

No. _____

In The
Supreme Court of the United States

RAIN COMPUTING, INC.,
Petitioner,

v.

SAMSUNG ELECTRONICS AMERICA, INC.,
SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG RESEARCH AMERICA, INC.,
Respondents.

ON PETITION FOR WRIT OF CERTIORARI TO THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

APPENDIX TO
PETITION FOR WRIT OF CERTIORARI

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**United States Court of Appeals
for the Federal Circuit**

RAIN COMPUTING, INC.,
Plaintiff-Appellant

v.

**SAMSUNG ELECTRONICS AMERICA, INC.,
SAMSUNG ELECTRONICS CO., LTD., SAMSUNG
RESEARCH AMERICA, INC.,**
Defendants-Cross-Appellants

2020-1646, 2020-1656

Appeals from the United States District Court for the District of Massachusetts in No. 1:18-cv-12639-RGS, Judge Richard G. Stearns.

Decided: March 2, 2021

STEPHEN YEE CHOW, Hsuanyeh Law Group, PC, Boston, MA, argued for plaintiff-appellant. Also represented by HSUANYEH CHANG.

MICHAEL J. MCKEON, Fish & Richardson PC, Washington, DC, argued for defendants-cross-appellants. Also represented by CHRISTOPHER DRYER.

Before LOURIE, DYK, and MOORE, *Circuit Judges*.

MOORE, Circuit Judge.

Rain Computing, Inc. appeals a final judgment of noninfringement of the asserted claims of U.S. Patent No. 9,805,349 and Samsung Electronics America, Inc.; Samsung Electronics Co., Ltd.; and Samsung Research America, Inc. (collectively Samsung) cross-appeal the final judgment that the asserted claims of the '349 patent are not invalid as indefinite. For the reasons below, we reverse the district court's judgment on indefiniteness and dismiss Rain's appeal.

BACKGROUND

Rain sued Samsung for infringement of claims of the '349 patent. The '349 patent is directed to delivering software application packages to a client terminal in a network based on user demands. *See* '349 patent at Abstract, 1:59–2:14. The claimed invention purports to deliver these packages more efficiently by using an operating system in a client terminal rather than a web browser. '349 patent at 1:49–55, 1:59–2:14. Claim 1 is representative:

1. A method for providing software applications through a computer network based on user demands, the method comprising:

accepting, through a web store, a subscription of one or more software application packages from a user;

sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling the user identification module to a client terminal device of the user;

a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network;

upon authentication of the user, the server device providing, to the client terminal device of the user, a listing of one or more software application packages subscribed through the web store in accordance with the subscription information;

the server device receiving, from the client terminal device and through the computer network, a selection of a first software application package from said listing of one or more software application packages;

the server device transmitting the first software application package to the client terminal device through the computer network; and

executing the first software application package by a processor of the client terminal device using resources of an operating system resident in a memory of the client terminal device.

In a February 12, 2020 order, the district court construed various claim terms. Relevant here, it construed “executing the [first/second] software application package . . . in a memory of the client terminal device” and “user identification module configured to control access of . . . software application packages.” *Rain Computing, Inc. v. Samsung Elecs. Co.*, No. 18-12639-RGS, 2020 WL 708125, at *3–7 (D. Mass. Feb. 12, 2020). The district court determined “user identification module” was a means-plus-function term subject to 35 U.S.C. § 112 ¶ 6 and was not indefinite. *Id.* at *3–5. Following that order, the district court entered judgment, based on the parties’ joint stipulation, that the asserted claims were neither infringed nor invalid for indefiniteness. Rain appeals and Samsung cross-appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

Rain challenges the district court’s construction of the “executing” term. Samsung challenges the court’s determination that “user identification module” does not render the claims indefinite. Because we agree with Samsung that “user identification module” renders the claims indefinite, we do not reach the merits of Rain’s appeal.

I

Whether claim language invokes 35 U.S.C. § 112 ¶ 6 is a question of law we review de novo. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346 (Fed. Cir. 2015). We review any underlying findings of fact for clear error. *Id.* Under § 112 ¶ 6, a patentee may draft claims “as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.” But such claims are construed to cover only “the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Williamson*, 792 F.3d at 1347.

To determine whether § 112 ¶ 6 applies to a claim limitation, we must inquire “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Id.* at 1349. If those words lack a sufficiently definite meaning, § 112 ¶ 6 applies. If the limitation uses the word “means,” there is a rebuttable presumption that § 112 ¶ 6 applies. *Id.* at 1348–49. If not, there is a rebuttable presumption that the provision does not apply. *Id.* But that “presumption can be overcome and § 112 para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.* at 1348 (quotations and brackets omitted).

We first determine whether “user identification module” is a means-plus-function term. Because the term does not include the word “means,” there is a rebuttable presumption that § 112 ¶ 6 does not apply. “‘Module’ is a well-known nonce word that can operate as a substitute for ‘means.’” *Id.* at 1350. In *Williamson*, we held that the word “module” in the claim term “distributed learning control module” “does not provide any indication of structure because it sets forth the same black box recitation of structure . . . as if the term ‘means’ had been used.” *Id.* Likewise, “module” here does not provide any indication of structure, and Rain fails to point to any claim language providing any structure for performing the claimed function of being configured to control access. Nor does the prefix “user identification” impart structure because it merely describes the function of the module: to identify a user. *See id.* at 1351 (“The prefix ‘distributed learning control’ does not impart structure into the term ‘module.’”). Thus, the claim language fails to provide any structure for performing the claimed functions.

The parties do not dispute that “user identification module” has no commonly understood meaning and is not generally viewed by one skilled in the art to connote a particular structure. In *Media Rights Technologies, Inc. v. Capital One Financial Corp.*, we held that the written description of a “copyright compliance mechanism,” including how it was connected to various parts of the system, how it functioned, and its potential functional components, was not enough to provide sufficient structure to the claimed “compliance mechanism.” 800 F.3d 1366, 1372–73 (Fed. Cir. 2015). Here, the specification does not impart any structural significance to the term; in fact, it does not even mention a “user identification module.” “Without more, we cannot find that the claims, when read in light of the specification, provide sufficient structure for the [] term.” *Id.* at 1373. Accordingly, we hold “user identification module” is a means-plus-function term subject to § 112 ¶ 6.

Rain argues an amendment made during prosecution of “a user identification module *for accessing . . .*” to “a user identification module *configured to control access of . . .*” prevents “user identification module” from being a means-plus-function term. Appellant Resp. & Reply Br. at 12–13, 56–57 (emphases added). According to Rain, replacing “for” with “configured to” removed the means-plus-function language. *Id.* But the purely functional claim language reciting what the “user identification module” is configured to do provides no structure. *See MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1343 (Fed. Cir. 2019) (construing “a mechanical control assembly . . . configured to actuate . . .” as a means-plus-function limitation).

Rain also argues that an appellate brief filed by Patent Office examiners defending a final rejection of the applicant’s claims supports its position that the term is not a means-plus-function term. The examiners’ brief states, in relevant part:

Additionally, as claim 20 is directed to a method rather than an apparatus, the limitation “user identification module configured to control access of said one or more software application packages,” does not invoke 112, 6th paragraph, or 112(f).

J.A. 531. To the extent the examiners or the Patent and Trademark Office understood that a means-plus-function term cannot be nested in a method claim, they were incorrect. Applicants are free to invoke § 112 ¶ 6 for a claim term nested in a method claim. We have never held otherwise. *See, e.g., Media Rights*, 800 F.3d at 1374 (holding “compliance mechanism” nested in a method claim was a means-plus function term); *On Demand Machine Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006) (holding “providing means for a customer to visually review” nested in a method claim was a means-plus-function term).

II

Having concluded “user identification module” is a means-plus-function term, we must consider the term’s construction, which occurs in two steps. The first step in construing a means-plus function claim is to “identify the claimed function.” *Williamson*, 792 F.3d at 1351. After identifying the function, we then “determine what structure, if any, disclosed in the specification corresponds to the claimed function.” *Id.* “Under this second step, structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Sony Corp. v. Iancu*, 924 F.3d 1235, 1239 (Fed. Cir. 2019) (citation omitted).

If the function is performed by a general-purpose computer or microprocessor, then the second step generally further requires that the specification disclose the algorithm that the computer performs to accomplish that function. *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). However, “in the rare circumstances where any general-purpose computer without any special programming can perform the function . . . an algorithm need not be disclosed.” *Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1365 (Fed. Cir. 2012). For means-plus-function claims “in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm,” we have held that “the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999).

And finally, if the patentee fails to disclose adequate corresponding structure, the claim is indefinite. *Williamson*, 792 F.3d at 1352. We review the district court’s indefiniteness determination de novo and any underlying

factual questions for clear error. *Media Rights*, 800 F.3d at 1371.

The parties do not dispute that the function of “user identification module” is “to control access to one or more software application packages to which the user has a subscription,” as determined by the district court. We agree.

Next, we must identify the structure in the specification that is clearly linked with this function, controlling access. The district court found that the structural examples linked to the function of the “user identification module” are all “computer-readable media or storage device[s].” *Rain Computing*, 2020 WL 708125, at *5; *see e.g.*, ’349 patent at 4:28–31 (“a SIM card, an IC card, a flash memory drive, a memory card, a CD-ROM, and the like”). The district court erred, however, in concluding that the disclosure of computer-readable media or storage devices provided sufficient structure for the “control access” function. *Id.* These computer-readable media or storage devices amount to nothing more than a general-purpose computer. *See, e.g., HTC Corp. v. IPCom GmbH & Co., KG*, 667 F.3d 1270, 1280 (Fed. Cir. 2012) (the disclosed “processor and transceiver amount[ed] to nothing more than a general-purpose computer”). And “control[ling] access to one or more software application packages to which the user has a subscription” requires more “than merely plugging in a general purpose computer.” *Ergo Licensing*, 673 F.3d at 1365. Rather, some special programming, *i.e.*, an algorithm, would be required to control access to the software application packages. Rain even agrees that the “user identification module” should include software algorithms. *See, e.g., Appellant’s Resp. & Reply Br.* at 22, (“the module would . . . be configured to . . . respond to requests for information (using common software algorithms)”), *id.* at 27 n.17 (“the user identification module should include software implementations”). And the inventor agreed that “there are certain algorithms out there” such as “open source software that can implement” the user identification module. J.A.

