computer or other such electronic device to provide a single unit device. For example, in the television and video market there exist television/VCR combinations "bundles" which include a television set and a video cassette recorder combined into the same enclosure. The present invention may be combined with a television, a VCR, a TV/VCR combination, DVD, TV DVD combination, digital VCR, or any combination above or with computers to provide a single unit device which allows the user to spontaneously view television broadcasts; VCR (or other such device) movies or programs; or other such programs or data, and to record them without the need for a blank video cassette or other such storage device. Other combinations include: radio, satellite receivers and decoders, "set top" internet access devices, wireless cable receivers, and automobile radio/CD, and data stored on computers. Further, utilizing the claimed invention, the bundled device allows for convenient storage until such time as the user can obtain a blank movable storage device on which to transfer the recorded program.

Another aspect of the present invention is the capability of downloading data products to portable media. The invention is capable of storing, processing, and playback of data products which have been pre-recorded onto any type of portable storage device. In a "commercial based" embodiment a merchant (or distributor), such as BLOCKBUSTER VIDEO may employ a VPR/DMS in a commercial establishment to receive data, edit it customer's User Suitability Criteria, and instantly record the edited version on a portable storage

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device which then is sold or rented. This enables the merchant to thereby reduce his standing inventory for a given title, yet enables him to retain the data as originally received and produce as many copies as current demand allows. This commercially based VPR/DMS system has all the unique VPR/DMS functions as previously described. Functionally, the commercial based system would be identical to the home based version, except that the recording of the data product would occur by an intermediary prior to rental or purchase by end-user.

Additionally, commercial product distributors or by end-users may utilize "blank" VPR/DMS portable storage media (i.e., CD, DVD, VHS, etc.) which can be produced and pre-formatted at the factory or at the distributor level to include unique VPR/DMS control data and product information data (as described above) for customizing data products, for maximizing unique VPR/DMS recording, processing, and playback functions, or other for use in controlling all rental/purchase transactions described previously.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a block diagram of a standalone unit including one embodiment of the invention.

FIG. 2a shows a block diagram of a television unit incorporating one embodiment of the invention.

FIG. 2b shows a block diagram of one embodiment of the receiver from FIG. 2a.

FIGS. 3a-3f show block diagrams of one embodiment of the invention of on screen menus for commercial renting, leasing, or sales of audio, video, multimedia as well as functional selectivity for recording, editing, and content filtration.

FIG. 4 shows a representation of the potential types of inputs to and outputs from the transaction zone.

FIG. 5 is a schematic representation of a matrix of devices and sources of input and output into which the transaction zone may be placed.

FIG. 6 shows a global diagram of the system including data content providers, remote account server, billing authorities, and the local receiver-recorder-player unit.

FIG. 7 shows a block diagram of a preferred embodiment of the local receiver-recorder-player unit.

FIG. 8 is a global schematic of the present invention illustrating the flow of data, and programming instruction input pathways interrelate.

FIG. 9 is a schematic representation of the present invention illustrating the management of multiple feeds of data for commercial transactions.

FIG. 10 is an example of a Master Menu of the present invention for user selection of pathways for receiving data.

FIG. 11 is an example of a Data Fields menu of the present invention for selection of data type to be received.

FIG. 12 is an example of a Combined Data programming menu of the present invention for selection of data to be purchased.

FIG. 13 is a schematic representation of the present invention illustrating the flow of data types, programming instruction, and storage options.

FIG. 14 is a schematic representation of the present invention illustrating how multiple control data channels may be used to control, filter and edit content to be played back.

FIG. 15 is a schematic representation of the present invention illustrating the communication pathways between system components, content providers, and a transaction zone.

FIG. 16 is a schematic representation of the present invention illustrating the communication pathways between adver-

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tisers, a broadcaster/content provider, system components/programming, and the non-movable storage device.

FIG. 17 is a schematic representation of the present invention illustrating post recording data processing.

FIG. 18 is a schematic representation of Pay-Per-View/Time shift Operation of the present invention, illustrating an example of a two hour movie recording and playback sequence.

FIG. 19 is a schematic representation of Continuous Loop Recording Operations of the present invention, illustrating a playback of a movie where there is a temporal offset between real time recording and a delayed playback.

FIG. 20 is a schematic representation of the Video-on-Demand System, illustrating how data flows from a broadcaster into the VPR/DMS of the present invention, and how it may be recorded on a plurality of tracks having temporal offsets.

DETAILED DESCRIPTION OF THE INVENTION

Stand Alone Embodiment

Referring now to FIG. 1, which illustrates a standalone embodiment of the present invention, data feeds 1a-1d carry electronic data from any particular source. This includes, but is not limited to, network television broadcasts, UHF/VHF signal receivers, cable television broadcasts, satellite broadcasts, radio broadcasts, audio, video or audio/video data signals, or computer data signals are received at the receiver 2. The receiver 2 may incorporate a radio or television antenna, cable television receiver, satellite signal receiver, or any other digital or analog signal receiver capable of accepting a signal transmitting any kind of information or programming. Once received, the signal is transmitted to the microprocessor 3 where the information is processed according to user input.

For example, in an information subscription program, users may be required to pay a fee in order to access information for personal use. To enforce the payment of such fees, and to prevent unauthorized access from non-subscribers, the signal may be encoded by the broadcaster, and require some sort of de-scrambler to facilitate access to the information. In the present embodiment of the invention, the microprocessor 3 may include an optional "de-scrambler," among other processing devices, which will decode the broadcast signal so that the information contained therein may be accessed for personal use by the subscriber.

In addition, broadcasters or information providers frequently include information in other coded signals along with the broadcast program that, when separated and decoded, may be utilized by other electronic features that may be present in the system. For example, high-end compact disc players (CD players) often have features that read and decode compact disc information (CD-I) that is included by manufacturers on audio CD's. This information typically contains the name of the CD, the artist, and the name of the songs on each track. Using special signal decoders, these high-end CD players can decode the CD-I information, process it, and display on the player unit's LED display, the name of the CD, the artist, and the particular song being accessed at any given time. The microprocessor 3 of the invention embodied in FIG. 1 includes a signal processor that decodes and processes coded information which may be included in the broadcast or other received signal.

In addition, other processing functions that may be included in microprocessor 3 include a device or circuitry for data compression, expansion, and/or encoding. These fea-

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tures would aid in the system in maximizing transfer rates, maximizing storage efficiency, and providing security from unauthorized access.

The microprocessor 3 is fully programmable to allow the inclusion or exclusion of any and all types of available processing and/or signal decoding. In other words, the type of processing the received signal undergoes in the microprocessor 3 is dependent on the specific desires of the user.

Once the received signal has been processed, it may be stored for future use on the built-in, non-movable storage device 4, or immediately accessed for present use. If needed for present use, the processed data is transmitted from the microprocessor 3 to a playback device 5, which interprets the processed data and prepares it for display. For example, an audio signal is received from a compact disc player at receiver 2, and then processed and decoded by microprocessor 3 so that any audio data is separated from CD-I information on the disc. Once the data has been fully processed in the microprocessor 3, it is sent to the playback device 5 which plays back the audio data through a speaker system and displays the CD-I information on a LED display.

In addition to allowing instantaneous playback of received and processed data, the present invention allows the data to be stored on an internal, non-movable storage device 4 in either processed or unprocessed format. The stored data may be processed and/or displayed later. The preferred non-movable storage device is computer hard drive, but 4 may be any medium known in the art for storing electronic data, including, but not limited to: recordable tape or other analog recording media, CDROM, optical disk, magneto-optical disc, digital video disc (DVD), and/or digital audio tape (DAT). It is preferred, but not required that the non-movable storage device 4 be one that is erasable so that previously stored programs may be overwritten.

Data from the storage device 4 may be accessed for playback at the playback device 5 or for subsequent processing in the microprocessor 3. This feature is important because it allows a user to record a specific program in its original format for review and subsequent editing to make it suitable for themselves or other users. In a practical application of this feature, a parent can record a cable television program that is unsuitable for children, and store it on the built-in, non-movable storage device 4. He/she may then allow the children to watch a version edited by the microprocessor 3 to make it suitable for child viewers. Such a feature allows for more parental control over the content of programs a child may view. There are many other examples of program customization using User Suitable Criteria and content filter/editor for customizing programs which have been previously recorded in raw or original form.

Television Embodiment

Referring now to FIG. 2a, which illustrates a television embodiment, the drawing depicts a block diagram of a television incorporating one embodiment of the invention. Data feed lines 10a-10n transmit data from television, cable television, satellite, or UHF/VHF broadcasts or from other local data sources (including VCR's, laser disc players, DVD players, video cameras, or any other audio, video, or combination audio/video (collectively "A/V") data transmitter known in the art to the receiver 11.

FIG. 2b depicts an embodiment of the receiver 11 from FIG. 2a. Receiver 11 may include a combination of one or more receiver interfaces 21-26. Receiver interfaces 21-26 include a network broadcast television antenna; cable television receiver; satellite receiver; UHF/VHF antenna; broadcast radio antenna, and computer network interface. Other embodiments of receiver interfaces 21-26 could include, but

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are not limited to, standard A/V inputs (e.g., RCA video in and video out, Super VHS, or any other A/V input/output ports known in the art). Receiver interfaces 21-26 are designed to accept the broadcast signals and transmit them to output circuit 27. Output circuit 27 may be a multiplexer, sequencer, delay circuit, or other circuit generally known in the art for handling the flow of multiple output signals for individual processing. In this respect, the multi-functional processing system may process, handle, and operate on one or more input signals simultaneously.

Referring back to FIG. 2a, from the receiver 11, the raw data received from one or more of data feed lines 10a-10n is sent to the processing means 13. The microprocessor 12 controls which processing functions (if any) are applied to the received data. Additionally, microprocessor 12 controls any playback features that are subject to user input (e.g., pause, stop, record, fast forward, rewind, instant replay). The user interface 17 allows the user to directly control which processing functions will be applied to the received data as it is transmitted through the processing means 13. This is accomplished by transmitting a control signal 16 which the microprocessor 12 receives, interprets and uses to control the processing means 13 based on the user's specifications. User interface 17 may include a system for local on screen programming using an infrared or other hand-held remote control device 37 to produce the control signal 16. Alternatively, the user interface 17 may be an on-unit interface featuring control pad buttons which activate the control signal 16 to direct the features of the system. In addition, user interface 17 may include touch tone telephones or software programs utilizing computer modems or other computer ports (e.g., serial, parallel, network card, or any other computer interface known in the art) to generate the control signal 16, and which may be utilized at much greater distances than standard remote control interfaces to control microprocessor 12. User interface 17 may include circuitry, software or any other means known in the art for securely encrypting or encoding control signal 16 to provide safe, secure transmission of the control signal and to prevent unauthorized interception of the control signal 16 and/or access to the system.

Upon user request, microprocessor 12 may deactivate all types of processing so that the raw data received from data feed lines 10a-10n may be stored directly to built-in, non-movable storage device 14 for later processing and/or playback.

Processing means 13 may include any number of circuits, signal processors, filters, or other data manipulation devices known in the art for providing any electronic features or functions that may exist in standard televisions and other such displays known in the art. The microprocessor may also include, but is not limited to, one or more the following processing circuits or devices specifically aimed at: enhancement of picture color, hue brightness, or tint; sound balance; bass and treble enhancement; stereo/mono sound processing; picture-in-picture (PIP) viewing; decoding and integration of broadcast information such as closed captioned viewing, V-chip program blocking, or automatic data editing; and compression of data for storage or transmission. Each function making up the microprocessor may operate independently of other functions such that the enablement or disablement of one function does not depend on or affect the enablement or disablement of another function. In this manner, the user, through user interface 17 and microprocessor 12, may specify the exact type of processing he/she wishes the received raw data to undergo.

Once the received data has been processed according to user specification, it may be played back on the display via

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playback device 15 and/or stored on built-in, non-movable storage device 14. This may occur as a simultaneous recording of a number of feeds while the user plays back a selective feed in a non-real-time mode. The built-in, non-movable storage device 14 may be any storage device for audio/video information known in the art. The built-in, non-movable storage device 14 may be divided into separate Data Boxes, which may be assigned to separate members of a family, business or group. It may also be used to assign individual processing/storing instructions for processing the raw data.

Playback device 15 may include any technology known in the art for playing back audio/video data from any storage device known in the art (e.g., video tape, DVD, laser disc, etc.). In essence, the playback device 15 reads the data from built-in, non-movable storage device (or from processing means 13), and then converts it to the proper electronic signals for driving the displays (e.g., cathode ray tube and speakers, or any audio and video displays known in the art).

Virtual Transaction Zone Embodiment Single Feed Commercial Transaction Example

Either of the preceding units can be configured as another embodiment of the invention so that it can be utilized to provide direct on demand delivery of multi-formatted programs (movies, compact disc (or other audio medium), video catalogs, etc.). This embodiment effectively eliminates the need for transporting, inventorying, and physical delivery of digital data products. It can create a variety of applications from virtual VCR rental stores, music stores, bookstores, home shopping applications and other commercial applications.

Referring to FIG. 2b, data feeds 10a-10f carry electronic data from any particular source, but preferably from a computer signal, a satellite signal or a cable signal utilizing information via the Internet. The data feeds may carry audio, video, print or other mediums to the receiver 11 and, for purposes of the Internet, may utilize either "Push" or "Pull" technology as those terms are commonly referred to in the field. The data feeds may be in compressed format. Once received, the signal is transmitted to the microprocessor 3 where the information is processed according to user input.

As in the previous embodiment, the receiver interfaces 21-26 in FIG. 2 are designed to accept the broadcast signals and transmit them to an output circuit 27. The output circuit 27 may be a multiplexer, sequencer, delay circuit, or other circuit generally known in the art for handling the flow of multiple output signals for individual processing. In this respect, the multi-functional processing system may process, handle, and operate on one or more input signals simultaneously. For example, one of the data feeds should be a typical Internet data feed of compressed data, which could download a movie to one of the receiver interfaces 21-26. It may also be used for a time scheduled broadcast which is auto recorded by programming user suitability into the content filter/editor. It may also contain applets or other applications to assist the processing in the transaction zone.

Referring back to FIG. 2a, from the receiver 11, the raw data received from one or more of the data feed lines 10a-10f is sent to the processing means 13. Microprocessor 12 controls the processing functions (if any) that are applied to the received data. Microprocessor 12 presents menu-driven screens to the user through the user interface 17, the display or a combination of both as are well recognized in the prior art.

As with the prior embodiment, the user interface 17 allows the user to directly control which processing functions will be applied to the received data as it is transmitted through the processing means 13. This is accomplished by transmitting a control signal 16 which the microprocessor 12 receives, inter-

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prets and uses to control the processing means 13 based on the user's specifications and would include all of the variations and features related herein above.