297–99. Under these circumstances, where a general purposes computer is the corresponding structure and it is not capable of performing the controlling access function absent specialized software, an algorithm is required.

Nothing in the claim language or the written description provides an algorithm to achieve the “control access” function of the “user identification module.” When asked at oral argument to identify an algorithm in the written description, Rain could not do so. Oral argument at 32:54–34:40, *available at* http://oralarguments.cafc.uscourts.gov/default.aspx?fl=20-1646_02022021.mp3. Without an algorithm to achieve the “control access” function, we hold the term “user identification module” lacks sufficient structure and renders the claims indefinite.¹ As this term appears in all of the claims relating to Rain’s appeal, our decision moots the noninfringement appeal.

CONCLUSION

Because we hold “user identification module” renders the asserted claims indefinite, we reverse the district court’s judgment that the asserted claims of the ’349 patent are not invalid as indefinite and dismiss Rain’s appeal as moot.

REVERSED-IN-PART, DISMISSED-IN-PART

COSTS

No costs.

¹ We recently held, in a separate proceeding involving a different patent, that the failure to provide an algorithm for the recited function of a “user identification module” rendered the challenged claims indefinite. *See Synchronoss Techs., Inc. v. Dropbox, Inc.*, Nos. 2019-2196, 2019-2199, slip op. at 15 (Fed. Cir. Feb. 12, 2021).

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

CIVIL ACTION NO. 18-12639-RGS

RAIN COMPUTING, INC.

v.

SAMSUNG ELECTRONICS CO., LTD.; SAMSUNG ELECTRONICS
AMERICA, INC.; and SAMSUNG RESEARCH AMERICA, INC.

MEMORANDUM AND ORDER ON
CLAIM CONSTRUCTION

February 12, 2020

STEARNS, D.J.

In this intellectual property dispute, plaintiff Rain Computing, Inc. (Rain) accuses defendants Samsung Electronics Co., Ltd.; Samsung Electronics America, Inc.; and Samsung Research America, Inc. (collectively Samsung) of infringing U.S. Patent No. 9,805,349 (the '349 patent). Before the court are the parties' briefs construing the disputed claim terms of the asserted patent. The court heard argument, pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), on January 30, 2020.

BACKGROUND

The '349 patent is titled "Method and System for Delivering Application Packages Based on User Demands," and lists Hsuan-Yeh

Chang as the sole inventor.¹ The '349 patent was issued on October 31, 2017, from an application dated April 18, 2013, itself a continuation of an abandoned application filed on November 22, 2007.

The invention of the '349 patent is directed to “delivering application packages based on user demands.” '349 patent, col. 1, ll. 15-16.

Normally, the purchase of an application package means the purchase of a license which allows a user to use that application package on a single machine with an unlimited time period. However, the purchase of such a license may be very costly. Accordingly, many other types of licenses have been developed recently.

Among the recently developed licenses, an on-demand license has attracted much attention. The on-demand license allows the user to pay a fee only when the licensed application package is subscribed and/or used. The user will not need to pay anything if the application package is unsubscribed and/or not in use.

Currently, the on-demand license type is applicable mostly to web applications. However, running a web application, i.e., under a web browser, may be several times slower than running the application directly under an OS. Accordingly, there is a need to develop a method and a system that can more efficiently deliver application packages based on user demands.

Id. col. 1, ll. 36-55.

To effectuate its stated goal, the '349 patent envisions a service provider including a server that is connected to a wide area network or a local area network. *See id.* Figs. 1 and 2. Installed on the server, among

¹ Chang, a member of plaintiff's law firm, also prosecuted the patent.

other features, are a number of application packages, such as OpenOffice or Office 2007. *See id.* col. 2, ll. 53-57. Using a client terminal, a “user may [] visit a web store of the service provider, and subscribe the services of the service provider through the web store.” *Id.* col. 4, ll. 24-26. The service provider then “issue[s] a user identification device, such as a SIM card, an IC card, a flash memory drive, a memory card, a CD-ROM, and the like, which may record subscription information of the user.” *Id.* col. 4, ll.28-31.

Figure 3 is illustrative of the patented application delivery method.

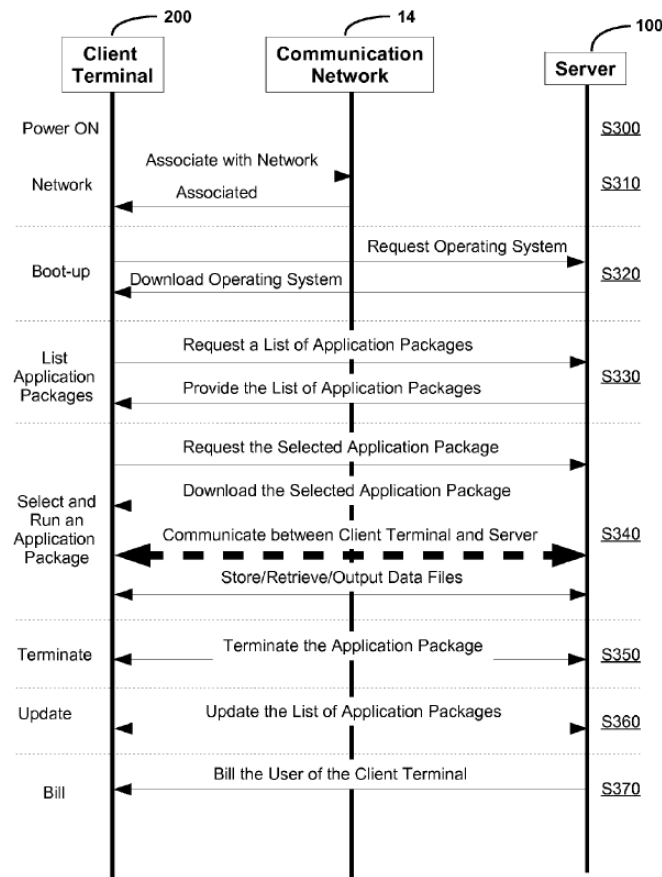


FIG. 3

After powering up the client terminal (S300), associating with a network (S310), and finding and establishing a connection with the server (S320), the “server 100 may need to authenticate the user” before the client terminal initiates a booting process. *Id.* col. 5, ll. 2-4. In the booting process, the client terminal “transfer[s] from server 100 the operating system subscribed by the user.” *Id.* col. 4, l. 66 – col. 5, l. 2. “In Step [S]330, after performing the network booting process, client terminal 200 may request server 100 to send a list of application packages installed in AP server 120. Server 100 may then provide the list of application packages to client terminal 200.” *Id.* col. 5, ll. 36-40. The user is licensed to use one or more of the applications on the list based on the subscription information recorded on the user identification device. “Because the subscribed application packages are installed in server 100, client terminal 200 does not require the application packages be installed in mass storage device 260 of client terminal 200.” *Id.* col. 5, ll. 44-47.

In Step S340, in order to execute or run a subscribed application package on client terminal 200, the user may select the subscribed application package from the list of application packages, and send a request for the selected application package to server 100. In one embodiment, server 100 may need to verify the user’s subscription of the selected application package before activating the selected application package. Once the user’s subscription is verified, client terminal 200 then begin transferring the selected application package and execute the selected application package on client terminal 200, using

resources of the operating system resident in RAM [(random access memory)] 220 of client terminal 200.

Id. col. 5, ll. 51-63. In Steps 350 and 360, the user may “terminate the execution of the selected application package,” *id.* col. 6, l. 10, or “change his subscription of services,” *id.* col. 6, l. 17-18. Finally, in step 370, “the service provider may charge the user a fee for the services that are subscribed.” *Id.* col. 6, ll. 51-52.

The '349 patent sets out 27 method claims, including independent claims 1, 5, and 8. Claim 1 is representative.

1. A method for providing software applications through a computer network based on user demands, the method comprising:

accepting, through a web store, a subscription of one or more software application packages from a user;

sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling the user identification module to a client terminal device of the user;

a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network;

upon authentication of the user, the server device providing, to the client terminal device of the user, a listing of one or more software application packages subscribed through the web store in accordance with the subscription information;

the server device receiving, from the client terminal device and through the computer network, a selection of a first software application package from said listing of one or more software application packages;

the server device transmitting the first software application package to the client terminal device through the computer network; and

executing the first software application package by a processor of the client terminal device using resources of an operating system resident in a memory of the client terminal device.

The parties dispute the construction of the following terms, listed here in the order they are presented in the Joint Claim Construction Statement.

- “a user identification module configured to control access of said one or more software application packages” (all independent claims)
- “executing the [first/second] software application package by a processor of the client terminal device using resources of an operating system resident in a memory of the client terminal device” (“first software application”: all independent claims; “second software application”: dependent claims 3, 19, 24)
- “sending, to the user, a user identification module” (all independent claims)
- “a subscription of one or more software application packages” (all independent claims) and “a subscription of a storage unit” (independent claim 5)
- “web store” (all independent claims)
- “providing software applications through a computer network based on user demands” (preamble of all independent claims except claim 5) and “providing software applications over a through a computer network based on user demands” (preamble of independent claim 5)

- “update request” (dependent claims 2, 3, 18, 19, 23, 24)

DISCUSSION

Claim construction is an issue of law. *See Markman*, 517 U.S. at 388-389. Claim terms are generally given the ordinary and customary meaning that would be ascribed by a person of ordinary skill in the art in question at the time of the invention.² *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-1313 (Fed. Cir. 2005) (en banc). In ascertaining how a person of ordinary skill in the art would have understood the claim terms, the court looks to the specification of the patent, its prosecution history, and, where appropriate, extrinsic evidence such as dictionaries, treatises, or expert testimony. *Id.* at 1315-1317. Ultimately, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Id.* at 1316 (citation omitted).

² According to Rain, “[a] person of ordinary skill in the art [] would possess a bachelor’s degree in computer science or computer engineering, or an equivalent degree, or possess equivalent academic and/or industry experience.” Rain Br. (dkt # 33) at 3. Samsung’s expert opines that such a person would have, additionally, “two years of experience working in distributed computing systems” or a graduate education equivalent. Chatterjee Decl. (dkt # 31-1) ¶ 34.

- *a user identification module configured to control access of said one or more software application packages*

At the threshold, the parties dispute whether this term is subject to means-plus-function analysis. Rain denies that it is, and maintains that to the extent a construction is necessary, the subphrase “a user identification module” refers to “a logical unit capable of recording subscription information and that identifies a user.” For its part, Samsung contends that the term itself does not denote structure, and that because the specification fails to disclose a corresponding algorithm, the term is indefinite. In the alternative, Samsung argues that the function of the term is “to control access to one or more server-based software application packages to which the user has a subscription,” and that the corresponding structure is “a hardware device.”

Under 35 U.S.C. § 112, para. 6,

[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Section 112 permits purely functional claiming on the condition that the scope of such claim language is “restrict[ed] . . . to the structure disclosed in the specification and equivalents thereof.” *Greenberg v. Ethicon Endo-*

Surgery, Inc., 91 F.3d 1580, 1582 (Fed. Cir. 1996). In identifying means-plus-function terms, the absence of the signal phrase “means,” as is the case here, creates a rebuttable presumption that Section 112, para. 6 does not apply. *Advanced Ground Info. Sys., Inc. v. Life360, Inc.*, 830 F.3d 1341, 1347 (Fed. Cir. 2016), citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015).

The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure. *Greenberg [v. Ethicon Endo-Surgery, Inc.]*, 91 F.3d [1580,] 1583 [(Fed. Cir. 1996)]. When a claim term lacks the word “means,” the presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to “recite sufficiently definite structure” or else recites “function without reciting sufficient structure for performing that function.” *Watts [v. SL Systems, Inc.]*, 232 F.3d [877,] 880 [(Fed. Cir. 2000)].

Williamson, 792 F.3d at 1349 (Fed. Cir. 2015).³

The term “module” is not *terra incognita*. “‘Module’ is a well-known nonce word that can operate as a substitute for ‘means’ in the context of § 112, para. 6.” *Id.* at 1350. In *Williamson*, the Court held that a claimed “distributed learning control module” did not recite sufficient structure because “the word ‘module’ . . . sets forth the same black box recitation of

³ In *Williamson*, the Federal Circuit overruled a line of cases characterizing as “strong” the presumption that a limitation without the phrase “means” does not fall under Section 112. *Id.*

structure for providing the same specified function as if the term ‘means’ had been used.” *Id.* at 1350. The “distributed learning control” prefix also did not contribute discernible structure to the term – “[a]lthough the ‘distributed learning control module’ is described in a certain level of detail in the written description, the written description fails to impart any structural significance to the term.” *Id.* at 1351; *see also Grecia v. Samsung Elecs. Am., Inc.*, 780 F. App’x 912, 914-916 (Fed. Cir. 2019) (“customization module” subject to Section 112, para. 6); *Synchronoss Techs., Inc. v. Dropbox Inc.*, 2017 WL 6059302, at *6-*8 (N.D. Cal. Dec. 7, 2017) (“user identifier module” subject to Section 112, para. 6).

Here too, “module” is a doppelganger for “means.” In Rain’s own words, “[m]odule has a plain meaning of *a component unit that serves a function*, in the context of digital electronics, a logical function, thus a logical unit.” Rain Br. (dkt # 33) at 6 (emphasis added). Rain’s expansive suggestion that a “module” in the context of the ’349 patent may be “(1) software, (2) hardware, and (3) either/both,” Rain Br. at 6 n.3, confirms that the word “sets forth [a] black box recitation of structure.” Like the prefix in *Williamson*, the modifier “user identification” supplies no additional structure. The term “user identification module” does not designate any structure – indeed, the term does not appear at all in the specification. As

reflected in Rain’s proposed construction, the “user identification” prefix simply states the objective of the “module,” namely, to “identif[y] a user.”⁴

Having determined that the phrase “user identification module” triggers Section 112, para. 6, following *Williamson*, the proper claim limitation is “a user identification module configured to control access of said one or more software application packages.” *See Williamson*, 792 F.3d at 1350 (“This passage, as lengthy as it is, is nonetheless in a format consistent with traditional means-plus-function claim limitations.”). Construction of means-plus-function claim terms proceeds in two steps. “First, we must identify the claimed function, staying true to the claim language and the limitations expressly recited by the claims. Once the functions performed by the claimed means are identified, we must then ascertain the corresponding structures in the written description that perform those functions.” *Omega*

⁴ Contrary to Rain’s suggestion, that “a user identification module” appears in a method rather than in an apparatus claim does not alter the conclusion that it is a means-plus-function term. *See, e.g., Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372-1374 (Fed. Cir. 2015) (holding that the phrase “compliance mechanism” – recited in the method step of “activating a compliance mechanism in response to receiving media content by a client system, said compliance mechanism coupled to said client system, said client system having a media content presentation application operable thereon and coupled to said compliance mechanism” – is a means-plus-function limitation).

Eng’g, Inc. v. Raytek Corp., 334 F.3d 1314, 1321 (Fed. Cir. 2003) (citations omitted).

The function of the “user identification module” is self-evident in the claim language – “to control access of said one or more software application packages.” “Said one or more software application packages” finds its antecedent in the prior step in the method – “accepting, through a web store, a subscription of one or more software application packages from a user.” Thus, the function of a “user identification module” is “to control access to one or more software application packages to which the user has a subscription.”⁵

According to the claimed methods, access to the application package(s) is controlled by requesting a user’s subscription information from the “user identification module.” See ’349 patent, Claim 1 (“a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network,”); Claim

⁵ Samsung proposes to qualify the “software application packages” as “server-based.” That a server transmits a software application package to a user’s client terminal is a requirement of another claim limitation, see ’349 patent claim 1 (“the server device transmitting the first software application package to the client terminal device through the computer network”), but is not inherent in this limitation.

5 (same); and Claim 8 (same). The only source of subscription information disclosed in the specification is a “user identification device.”

After the user subscribes the services, the service provider may then issue a user identification device, such as a SIM card, an IC card, a flash memory drive, a memory card, a CD-ROM, and the like, which may record subscription information of the user. The user identification device may be connected with client terminal 200 via EP 250. . . . In one embodiment, the user identification device may be integrated with ROM 230 of client terminal 200. For example, the subscription information may be recorded in ROM 230 of client terminal 200, if client terminal 200 is provided to the user by the service provider.

Id. col. 4, ll. 27-40. In the detailed description, the user and the user’s license(s) are authenticated by requesting and verifying subscription information from the “user identification device” (via the client terminal). *See id.* col. 5, ll. 4-6 (“server 100 may authenticate the user by requesting, for example, the subscription information from client terminal 200”); *id.* col. 5, ll. 40-44 (“According to the subscription information recorded in the user identification device, the user is licensed to use one or more application packages in the list. For those application packages not subscribed by the user, the user is not licensed to use them.”). The patent discloses no other mechanism – in the form of software or an algorithm – that performs the access control function.

Because the sole access control mechanism is the request and retrieval of a user’s subscription information from a “user identification device,” the

court agrees with Samsung that the structure of the claimed “user identification module” is a hardware device. However, the structure is not an undifferentiated “hardware device” as suggested by Samsung. As Samsung’s own expert notes, consistent with the disclosure that “a user identification device . . . record subscription information of the user,” *id.* col. 4, ll. 30-31, the exemplars cited in the patent are all “computer-readable media or storage device.” Chatterjee Decl. ¶ 67. Accordingly, the structure of the “user identification module” is “a hardware device capable of recording a user’s subscription information.”⁶

⁶ Samsung contends that because the patent does not explain how a “user identification module” is “*configured* to control access,” the claim term is invalid for indefiniteness. “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Like other invalidity defenses, indefiniteness must be proven by clear and convincing evidence. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015). Here, the structure of “a user identification module” is not a general computer performing a specialized function requiring a disclosure of the function’s algorithm. *Cf. Aristocrat Techs. Australia Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). Recording and retrieving a user’s subscription information is precisely the intended and ordinary function of “a hardware device capable of recording a user’s subscription information.”

- *executing the [first/second] software application package by a processor of the client terminal device using resources of an operating system resident in the memory of the client device*

For this term, Samsung proposes the construction of “executing, with local processing and operating system resources, the [first/second] software application package without installing it on the client terminal device.” Rain objects to the “without installing it on the client terminal device” aspect of Samsung’s proposal, and otherwise contends that that term should be given its plain and ordinary meaning.

While the claim language makes no reference to installation, the court agrees with Samsung that the “executing” step proceeds without installing the software application on the user’s client terminal.⁷

Although the construction of a claimed term is usually controlled by its ordinary meaning, we will adopt an alternative meaning “if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention.

⁷ Installation of software, in the words of Rain’s counsel at the *Markman* hearing, refers to the software application residing “in what is called ‘non-volatile memory,’ something [that] is a little bit more long term than random access memory.” This is consistent with the patent’s use of the term. See ’349 patent, col. 5, ll. 44-60 (equating non-installation on the user’s client terminal with not using any capacity of the client terminal’s mass storage device).