The choices provided to the user interface or the display may include retrieval of specific selections, previews, excerpts, reviews, or other information regarding the potential selections. For example, referring now to FIGS. 3a, 3b, and 3c, a user may choose to access any of several different services. This information may be resident on the microprocessor, the microprocessor, the storage device, the data feed (e.g., Java applets), or any combination. FIG. 3a is an example of a master menu for accessing different types of data fields. This menu may be viewed by the display means or through other display means viewed by the user, such as on FIG. 3b represents a choice to access movies, videos, and game cartridges for either rental or purchase, in essence a virtual video rental store. The movies are browsed, previewed, and selected using various search and retrieval algorithms (e.g., genre, title, year, actor, and director). The selections are made by user and the financial transaction is completed by payment through a screen such as seen in FIG. 3c.

FIG. 3d depicts a menu that gives the user further specificity as to what function is to be performed on the received data. By selection of one of the menu options, he/she may choose to record, play, download, upload, erase, edit, condense (or compress), or store the data in a user defined Data Box.

FIG. 3e is a menu that gives the user specificity as to recording operations that may be performed on the received data. The user may choose to Auto-Record using various criteria, including use of a content filter/editor, a DMS program guide, a clock timer, usage of VCR Plus, or TV Guide plus. The user may re-record and enact a custom edit, assign the data to a Data Box or send the data to a portable storage unit. He can select specific programming according to his User Suitability Criteria. Additionally, he can edit the data in the content filter/editor, to obtain the desired product. Additionally, he/she may instruct the system to perform Continuous Loop recording, and assign the recorded data to a main storage partition, a data box, or record by auto timer.

FIG. 3f is a menu that gives the user further specificity as to editing functions on the received data. The user may initiate an Auto-Record Filter, and specify that recordings be initiated based on specific features of the programming. This may include programming user Suitability Criteria, Title, Theme, Actors, Ratings, Year of Release, or any other searchable field supplied in a broadcast control data stream. He/she may also choose Auto-Editing, which may be performed by rating based programmed criteria, Multi-Format Selections, or certain specific User Suitability Criteria as may be desired by the user.

FIG. 3g is a menu that gives the user further specificity as to editing functions on the received data. When multi-formatted data is available, a first movie may be edited to select certain user suitability criteria. This criteria may be ratings based, the data may be abridged, a certain story line may be selected, the type of display, a certain language, audio parameters may be selected, and even the recording quality. A second selection may be chosen with entirely different user suitability criteria. The results may then be stored to individual Data Boxes, or displayed at the user's discretion.

FIG. 3h is a menu that gives the user further specificity as to criteria on received data for programming that is pre-edited or multi formatted for optional editing choices. The user will immediately know if the programming that has been processed and recorded meets his suitability criteria before playback. An example is a "Director's Cut" edition of a movie.

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where previously unreleased scenes are included in the formatting of the data. The user may select an option to view these scenes from this menu by using embedded control data for processing, editing, display and playback, and thereby construct a custom version of the program.

As can be seen from the FIGS. 3a-3i above, a choice can be made to rent or purchase a copy of the material. In FIG. 2, it can be seen that the raw data received from data feed lines 10a-10n may be stored directly to a storage device 14 for later processing and/or playback. The payment is credited (or debited) to the selected user account with processing in the microprocessor 12 that also takes into account preset spending limits, authorization codes, and similar security and cash management features.

The processing means 13 may include any or all of the features and attributes as described hereinabove. In this manner, the user, through user interface 17 and microprocessor 12, may specify the exact type of processing he/she wishes the received raw data in the form of a movie to undergo. Using the example of the downloaded movie, the digital information would pass from the storage device 14 to the playback device. Within the microprocessor 12 (or even monitored through one or more of the data feeds), the playback or download of the movie would be noted. In the case of the purchase in FIG. 3e (denoted in the example by the "P" code), only that one download to a VCR tape would be allowed by control of the microprocessor 12. In the case of one of the rentals (denoted in the example by the "R" code), the movie could be viewed directly from the storage device 14 or be downloaded to a VCR tape or similar medium through user interface 17 utilizing, for example, a menu screen. Again, this activity is monitored by the microprocessor 12 and unless the downloaded movie is erased (and such erasure communicated back to the microprocessor 12), "late fees" could be assessed to the user until such rental was virtually "returned" to the storage device 14.

Note that the microprocessor 12 control of the access to the storage device 14, creates a virtual transaction zone 40 (shown in FIG. 4). This allows the user to negotiate with the content provider for a wide range of different commercial transactions preset by the content provider but chosen by the user. The virtual transaction zone 40 provides a commercial and transactional environment that is free of restrictions of time, inventory, and, most importantly, specific formats of the physical delivery medium.

Virtual Transaction Zone Embodiment Home Shopping Example

The preceding units can be configured as another embodiment of the invention so that it can be utilized to provide direct access to shopping channels typically viewed through television channels today. Video on demand orders and (when the product is in digital format) delivery of movies, compact disc (or other audio medium), video catalogs, are all contemplated by this embodiment. This embodiment effectively eliminates the need for in store shopping or even the use of telephone lines to communicate with current television channel options. It can create a variety of applications for home shopping for clothes, hardware, building supplies, books, cars, homes, vacations and vacation rentals and other forms of purchasing that benefit from the viewer being able to access multi-media data feeds that enhance the buying process.

Additionally, the VPR/DMS unit may be programmed to automatically capture video catalogues according to certain User Suitability Criteria. In this way, the user may customize his commercial programming, for storage in his Data Box for viewing at his convenience. This is possible by utilizing the content filter/editor which interprets control data specifically

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for that purpose imbedded in the data feed. The catalogues may also be captured by use of the clock timer system after searching program menus for criteria matches.

Referring to FIG. 2a, data feeds 10a-10n carry electronic data from any particular source, but preferably from a computer signal, a satellite signal or a cable signal utilizing information via the Internet. The data feeds may carry audio, video, print or other mediums to the receiver 11 and, for purposes of the Internet, may utilize either "Push" or "Pull" technology as those terms are commonly referred to in the field. The data feeds may be in compressed format. Once received, the signal is transmitted to the microprocessor 12 where the information is processed according to user input. In the home shopping example, the input feed should typically be a stream of catalog information that is fed either sequentially or from predetermined search routines of the buyer's preferences.

As in the previous embodiment, the receiver interfaces 21-26 in FIG. 2 are designed to accept the broadcast signals and transmit them to output circuit 27. Output circuit 27 may be a multiplexer, sequencer, delay circuit, or other circuit generally known in the art for handling the flow of multiple output signals for individual processing. In this respect, the multi-functional processing system may process, handle, and operate on one or more input signals simultaneously. As an example, one of the data feeds would be a typical Internet data feed of compressed data, which could download a clothing catalog to one of the receiver interfaces 21-26. It may also contain applets or other applications to assist the processing in the transaction zone. For example, there may be an applet that interfaces with certain preset body measurements of the end user that are stored in the transaction zone 40 (shown in FIG. 4), thereby providing a body to simulate the fit of the clothes that are being viewed in the virtual store within the transaction zone 40.

Referring back to FIG. 2a, from the receiver 11, the raw data received from one or more of the data feed lines 10a-10n is sent to the processing means 13. Microprocessor 12 controls the processing functions (if any) that are applied to the received data. Microprocessor 12 presents menu-driven screens and visual aids to recreate the look and feel of shopping in a store and viewing the fit and style of the clothes. By way of further example, there is certain technology already known that can create a "walk around" environment to the user through the user interface 17, the display or a combination of both as are well-recognized in the prior art.

As with the prior embodiment, the user interface 17 allows the user to directly control which processing functions will be applied to the received data as it is transmitted through the processing means 13 by transmitting a control signal 16 which the microprocessor 12 receives, interprets and uses to control the processing means 13 based on the user's specifications and would include all of the variations and features related herein.

The choices provided to the user interface or the display may include retrieval of specific selections, accessing certain parts of the virtual store where goods are placed in various virtual "spaces" by specified categories (i.e., ties, blazers, shoes, socks, underwear, brand names, etc.) previews, excerpts, reviews, or other information regarding the potential selections. For example, referring to FIGS. 3a, 3b, and 3c, a user may choose to access any of several different services. This information may be resident on the microprocessor, the microprocessor, the storage device, the data feed (e.g., Java applets), or any combination.

The processing means 13 may include any or all of the features and attributes as described herein. In this manner, the

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user, through user interface 17 and microprocessor 12, may specify the exact type of processing he/she wishes to receive raw data in the form of a movie to undergo. Using the example of the downloaded virtual store, the digital information would pass from the storage device 14 to the playback device. Within the microprocessor 12 (or even monitored through one or more of the data feeds), the download or playback of the movie would be noted. In the case of browsing a virtual store, the user would be provided, for example, a mouse driven "walk" around the virtual store.

Virtual Transaction Zone Embodiment—Multiple Feed Commercial Transaction Example

Any of the disclosed units can be configured as another embodiment of the invention so that it can be utilized to provide direct on demand delivery of multi-formatted programs. Examples are movies, compact discs (or other audio medium), video catalogs, etc. This is done so that multiple feeds can be placed in the ultimate display to the user.

Referring to FIG. 2a, data feeds 10a-10n carry electronic data as in the prior examples. Once received, the signal is transmitted to the microprocessor 3 where the information is processed according to user input.

As in the previous embodiment, the receiver interfaces 21-26 in FIG. 2 are designed to accept the broadcast signals and transmit them to output circuit 27, the multi-functional processing system may process, handle, and operate on one or more input signals simultaneously. As an example, one of the data feeds would be a typical Internet data feed of compressed data from ESPN or another sports related data provider, which could download real time sports statistics and sports news to one of the receiver interfaces 21-26. It may also contain applets or other applications to assist the processing in the transaction zone. Another data feed from a broadcaster would be received from a cable input into another one of the other receiver interfaces 21-26.

Referring back to FIG. 2a, from the receiver 11, the raw data received from one or more of the data feed lines 10a-10n is sent to the processing means 13. Microprocessor 12 controls the processing functions (if any) that are applied to the received data. The channel within the data feed from the cable TV input would then be split from the cable data TV feed and combined, in the transaction zone with the ESPN data feed. Microprocessor 12 presents menu-driven screens to the user through the user interface 17, the display or a combination of both as are well recognized in the prior art.

As with the prior embodiment, the user interface 17 allows the user to directly control which processing functions will be applied to the received data as it is transmitted through the processing means 13 by transmitting a control signal 16 which the microprocessor 12 receives, interprets and uses to control the processing means 13 based on the user's specifications and would include all of the variations and features related hereinabove.

The choices provided to the user interface or the display may include retrieval of specific selections, previews, excerpts, reviews, or other information regarding the potential selections. For example, referring to FIGS. 3e, 3f, and 3g, a user may choose to access and blend any of several different services into the ultimate stored or displayed data feed. This information may be resident on the microprocessor, the microprocessor, the storage device, the data feed (e.g., Java applets), or any combination. FIG. 3e is an example of a master menu for accessing different types of data feeds and combining those fields for unique experiences. This menu may be viewed by the display means or through other display means viewed by the user, such as on the FIG. 3f represents a choice to access broadcaster channels, statistical data feeds,

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news data feeds, and data feeds from other users for either rental or purchase, in essence a virtual sports center in this specific example. The broadcaster channels showing sporting events are browsed, previewed, and selected using various search and retrieval algorithms (e.g., type of sport, time, professional vs., amateur, region, etc). The other types of data feeds are selected and initial positioning on the display feed are chosen (e.g., picture-in-picture, multiple screen, header, footer, etc.) The virtual store example above could have additional music added to the background for a more pleasing shopping experience. FIG. 3h is a representation of a typical screen layout. The selections are made by the user and the financial transaction is completed by payment through a screen such as seen in FIG. 3i. As can be seen from that figure, a choice can be made to rent or purchase a copy of the material.

The raw data received from data feed lines 10a-10n may be stored directly to a storage device 14 for later processing and/or playback. As with prior examples, the payment is credited (or debited) to the selected user account with processing in the microprocessor 12 that also takes into account preset spending limits, authorization codes, and similar security and cash management features.

The processing means 13 may include any or all of the features and attributes as described hereinabove. In this manner, the user, through user interface 17 and microprocessor 12, may specify the exact type of processing he/she wishes the received raw data in the form of a movie to undergo. Using the example of the multimedia array of sports programming, the digital information would pass from the storage device 14 to the playback device.

By way of example, one type of additional processing might be colorization of a black and white movie accomplished by renting first the movie and then "renting" an additional feed that provides colorization software to overlay on top of the movie in the transaction zone, where the rental for both feeds and the application of color to the feeds to create the ultimate output are implemented and payment negotiated, which is also made within the transaction zone.

Virtual Transaction Zone Embodiment—Personal Computer Example

By way of further example, the use of the transaction zone is not limited to a TV/VCR platform. It is recognized that the transaction zone could exist on a typical computer platform under any typically available operating system such as Windows, Unix or even a Macintosh environment. The transaction zone 40 would be created in the computer's RAM, the CPU would provide processing capability and the algorithms for accomplishing the transaction zone 40 (in FIG. 4) would be stored on the hard drive of the computer in the form of computer software or on a RISC chip.

Virtual Transaction Zone Embodiment—Remote Location of User Defined Transaction Zone Example

By way of yet another example, it is important to realize that the current invention is not relegated to local processing and storage of data. An example of a remote unit would be a service that stores preset selection information for a series of users and access via modem through the Internet or telephone lines for remote users to link into their own or a rented transaction zone 40 (in FIG. 4) to provide the same services and advantages outlined above.

Overview of Inputs and Outputs to Closed Loop Transaction Zone

In FIG. 4, it is shown that a virtual Transaction Zone 40 relies on various types of Content Providers 41 and Software Accessory Providers 42 (collectively Providers) in order to establish one portion of a zone for accomplishing transactions

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involving digital data that are not format or program dependent. The Content Providers **41** may consist of movie studios, distributors, sports broadcasters, network and cable broadcasters, news media outlets, music publishers, book distributors, and generally any content providers that would otherwise utilize the television, personal computer, the Internet, or telephone lines to convey information.

Coming from the other direction, Information Consumers **43** and Entertainment Consumers **44** (collectively Consumers) provide information to a VPR/DMS **30** and upload or transfer information within the device to the Transaction Zone **40**. In turn, information from the Content Providers **41** and Software Accessory Providers **42** is manipulated and downloaded based on instructions from the Consumer, which includes negotiations within the Transaction Zone **40** with the Content Providers **41-42** for download and use of the data feeds, software, and associated blended and modified data fields. The net effect of the information flow from the Content Providers **41-42** to the Transaction Zone **40** and the information flow and requests from the Consumers **43-45** to the Transaction Zone **40** creates an interactive zone for virtually selecting, packaging, renting, purchasing, pricing and payment of digital data products and the order and delivery of products and services presented to and ordered from the Transaction Zone **40**.