Edwards Lifesciences LLC v. Cook Inc., 582 F.3d 1322, 1329 (Fed. Cir. 2009), quoting *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366-1367 (Fed. Cir. 2002). We carefully survey the intrinsic evidence. First, the '349 patent sets out to improve upon the traditional method of software delivery, where “the user . . . purchase[s] a special application package . . . and install[s] the purchased special application in the [user’s] data processor before use.” ’349 patent, col. 1, ll. 32-35. Part and parcel of the traditional method is “the purchase of a license which allows a user to use that application package on a single machine with an unlimited time period. However, the purchase of such a license may be very costly.” *Id.* col. 1, ll. 38-40.

The solution offered by the patent is a species of an on-demand license, where “the user [pays] a fee only when the licensed application package is subscribed and/or used. The user will not need to pay anything if the application package is unsubscribed and/or not in use.” *Id.* col. 1, ll. 45-48. In contrast to the traditional method, the patent emphasizes that its claimed invention operates by installing the software applications *on the server*. *See id.* Abstract and Summary (“executing in the client terminal a subscribed application package *installed in the server* using resources of the operating system resident in the client terminal.”) (emphasis added); Summary (“the

application packages being installed in the server”); col. 3, ll. 57-60 (“The service provider provides licenses for a client terminal 200 to use the operating systems installed in OS server 110 and the application packages installed in AP server 120.”).

The user indicates a demand for a particular software package through a subscription. *See id.* col. 6, ll. 39-43 (“When the user demands an application package, the user may simply subscribe it from the service provider. On the other hand, when the user no longer demands a certain application package, the user may simply unsubscribe it.”). To use a subscribed software application, “the user may select the subscribed application package from the list of application packages, and send a request for the selected application package to server 100.” *Id.* col. 5, ll. 52-55. “Once the user’s subscription is verified, client terminal 200 then begin[s] transferring the selected application package and execute[s] the selected application package on client terminal 200, using resources of the operating system resident in RAM 220 of client terminal 200.” *Id.* col. 5, ll. 58-63. “[W]hen the user is to terminate the execution of the selected application package, client terminal 200 may inform server 100 that the selected application package is to be terminated. Client terminal 200 may then

release the running application package from RAM 220 of client terminal 200.” *Id.* col. 6, ll. 10-13.

As is clear from the above description, a software application is transferred from a server to a user terminal’s RAM for execution, and released from the client terminal’s RAM upon the termination of execution. Nowhere in the specification does the patent indicate that a software package may be installed on any non-volatile memory of the user’s client terminal for execution.⁸ Indeed, a persistent installation is contrary to the invention’s

⁸ Rain asserts that the patent discloses the installation of the software application on the user’s client terminal because the specification describes saving dynamic data to non-volatile memory for hibernation.

If the user wants to power off client terminal 200 to save energy, but does not want to spend time on the network booting process when powering on client terminal 200 again, dynamic data in RAM 220 of client terminal 200 may be transferred to the non-volatile memory when powering off, so as to allow client terminal 200 to enter a hibernation mode.

’349 patent, col. 5, ll. 18-27; *see also, e.g.*, claim 12 (“prior to powering off the client terminal device, hibernating the client terminal device by transferring dynamic data in the memory of the client terminal device to a non-volatile memory of the client terminal device”). Hibernation mode, as limned in the specification, is an off state where the user’s client terminal powers down (and does not execute any software). When the user powers on again to resume execution of the program, the data must then be reloaded into the RAM. *See id.* col. 5, ll. 24-27 (“When the user powers on client terminal 200 again, the dynamic data stored in the non-volatile memory module may be loaded back to RAM 220.”). Accordingly, the patent does not disclose that a software application may be installed in non-volatile memory during execution.

stated objective and the patent's title, *i.e.*, “*Delivering Application Packages Based on User Demand.*” (emphasis added). The patent touts the benefits of non-installation on the user's client terminal.

Because the subscribed application packages are installed in server 100, client terminal 200 does not require the application packages be installed in mass storage device 260 of client terminal 200. Accordingly, if client terminal 200 includes mass storage device 260, the user may use the entire capacity of mass storage device 260 to store user data.

Id. col. 5, ll. 44-50. Likewise, during prosecution, the patentee distinguished prior art (Kirkland) on the basis that the software applications of the on-demand media streaming system were resident on the client device, and were not “streamed” from the server. *See, e.g.*, Jun. 18, 2014 Amendment and Response to Office Action, dkt # 33-4 at RAIN-000180 (arguing that modifying Kirkland to include software applications in the media library “would render Kirkland's system unsatisfactory for its intended purpose, at least because Kirkland's software applications . . . are all resident on the client device 410, not in media library 435, and Kirkland does not intend to stream software applications and does not disclose that any software applications could be streamed from Kirkland's media server device (or media library 435) to Kirkland's receiving device (or client device 410).”) (emphasis in original).

In light of the compelling weight of the intrinsic evidence, the court is persuaded to adopt Samsung’s proposed construction of “executing, with local processing and operating system resources, the [first/second] software application package without installing it on the client terminal device.”

- *sending, to the user, a user identification module*

Samsung asserts that the “sending” step necessarily occurs after the preceding “accepting, through a web store, a subscription of one or more software application packages from a user” step, while Rain argues that the steps may occur in either sequence. “Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one. However, such a result can ensue when the method steps implicitly require that they be performed in the order written.” *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003), quoting *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342-1343 (Fed. Cir. 2001). To determine whether steps of a method must be executed in the order in which they are written, “[f]irst, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written.” *Id.* “If not, we next look to the rest of the specification to determine whether *it* directly or implicitly requires such a narrow construction. If not,

the sequence in which such steps are written is not a requirement.” *Id.* at 1370 (emphasis in original).

The court agrees with Samsung that the claim language requires that the “accepting step” occur prior to the “sending step.” In the “accepting” step, a user subscribes to “one of more software packages.” The “sending” step provides the user with “a user identification module configured to control access of *said* one or more software application packages.” (emphasis added). “Subsequent use of the definite articles ‘the’ or ‘said’ in a claim refers back to the same term recited earlier in the claim.” *Wi-Lan, Inc. v. Apple, Inc.*, 811 F.3d 455, 462 (Fed. Cir. 2016). In *Wi-Lan*, the Federal Circuit held that a step that “combine[s] *the* modulated data symbols” must occur subsequent to a step that “produce[s] modulated data symbols corresponding to an invertible randomized spreading” because “[t]he term ‘*the* modulated data symbols’ refers back to the randomized data symbols produced by the computing means in the second claim element.” *Id.* (emphasis in original). So it is here. The object of the access control function – “*said* one or more software application packages” – refers back to the “one

or more software packages” that the user has subscribed in the “accepting” step.⁹

- *a subscription of one or more software application packages & a subscription of a storage unit remote from a client terminal device of the user*

In Samsung’s view, a “subscription” is an “on-demand license . . . for a predetermined and finite period of time;” “a subscription of one or more software application packages” is “an on-demand license to one or more server-based software application packages for a predetermined and finite period of time;” and “a subscription of a storage unit remote from a client terminal device of the user” is “an on-demand license to use a remote storage unit for a predetermined and finite period of time.” Rain, for its part, disputes Samsung’s constructions and proposes that the terms be given their plain and ordinary meaning.

⁹ Rain contends that because the specification contemplates that “the user may already have a client terminal,” ’349 patent col. 4, l. 11, and “the user identification device may be integrated with ROM 230 of client terminal 200,” *id.* col. 4, ll. 36-37, the user may be in possession of the user identification device (as part of the client terminal) before subscribing any application packages. Having determined that the claim language was determinative of the order of the “accepting” and “sending” steps, it is unnecessary to proceed to the second step of the *Altiris* test. *See* 318 F.3d at 1370 (“*If not*, we next look to the rest of the specification to determine whether *it* directly or implicitly requires such a narrow construction.”) (emphasis added).

Although a subscription is a condition-precedent to a user having a license to use a software package application, *see* '349 patent, col., 5, ll. 43-44 (“For those application packages not subscribed by the user, the user is not licensed to use them.”), the court agrees with Rain that a subscription is not itself equivalent to a license. The asserted claims recite a step for “accepting, through a web store, a subscription of one or more software application packages from a user.” Replacing the “a subscription” with “a license” results in a nonsensical reading of this step – in the '349 patent, the user is a recipient, and not a source, of a license to use a subscribed software application package.¹⁰

Nothing in the patent suggests that the word “subscription” is used in any other than its usual sense of a revocable agreement to receive or to participate in something (often in exchange for a payment). As reflected by the title of the patent and the preamble of the claims, the object of the patent is to provide software application packages “based on user demand.” A subscription is the vehicle for a user’s demand – “[w]hen the user demands an application package, the user may simply subscribe it from the service

¹⁰ Claim 5 includes the parallel limitation of “accepting, through the web store, a subscription of a storage unit remote from a client terminal device of the user,” which is susceptible to the same incongruence under the “license” reading.

provider. On the other hand, when the user no longer demands a certain application package, the user may simply unsubscribe it.” *Id.* col. 6, ll. 39-43; *cf. id.* col. 1, ll. 36-40 (contrasting prior methods where a user paid a potentially costly fee for an unlimited single-machine license “with an unlimited time period”). Nothing in the patent restricts the user to a subscription of a predetermined or limited duration. Because the terms use common words in their common sense, the court agrees with Rain that “a subscription of one or more software application packages” and “a subscription of a storage unit remote from a client terminal device of the user” be given their plain and ordinary meaning.

- *web store*

While the parties agree that a “web store” is an e-commerce entity, they disagree on its parameters. According to Rain, in the context of the ’349 patent, the plain meaning of “web store” is “an e-commerce location offering software application packages for download and that is accessed via a computer network.” Samsung proposes the construction of “an e-commerce web site installed on the service provider’s server.”

The court agrees with Samsung that Rain’s requirements – that the web store offer software application packages for download and be accessed through a computer network – are redundant of other claim limitations. *See,*

e.g., '349 patent claim 1 (“[a] method for providing software applications through a computer network,” “accepting, through a web store, a subscription of one of more software application packages from a user,” and “the server transmitting the first software application package to the client terminal device through the computer network”). The court also agrees with Rain that nothing in the intrinsic record requires that a “web store” (as opposed to software application packages) be “installed on the service provider’s server.” What remains at the heart of the dispute is whether a “web store” is an “e-commerce web site,” or more broadly, an “e-commerce location.”

The specification’s discussion of a “web store” is barebones and does not describe any attribute other than that it accepts a user’s subscription. *See id.* col. 4, ll. 23-26 (“[I]f the user already ha[s] a client terminal, the user may then visit a web store of the service provider, and subscribe the services of the service provider through the web store.”). The court agrees with Samsung that the prosecution history reveals the definition of a “web store.” In distinguishing a prior art reference (Cover), the patentee stated that “Cover clearly discloses that streaming application manager 116 is a software application installed in the client system 102. Cover does not disclose that streaming application 116 could constitute *a web store or an e-commerce*

web site, as would be understood by one of ordinary skill in the art.” Feb. 14, 2014 Response to Office Action, dkt # 33-5 at RAIN-000289 (emphasis added). As is clear from the context, the patentee equated “a web store” with “an e-commerce web site.”¹¹ Neither party has provided the court with extrinsic evidence, such as a dictionary definition, of how a person of ordinary skill in the art would have understood “web store” at the time of the invention. Accordingly, the court construes a “web store” to be an “e-commerce web site.”

- *providing software applications through a computer network based on user demands*¹²

The parties first dispute whether the preamble of the claims is limiting.

Preamble language that merely states the purpose or intended use of an invention is generally not treated as limiting the scope of the claim. However, [w]hen limitations in the body of the claim rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention.

¹¹ Rain argues that a “web store” cannot be confined to a “web site” because the specification discloses that a server of the service provider may be located in a local area network as well as in a wide area network. Being familiar with intranet web sites, the court does not understand a web site to be limited to a wide area network.

¹² The parties agree that the preamble of claim 5 – “providing software applications over a through a computer network based on user demands” – should be construed identically.

Pacing Techs., LLC v. Garmin Int’l, Inc., 778 F.3d 1021, 1023-1024 (Fed. Cir. 2015) (internal quotation marks and citations omitted). Here, “a computer network” in the preamble provides the antecedent to “the computer network” in the limitation reciting “a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network” limitation.

Further, a preamble is limiting if “it states a necessary and defining aspect of the invention.” *Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1375 (Fed. Cir. 2008). To overcome the examiner’s section 101 rejection during prosecution, the patentee relied on the recitation of a “computer network” in the preamble as evidencing that the invention utilizes a particular machine.

For example, claim 20 recites a “computer network” in both the preamble and the body of the claim. One of ordinary skill in the art would readily understand that the claimed “computer network” includes one or more electrical and/or optical devices (e.g., electrical and/or optical cable for wired computer network or antenna for wireless computer network, switches, etc.) that performs telecommunication (e.g., the receiving and transmitting steps) with the claimed client terminal device, so as to achieve the claimed on-demand provision of software applications. Without tying to a “computer network,” no software applications can possibly be provided to a client terminal device as required by claim 20. Accordingly, the method claims of this application involve and integrally use at least a particular machine, namely a computer network, so as to achieve performance of the claimed methods.

June 19, 2014 Amendment and Response to Office Action, dkt # 33-4 at RAIN-000172. In response, the examiner withdrew the section 101 objection. June 30, 2014 Advisory Action, dkt # 33-3 at RAIN-000154. Accordingly, the court agrees with Samsung that the preamble is limiting.

The parties next dispute the appropriate scope of the preamble. Samsung's construction is "providing on-demand use of server-based software applications through a computer network," while Rain relies on the plain and ordinary meaning. The court agrees with Rain that Samsung's proposed definition confuses rather than clarifies. First, the claimed methods are concerned with providing software applications based on a user's subscription, not the "on demand use" of the application. Second, characterizing the software applications as "server-based" muddies the water – although the software applications are installed on the server, as claimed, they are "transmitt[ed] . . . to the client terminal device through the computer network" for execution. Because the preamble uses common terms in their usual sense, the court agrees with Rain that it should be accorded the plain and ordinary meaning.

- *update request*

Samsung proposes to construe an "update request" as "a request to change the user's subscription," while Rain relies again on the plain and

ordinary meaning. The court agrees with Rain that it is redundant to define “update request” in terms of a user’s subscription, as this is clear from the context of the claim element. *See, e.g.*, ’349 patent claim 2 (“the server device receiving an update request from the client terminal device and updating said subscription of one or more software application packages in response the update request by removing the first software application package from said listing of one or more software application packages”). Because the term uses common words in their usual sense, the court agrees with Rain that it should be accorded the plain and ordinary meaning.

ORDER

The disputed claim terms will be construed for the jury and for all other purposes in the pending litigation in a manner consistent with the above rulings of the court.

SO ORDERED.

/s/ Richard G. Stearns
UNITED STATES DISTRICT JUDGE

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS
EASTERN DIVISION**

RAIN COMPUTING, INC.,)

Plaintiff,)

v.)

SAMSUNG ELECTRONICS CO., LTD.;)
SAMSUNG ELECTRONICS AMERICA,)
INC.; AND SAMSUNG RESEARCH)
AMERICA, INC.,)

Defendants.)
_____)

Case No. 1:18-cv-12639-RGS

**ORDER
APPROVING JOINT
STIPULATION OF DISMISSAL
AND FOR ENTRY OF FINAL
JUDGMENT**

Based upon the parties' Joint Stipulation for Entry of Final Judgment and Order, IT IS HEREBY ORDERED AND ADJUDGED:

1. That this Final Judgment of Non-Infringement of U.S. Patent No. 9,805,349 is entered against Plaintiff Rain Computing, Inc. ("Rain") and for Defendants Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. and Samsung Research America, Inc. (collectively, "Samsung") on Rain's claims for patent infringement;

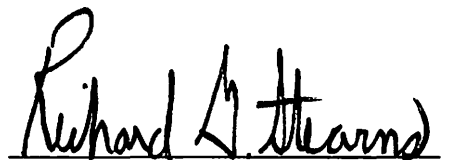
2. That this Final Judgment that asserted claims of the '349 patent are not invalid for indefiniteness relating to the term "a user identification module configured to control access of said one or more software application packages" is entered against Samsung and for Rain;

3. That all other claims, counterclaims, defenses, or other matters which have been asserted—and have not been previously dismissed—are dismissed without prejudice with the specific reservation of rights to later raise all such other claims, counterclaims, defenses, or other matters in the event this action is once again before this Court; and

4. That determinations of costs and fees in accordance with Fed. R. Civ. P. 54(d) concerning the non-infringement judgment that is the subject of the parties' stipulation shall be delayed until 21 days after the appellate court's issuance of the mandate regarding any appeal of the Court's judgment, or if Rain later chooses to abandon the appeal, the deadlines shall be delayed until 21 days after Rain provides notice that it is abandoning the appeal.

IT IS SO ORDERED.

Dated: 3-12-20.


The Honorable Richard G. Stearns
United States District Court Judge

APPEAL,PATENT

**United States District Court
District of Massachusetts (Boston)
CIVIL DOCKET FOR CASE #: 1:18-cv-12639-RGS**

Rain Computing, Inc. v. Samsung Electronics Co., Ltd. et al
Assigned to: Judge Richard G. Stearns
Case in other court: USCA for the Federal Circuit, 20-01646
USCA for the Federal Circuit, 20-01656
Cause: 28:1338 Patent Infringement

Date Filed: 12/26/2018
Date Terminated: 03/12/2020
Jury Demand: Both
Nature of Suit: 830 Patent
Jurisdiction: Federal Question

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ATTORNEY TO BE NOTICED

Date Filed	#	Docket Text
12/26/2018	1	COMPLAINT against Samsung Research America, Inc., Samsung Electronics America, Inc., Samsung Electronics Co., Ltd. Filing fee: \$ 400, receipt number 0101-7469770 (Fee Status: Filing Fee paid), filed by Rain Computing, Inc.. (Attachments: # 1 Exhibit 1, # 2 Civil Cover Sheet)(Chow, Stephen) (Entered: 12/26/2018)
12/26/2018	2	REPORT ON THE FILING OF AN ACTION REGARDING PATENT OR TRADEMARK. (Chow, Stephen) (Entered: 12/26/2018)
12/26/2018	3	Civil Cover Sheet & Category Form re 1 Complaint, by Rain Computing, Inc.. (Attachments: # 1 Category Form)(Chow, Stephen) (Documents replaced on 12/27/2018 to correct fillable PDF formatting) (Kinsella, Devan). (Entered: 12/26/2018)
12/26/2018	4	CORPORATE DISCLOSURE STATEMENT by Rain Computing, Inc.. (Chow, Stephen) (Entered: 12/26/2018)
12/27/2018	5	ELECTRONIC NOTICE of Case Assignment. Judge Richard G. Stearns assigned to case. If the trial Judge issues an Order of Reference of any matter in this case to a Magistrate Judge, the matter will be transmitted to Magistrate Judge Marianne B. Bowler. (Finn, Mary) (Entered: 12/27/2018)
12/27/2018	6	Summons Issued as to Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. Counsel receiving this notice electronically should download this summons, complete one for each defendant and serve it in accordance with Fed.R.Civ.P. 4 and LR 4.1. Summons will be mailed to plaintiff(s) not receiving notice electronically for completion of service. (Kinsella, Devan) (Entered: 12/27/2018)
03/22/2019	7	NOTICE of Appearance by Douglas E. Chin on behalf of Rain Computing, Inc. (Chin, Douglas) (Entered: 03/22/2019)