Breadth of Technology Applications

In broad aspect, the current invention will most often reside in the form of software on consumer devices. It is important to note that these consumer applications fall into three devices in order to capture most forms of entertainment and information available on the market today. Referring to the matrix of FIG. 5, in the current technology environment, most of the categories of Entertainment **61** and Information **62** available on the market today percolate through to the end consumer to some type of video processor **51**, WebTV **52**, personal computer **53**. While this is the optimum placement of the transaction zone **40** at this time, the invention is not dependent on residence on only those devices. As such, the invention is to be placed at and includes residence in the transaction zone **40** on any point or points along the matrix shown in FIG. 5.

Referring now to FIG. 6, there is shown a block diagram of the components of the entire system as they interrelate during operation of the system.

A local VPR/DMS **30** provides the vehicle for program reception and recording, custom processing, and product download as well as program or product playback. In its most basic form, VPR/DMS **30** may be a licensed "set top box" which houses the electronic components necessary for connection and operation. The VPR/DMS **30** may be locally connected (or built in) to one or more consumer electronics units **28**. This includes computers; home theater systems; home stereo receivers; CD recorders and/or players; audio and video multi-disc players; DAT recorders and/or players; Minidisc recorders and/or players; cassette tape recorders and/or players; televisions; VCRs; DVD players and/or recorders; Divx players; cable receivers; satellite receivers; or any other consumer electronics known in the art. Additionally, the local VPR/DMS unit **30** may include a built-in portable media recorder/player such as a CD recorder/player (e.g., CD recordable ("CD-R"), CD rewritable ("CD-RW"), CD-ROM, audio CD player, or any other CD recorder/player unit), DVD recorder/player (e.g., DVD recordable ("DVD-R"), DVD-RAM, DVD-ROM, or any other DVD format recorder/player unit), DAT recorder/player, audio cassette tape recorder/player, minidisc recorder/player, video cassette recorder/player, or any other recorder/player known in the art (which utilize a portable storage medium) so that received

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data may be transferred to a portable medium for use on other media playback units. The preferred embodiment may also include a DVD recorder/player also capable of reading and recording both DVD and CD formats on the same unit.

The local VPR/DMS unit **30** is directly connected to broadcasters **39**, data content providers **41**, software accessory providers **42** and a remote Automatic Transaction Server (ATS) **29**. Data products, including free or pay-per-view television or radio broadcasts, audio and/or video products, and software products may be received directly from the broadcasters **39**, data content providers **41**, and software accessory providers **42** and recorded on the local VPR/DMS **30**.

The remote ATS **29** provides a billing interface between the end user and the content providers **39**, **41**, and **42** as well as an information and auto-programming source for local VPR/DMS unit **30**. This device may be located at the content provider's site, or it may be administered by the content provider/broadcaster. The local VPR/DMS unit **30** interfaces with remote ATS **29** at regular intervals to download the latest programming/scheduling information for timed television/radio broadcasts so that the end user may reliably program local VPR/DMS unit **30** to record timed broadcasts. Additionally, remote ATS **29** provides local VPR/DMS unit **30** with an electronic catalog of audio, video or software products available for direct rental or purchase. Additionally, user account information may be stored on remote ATS **29** or securely transmitted through remote ATS **29** for easy interface with billing authorities **30** and content providers **39**, **41**, and **42** to negotiate rentals, purchases or pay-per-view broadcasts.

Referring now to FIG. 7, a block diagram of a preferred embodiment of the local receiver-recorder-player unit is disclosed.

Data feeds **10a-10c** are directly link broadcasters, content providers and the remote ATS to the local VPR/DMS unit **30**. Data, including direct audio/video and software products, broadcast programs or audio/video data from local consumer electronics or computers is received and/or transmitted by local VPR/DMS unit **30** via data feeds **10a-10c**. Data on data feeds **10a-10c** is received by receiver **2** which digitizes received analog data and which may compress both digitized analog data and native digital data. For example, receiver **2** may include circuitry that receives an analog television signal (CATV, Satellite TV, etc.) and converts it to digital data via an MPEG-2 (or similar) encoding process. The same receiver **2** may receive digital ATRAC data from a local minidisc player, however, since ATRAC data is digital, the receiver **2** would not need to digitize the data first. However, the receiver **2** may include circuitry allowing it to recognize particular digital data formats (particularly those that require large amounts of storage space) and convert or compress them to data formats requiring less storage space. For example, the receiver **2** may recognize that CD audio data is being received through a digital input. However, since CD data may take up several megabytes of storage space, the receiver **2** may first convert or compress the CD audio data into a smaller file. One method of accomplishing this task would be for the receiver **2** to convert the CD audio data into mpeg-2 layer 3 ("MP3") format using a compression algorithm developed by the Fraunhofer Gesellschaft. Similar techniques may be used for video data using the MPEG-2 format, and when they become sufficiently developed the MPEG-4 or MPEG-7 formats.

Once data has been received and compressed or digitized, the receiver **2** passes the data on to the non-movable storage device **14** for immediate or subsequent playback, processing or transfer. Storage device **14** is capable of being written to and read from virtually simultaneously to allow for immediate access to data while the local VPR/DMS **30** continues to

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record and/or process data. A typical medium for use as the built-in storage device 14 may include a single or multiple array of one or more high capacity random access memory devices, such as hard drives, but may also include magneto-optical discs, and other re-recordable media, provided that these media allow for the near simultaneous read/write operation to enable the local VPR/DMS 30 to play back, pause, rewind, fast forward, and process recorded data as other data is being recorded.

As data is read from the storage device 14 it is transferred to the microprocessor 12 to be processed according to user input parameters. Broadcasters or information providers frequently include information encoded in broadcast signals along with the broadcast program that, when separated and decoded, may be utilized by other electronic features that may be present in the system. For example, television broadcasters include closed captioning information in line 21 of the vertical blanking interval (VBI) of a television signal. A television with built-in closed caption decoding reads this signal decodes it, and allows the television to display it. It is possible to transmit other information in this manner, including V-chip ratings, or information that may be used to automatically edit the data content. In addition to V-chip or closed captioning, the present invention makes it possible for broadcasters to transmit an uncensored or multi-formatted program, and include control information embedded in the signal. The reception and storage of editing control data may also occur prior to broadcasting the program data, or, in the case of digital music and television, as embedded control code corresponding to particular significant portions of the data. This code can be used by the microprocessor 12 to automatically edit the program according to FCC standards or based on the pre-programmed user suitability criteria and use of the content filter/editor.

The broadcasters may also transmit a multi-formatted program, and include control and program information relating to an unedited version for "re-assembly" by the content filter/editor 35 and the processing means 13. The processing means 13 of the invention embodied in FIG. 7 may include a signal processor or content filter/editor that decodes and processes any coded control information which may be included in a broadcast or other received data signal.

In addition, other processing functions, which may be accessed in microprocessor 12, include a device or circuitry for data compression, expansion, and/or encoding. These features would aid in the system in maximizing transfer rates, maximizing storage efficiency, and providing security from unauthorized access. The processing means 13 is fully programmable to allow the inclusion or exclusion of any types of available digital signal processing and/or signal decoding. The type of processing the received signal undergoes in the processing means 13 is dependent on the specific desires of the user.

After the data is processed according to specific parameters set forth by the user, processing means 13 transmits the data to the playback circuit 27. The playback circuit 27 comprises signal decoders, digital-to-analog converters and digital outputs for transmitting the processed data to a proper playback device. For example, playback circuit 27 may convert digital mpeg-2 compressed audio/video data to the proper analog audio/video signal (RCA, composite, S-video) for display on an analog source (e.g., analog television, RGB computer monitor inputs, FIREWIRE, RCA stereo inputs, S-video inputs, etc.). Additionally, or alternatively, playback circuit 27 may include output connectors 20a-e for transmitting processed data, in digital format (e.g., mpeg-2, Dolby Digital/AC3, DTS, MP3, etc.) directly to the digital input of an

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electronic component capable of decoding digital data (e.g., a digital television or HDTV, stereo receiver with Dolby Digital decoder, etc.). The invention thus contemplates the use of a combination of digital and analog outputs. For example, the user may have a stereo or component capable of receiving and/or decoding digital signals, but has not yet upgraded to a digital television. Therefore, the user connects an analog video output connector 20a, b to the analog video in on his TV or monitor, while connecting the digital audio output circuit 20c to his stereo with Dolby Digital decoder.

Automatic Digital Audio/Video Recorder Embodiment

The following embodiments are directed to specific uses for automatic recording features of the system. In its most basic form, the VPR/DMS of the present invention has many advantages over video tape recorders that record television and/or radio broadcasts. The present invention may be fully programmed to automatically record a user's requested broadcasts based on a variety of programming parameters. Referring to the drawings, FIG. 7 shows a basic form of the local VPR/DMS unit as it may be used in this embodiment.

Data feeds 1a-1c carrying electronic or broadcast data from any particular source, including but not limited to network television broadcasts, UHF/VHF signal receivers, cable television broadcasts, satellite broadcasts, radio broadcasts, audio, video or audio/video components, or computer data signals are received at the receiver unit 2. The receiver unit 2 may incorporate any one or a combination of radio or television antennas, cable television receiver, satellite signal receiver, analog RCA input/output interfaces, digital optical or co-axial I/O ports, computer network I/O ports (e.g., serial, parallel, Ethernet, token ring, FIREWIRE and others known in the art) or any other digital or analog signal receiver and/or transmitter capable of accepting a signal transmitting any kind of digital or broadcast information. Once received, the signal may be transmitted to the processing unit 3 where the information is processed according to user input.

For example, in an information subscription program, a user may be required to pay a fee in order to access information for personal use. To enforce the payment of such fees, and to prevent unauthorized access from non-subscribers, the signal may be encoded by the broadcaster, and require some sort of de-scrambler to facilitate access to the information after it is stored. In the present embodiment of the invention, the processing unit 3 may include an optional "de-scrambler," among other processing devices, which will decode the broadcast signal so that the information contained therein may be accessed for personal use by the subscriber.

Once the received signal has been processed, it may be stored in either scrambled or unscrambled format on the built-in non-movable storage device 14 for future use, or immediately accessed for present use. In a preferred embodiment, if needed for present use, the processed data is transmitted from the microprocessor 12, through the output circuit 27, to the playback device 5 which interprets the processed data and prepares it for display. For example, an audio signal is received from a compact disc player at receiver 2, and then processed and decoded by microprocessor 12 so that any audio data is separated from CD-I information on the disc. Once the data has been fully processed in the microprocessor 12, it is sent to the playback device 5 which plays back the audio data through a speaker system, and displays the CD-I information on a LED display.

In addition to allowing immediate playback of received and processed data, the present invention allows the data to be

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stored on an internal, non-movable storage device 14 in either processed or unprocessed format such as scrambled or unscrambled

In that way it may be processed and/or displayed later. The non-movable storage device 14 may be any medium known in the art for storing electronic data, including, but not limited to recordable tape or other analog recording media, random access memory (RAM), CD ROM, optical disk, magneto-optical disc, computer hard drive, digital video disc (DVD), or digital audio tape (DAT). It is preferred, but not required that the non-movable storage device 14 be one that is erasable so that previously stored programs may be overwritten.

Data from the storage device 14 may be accessed for playback at the playback device 5 or for subsequent processing in the microprocessor 12. This feature is important because it allows the user to capture a data product according to his User Suitability Criteria, edit it by utilizing the content filter/editor, store it on the non-movable storage device 14, and then watch a version edited by the microprocessor 12 to his specifications. This feature allows more control over the content of programs he may view.

A preferred embodiment of the Digital Recorder Embodiment will now be described with reference to FIGS. 6 and 7.

The remote ATS 29 in FIG. 6 stores local broadcast programming data collected from the various broadcasters in an online database. The programming data is updated at regular intervals to provide the most accurate programming information possible. The local VPR/DMS unit 30 is the central component of the system, and may be used by an end user to digitally record, store, and play back broadcast programs.

Referring now to FIG. 7, a detailed description of the automatic digital recorder will now be described. Via user interface 17, the end user activates the local VPR/DMS unit to access the remote ATS server. User interface 17 may comprise a remote control unit which transmits user selection/programming option data via remote signal (e.g., infrared, VHF, etc.). Alternatively, or additionally, user interface 17 may comprise a button or set of buttons located on the VPR/DMS 30 for entering user selection/programming option data.

In the preferred embodiment, the local VPR/DMS 30 is interfaced with the remote ATS 29 via an Internet connection (TCP/IP) through a high speed interface (e.g., cable modem, a direct T1 or T3 connection through Ethernet, token ring or other high speed computer network interface). However, other interfaces may be used as well (e.g., telephone modem connection). Thus, this preferred embodiment, as part of the receiver circuit 2 and the playback circuit 27, an Ethernet input/output interface would be included to provide for the high speed exchange of data via TCP/IP (and other Internet protocols) between the VPR/DMS and the ATS.

The user connects to the ATS 29 (FIG. 6) using the VPR/DMS 30. The VPR/DMS 30 downloads the latest available programming information, presenting the user with a hierarchical set of menus (FIGS. 3a through 3f) to select specific programming parameters for setting the VPR/DMS 30 to automatically record specific programs. This selection is done either by: 1) interpreting embedded control data and matching User Suitability Criteria; 2) time schedule recording of pre-rated or pre-classified programming. In the preferred embodiment, the user interface 17 permits the user to select from broadcast program names, themes, ratings, actors, plots, times, genres (western, espionage, comedy, etc.), or any other parameter of his User Suitability Criteria, to automatically configure the VPR/DMS 30 to record specific programs. Any single parameter or a combination of a plurality of parameters may be used to narrow or broaden the range of

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shows that will be recorded. The user may also use a simple timer or VCR plus information as well to configure the VPR/DMS 30. The user may also select an option where the automatic recording is done perpetually until modified. He/she may also select an option allowing specific parameters to define the broadcast programs to be recorded for only a limited number of times, or for a specific period.

Once the user has finished selecting the User Suitability Criteria, the VPR/DMS, he/she may select a specific button (e.g., a START button) which activates the auto-programming feature. The micro-controller 31 queries the ATS to search for all programming meeting the parameters specified by the user. The ATS then begins searching for all of the programs that meet the user's specifications, and then sends the auto-configuration data (e.g., broadcast times, channels, and sources) to the VPR/DMS. Micro-controller 31 reads the auto-configuration data downloaded from the ATS 29. It then automatically configures the system to receive and record the requested broadcast programs. This automatic recordation is by user selection of either time schedule programming of programs pre-classified to match various user selected criteria or optionally, by interpretation of control data within the data feed.