03/22/2019	8	SUMMONS Returned Executed Samsung Electronics America, Inc. served on 3/20/2019, answer due 4/10/2019. (Chin, Douglas) (Entered: 03/22/2019)
03/22/2019	9	SUMMONS Returned Executed Samsung Research America, Inc. served on 3/20/2019, answer due 4/10/2019. (Chin, Douglas) (Entered: 03/22/2019)
03/26/2019	10	<i>Status</i> Letter/request (non-motion) from Stephen Chow <i>re: Service of Process on Defts.</i> (Chin, Douglas) (Entered: 03/26/2019)
04/02/2019	11	Assented to MOTION for Extension of Time to May 20, 2019 to File Answer by Rain Computing, Inc.. (Attachments: # 1 Exhibit 1: Declaration of Daniel Girdwood, # 2 Text of Proposed Order)(Chin, Douglas) (Entered: 04/02/2019)
04/02/2019	12	WAIVER OF SERVICE Returned Executed by Rain Computing, Inc.. Samsung Electronics Co., Ltd. waiver sent on 3/20/2019, answer due 6/18/2019. (Chin, Douglas) (Entered: 04/02/2019)
04/03/2019	13	Judge Richard G. Stearns: ELECTRONIC ORDER entered granting 11 Motion for Extension of Time to Answer Samsung Electronics America, Inc. answer due 5/20/2019; Samsung Research America, Inc. answer due 5/20/2019. (Tang, Danni) (Entered: 04/03/2019)
05/20/2019	14	MOTION TO DISMISS FOR FAILURE TO STATE A CLAIM by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Text of Proposed Order)(Marshall, Stephen) (Entered: 05/20/2019)
05/20/2019	15	MEMORANDUM in Support re 14 MOTION TO DISMISS FOR FAILURE TO STATE A CLAIM filed by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Marshall, Stephen) (Entered: 05/20/2019)
05/20/2019	16	CORPORATE DISCLOSURE STATEMENT by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Marshall, Stephen) (Entered: 05/20/2019)
05/20/2019	17	MOTION for Leave to Appear Pro Hac Vice for admission of Michael McKeon Filing fee: \$ 100, receipt number 0101-7693330 by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Exhibit 1)(Marshall, Stephen) (Entered: 05/20/2019)
05/20/2019	18	NOTICE of Appearance by Alexander M. Pechette on behalf of Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc. (Pechette, Alexander) (Entered: 05/20/2019)
05/21/2019	19	Judge Richard G. Stearns: ELECTRONIC ORDER entered granting 17 Motion for Leave to Appear Pro Hac Vice. Added Michael McKeon. Attorneys admitted Pro Hac Vice must register for electronic filing if the attorney does not already have an ECF account in this district. To register go to the Court website at www.mad.uscourts.gov. Select Case Information, then Electronic Filing (CM/ECF) and go to the CM/ECF Registration Form. (Pacho, Arnold) (Entered: 05/21/2019)

05/30/2019	20	MOTION for Leave to Appear Pro Hac Vice for admission of Peter Yi Filing fee: \$ 100, receipt number 0101-7708296 by Rain Computing, Inc.. (Attachments: # 1 Exhibit Certification of P. Yi)(Chin, Douglas) (Entered: 05/30/2019)
05/30/2019	21	Judge Richard G. Stearns: ELECTRONIC ORDER entered granting 20 Motion for Leave to Appear Pro Hac Vice. Added Peter C. Yi. Attorneys admitted Pro Hac Vice must register for electronic filing if the attorney does not already have an ECF account in this district. To register go to the Court website at www.mad.uscourts.gov. Select Case Information, then Electronic Filing (CM/ECF) and go to the CM/ECF Registration Form. (Pacho, Arnold) (Entered: 05/30/2019)
06/03/2019	22	Opposition re 14 MOTION TO DISMISS FOR FAILURE TO STATE A CLAIM filed by Rain Computing, Inc.. (Chin, Douglas) (Entered: 06/03/2019)
06/04/2019	23	<p>Judge Richard G. Stearns: ORDER entered denying 14 Motion to Dismiss for Failure to State a Claim. The court agrees with Rain Computing that its patent infringement complaint is sufficient to satisfy the <i>Iqbal</i> and <i>Twombly</i> "plausibility" standard. A patent plaintiff "need not prove its case at the pleading stage. The complaint must place the potential infringer... on notice of what activity... is being accused of infringement." <i>Nalco Co. v. Chem-Mod, LLC</i>, 883 F.3d 1337, 1350 (Fed. Cir. 2018) (quotation marks and citations omitted). According to the Complaint, the asserted patent is directed to "methods and systems for delivering software packages to client terminals based on a subscription service by which a user is charged for specific applications that the user is subscribed to use." Compl. para 11. The Complaint alleges that Samsung infringes by delivering software applications (such as the Smart Home App) to Samsung devices (such as the Galaxy phones) via app stores (such as the Galaxy App Store), and Samsung "controls access to the app stores by requiring the user to register, subscribe, and/or agree to certain terms before that user can receive apps offered through the app stores." Compl. para. 16. Contrary to Samsung's suggestion, "the Federal Rules of Civil Procedure do not require a plaintiff to plead facts establishing that each element of an asserted claim is met." <i>Nalco</i>, 883 F.3d at 1350 (citation omitted). Samsung's other argument, that the asserted claims require a subscription to an application rather to an app store, is an infringement position that is premature at this stage of the litigation.</p> <p>Accordingly, Samsung to answer no later than 6/18/2019; Rain Computer to make its initial disclosures consistent with L.R. 16.6(d)(1) no later than 7/9/2019; parties to confer consistent with L.R. 16(d)(2) no later than 7/30/2019; Samsung to make its initial disclosures consistent with L.R. 16.6(d)(4) no later than 8/20/2019; the parties to exchange claim construction terms no later than 9/10/2019, and meet and confer re same by 9/17/2019; opening claim construction briefs (of no more than 25 pages without leave) due 10/8/2019; reply briefs (of no more than 15 pages without leave) due 10/29/2019; joint claim construction statement to the court (including a ranking of the terms in the parties' estimation of importance to the case in decreasing order) due 11/12/2019; the court to set a Markman hearing at its conveniences, and the parties to exchange tutorials at least 7 days prior to the hearing. The court will issue a further scheduling upon the issuance of its claim construction rulings. The parties are reminded that until such a time the parties seek and obtain a case-specific protective order, the default protective order of L.R. 16.6 governs. (Entered: 06/04/2019)</p>

06/18/2019	24	ANSWER to 1 Complaint, with Jury Demand , COUNTERCLAIM against Rain Computing, Inc. by Samsung Research America, Inc., Samsung Electronics America, Inc., Samsung Electronics Co., Ltd..(Marshall, Stephen) (Entered: 06/18/2019)
07/09/2019	25	ANSWER to Counterclaim by Rain Computing, Inc..(Chin, Douglas) (Entered: 07/09/2019)
08/13/2019	26	REPORT of Rule 26(f) Planning Meeting. (Attachments: # 1 LR 16.1(d)(3) Certification by Rain Computing, # 2 LR 16.1(d)(3) Certification by Defendants)(Chin, Douglas) (Entered: 08/13/2019)
08/27/2019	27	Joint MOTION for Protective Order by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Text of Proposed Order)(Marshall, Stephen) (Entered: 08/27/2019)
08/27/2019	28	Judge Richard G. Stearns: ORDER entered granting 27 Motion for Protective Order. (Tang, Danni) (Entered: 08/27/2019)
10/07/2019	29	Assented to MOTION to Impound by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc..(Marshall, Stephen) (Entered: 10/07/2019)
10/08/2019	30	Judge Richard G. Stearns: ELECTRONIC ORDER entered reserving ruling on 29 Motion to impound claim construction brief and exhibits. In light of the 10/8/2019 deadline to file opening claim construction briefs, the court will permit Samsung to file, for the time being, a redacted version of the claim construction brief on the public docket. The court reserves judgment on the motion to impound pending review of the proposed sealed materials, noting that claim construction typically involves only documents of a public nature. (Tang, Danni) (Entered: 10/08/2019)
10/08/2019	31	Markman Brief by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Declaration of Chatterjee, # 2 CV of Chatterjee)(Marshall, Stephen) (Main Document 31 replaced on 10/8/2019 with further redaction from counsel) (Pacho, Arnold). (Additional attachment(s) added on 10/10/2019: # 3 Claim Construction Brief (Filed Under Seal)) (Pacho, Arnold). Modified on 10/10/2019 to add sealed version, per court order dkt.34 (Pacho, Arnold). Modified on 4/24/2020 to unseal documents per court order (dkt # 58). (Pacho, Arnold). (Entered: 10/08/2019)
10/08/2019	32	DECLARATION re 31 Markman Brief <i>Declaration of Stephen Marshall In Support of Samsung's Opening Claim Construction Brief</i> by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Exhibit 1, # 2 Exhibit 2, # 3 Exhibit 3, # 4 Exhibit 4, # 5 Exhibit 5, # 6 Exhibit 6, # 7 Exhibit 7, # 8 Exhibit 8, # 9 Exhibit 9, # 10 Exhibit 10, # 11 Exhibit 11, # 12 Exhibit 12, # 13 Exhibit 13)(Marshall, Stephen) (Attachment 4 replaced on 10/10/2019) (Pacho, Arnold). (Attachment 5 replaced on 10/10/2019) (Pacho, Arnold). (Attachment 6 replaced on 10/10/2019) (Pacho, Arnold). (Attachment 7 replaced on 10/10/2019) (Pacho, Arnold). (Attachment 8 replaced on 10/10/2019) (Pacho, Arnold). (Attachment 9 replaced on 10/10/2019) (Pacho, Arnold). (Attachment 10 replaced on 10/10/2019) (Pacho, Arnold). Modified on 10/10/2019 to attach sealed versions, per court order