Assume the VPR/DMS has been programmed to record a particular cable television show. At the time of the program broadcast, the micro-controller 31 activates the receiver 2 to receive the selected broadcast program. For example, the micro-controller 31 sets the receiver circuit to receive cable TV data via a data feed 10a. Specifically, the micro-controller 31 sets the receiver 2 to receive the particular channel at which corresponds to the requested broadcast program.

Broadcast program data (e.g., television audio and video signals) are received on data feed 10a at the receiver 2. In the case of recording a television program, when the analog television data is received, the receiving circuit determines that the data is analog audio/video data, and converts the television signal to compressed digital format (e.g., mpeg-2 data). Receiver circuit employs all necessary hardware and software including compression algorithms, signal processors, analog-to-digital converters, etc. for converting analog audio and/or video data to compressed digital format. Micro-controller 31 may be involved as well by receiving control signals from the receiver 2, which enable the micro-controller 31 to select the type of conversion and/or compression applied to the incoming data.

Note that the invention as disclosed herein may be used in conjunction with new emerging audio/video formats such as digital television (DTV, and HDTV), Dolby digital/AC3 encoding, Digital Theater Sound ("DTS") encoding, and mpeg-2 layer 3 ("MP3") audio formats. Although these formats are already digital, the microprocessor 12 and the receiver 2 are capable of recognizing that such formats do not need to be digitized and/or compressed, and the receiver 2 will simply receive the data without performing such operations upon it. Digital encoding and compressing capability is fully programmable by the user. User may select specific options for digital compression and encoding based on desired picture/sound quality versus storage capacity. For example, better picture and sound may require less compression to avoid loss of data. If user desires more storage capability, and is indifferent to picture quality, the system may be configured to compress data into smaller storage space, resulting in poorer picture and/or sound quality. User may select such option to optimize both parameters to his preference.

Once the broadcast program data is received and digitized/compressed, if necessary, it is recorded onto the built-in non-

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movable storage device 14 included in the VPR/DMS 30. Storage device 14 is capable of dynamic accessing by both a set of recording heads and at least one playback device 15 almost simultaneously to allow for instant playback of recorded data "on the fly." In a preferred embodiment, storage device 14 is a hard disk drive unit or large array of random access memory capable of storing several hours (up to 30 now) worth of compressed digital audio/video data. Storage device 14 is further capable of being accessed dynamically at different portions of the drive/array by the read and write operations nearly simultaneously. Thus, the drive may be written to and read from simultaneously, and he/she may play back, surf through a stored program, or pause live broadcasts even as the VPR/DMS 30 continues to record programs.

Upon playback, stored digital data is read from the built-in storage device 14 and transmitted to a microprocessor 12 to be processed according to User Suitability Criteria as described above. Embedded data is received with content data, and decoded by microprocessor 12 to instruct the Content Filter/Editor how such content should be edited. A representative example may include the embedding of control data relating to specific elements in a particular movie. An illustration of imbedded control data is shown in FIG. 14. A Processing circuit may decode such data on the fly, and bleep out expletives or edit pictures to remove explicit sexual content. It is contemplated that alternative scenes may be included in the data transmission, and substituted for sexually explicit scenes, on the fly if the user setting requires such content editing. It should be noted that such content editing is not restricted to "child-proofing" and ratings based applications. Such content editing may include options of adding or substituting scenes from a "director's cut" if this option is selected, or choosing between sound encoding formats (e.g., Dolby Digital/AC3 versus DTS versus Dolby Surround Sound). Such options may allow for less data to be used in that rather than providing two separate versions (actual release versus director's cut), scenes added or replaced in the director's cut may be included with control information detailing where such scenes should be placed in the movie, and as the data is played back, the processing unit can automatically add or cut scenes depending on the selected version.

Once the data has been processed according to the user's specific desires, the data is sent to the playback device 15 or to the built-in storage device 14 for subsequent playback. Playback device 15 comprises the circuitry necessary to transmit processed data to the proper playback device in the proper (digital or analog) form. For example, consider the case where user uses the device with an analog television. Since analog audio/video data is required to be transmitted to the analog audio/video inputs of a television, then playback circuit must incorporate signal decoders and digital-to-analog converters to transform the mpeg 2 data to analog audio/video signals which are then output at the device's analog outputs 20c (RCA audio/video outputs and/or the S-video outputs). However, the digital mpeg-2 data may also be received by the playback device 15, and transmitted in digital form directly to the digital output 20b with decoding or conversion to analog format. Data from the digital output 20b may be input directly to the television's digital input, where it is decoded by the television, rather than by the VPR/DMS 30.

It should be noted that one preferred embodiment of the VPR/DMS 30 (FIG. 7) includes a built-in recorder/player 19 for recording data to and/or playing data from a portable storage device. Examples include DVD, CD, DAT, audio or video cassette. Data stored on the built-in storage device 14 may be archived on a portable medium via portable recorder/player 19. This stored data may be in open or scrambled

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format depending on whether or not the data product requires a fee for accessing, renting, or purchasing. If a commercial terms between the content provider and the user are required, once transacted, an "authorization key" is issued for de-scrambling or unlocking the program, whereby the user may gain access to the data. The preferred embodiment includes a recorder/player 19 for storing data to and playing data from a digital portable medium (e.g., DVD, DAT, and minidisc, CD). Thus in the preferred embodiment, recorder/player 19 would likely comprise a DVD-RAM, DVD recordable/re-writable (DVD-R), CD read/write CD-R/W, minidisc, or other digitally recordable drive. However, it is contemplated that the built-in portable storage device 19 may store data in analog form (e.g., videotape, audiotape, etc.).

Referring to FIG. 8, a global semi-diagrammatic schematic of the present invention is shown illustrating the flow of data, and programming instruction input pathways. Data Feeds 10a-10n communicate data, through receiver interfaces 21-26 to a receiver 2. The multiple feeds are transmitted to a multiplexer 27, which simplifies the multiple signals and then transmits the data to a microprocessor 12. A software program 33 controls the operation of the microprocessor 12, which may route the data stream through a decoder 34, a content filter/editor 35, before being routed in accordance with the users program instructions. The data may be routed to the built-in, non-movable storage device 14, a playback device 15, or the user's audio/video system 36. A detailed description of manipulation of data is hereafter described in detail. Further, the data may be sent to a portable recorder/player 19 in communication with the VPR/DMS 30.

The user may program the VPR/DMS 30 of the present invention to manipulate data in a multitude of ways, and will hereafter be described in detail. The user also has great flexibility as to the ways he/she may interface with the VPR/DMS 30, and issue programming instructions. He may access the system via his/her audio/video system 36, and may program the system via cascading on-screen menus. Examples of these on screen menus are shown in FIGS. 3a-3i, FIGS. 10, 11, and 12.

FIG. 8 further illustrates that the user's audio/video system 36 may be accessed with a remote control device 37. This device generates a control signal 16 to allow the user to move through the on screen menus to enable him/her to select among the options presented. Further, VPR/DMS 30 may be programmed remotely, from a computer 46 attached to the system. Other ways in which the user can control programming of his device is by telephone 47, by a remote and/or portable computer 48, a wireless telephone 49, or a palm top computer 50 such as a PALM PILOT. In this way, the user may program his VPR/DMS 30, when he/she is away.

Referring now to FIG. 9, a schematic representation of the present invention illustrates the management of multiple feeds of data for commercial transactions. This example shows a Virtual sports Center and the management of simultaneous flows of information from Internet Data Feeds 54, Cable TV channels 55, and interaction with an on-line video catalog 56. Each of these feeds may carry multiple channels. The Internet Data Feed 54 may carry a Sports Statistics channel 57, a Sports News channel 58, and Special Effects Software 59. The Cable TV Data Feed 55 may carry a Previews and Interviews channel 60, a Live Sports Center channel 61, and a Music Overlay 62. The On-Line video catalog 56 may carry a User Account Information channel 63, and a Walk around Souvenir Store 64.

These channels communicate with the VPR/DMS 30 of the present invention, and in this embodiment, pass the information through the content filter/editor 35, then stores the infor-

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29 information on the built-in, non-movable storage device 14 based on preprogrammed User Suitability Criteria. If instructed, the data may be stored in an individual Data Box partition of the non-movable storage device 14. The information may then be blended into a Multimedia Data Display/Playback 65, for the user's discretionary enjoyment.

On screen menus allow the selection of the source of data (FIG. 10), selection of generic types of data to be received (FIG. 11), as well as selection and rental/purchase details associated with specific selection of programming (FIG. 12).

Referring to FIG. 13, a schematic representation of the present invention is illustrated, showing the flow of data types, programming instructions, and storage options. Data flows from Data Transmission Sources 66, which may include Network TV, Satellite transmissions, TV Cable, the Internet, Telephone, or Wireless sources. Data may also originate locally. These Data Feeds 10 flow through Receiver Interfaces 21-26 into the receiver 2. The data is processed, may be decoded or unscrambled in a decoder 34, edited according to user selectable criteria, and processed through a content filter/editor 35, and recorded on the built-in, non-movable storage device 14. Resultant Output Information 67, may take the form of e-mail, TV programs, Movies, Musical recordings or videos, computer games, audio books, video catalogues, and phone messages. All of this data may be accessed via any playback device 5 employed by the user. Information may also be communicated to a portable recorder/player 19.

Multi-Formatted Broadcast Processing

Referring now to FIG. 14, a schematic representation of the present invention is illustrated, showing how multiple control data channels may be used to control, filter and edit content to be played back. This diagram generally illustrates Multi-Formatted Data, and shows how it may be processed by the VPR/DMS 30 of the present invention. The Data received may comprise a large number of Control Data (CD) tracks 69. This is represented by a block diagram of a Multi-Formatted Data Transmission 68. Each control data track 69 comprises unique and distinguishable data, that may include multiple language tracks, multiple audio tracks, and multiple story lines. Further, audio/video segments may have specific scenes, dialog, narration, previews, and adult content. Control Data tracks 69 may also have indices for identification of user suitability criteria, interactive control data, and subscription/fee based transaction information. The existence of this information allows the user incredible flexibility for customizing the digital data product in accordance with his/her preferences, by use of the content filter/editor. Control data may be provided on parallel tracks or channels, providing general processing/editing controls. Control data tracks 69 may also be included within the main program data for use by the VPR/DMS 30 for identifying specific data or data segments for manipulation, editing, and re-assembly by the content filter/editor.

Broadcasters/content providers may now transmit highly formatted programs that include TV shows, movies, audio/video product catalogs, and music channels. When received and processed by the VPR/DMS 30 allows users to record and/or display the broadcast in various optional edited (or processed) versions based on pre-programmed user suitability criteria. These broadcasts may include data having several optional story lines, optional advertising formats, and optional program preview formats. It may also include data representing several optional story endings, optional display formats, and data representing edited versions of the program based on a content rating system.

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Along with the broadcast signal is control data that may be interpreted and utilized by the VPR/DMS 30 and specifically processed by the content filter/editor. The utilization may include control data for processing, recording, and/or displaying the broadcast in customized edited versions. These variations are generated according to the preprogrammed user suitability criteria, which has been pre-programmed in the system. The User Suitability Criteria directs the content filter/editor to interpret and utilize received control data for editing, thereby creating a program tailored to the user's individual tastes. This may occur either before or after storage of the data in the non-movable storage device 14.

Referring again to FIG. 14, the VPR/DMS 30 demonstrates its improved features over DVD players that processes and plays back multi-formatted program data in various optional display/playback versions. The improvement over these prior art devices occurs where the VPR/DMS 30 operates with live broadcast signals which are not limited by the formatting capability of DVD or any portable storage media with highly restrictive data storage capacity.

Users and broadcaster/content providers may also take advantage of other VPR/DMS features for providing a multitude of user options and unique functions. For example, a highly formatted broadcast program (movie, etc.) may first be recorded in raw form onto the System's built-in storage device. Subsequently, individuals, family members, business associates, and public access applications may retrieve or order a customized edition of the program which has been processed by the system according to the individual's User Suitability Criteria for display, playback, and/or recording. Recording of the customized program may be done in the Data Box partitions of the built-in storage device, or onto a portable recorder. This customized editing feature allows each member of a family to enjoy a customized edition of the broadcast program/movie according to their own personal preferences, or those of the VPR/DMS system administrator. This functionality gives parents greater control over content to be viewed by their children. It also provides many new opportunities for broadcasters and content providers to transmit various editions of custom programs and custom targeted advertising data all contained within a single broadcast transmission.

As FIG. 14 illustrates, in a fee based or subscription broadcast model, this system provides great flexibility and customization of programming data according to various user suitability criteria that may increase the frequency of program viewing. This translates to increased revenues from delivery of preferred data products which may be accessed by pay-per-view, rented, and/or purchased directly through the VPR/DMS 30 system. An additional benefit of the VPR/DMS 30 system includes data delivery used in a public access system. Like other functions of the system, these operations may be programmed by the end user.

Product Advertising Operations

Referring to FIG. 15, a schematic representation of the present invention illustrates the communication pathways between system components, content providers, and a transaction zone 40. A broadcaster 39, content provider 41, or software accessory Provider 42, communicate with an Internet Service Provider 70, a Transaction Zone 40, and the VPR/DMS 30 of the present invention. This connectivity allows for the expeditious transfer of data as is further described by these preferred embodiments.

Referring to FIG. 16, a schematic representing the present invention illustrates the communication pathways between advertisers 71, a broadcaster content provider 41, and VPR/DMS components/programming. The VPR/DMS 30 system

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creates a new, unique, and ideally suited vehicle capable of managing the delivery of product advertising at the speed and efficiency available with existing electronic commerce systems, including the Internet.

Referring now to FIG. 17, a schematic representation of the present invention further illustrating post recording data processing is shown and described. Advertising data transmitted from a broadcaster 39 or other content provider, is received in the VPR/DMS 30 and is recorded on the built-in, non-movable storage device in its raw form. The VPR/DMS is then able to interpret the data in the decoder 34, and process and edit the data according to his/her preprogrammed User Suitability Criteria. The data is sent through the Content Filter/Editor 35, where it is edited, and held in buffer memory 72 until instructions are received as to the user's desires, which may include a storage, display or playback preference. Multiple versions of the data may be transferred to storage in individual Data Boxes 74 of the built-in, non-movable storage device 14. The data may then be sent to a Playback Device 5, or transferred to a Portable Recorder/Player 19 or other such portable storage device.

In addition to delivery transactions involving digital data products (i.e. movies, premium, TV shows, video games and physical product catalogs), the VPR/DMS 30 system also provides multi-layered advertising formats with numerous advantages to both advertisers and consumers. Some of the various advertising formats included in the VPR/DMS 30 of the present invention are:

1) Combining advertisements with on-screen menu selection displays. Examples include: "live" feeds, VPR/DMS 30 recorded data, software based programs, and Internet overlays

2) Combined with product preview data, audio/video recordings, product catalogs, data feeds, VPR/DMS 30 recorded data, Internet data, as well as broadcast movies, and videos.