		dkt.34 (Pacho, Arnold). Modified on 4/24/2020 to unseal documents per court order (dkt # 58). (Pacho, Arnold). (Entered: 10/08/2019)
10/08/2019	33	BRIEF by Rain Computing, Inc. <i>Opening Claim Construction Brief</i> . (Attachments: # 1 Declaration of Douglas E. Chin, # 2 Exhibit A-1, # 3 Exhibit A-2, # 4 Exhibit A-3, # 5 Exhibit A-4, # 6 Exhibit A-5, # 7 Exhibit A-6, # 8 Exhibit A-7, # 9 Exhibit A-8, # 10 Exhibit B-1, # 11 Exhibit B-2, # 12 Exhibit B-3, # 13 Exhibit B-4, # 14 Exhibit B-5, # 15 Exhibit B-6, # 16 Exhibit B-7)(Chin, Douglas) (Entered: 10/08/2019)
10/09/2019	34	Judge Richard G. Stearns: ELECTRONIC ORDER entered granting 29 Motion to impound claim construction brief and exhibits, as the proposed impounded portions/exhibits reflect and/or comprise documents that Rain Computing has designated as confidential (without deciding whether they are confidential, as the designation is not challenged), noting however that an inventor's subjective understanding or intent is "irrelevant to the issue of claim construction." <i>Howmedica Osteonics Corp. v. Wright Med. Tech., Inc.</i> , 540 F.3d 1337, 1347 (Fed. Cir. 2008). (Tang, Danni) (Entered: 10/09/2019)
10/29/2019	35	Markman Brief by Rain Computing, Inc.. (Yi, Peter) (Entered: 10/29/2019)
10/29/2019	36	Response by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc. to 33 Brief, <i>Responsive Claim Construction Brief of the Samsung Defendants</i> . (Marshall, Stephen) (Entered: 10/29/2019)
10/29/2019	37	DECLARATION re 36 Response <i>Declaration of Stephen Marshall In Support of Samsung's Responsive Claim Construction Brief</i> by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Exhibit)(Marshall, Stephen) (Entered: 10/29/2019)
11/12/2019	38	Joint Claim Construction and Prehearing Statement by Rain Computing, Inc.. (Chow, Stephen) (Entered: 11/12/2019)
01/15/2020	39	Set Hearings: Claim Construction Hearing set for 1/30/2020 10:30 AM - 12:30 PM in Courtroom 21 before Judge Richard G. Stearns. (Maynard, Timothy) (Entered: 01/15/2020)
01/22/2020	40	MOTION for Leave to Appear Pro Hac Vice for admission of Bethany Mihalik Filing fee: \$ 100, receipt number 0101-8067324 by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Exhibit 1)(Marshall, Stephen) (Entered: 01/22/2020)
01/23/2020	41	Judge Richard G. Stearns: ELECTRONIC ORDER entered granting 40 Motion for Leave to Appear Pro Hac Vice. Added Bethany Mihalik. Attorneys admitted Pro Hac Vice must register for electronic filing if the attorney does not already have an ECF account in this district. To register go to the Court website at www.mad.uscourts.gov. Select Case Information, then Electronic Filing (CM/ECF) and go to the CM/ECF Registration Form. (Pacho, Arnold) (Entered: 01/23/2020)
01/30/2020	42	Electronic Clerk's Notes for proceedings held before Judge Richard G. Stearns: Markman Hearing held on 1/30/2020. The court has taken the matter under advisement. (Court Reporter: James Gibbons at jamesgibbonsrpr@gmail.com.)(Attorneys present:

		Chow for pl., McKeon, Milhalik, and Marshall for defs.) (Tang, Danni) (Entered: 01/30/2020)
02/12/2020	43	Judge Richard G. Stearns: ORDER entered. MEMORANDUM AND ORDER construing claims. "The disputed claim terms will be construed for the jury and for all other purposes in the pending litigation in a manner consistent with the above rulings of the court." Fact discovery to conclude 6/12/2020; opening expert reports to be exchanged by 7/10/2020, rebuttal reports 8/7/2020; expert discovery closes 9/4/2020. Summary judgment motions to be filed no later than 10/2/2020; oppositions due 10/23/2020; replies of no more than 10 pages by 11/6/2020.(Tang, Danni) (Entered: 02/12/2020)
02/19/2020	44	MOTION for Reconsideration re 43 Memorandum & ORDER,, by Rain Computing, Inc..(Chow, Stephen) (Entered: 02/19/2020)
02/19/2020	45	MEMORANDUM in Support re 44 MOTION for Reconsideration re 43 Memorandum & ORDER,, filed by Rain Computing, Inc.. (Chow, Stephen) (Entered: 02/19/2020)
02/24/2020	46	Judge Richard G. Stearns: ELECTRONIC ORDER entered denying 44 Motion for Reconsideration. (Tang, Danni) (Entered: 02/24/2020)
03/11/2020	47	STIPULATION of Dismissal <i>Joint Stipulation of Dismissal and for Entry of Final Judgment and Order</i> by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc.. (Attachments: # 1 Text of Proposed Order) (Marshall, Stephen) (Entered: 03/11/2020)
03/12/2020	48	Judge Richard G. Stearns: ORDER entered re 47 Joint Stipulation of Dismissal. Order Approving Joint Sipulation of Dismissal and for Entry of Final Judgment. (Pacho, Arnold) (Entered: 03/12/2020)
03/25/2020	49	NOTICE OF APPEAL as to 43 Memorandum & ORDER,, 46 Order on Motion for Reconsideration by Rain Computing, Inc. Filing fee: \$ 505, receipt number 0101-8170138 Fee Status: Not Exempt. NOTICE TO COUNSEL: A Transcript Report/Order Form, which can be downloaded from the First Circuit Court of Appeals web site at http://www.ca1.uscourts.gov MUST be completed and submitted to the Court of Appeals. Counsel shall register for a First Circuit CM/ECF Appellate Filer Account at http://pacer.psc.uscourts.gov/cmecf. Counsel shall also review the First Circuit requirements for electronic filing by visiting the CM/ECF Information section at http://www.ca1.uscourts.gov/cmecf. US District Court Clerk to deliver official record to Court of Appeals by 4/14/2020. (Chow, Stephen) (Entered: 03/25/2020)
03/25/2020	50	NOTICE OF APPEAL to the Federal Circuit as to 43 Memorandum & ORDER,, 46 Order on Motion for Reconsideration, 48 Order: Filing fee: \$ 505, receipt number 0101-8170138: by Rain Computing, Inc. US District Court Clerk to deliver official record to Court of Appeals by 4/14/2020. (Paine, Matthew) (Entered: 03/25/2020)
03/25/2020	51	Notice of correction to docket made by Court staff. Correction: Docket Entry 49 Notice of Appeal to the Federal Circuit Corrected Because: The Notice of Appeal to the Federal Circuit (Patent Case) Was Filed Under the Wrong Appellate Event in CM/ECF

		by Counsel Stephen Y. Chow. The Notice of Appeal to the Federal Circuit Was Re-Docketed Under the Correct Appellate Event in CM/ECF as Entry 50 (Paine, Matthew) (Entered: 03/25/2020)
03/25/2020	52	Certified and Transmitted Abbreviated Electronic Record on Appeal to US Court of Appeals for the Federal Circuit re 50 Notice of Appeal to the Federal Circuit, (Paine, Matthew) (Entered: 03/25/2020)
03/26/2020		ELECTRONIC NOTICE of Duplicate Filing Fee and Credit for Refund, for \$505.00 paid on 03/25/2020, receipt number 0101-8170048. (Tran, Henry) (Entered: 03/26/2020)
03/27/2020	53	NOTICE OF CROSS-APPEAL to the Federal Circuit as to 43 Memorandum & ORDER,, 48 Order by Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., Samsung Research America, Inc. Filing fee: \$ 505, receipt number 0101-8173146 Fee Status: Filing Fee paid. US District Court Clerk to deliver official record to Court of Appeals by 4/16/2020. (Marshall, Stephen) (Modified on 3/29/2020 to Correct Docket Text) (Paine, Matthew). (Entered: 03/27/2020)
03/30/2020	54	Certified and Transmitted Abbreviated Electronic Record on Appeal to US Court of Appeals for the Federal Circuit re 53 Notice of Cross-Appeal to the Federal Circuit. (Paine, Matthew) (Entered: 03/30/2020)
04/02/2020	55	USCA Case Number 20-1646 for 50 NOTICE OF APPEAL to the Federal Circuit by Rain Computing, Inc.. (Paine, Matthew) (Modified on 4/2/2020 to Correct Docket Text) (Paine, Matthew). (Entered: 04/02/2020)
04/06/2020	56	USCA Case Number 20-1656 for 53 Cross Notice of Appeal to the Federal Circuit, filed by Samsung Electronics Co., Ltd., Samsung Research America, Inc., Samsung Electronics America, Inc.. (Paine, Matthew) (Entered: 04/06/2020)
04/23/2020	57	STIPULATION re 34 Order on Motion for Miscellaneous Relief,, 32 Declaration,,,, 31 Markman Brief,, 28 Order on Motion for Protective Order <i>To Release from Impoundment for Appeal Compilation Due May 4, 2020</i> by Rain Computing, Inc.. (Chow, Stephen) (Entered: 04/23/2020)
04/24/2020	58	Judge Richard G. Stearns: ELECTRONIC ORDER entered re 57 Joint Stipulation. The stipulation is SO ORDERED. The docket entries are hereby and forthwith unsealed. (Pacho, Arnold) (Entered: 04/24/2020)
04/28/2020	59	Transcript of Hearing Re: Claim Construction held on January 30, 2020, before Judge Richard G. Stearns. COA Case No. 20-1646 and 20-1656. The Transcript may be purchased through the Court Reporter, viewed at the public terminal, or viewed through PACER after it is released. Court Reporter Name and Contact Information: James Gibbons at jamesgibbonsrpr@gmail.com Redaction Request due 5/19/2020. Redacted Transcript Deadline set for 5/29/2020. Release of Transcript Restriction set for 7/27/2020. (Scalfani, Deborah) (Entered: 04/28/2020)
04/28/2020	60	NOTICE is hereby given that an official transcript of a proceeding has been filed by the court reporter in the above-captioned matter. Counsel are referred to the Court's