3) Combined with rented or purchased digital data product delivery ("live", recorded, Internet, etc.)

4) Delivered by TV/radio network broadcast channels assigned for use with VPR/DMS 30 system

5) Delivered by computer/Internet Web sites associated and/or interactive with VPR/DMS 30 system

6) Delivered by use of excess data capacity existing within all various digital data signal feeds (such as now used for closed captioning, TV guide schedules, VCR+time clock programming, etc. and same for similar data feeds specific to use with VPR/DMS 30 system)

7) Programmable designation of advertising "sections" within VPR/DMS 30 internal storage areas. These permanent or programmable "sections", "data boxes" or "spaces" are monitored and controlled by both content providers (or VPR/DMS 30 central data base) as well as by end users according to pre-set or negotiable criteria. The designated advertising "sections" might be used for delivering advertising feeds, which are processed and recorded by VPR/DMS 30 system for real-time or subsequent viewing by end user. These advertising data feeds might be mass distributed or broadcast to VPR/DMS 30 customers, or might be selectively distributed according to customer profiles, demographics, or other criteria. Profile criteria can be established through analysis of customer activity history from on-line monitoring. Alternatively, it may be developed from customer information inquiries acquired directly through system interaction or from outside customer profile data sources. Advertising "sections" or "spaces" or "data boxes" may be reserved, rented, leased or purchased from end user, content providers, broadcasters, cable/satellite distributor, or other data communications com-

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panies administering the data products and services. For example, a wide band, multi-media cable distributor may provide, lease or sell a cable "set top box" containing the VPR/DMS system. This VPR/DMS 30 comprises a built-in non-movable storage device 14 which has certain areas that are reserved and controlled by the cable company. These areas are available for commercial sales or leasing to others, who may include movie distributors, advertisers, data product suppliers, video game suppliers, video magazine publishers, or video product catalogue companies.

As shown in FIG. 16, advertisements which are delivered to the VPR/DMS 30 advertising "sections" can be customer specific by use of systems built-in signal decoding and the data content filter/editing algorithm. This is accomplished either by customer selection or by activity history monitoring. Selective recording of customer specific advertisements can be automatically processed and recorded onto the designated advertising "sections" of the VPR/DMS 30 system's internal storage areas. It may also be delivered through or onto other available advertising storage areas or monitoring channels of VPR/DMS 30 system. This offers a great advantage to both the advertiser and the VPR/DMS 30 customer for maximizing content, establishing customer qualifications, and ultimately producing more cost efficient advertising for product and service providers.

8) Another important capability of the VPR/DMS 30 system allows for an entirely new method of processing, delivering, and managing advertising programs. Because the VPR/DMS 30 system is an on-line, integrated, and interactive system it represents the next generation of high speed automated advertising, perfectly suited for modern electronic commerce applications. Controlled through a VPR/DMS 30 central database (or other associated control database), prospective advertisers will be continuously updated by on-line data transmission into advertisers computer systems, and specific to a variety of customer profile data. This data is continuously retrieved, stored, and processed by VPR/DMS 30 central database through monitoring and service interactions with VPR/DMS 30 customers. This data specific to advertiser analysis will include for examples, total number of customers (system users and/or specific product subscribers), customer profile data, customer demographics, program schedules, product showcase schedules, available advertising formats, available advertising schedules, advertising rates, etc. Various advertising analyses can be made automatically for a selection of advertising formats, according to critical factors such as timing and cost effectiveness. Pre-programmed or spontaneously programmed advertising format scenarios can be instantly analyzed and displayed or produced on advertiser's system by use with custom VPR/DMS 30 analysis software located at VPR/DMS 30 central data base or present with advertiser's systems. Once all format decisions are made by the advertiser, it may then place the desired advertising order for "instant" or scheduled delivery to VPR/DMS 30 customers. For example, one available advertising placement option might indicate a selective customer base of 5,000,000 VPR/DMS 30 subscribers who have available space on advertising "sections". Providing the advertiser has immediately available advertisement formats (audio/video/text, etc.) for transmission, then instantaneous advertisement delivery can be transmitted to the 5,000,000 qualified customers. This may be sent via a VPR/DMS central data base and control center which may be located at the Content Provider's site 41 or on the remote ATS 29 (FIG. 15). The same or similar advertisement distribution can be accomplished expeditiously as soon as materials are available. Another example would allow an advertiser to make qualified yet almost instantaneous trans-

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actions for placement of advertising within a scheduled "issue" of a video magazine. It would be electronically delivered to VPR/DMS 30 subscribers and recorded onto designated storage areas of end user's VPR/DMS 30 system. The entire transaction can be instantly and automatically conducted within the "Transaction Zone" of the VPR/DMS 30 system.

9) To increase effectiveness and profitability of advertising within this system, many means are available including placing advertisements in and around desirable broadcast feeds which are specifically tailored to the consumer's specific User Suitability Criteria and content filter/editor, enabling the user to see only advertising of interest, thereby making the advertising more effective. Ad distributions would include those for movies, TV shows, sports programs, and previews. Targeted advertisements within specialty product catalogs, and supplying to specialty product/user specific product catalogs may also be distributed to consumers. These examples may be delivered in the form of audio, video, audio/video, still graphics, text, or other data formats.

In addition to the systems' capabilities for downloading audio/video data to portable storage devices, the system might also include outputs to printers for producing printed copies of text, graphics, or captured still images. This would occur if such output systems are connected to VPR/DMS 30 system.

Referring now to FIG. 17, a schematic representation of the present invention further illustrating post recording data processing is shown and described. Data transmitted from a broadcaster 39 or other content provider, is received in the VPR/DMS 30 and is recorded on the built-in, non-movable storage device in its raw form. Upon completion of a commercial transaction, (i.e. rental, purchase, or pay per view) an authorization key code 73 is supplied to the user. He/she is then able to de-scramble or otherwise unlock the data in the decoder 34, and process and edit the data according to his/her preprogrammed User Suitability Criteria. The data is sent through the Content Filter/Editor 35, where it is edited, and held in buffer memory 72 until instructions are received as to the user's desires, which may include a storage, display or playback preference. Multiple versions of the data may be transferred to storage in individual Data Boxes 74 of the built-in, non-movable storage device 14. The data may then be sent to a Playback Device 5, or transferred to a Portable Recorder/Player 19 or other such portable storage device.

Automobile System

The incorporation of the VPR/DMS 30 device into or connected with automobile receiver and playback devices (which may include satellite, radio, wireless communications) is one preferred embodiment of the present invention. This embodiment allows all functionality unique to the present inventions in an automobile, and also enables all VPR/DMS rental/purchase transaction capabilities for direct delivery of digital data products. It also allows transactions involving rental/purchase of other products and services not normally delivered as digital data. For example, ordering a music CD after reviewing song excerpts received and processed by VPR/DMS system.

The portable, built-in auto mounted VPR/DMS system also provides a valuable tool for automatically or manually processing and recording the ever growing varieties of audio/video/computer data presently received by automobile receiver/playback/display systems during a period of time when the user is likely to buy the product—while he is driving.

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Portable VPR/DMS and Public Access

The portable, auto mounted VPR/DMS system is particularly useful for integration with public access data communication systems to provide the user most or all of the benefits enabled by these inventions, although portability need not be confined to automobiles. A portable system may be embodied as visually similar to a laptop computer, but retains all the functional capability of the home based system. Further, access to any VPR/DMS via a telephone, a remote computer having a modem, or a palm top computer, such as a PALM PILOT is possible with the present invention.

For example, with little or no modifications to public use telephone systems and computer/Internet communication systems, the portable VPR/DMS can be connected to or built into these systems whereby virtually all rental/purchase transactions may be quickly and effectively conducted. Upon interconnection between these systems, the user selects a variety of digital data products for preview, sale or rental from on-screen menus, or auto-recorded via programmable User Suitability Criteria and content filter/editor.

These data products might be transmitted through integration with public access system from various digital data sources such as cable TV, satellite, phone lines, computer/Internet, or any other data broadcast source. After completing the commercial arrangement within the Transaction Zone, the broadcaster/content provider transmits data product through a novel electronic data dispenser system (EDDS). This EDDS may incorporate a fully functional VPR/DMS, or provide a convenient connection for the VPR/DMS portable device that stores the data product onto designated storage area within system. Alternatively, the data product may be directly transferred from the EDDS to a portable storage device. Upon receipt of the data, the user may enjoy access to the data product, (for example a new audio CD recording). Access would occur for a limited period if rented, after which, the data product must be "virtually returned" by re-engaging the portable VPR/DMS, or portable storage device with the EDDS for erasing, encrypting or scrambling the data product. If the data was purchased, he/she may be able to utilize the data product as often as desired. All other functions and processes necessary for these transactions are virtually identical to those described previously in home or office based rental/purchase transactions.

The EDDS system is enabled to dispense or display on a built-in TV screen/monitor only those data products, which are stored on-site and within storage areas of the EDDS system. The EDDS may be updated via physical delivery of data products, or it may also be updated through online data communications with a central database control system.

Virtual Digital Data Rental/Purchase Embodiment

Either of the preceding units can be configured as another embodiment of the invention so that it can be utilized to provide direct on demand delivery of multi-formatted programs (movies, compact disc (or other audio medium), video catalogs, software, video games, etc.). This embodiment effectively eliminates the need for transporting, inventorying, and physical delivery of digital data products. It can create a variety of applications from virtual VCR rental stores, music stores, bookstores, home shopping applications and other commercial applications.

Referring to FIG. 6, data feeds carry electronic data from the audio/video content providers 41, and software accessory providers 42. Data travels between the remote ATS 29 and the local VPR/DMS 30. This includes computer software, video games like NINTENDO 64 or SONY PLAYSTATION. Data is preferably transmitted via: a high speed computer signal (T1 or T3 connection via Ethernet, token ring; cable modem;

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high speed analog or ISDN modem or other high speed computer network connection); satellite signal; or cable signal utilizing information via the Internet. The data feeds 6 may carry digital audio, video, print or other mediums directly to the local VPR/DMS 30.

Under the virtual rental/purchase store, the user has several options. He may choose from products listed in an electronic catalog which is either downloaded from the remote ATS, or received via direct broadcast feed. He may set the content filter/editor to automatically record data according to User Suitability Criteria or specifically selected programming. In either case, the data from which is stored on the local VPR/DMS. The VPR/DMS unit interfaces with the ATS to establish two-way communication with a broadcaster/content provider and update itself at regular intervals, providing the home user with the latest available rental/purchase information. For example, the user may browse through available software titles to select a particular product she would like to purchase or rent. The local VPR/DMS obtains the necessary information from the user to identify the selected product; retrieves stored or spontaneously entered billing information, and then transmits the information to the remote ATS. The remote ATS receives the requested information, and validates the user's account and billing information. It then electronically negotiates the purchase or rental, either before or after storage in the VPR/DMS, from the content provider, and configures the local VPR/DMS to connect to and receive the requested data from the content provider either on-demand or via a broadcast schedule.

In one type of purchase transaction, the data is received and stored on the built-in storage device where it may be accessed for processing, playback or transfer to other media. The data may be received in a scrambled or encrypted format, and may have either content or access restrictions, but also may be provided without restriction. For example, in a rental or purchase transaction, the remote ATS, the local VPR/DMS, (or both) retain rental control information, which is monitored by the broadcaster/content provider, to restrict the use of downloaded data past the or prior to negotiated rental period or purchase transaction. For example, control data indicating rental restrictions for a particular title may be stored by the VPR/DMS upon receipt of the digital data product from the content provider. Once receipt of the data is acknowledged by the VPR/DMS and the transaction is completed, the user may play back the data product, store it, or transfer it to portable medium for use on a stand alone playback unit (e.g., DVD Player, VCR, etc.) provided all necessary transactions are completed. If the data product is stored in scrambled form, an authorization "key code" must be received from broadcaster/content provider to unlock the rented or purchased program by use of a built-in data descrambler device.

In order to avoid late charges or fees for rental transactions, the user must "return" the data product by selecting a return option from the electronic menu. Additionally, the system is programmable to automatically return, erase, scramble or block out the data/program when the rental, preview, demo time has expired. The VPR/DMS interfaces with the ATS to negotiate the "return", and the data product is erased from the VPR/DMS storage device or re-scrambled (authorization key voided, where the data product remains stored for future access/rental/purchase). The data product has been transferred to portable medium; the control data keeps a record of such transfer, and requires the portable medium to be erased before successfully negotiating the "return." In this way, the system is programmable by the end user and broadcaster/content provider to enact a "virtual return" of data products stored on the non-moveable storage device.

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Virtual Movie Rental Embodiment

Referring now to FIGS. 6 and 7, the user activates user interface 17 to connect the local VPR/DMS 30 (from FIG. 6) to the remote ATS 29 to enable renting a movie. VPR/DMS 30 queries the remote ATS 29 to provide listings of available titles for rental. Remote ATS 29 maintains a periodically updated database of available movie titles available for purchase or rent, and transmits such information to the local VPR/DMS 30 for display. The user makes rental selections from among the available titles via the user interface 17. An example of an on screen menu is shown in FIG. 3c. Once the user has finished making selections, the local VPR/DMS 30 transmits the user's selections to the remote ATS 29 which proceeds to negotiate the rental transactions from the movie content providers.

ATS 29 queries the user for billing information. Alternatively, the user may maintain billing information in the system (either locally, or in a database stored at the ATS 29 location). ATS 29 verifies the billing information with the proper bank, credit card company, or other financial institution, and then negotiates the transfer of requested movies from the content provider to the local VPR/DMS 30. This is accomplished by establishing an interface (preferably a TCP/IP connection) between the VPR/DMS 30 and the data content provider 41. The ATS 29 also provides billing information to the proper financial institution, authorizing charges against the user's account.

Once the direct connection between the data content provider and the VPR/DMS 30 has been negotiated, VPR/DMS 30 begins downloading the requested movies. The ATS 29 provides rental information control data that includes rental periods, due dates, applicable late fees, and content enabling data associated with each data product downloaded. An illustration of imbedded control data is shown in FIG. 14. This is done to restrict access to the data, and provide for supplemental billing if the data is not returned within the rental period. VPR/DMS 30 receives content and associated control data at the receiver 2 (see FIG. 7).

In a preferred embodiment, network interface 10b is the high-speed connection to the digital data content providers through which the VPR/DMS receives the digital movie data. Receiver 2 may include digital signal processors, and compression algorithm hardware and/or software to compress the received data for storage on the built-in storage device. Digital data (compressed or uncompressed) may be received from the receiver 2, which then records the data onto the built-in, non-moveable storage device 14. It should be noted that like the previous embodiment, the data storage device 14 is nearly simultaneously accessible by separate read and write heads so that data may be read virtually at the same time it is written. Thus, the user is not required to wait until all of the movie data has been received before viewing or otherwise manipulating the movie data.

Once movie data has been stored on the built-in non moveable storage device 14, the data may be played back by the system, or transferred to a portable medium for use on a movie player outside the system, but only if allowed by the content provider and commercial transactions associated with delivery are completed. Considering the playback example, the system operates much like the playback system in the Automatic Digital Recorder/Player Embodiment above. Data is transmitted to the microprocessor 12 and to the content filter/editor where it may be further processed prior to playback according to pre-selected or on-the-fly options. Some on-the-fly selections may include, for example, choices from among different formats (wide screen versus NTSC format), or user may select added features unique to the

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rented movie data, such as viewing movie data by chapter, accessing movie credits, director's comments, actor bios, movie trailers, etc. Pre-selected options may include ratings or content based editing as described above.

Once the data has been processed according to user selection, it is output to the playback circuit 27 for playback on an analog or digital television or monitor, and/or through a stereo with analog and/or digital inputs, or stored on the built-in non-movable storage device 14. As detailed above, playback circuit 27 may include signal processors and decoders and digital-to-analog decoders (DAC) to transform digital audio/video data to analog form to be output at output connector 20a, b, or c. Additionally, digital data may directly output via digital output connector 20a, b, or c, to components with built-in digital decoders, without first being decoded, thus preserving the integrity and quality of the digital sound and picture.

Rather than playing back the movie from the built-in non-movable storage device 14, the user may wish to record the data onto a portable recorder/player 19 or other portable storage media. In this case, the user may transfer the data from the built-in storage device 14 to a portable recorder/player 19. This may be accomplished in at least two ways. First, since the preferred embodiment includes a built-in portable media recorder/player 19, the user may simply select an option from the user interface 17 to transfer the data to a media in the built-in portable recorder/player 19. If this option is selected, the user places a blank DVD (or DVD-R or DVD-RAM) disc into the portable recorder/player 19, and selects the transfer option. The micro-controller 31 reads the movie data from the built-in storage device 14, and transmits it to the microprocessor 12.

The microprocessor 12, using techniques known in the art, may add copyright protection (e.g., Macrovision DVD, SCMS, etc.) to the data to prevent additional copies from being made from the copy. In addition, the processing unit may include control data on the disc, which uniquely identifies the disk based on the rental information unique to that rental agreement. The micro-controller 31 stores control data information in a memory unit 32 for later use in the return process. The control data information is necessary for the system to track and account for all "copies" of the rented movie that may be made by the user. It should be noted that the control data stored on the disc does not affect playback of the data content, but merely serves to identify the disc as containing movie data related to a specific rental agreement. An illustration of imbedded control data is shown in FIG. 14. The DVD disc now contains all of the movie data, which may be accessed by any DVD player known in the art, on an unrestricted basis (i.e. as many times as one wants, and on any player).

An alternative method includes usage of a stand-alone DVD recorder (or similar device e.g., a personal computer with built-in DVD recorder) which may be attached to one of the digital I/O ports or via computer interface. In this respect, the same operations may occur except that from the built-in storage device 14 the digital data is transmitted through the playback circuit 27, through a digital output (or computer I/O interface) to the outside DVD recorder. Note that the transmitted data may include content data, copy protection data, and control data assigned by the processing circuit to uniquely identify the device.

It should be noted again that when the rental agreement period has elapsed, the user may perform a "virtual return" of the movie data, including any copies made. This "virtual return" may be an "auto return", where the data is automatically erased at the expiration of the rental period. Or it may

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embody an automatic cancellation of an access key code which prevents further access. At the time of return, the user accesses the system via the user interface 17. The system alerts the user that a movie is due to be returned, and offers several options, including returning, or renewing. If the user renews, then the VPR/DMS 30 proceeds to access the remote ATS 29 (FIG. 6) and instructs the server to renew the rental charge the account. If the user decides to return the movie, then the micro-controller 31 accesses the memory unit 32 to retrieve rental information and control data information relating to the rented movie. If a copy has been made for use on outside players, then the VPR/DMS 30 queries the user to insert a disc or tape into the portable medium recorder/player 19. The micro-controller 31 reads the control data information on the disc to make sure that the disc is the proper one. When this is confirmed, the programming in the VPR/DMS 30 causes the portable medium recorder/player 19 to erase the disc or otherwise render it unusable. Next, the micro-controller 31 issues instructions to delete the movie data from the built-in digital storage device 14. Finally, the micro-controller 31 signals the remote ATS 29 that the movie data has been properly erased from the built-in storage device 14, and any portable copies that may exist. The ATS 29 then contacts the data content provider that provided the movie to confirm that the movie has been "returned". Finally, the ATS 29 records the rental transaction as having been finalized and completed. The provider may also allow the data product to be purchased for a fee as hereinafter described.

Virtual Video Game Rental

Virtual Video Game rental is operationally the same as the Virtual Movie Rental, except the data is video game data (e.g., SONY PLAYSTATION, NINTENDO 64). Data is stored on built-in storage device 14, and output from digital output to re-writable adapter cartridge, which may be inserted into a game console. A return is initiated by deleting the rented software from the built-in storage device 14 and notifying the digital data provider that the transaction is completed.

Virtual Software Rental

Virtual software rental is operationally the same as the Virtual Movie Rental, except the VPR/DMS keeps track of copies, and requires all copies to be deleted to initiate a return as earlier described. Interface with computer is required to transfer software to and from CPU.

Virtual Purchases (Movies, CD's, Games, Software)

Virtual purchases are operationally the same as the Virtual Rentals, except once purchased, the data is the user's to manipulate. The VPR/DMS system incorporates standard copyright protection on all copies. User may transfer to portable medium once, and then data on built-in medium is erased so that the copyrighted material may not be illegally duplicated. The purchase essentially allows unlimited access to the data for viewing. However, the present invention prohibits any illegal duplication.

Data Box—Individual Storage Units

The VPR/DMS 30 can be utilized by individuals for capturing, processing, and/or playback of received broadcasts according to their own programmable suitability criteria. Similarly, the system's apparatus for capturing and processing multiple data feeds can be subdivided into multiple units for which a single user may assign various recording/processing functions to individual data box storage units for a multitude of purposes. For example, a user can pre-program the system to automatically record all TV programs (or segments) received from all or specific broadcast channels that have specific themes. Examples include comedy shows, western, high tech, mysteries, financial interests, actors, etc. This

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thereby creates a virtual broadcasting network with multiple channels, each of which are customized to suit the user's suitability criteria.

The user may designate specific Data Boxes to automatically capture and process data feeds from such diverse sources as for network TV, satellite TV/music channels, cable transmissions, telephone communications, facsimile transmissions, Internet data, advertising data, subscriptions to on-line magazines, radio. In doing so, the multi-functional processor recorder becomes a versatile data management system for routing, capturing, processing, combining, accessing, display/playback, and/or downloading to portable devices any and all multiple data feeds received along various transmission sources.

The user may designate a partition in his individual Data Box to hold only advertising information which has been processed and customized according to his unique user suitability criteria. This information may be communicated back to the broadcaster/content provider to allow advertising or video catalogues sent to the user to be more on target as to the user's preferences.

Besides receiving preferred advertising and catalogues, the VPR/DMS allows the user to scan content backwards and forwards, as well conduct transactions to rent, purchase, pay-per-view out of the data box functions directly through the system.

Instantaneous Playback

The user can activate an Instant replay function of the VPR/DMS by pressing an Instant replay, a reverse scan button or a swing shuttle knob located on the remote control or on the VPR/DMS 30 unit. These functions are available for use during real time viewing/recording and for viewing previously recorded data (movies, etc.). While viewing a program in real time, user may at any time press the replay button which activates the rewind or a relocate playback feature for reviewing the last few seconds (or minutes) of the program. Such time lengths are programmable by the user. This may occur while the program is being viewed in real time and being recorded simultaneously on the built-in, non-movable storage device 14. This replay function is programmable to review a pre-selected or pre-programmed number of seconds or minutes of programs being viewed in real time according to the user's preference. It also allows for variable replay time frames by pressing the replay button (or turning rewind shuttle knob) allowing user to spontaneously select the instant replay time frame indicated on the on-screen display. Once the user has completed viewing the replay segment, the unit will automatically shift to the real time viewing mode, or if desired, the user may re-commence viewing of the program at the point of pause which also continues to record the program. At the same time, the system continues to record the program by the use of multiple read/write operations. The system registers all pauses in "live or real time" viewing by timing based on the location of cue points automatically registered in system memory for automatically returning to view the program at the point of pause or instant replay.

The recording modes for such instant replay features include both continuous loop in a designated time frame, or continuous recording to the end of the storage capacity. The continuous loop mode is particularly useful. Regardless of how long the user records a broadcast or other data feed, the last few seconds, minutes, or even hours of programs being viewed in real time can be instantly replayed. The system will automatically record over initially recorded storage areas located on recording tape, optical disc, hard drive, or other built-in, non-movable storage device 14.

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Since the VPR/DMS 30 includes both multiple storage device; and multiple data boxes, the instant replay features can be activated for review during several recording modes. This includes multiple programs being recorded simultaneously, as well as programs that have been previously recorded. These multiple programs may be displayed in full screen, split screen, or Picture-In-Picture display formats.

Pause-N-Return or Stop-N-Go Functions

Referring now to FIGS. 18 and 19, the manner in which the VPR/DMS 30 of the present invention initiates pause-n-return or stop-n-go functions is illustrated. The VPR/DMS 30 of the present invention provides that a user may pause live viewing of a broadcast program and return later to continue viewing the program from the point of pause through to end of the program. This may occur even if the program is still in progress. If the user pauses live program viewing while the VPR/DMS is not in any recording mode, then the user activates a "pause n' return" button. This button instructs the system to instantly begin recording the program while also automatically registering the pause cue point in system memory for use later. This process may be repeated as often as necessary.

When the user returns to continue viewing, a "return to view" button may be utilized which automatically locates and begins playing back the program from the precise cue point which the user paused live, real time program. At that point the system continues to record the program using a read/write device, and continues to record the program through to its ending. The system continues to playback the recorded program in normal viewing sequence. The functionality is repeatable any number of times allowing the view to raise-return to continue viewing in normal continuous sequence regardless of how many minutes, hours, or even days the user takes to view the entire program. Although the system will function in this manner in use with various recording and storage formats, the preferred embodiment includes use of one or more high capacity hard disk drives with random access memory operations.

"Late to View" or Time Shifting Functions

Referring now to FIGS. 18 and 19, the manner in which the VPR/DMS 30 of the present invention initiates "late to view" or time shifting functions. The VPR/DMS 30 may be programmed to begin a recording of a broadcast program or broadcast channel at a specific time in both normal recording mode or in continuous loop mode. If the user arrives late to begin viewing a broadcast program or channel which has already started, the system will automatically locate and register in systems memory, the cue point of the program being recorded. It will then begin playing back the program from its beginning through to its ending, regardless of whether or not the program is still in progress, while at the same time continue recording the show to its ending by use of multiple read/write heads or random access memory operations provided in the system. Additionally, the user may take advantage of "Instant Replay" and "Pause-N-Return" functions. In effect, this system provides that a user will never be late to view a favored broadcast.

Referring now to FIG. 13, the user may program the system to capture digital data products from a single or a plurality of broadcast channels at the same time. A microprocessor in the system has software programming to control the operation of the processing circuitry and the playback circuitry. The software programming interacts with the non-movable storage device 14 and the playback device 15 to allow recording of the digital data products as they are broadcast. The software programming further interacts with the playback circuitry to allow the data to be played back from a cue point, paused on

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command, and restarted from the cue point, while the data are being continuously recorded without interruption.

The data may be subject to either pay per view, purchase or rental restrictions by the broadcaster/content provider. When this occurs, the data is still received and recorded, but in a format that prohibits viewing by the user until the commercial transaction has been completed. The data may be scrambled, encrypted, or otherwise locked from viewing until the user agrees to pay for access. However, the data is already stored on the users local VPR/DMS, so the commercial transaction may take place locally on a remote ATS. Once the commercial transaction is completed, the digital data product provider exchanges a digitally encoded electronic access key to the scrambled, encrypted, or otherwise locked data.

In this way, the user may come home only to find that his or her premium program of choice started, say fifteen minutes prior. In prior art devices, the entire body of programming content, in this instance would be missed or viewed 15 minutes into the program. However, because the user pre-programmed the system to capture a broad band of programming channels or specific programs during the period before the program started, the entire program is still instantly accessible, even while the program is still being recorded. The access key is obtained allowing the user convenient and discretionary viewing privileges. If the scrambled or encrypted digital data isn't accessed, the system may record over it later. This unique function provides improvements for both the end user as well as increasing pay-per-view sales by effectively synchronizing program starting times with convenient user access time schedules.

Expanded Continuous Loop Recording

Referring now to FIGS. 18 and 19, the manner in which the VPR/DMS 30 of the present invention initiates continuous loop recording. The continuous loop recording functions in the VPR/DMS of the present invention have many useful purposes when applied to both "free" channel broadcast data and fee based/subscription broadcasts. When applied to free broadcasts, for example, a network television broadcast, or any received broadcast where no pay-per-view transactions are required for immediate access to a program, this feature provides that even when a user is late to arrive to view a program which has already started, he/she may view the program from its beginning through to its ending. First the user scans broadcast channels or program menu displays to determine desired programs already in progress which have been recorded by the VPR/DMS via any methods previously described. Upon selection by user via remote control or via buttons on VPR/DMS the system automatically locates the starting point of the broadcast program (TV show, movie, audio track, etc.) which has been recorded onto system's built-in storage device, preferably a hard disk drive for this application. The system simultaneously continues to record the remainder of the broadcast (unless entire broadcast has been fully recorded) using multiple read/write heads and random access operations with hard disk drive system. The system is also instantly programmable to automatically disengage the continuous loop recording process if the user, in addition to viewing the broadcast in "view time" (time shifted real-time viewing), wishes to capture the program in its entirety for viewing at a later time. Any and all processing functions described previously (VPR/DMS) are applicable to said recorded program such as for data, scrambling, program customization, compressed data, commercial skip, ratings edited, and all processing can be done before and/or after recording. This continuous loop recording process is useful for allowing user to scan backwards all broadcasts received within a limited time period (limited only to the total record-

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ing capacity of the built-in storage device or designated storage areas on the device assigned for such purposes). Therefore, when a user has not programmed the system for recording specific broadcast programs, then this feature provides instant access to hours of previously received broadcasts for selection and viewing. The hard disk drive system provides such capabilities for 20 hours or more, or dividable storage capacity assigned to individual broadcast channels. For example, the total storage capacity of 20 hours equally assigned over 10 broadcast channels allows for a user to view any program(s) received within the last 2 hours over any of the 10 channels from the beginning of the program through to its ending. Alternately, a user may program the system to record specific programs or programs automatically selected via system discretionary filter/editor system based on programmable user suitability criteria. In this way, the user may view, for example, all comedy programs received within the allotted, time period (continuous loop recording capacity) instead of only recording specific programs and then deactivating recording when storage capacity is reached. The continuous loop recording mode can be pre-programmed to activate and deactivate at any time desired by user. This feature is also necessary for providing instantaneous playback ("instant replay") and backwards program scanning as previously described in that the system continues to record received broadcasts even when data storage capacity is full.

These functions are also very well suited for enhanced pay-per-view, fee-based channels, and subscription program applications. When applied with the continuous loop functions described above, many new and useful functions are provided. For example, the process described above can be assigned to one or more pay-per-view channels for recording all broadcasts received over the previous 3 hours (capacity of continuous loop storage designated to the channel). In this way, the user may "purchase" a number of pay-per-view broadcast programs currently in progress (movie, etc.) and view the entire program from its beginning even if he or she is late to arrive for the beginning of the real-time start of the program. This application of the system effectively solves the most prevalent problem of know pay-per-view delivery formats: failure to match viewer's time of convenience with real time start of programming. The value to both broadcasters and consumers may be easily seen. Additionally, these capabilities become even more advantageous when all other VPR/DMS functions are available, such as instant replay, backwards and forwards scanning, customized program processing/editing, multi-format broadcast processing, utilization with individually accessed storage units (data boxes), as well as applications with all other VPR/DMS rental/purchase capabilities.

Any or all of these functions may be applied to the pay-per-view premium subscription programs which allows not only a virtual "on-demand" audio/video system, but also provides delivery of video programs and other data products which are customized to the end user's suitability.

Video-On-Demand

Referring now to FIG. 20, a schematic representation of the Video-on-Demand System, illustrating how data flows from a broadcaster into the VPR/DMS of the present invention, and how it may be recorded on a plurality of tracks having temporal offsets.

The invention may be used for providing Video-On-Demand (V.O.D.) or Near-Video-On-Demand (N.V.O.D.) functions in use with multiple television broadcast channels or via Internet broadcasting 39. For these functions the system utilizes pre-stored initial data program segments. In this example an initial movie segment (PR-A) 76 of 30 minutes

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(or longer) in length in conjunction with (4) standard TV/movie broadcast channels. Each of the (4) broadcast channels transmit the exact stream of data representing the same movie (2 hr movie in this example) but in 30 minute time delayed intervals. Upon selection by viewer at anytime between the hours of 6:00 p.m. and 8:00 p.m. (beginning of last segment B to be broadcast that day in this example) and following any necessary fee transactions, playback of pre-stored initial movie segment (PR-A) 76 begins at 6:45 p.m. in this illustration. If the movie is a pay-per-view movie, then upon selection and completion of fee transactions the initial movie segment (PR-A) is unscrambled or otherwise unlocked for display in normal viewing format.

The pre-storing of initial data/program segments (movies, etc.) can be accomplished in several ways, including:

1. automatically recording an initial program segment at the time a regularly scheduled program is being broadcast; or
2. single or multiple initial program segments may be transmitted by broadcasters along channels designated for such purposes, via the Internet, downloaded from a portable storage media, or by other transmission means for storage in the VPR/DMS system within storage areas designated for such purposes and utilized for the V.O.D./N.V.O.D. operations described above.

At the time of selection and playback of PR-A 76, the system simultaneously and automatically begins monitoring all (4) broadcast channels 75, i.e. (ch1, ch2, ch3, ch4) on which the same movie is to be broadcast in time delayed intervals. The system automatically selects channel (2) at the precise time (or slightly before) the beginning of segment B when broadcast in real-time (7:00 p.m.) (RS on figure). The recording of the movie broadcast on channel (2) will continue until the entire movie has been recorded (8:30 p.m. in this example). Once playback of pre-stored initial segment PR-A 76 is completed, the system automatically begins immediately playing back the now recorded movie segment (B) from its beginning which as been precisely located by use of either a data bit cue point identification system. This might include broadcast transmission of control information data received and stored in system memory received along with or prior to the movie data, or the system may utilize a clock timer system which identifies the beginning of segment B on channel 2 (by way of a time delay calculation or time synchronization method).

If the VPR/DMS 30 contains only one playback head, then the system is programmable to automatically switch from playback of PR-A segment to a recording track 77 used for recording movie segment B. Whenever adequate space is available immediately adjacent to the recording track containing the pre-recorded PR-A segment, the system will automatically select that storage area on a Hard Disk Drive (in this example) for recording the movie segment which follows the initial segment (PR-A) for seamless playback of the entire movie. The system continues playback of all remaining movie segments (B,C,D) which are still being recorded by use of systems having simultaneously read/write capabilities described previously. In this example, the real-time movie broadcast on ch (2) selected for use ends at 8:30 p.m., at which time the recording of the movie on ch (2) also ends. Playback of the movie segments received on channel (2) and simultaneously recorded continues and concludes at 8:45 p.m., which is (2) hours subsequent to time of viewer selection and playback of pre-stored initial segment (PR-A) which began at 6:45 p.m. Again, the system and methods described above provide a solution to the existent problems of matching broadcast schedule times with time of convenience of television or Internet broadcasting viewers. These functions are

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equally applicable to "free" broadcast channels or fee based broadcast programming (pay-per-view, etc.). The latter might necessitate on-line direct fee transactions all within the system's "transaction zone" followed by broadcaster authorization for unscrambling or unlocking the pay-per-view movie (in this example) for immediate access by the system user.

Note that the process described above and illustrated in FIG. 20 represents only one example of the V.O.D. or N.V.O.D. functions of the invention. Any number of similar broadcast formats may be easily configured and utilized by the VPR/DMS system for creating V.O.D. or N.V.O.D. capabilities. For example, a premium channel broadcast network such as Direct TV, HBO, or SHOWTIME may broadcast the same movie over three different channels in 20 minute time delayed intervals offering their subscribers a total of only (3) movie starts (as opposed to (4) starts in the example above) which more likely than not will not match the viewer's preferred time of convenience. By use of this invention, the pre-storage of an initial movie segment of at least 20 minutes in length will provide that (V.O.D.) between the times of the beginning of the first of the three broadcast starts and prior to the beginning of the second 20 minute segment of the third broadcast of the 2 hr. movie in this example. In these ways the system may for example pre-store up to 60 initial movie segments (20 minutes long) on one hard disk drive having a total data storage capacity of 20 hrs. This allows the end user to select and playback on-demand up to 60 different movies (or other programs), each of which are broadcast over multiple channels in 20 minute time delayed intervals.

Other Commercial Aspects

In addition to the system's capabilities for downloading data products to portable media which have been received directly by end-user via broadcast signal or other data transmission means, the VPR/DMS of the present invention is capable of storing, processing, and playback of data products (i.e., movies, computer games, etc.) which have been pre-recorded* onto any type of portable storage device (CD, DVD, VHS tapes, etc.) in unique recording/playback formats adapted for use by VPR/DMS recorder/players as described previously. In this embodiment of a commercial based VPR/DMS system all unique VPR/DMS functions as previously described for uses with portable storage devices would be identical, except that the recording of the data product would occur prior to rental or purchase of pre-recorded portable storage device by end-user.

Additionally, the recording process might include all other unique formatting techniques previously described including (some or all) copy protection, embedded control data, product identification data, consumer identification data, transaction/account data, rental/purchase transaction data, multi-formatted data, and all other formatting methods previously described for controlling all rental/purchase functions as well as unique record/playback functions enabled by the invention.

Besides the availability of such pre-formatted pre-recorded VPR/DMS data products through mail order or retail distribution, the system might also be conformed to provide on-site (retailer, mail order, Blockbuster, etc.) recording of customized data products for rental, purchase, or rental/purchase to consumers for use on their home based VPR/DMS (or portables or public access systems). In this way a data product provider/distributor can format and record a movie (for example) according to specific user suitability criteria provided by the customer, or otherwise customized to conform to various pre-selected criteria known to be popular or suitable for various customer groups such as based on ratings, or price based on sophistication of user playback options as formatted

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and recorded on the DVD, VHS tape, C.D., etc. To allow this commercial operation, similar to functions described for direct delivery of data programs to end-user system, the commercial based VPR/DMS would receive bulk data products (movies for example) via broadcast or other data transmission from content providers (i.e., Internet, etc.) for storage within its commercial VPR/DMS, preferably stored on a built-in non-movable storage device such as a high capacity HDD. Subsequently, a retailer (for example) can download a customized version of a data product (movie, etc.) onto a highly formatted, copy protected VPR/DMS portable storage device for sale or rental to customers for use on their VPR/DMS systems. All functions for negotiating rental and purchase transactions as previously described for direct transmission to home-based VPR/DMS systems are equally effective for rental or purchase of pre-recorded data products as described above. However, alternatively to automatic "return" of data products (i.e., erasure, scrambling, etc.) customers may be required to physically return a pre-recorded VPR/DMS data product for subsequent resale, re-rental, or erasure by retailer or product distributor.

As previously described, rented and purchased VPR/DMS data products are securely controlled via copy protection, embedded control data, and other techniques. However, contrary to existing rental/purchase formats (i.e., DIVX), it is not necessary that the data product be recorded in a scrambled format. Therefore, under easily managed negotiations with content providers, a VPR/DMS portable storage device may be utilized with existing (or future universal) recorder/players following any necessary rental or purchase transactions with content providers. Alternately, the system is fully capable of scrambling and unscrambling data stored internally or onto a portable media while under proprietary control by content providers as previously described, yet maintaining the capability for permanently descrambling the data product for transfer to a portable storage device (C.D., DVD, VHS tape, etc.) for use with conventional recorder/players. Thus the fears by consumers to invest in specialized recorder/players or to collect libraries of products which can only be played back on specialized players (i.e., DIVX, etc.) is eliminated.

Additionally, for use by commercial product distributors or by end-users, "blank" VPR/DMS portable storage media (i.e., CD, DVD, VHS, etc.) can be produced which have been formatted at the factory or distributor level to include unique VPR/DMS control data and product information data (as described above) for customizing data products, for maximizing unique VPR/DMS recording, processing, and playback functions, or other for use in controlling all rental/purchase transactions described previously.

Copyright Collection/Monitoring Functions

In addition to storing and processing transaction data or other control information data, the VPR/DMS is capable of electronically monitoring and logging all rental, purchase, or pay-per-view transactions as well as end user access operations (i.e., playbacks, downloads, etc.) of data programs and products which are copyrighted, patented, licensed or otherwise represent proprietary intellectual property. This electronically logged data might then be automatically transmitted to or retrieved by content providers or by copyright collective organizations such as ASCAP, BMI, SESAC, etc. for collection of licensing fees or other purposes. Otherwise, these licensing and distribution mechanisms might be executed by random sampling, periodical monitoring or retrieval of statistical data about distribution, broadcast, re-broadcasts, downloads to portable media, or other use of proprietary intellectual property by direct (or indirect) access to such data stored within the VPR/DMS or at an associated

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database. These same invention capabilities can also be utilized by both content providers and end-users for compiling and analyzing activity specific statistical data for producing end-user profile data which can then be used for directing transmission, storage and custom processing of data products, programs or advertisements which are most suitable for end-users. Effective employment of these operations is enhanced by the use of various VPR/DMS processing capabilities described herein including: compartmental data storage and processing, embedded control data (TAGS) processing, data encoding and decoding copy protection features (such as Macrovision, watermarking, etc.), direct microprocessor control by content provider, and other invention features described herein and illustrated in the figures.

What is claimed is:

1. A system for the processing, recording, and playback of audio or video data, comprising:
 - a. a receiver apparatus for receiving audio or video data from at least one data feed;
 - b. memory circuitry comprising a storage device built in to the system and which is not removable from the system;
 - c. processing circuitry for processing the data and for storing the processed data in the built in storage device;
 - d. a user interface operatively connected to the processing circuitry for programming which processing functions are to be applied to the received data by the processing circuitry;
 - e. playback circuitry, which reads the data from the built in storage device and which converts the data to electronic signals for driving a playback apparatus; and
 - f. a microprocessor having software programming to control the operation of the processing circuitry and the playback circuitry enabling the recording of rented data and enacting a simulated return of said rented data by deleting or scrambling said data from said built in storage device or blocking further access to said data, and notifying a data supplier of said simulated return.
2. The system of claim 1, wherein the processing circuitry further comprises a discretionary content filter/editor which is programmable by the user interface to establish the criteria for recording particular data, wherein said criteria is one from the group consisting of program name, title, theme, genre, actor, actress, artist, director, producer, motion picture rating, year, time, and key word.
3. The system of claim 2, wherein the storage device comprises a plurality of individual storage units having a memory capacity.
4. The system of claim 3, wherein custom personalized channels are created by allowing the individual storage units to be programmed to a users specific suitability criteria.
5. The system according to claim 1, further including an instant replay function allowing replay of a predetermined length of recorded broadcast data wherein said length is programmable by said user.
6. The system of claim 1, further including:
 - a. said data having embedded within a main program control data for identifying specific data or data segments;
 - b. said microprocessor separating said embedded control data from said main program;
 - c. said microprocessor decoding said control data; and
 - d. said microprocessor using said control data identify specific data segments and reassemble said specific data segments to form a custom program.
7. The system of claim 1, wherein said data is audio programming.
8. The system of claim 7, wherein said data is satellite radio.

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9. The system of claim 1, wherein said system records said rented data onto a portable storage device and allows no more than a specified number of audio, video, or music programs to be recorded onto said portable storage device.

10. The system of claim 9, wherein said portable storage device is one from the group consisting of a compact disk, a mini-disk, a DVD, a digital memory card, a PDA, portable digital recorder/player, palm held computer, a Palm Pilot, a portable PC, and a wireless phone.

11. The system of claim 1 or 9, wherein said rented data is an audio, video, or music program and said audio or music programming is MP3 digital audio compression formatted data.

12. The system of claim 1 or 9, said software programming further enabling rented data to be purchased after a temporary trial period.

13. The system of claim 9, wherein the enacting of the simulated return of said rented data by deleting or scrambling said data from said non-movable storage device or blocking further access to said data, additionally requires the deleting or scrambling of the rented data from said portable storage device on which the rented data has been recorded or blocking further access to said data.

14. The system of claim 13, wherein the portable storage device is connected to the processing circuitry for the deleting or scrambling of the rented data from said portable storage device on which the rented data has been recorded or for the blocking of further access to said data.

15. The system of claim 14, wherein the rented data is transferred to the portable storage device from the non-movable storage device by the processing circuitry and the processing circuitry adds copy protection and identification to the data transferred to the portable storage device, and wherein the processing circuitry confirms that the rented data deleted or scrambled on the portable storage device or from which access is blocked is the copy transferred from the non-movable storage device to the portable storage device.

16. The system of claim 1, wherein said rented data is received from a broadcast data source consisting of radio, UHF/VHF, Network TV, cable, satellite or Internet broadcasts.

17. The system of claim 1, wherein said system includes an electronically based payment system making rental charges to a user's credit or debit account.

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18. The system of claim 17, wherein said credit or debit account comprises a credit card account, a checking account, or an ATM account.

19. The system of claim 1, further including a remote intermediate service provider to manipulate or repackage data for end users.

20. The system of claim 1, wherein said system adds copyright protection to data recorded onto a portable storage device, said copyright protection comprising Macrovision DVD, SCMS, or watermarking.

21. The system of claim 1, further including a user option to adjust degree of compression versus recording quality.

22. The system of claim 1, wherein data is processed and the output generates an e-mail or a phone message.

23. The system of claim 1, further including the use of a portable storage device which has been preformatted to include control data for controlling data rental restrictions, data erasure, or data playback operations.

24. The system of claim 1 combined in an enclosure with a TV, VCR, TVCR, cable receiver, satellite receiver, broadcast TV antenna, CD player/recorder, DVD player/recorder, PC, portable PC, palm held computer, portable digital organizer (PDA), or wireless telephone.

25. The system of claim 1 wherein said system is remotely programmable through a telephone, wireless telephone, computer interface, the Internet, or Palm Top computer.

26. The system of claim 1, wherein the playback of a data product may be paused by registering a cue point in memory, and later playing back the data from the cue point while the data product delivered from a data product provider is being continuously recorded without interruption by the either the pause or the playback.

27. The system of claim 1, said software programming further enabling access to an Internet based subscription service and automatic downloading of data for rental or purchase.

28. The system of claim 27, wherein said downloaded data is digital music data.

29. The system of claim 1 or 27, wherein said system includes a data management system database located remote to a user allowing the user to rent said system and control operations of said database via an on-line two way connection.

* * * * *

APPENDIX I

1. U.S. Const. Art. II, § 2, Cl. 2 provides:

He shall have Power, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur; and he shall nominate, and by and with the Advice and Consent of the Senate, shall appoint Ambassadors, other public Ministers and Consuls, Judges of the supreme Court, and all other Officers of the United States, whose Appointments are not herein otherwise provided for, and which shall be established by Law: but the Congress may by Law vest the Appointment of such inferior Officers, as they think proper, in the President alone, in the Courts of Law, or in the Heads of Departments.

2. U.S. Const. Amend. V provides:

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

3. 5 U.S.C. 554 provides:

Adjudications

(a) This section applies, according to the provisions thereof, in every case of adjudication required by statute to be determined on the record after opportunity for an agency hearing, except to the extent that there is involved—

(1) a matter subject to a subsequent trial of the law and the facts de novo in a court;

(2) the selection or tenure of an employee, except a [1] administrative law judge appointed under section 3105 of this title;

(3) proceedings in which decisions rest solely on inspections, tests, or elections;

(4) the conduct of military or foreign affairs functions;

(5) cases in which an agency is acting as an agent for a court; or

(6) the certification of worker representatives.

(b) Persons entitled to notice of an agency hearing shall be timely informed of—

(1) the time, place, and nature of the hearing;

(2) the legal authority and jurisdiction under which the hearing is to be held; and

(3) the matters of fact and law asserted.

When private persons are the moving parties, other parties to the proceeding shall give prompt notice of issues controverted in fact or law; and in other instances agencies may by rule require responsive pleading. In fixing the time and place for hearings, due regard shall be had for the convenience and necessity of the parties or their representatives.

(c) The agency shall give all interested parties opportunity for—

(1) the submission and consideration of facts, arguments, offers of settlement, or proposals of adjustment when time, the nature of the proceeding, and the public interest permit; and

(2) to the extent that the parties are unable so to determine a controversy by consent, hearing and decision on notice and in accordance with sections 556 and 557 of this title.

(d) The employee who presides at the reception of evidence pursuant to section 556 of this title shall make the recommended decision or initial decision required by section 557 of this title, unless he becomes unavailable to the agency. Except to the extent required for the disposition of ex parte matters as authorized by law, such an employee may not—

(1) consult a person or party on a fact in issue, unless on notice and opportunity for all parties to participate; or

(2) be responsible to or subject to the supervision or direction of an employee or agent

engaged in the performance of investigative or prosecuting functions for an agency.

An employee or agent engaged in the performance of investigative or prosecuting functions for an agency in a case may not, in that or a factually related case, participate or advise in the decision, recommended decision, or agency review pursuant to section 557 of this title, except as witness or counsel in public proceedings. This subsection does not apply—

(A) in determining applications for initial licenses;

(B) to proceedings involving the validity or application of rates, facilities, or practices of public utilities or carriers; or

(C) to the agency or a member or members of the body comprising the agency.

(e) The agency, with like effect as in the case of other orders, and in its sound discretion, may issue a declaratory order to terminate a controversy or remove uncertainty.

4. 35 U.S.C. 101 provides:

Inventions patentable

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement

thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. 35 U.S.C. 141 provides:

Appeal to Court of Appeals for the Federal Circuit

(a) EXAMINATIONS.—An applicant who is dissatisfied with the final decision in an appeal to the Patent Trial and Appeal Board under section 134(a) may appeal the Board’s decision to the United States Court of Appeals for the Federal Circuit. By filing such an appeal, the applicant waives his or her right to proceed under section 145.

(b) REEXAMINATIONS.—A patent owner who is dissatisfied with the final decision in an appeal of a reexamination to the Patent Trial and Appeal Board under section 134(b) may appeal the Board’s decision only to the United States Court of Appeals for the Federal Circuit.

(c) POST-GRANT AND INTER PARTES REVIEWS.—A party to an inter partes review or a post-grant review who is dissatisfied with the final written decision of the Patent Trial and Appeal Board under section 318(a) or 328(a) (as the case may be) may appeal the Board’s decision only to the United States Court of Appeals for the Federal Circuit.

(d) DERIVATION PROCEEDINGS.—A party to a derivation proceeding who is dissatisfied with the final decision of the Patent Trial and Appeal Board in

the proceeding may appeal the decision to the United States Court of Appeals for the Federal Circuit, but such appeal shall be dismissed if any adverse party to such derivation proceeding, within 20 days after the appellant has filed notice of appeal in accordance with section 142, files notice with the Director that the party elects to have all further proceedings conducted as provided in section 146. If the appellant does not, within 30 days after the filing of such notice by the adverse party, file a civil action under section 146, the Board's decision shall govern the further proceedings in the case.

6. 35 U.S.C. 311 provides:

Inter partes review

(a) IN GENERAL.—Subject to the provisions of this chapter, a person who is not the owner of a patent may file with the Office a petition to institute an inter partes review of the patent. The Director shall establish, by regulation, fees to be paid by the person requesting the review, in such amounts as the Director determines to be reasonable, considering the aggregate costs of the review.

(b) SCOPE.—A petitioner in an inter partes review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.

(c) FILING DEADLINE.—A petition for inter partes review shall be filed after the later of either—

(1) the date that is 9 months after the grant of a patent; or

(2) if a post-grant review is instituted under chapter 32, the date of the termination of such post-grant review.

7. 35 U.S.C. 312 provides:

Petitions

(a) REQUIREMENTS OF PETITION.—A petition filed under section 311 may be considered only if—

(1) the petition is accompanied by payment of the fee established by the Director under section 311;

(2) the petition identifies all real parties in interest;

(3) the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim, including—

(A) copies of patents and printed publications that the petitioner relies upon in support of the petition; and

(B) affidavits or declarations of supporting evidence and opinions, if the petitioner relies on expert opinions;

(4) the petition provides such other information as the Director may require by regulation; and

(5) the petitioner provides copies of any of the documents required under paragraphs (2), (3), and (4) to the patent owner or, if applicable, the designated representative of the patent owner.

(b) PUBLIC AVAILABILITY.—As soon as practicable after the receipt of a petition under section 311, the Director shall make the petition available to the public.

8. 35 U.S.C. 321 provides:

Post-grant review

(a) IN GENERAL.—Subject to the provisions of this chapter, a person who is not the owner of a patent may file with the Office a petition to institute a post-grant review of the patent. The Director shall establish, by regulation, fees to be paid by the person requesting the review, in such amounts as the Director determines to be reasonable, considering the aggregate costs of the post-grant review.

(b) SCOPE.—A petitioner in a post-grant review may request to cancel as unpatentable 1 or more claims of a patent on any ground that could be raised under paragraph (2) or (3) of section 282(b) (relating to invalidity of the patent or any claim).

(c) FILING DEADLINE.—A petition for a post-grant review may only be filed not later than the date that

is 9 months after the date of the grant of the patent or of the issuance of a reissue patent (as the case may be).

9. 35 U.S.C. 322 provides:

Petitions

(a) REQUIREMENTS OF PETITION.—A petition filed under section 321 may be considered only if—

(1) the petition is accompanied by payment of the fee established by the Director under section 321;

(2) the petition identifies all real parties in interest;

(3) the petition identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim, including—

(A) copies of patents and printed publications that the petitioner relies upon in support of the petition; and

(B) affidavits or declarations of supporting evidence and opinions, if the petitioner relies on other factual evidence or on expert opinions;

(4) the petition provides such other information as the Director may require by regulation; and

(5) the petitioner provides copies of any of the documents required under paragraphs (2), (3), and (4) to the patent owner or, if applicable, the designated representative of the patent owner.

(b) PUBLIC AVAILABILITY.—As soon as practicable after the receipt of a petition under section 321, the Director shall make the petition available to the public.

10. 35 U.S.C. 324 provides:

Institution of post-grant review

(a) THRESHOLD.—The Director may not authorize a post-grant review to be instituted unless the Director determines that the information presented in the petition filed under section 321, if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable.

(b) ADDITIONAL GROUNDS.—The determination required under subsection (a) may also be satisfied by a showing that the petition raises a novel or unsettled legal question that is important to other patents or patent applications.

(c) TIMING.—The Director shall determine whether to institute a post-grant review under this chapter pursuant to a petition filed under section 321 within 3 months after—

- (1) receiving a preliminary response to the petition under section 323; or

(2) if no such preliminary response is filed, the last date on which such response may be filed.

(d) NOTICE.—The Director shall notify the petitioner and patent owner, in writing, of the Director's determination under subsection (a) or (b), and shall make such notice available to the public as soon as is practicable. Such notice shall include the date on which the review shall commence.

(e) NO APPEAL.—The determination by the Director whether to institute a post-grant review under this section shall be final and nonappealable.

11. 35 U.S.C. 326 provides:

Conduct of post-grant review

(a) REGULATIONS.—The Director shall prescribe regulations—

(1) providing that the file of any proceeding under this chapter shall be made available to the public, except that any petition or document filed with the intent that it be sealed shall, if accompanied by a motion to seal, be treated as sealed pending the outcome of the ruling on the motion;

(2) setting forth the standards for the showing of sufficient grounds to institute a review under subsections (a) and (b) of section 324;

(3) establishing procedures for the submission of supplemental information after the petition is filed;

(4) establishing and governing a post-grant review under this chapter and the relationship of such review to other proceedings under this title;

(5) setting forth standards and procedures for discovery of relevant evidence, including that such discovery shall be limited to evidence directly related to factual assertions advanced by either party in the proceeding;

(6) prescribing sanctions for abuse of discovery, abuse of process, or any other improper use of the proceeding, such as to harass or to cause unnecessary delay or an unnecessary increase in the cost of the proceeding;

(7) providing for protective orders governing the exchange and submission of confidential information;

(8) providing for the filing by the patent owner of a response to the petition under section 323 after a post-grant review has been instituted, and requiring that the patent owner file with such response, through affidavits or declarations, any additional factual evidence and expert opinions on which the patent owner relies in support of the response;

(9) setting forth standards and procedures for allowing the patent owner to move to amend the

patent under subsection (d) to cancel a challenged claim or propose a reasonable number of substitute claims, and ensuring that any information submitted by the patent owner in support of any amendment entered under subsection (d) is made available to the public as part of the prosecution history of the patent;

(10) providing either party with the right to an oral hearing as part of the proceeding;

(11) requiring that the final determination in any post-grant review be issued not later than 1 year after the date on which the Director notices the institution of a proceeding under this chapter, except that the Director may, for good cause shown, extend the 1-year period by not more than 6 months, and may adjust the time periods in this paragraph in the case of joinder under section 325(c); and

(12) providing the petitioner with at least 1 opportunity to file written comments within a time period established by the Director.

(b) CONSIDERATIONS.—In prescribing regulations under this section, the Director shall consider the effect of any such regulation on the economy, the integrity of the patent system, the efficient administration of the Office, and the ability of the Office to timely complete proceedings instituted under this chapter.

(c) PATENT TRIAL AND APPEAL BOARD.—The Patent Trial and Appeal Board shall, in accordance with section 6, conduct each post-grant review instituted under this chapter.

(d) AMENDMENT OF THE PATENT.—

(1) IN GENERAL.—During a post-grant review instituted under this chapter, the patent owner may file 1 motion to amend the patent in 1 or more of the following ways:

(A) Cancel any challenged patent claim.

(B) For each challenged claim, propose a reasonable number of substitute claims.

(2) ADDITIONAL MOTIONS.—Additional motions to amend may be permitted upon the joint request of the petitioner and the patent owner to materially advance the settlement of a proceeding under section 327, or upon the request of the patent owner for good cause shown.

(3) SCOPE OF CLAIMS.—An amendment under this subsection may not enlarge the scope of the claims of the patent or introduce new matter.

(e) EVIDENTIARY STANDARDS.—In a post-grant review instituted under this chapter, the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.

12. 35 U.S.C. 328 provides:

Decision of the Board

(a) FINAL WRITTEN DECISION.—If a post-grant review is instituted and not dismissed under this chapter, the Patent Trial and Appeal Board shall issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 326(d).

(b) CERTIFICATE.—If the Patent Trial and Appeal Board issues a final written decision under subsection (a) and the time for appeal has expired or any appeal has terminated, the Director shall issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent by operation of the certificate any new or amended claim determined to be patentable.

(c) INTERVENING RIGHTS.—Any proposed amended or new claim determined to be patentable and incorporated into a patent following a post-grant review under this chapter shall have the same effect as that specified in section 252 for reissued patents on the right of any person who made, purchased, or used within the United States, or imported into the United States, anything patented by such proposed amended or new claim, or who made substantial preparation therefor, before the issuance of a certificate under subsection (b).

(d) DATA ON LENGTH OF REVIEW.—The Office shall make available to the public data describing the length of time between the institution of, and the issuance of a final written decision under subsection (a) for, each post-grant review.

13. 35 U.S.C. 329 provides:

Appeal

A party dissatisfied with the final written decision of the Patent Trial and Appeal Board under section 328(a) may appeal the decision pursuant to sections 141 through 144. Any party to the post-grant review shall have the right to be a party to the appeal.