Transcript Redaction Policy, available on the court website at <http://www.mad.uscourts.gov/attorneys/general-info.htm> (Scalfani, Deborah) (Entered: 04/28/2020)

PACER Service Center			
Transaction Receipt			
05/04/2020 15:00:47			
PACER Login:	dc9109x1:3529415:0	Client Code:	
Description:	Docket Report	Search Criteria:	1:18-cv-12639-RGS
Billable Pages:	10	Cost:	1.00

(12) **United States Patent**
Chang

(10) **Patent No.:** **US 9,805,349 B1**
 (45) **Date of Patent:** **Oct. 31, 2017**

(54) **METHOD AND SYSTEM FOR DELIVERING APPLICATION PACKAGES BASED ON USER DEMANDS**

(71) Applicant: **Hsuan-Yeh Chang**, Chestnut Hill, MA (US)

(72) Inventor: **Hsuan-Yeh Chang**, Chestnut Hill, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 873 days.

(21) Appl. No.: **13/865,217**

(22) Filed: **Apr. 18, 2013**

Related U.S. Application Data

(63) Continuation of application No. 11/944,456, filed on Nov. 22, 2007, now abandoned.

(51) **Int. Cl.**
G06Q 20/12 (2012.01)

(52) **U.S. Cl.**
 CPC **G06Q 20/1235** (2013.01); **G06Q 20/123** (2013.01); **G06Q 20/127** (2013.01)

(58) **Field of Classification Search**
 CPC **G06Q 20/00-20/425**; **G06Q 30/00-30/08**
 USPC **705/1.1-500**
 See application file for complete search history.

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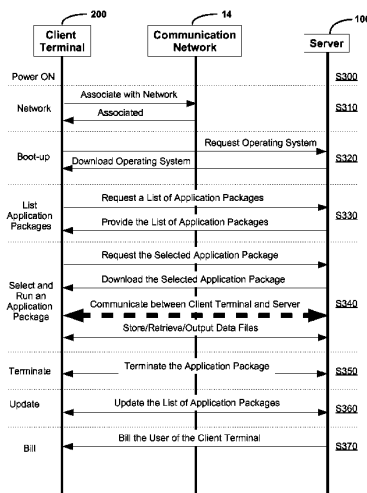
(Continued)

Primary Examiner — Mohammad A. Nilforoush

(57) **ABSTRACT**

A method and a system are provided for delivering on-demand software packages. In one aspect, the method may include subscribing services of a service provider operating a server, the server including an operating system and several application packages installed therein, initiating a client terminal by performing a network booting process using the operating system installed in the server, and executing in the client terminal a subscribed application package installed in the server using resources of the operating system resident in the client terminal. The method may further include charging the user a fee according to the application packages and the operating system subscribed by the user.

27 Claims, 3 Drawing Sheets



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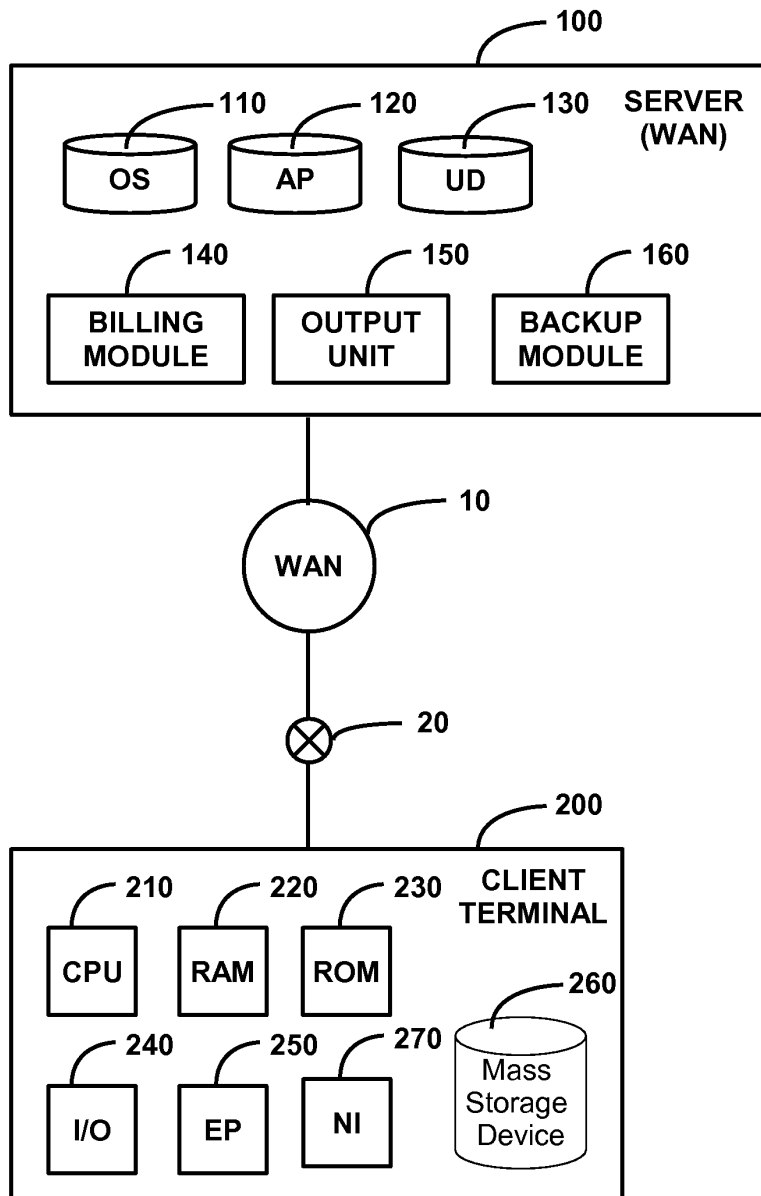


FIG. 1

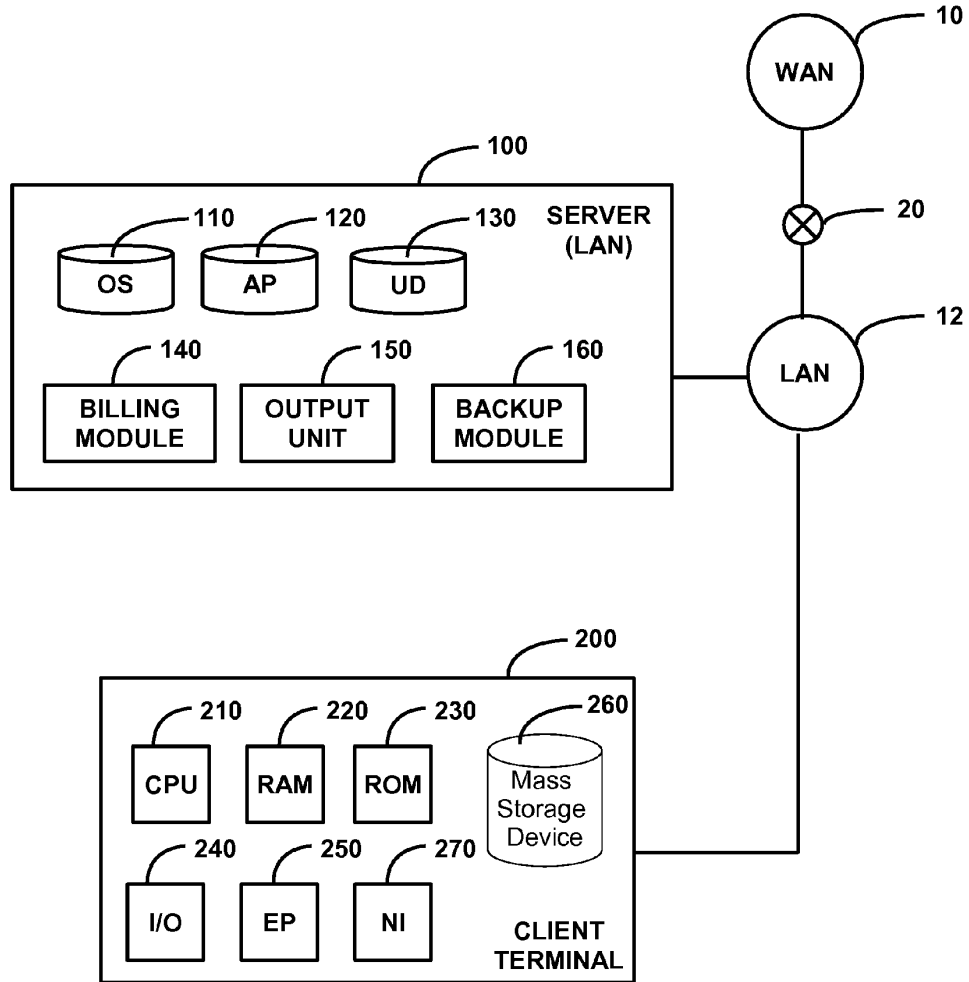


FIG. 2

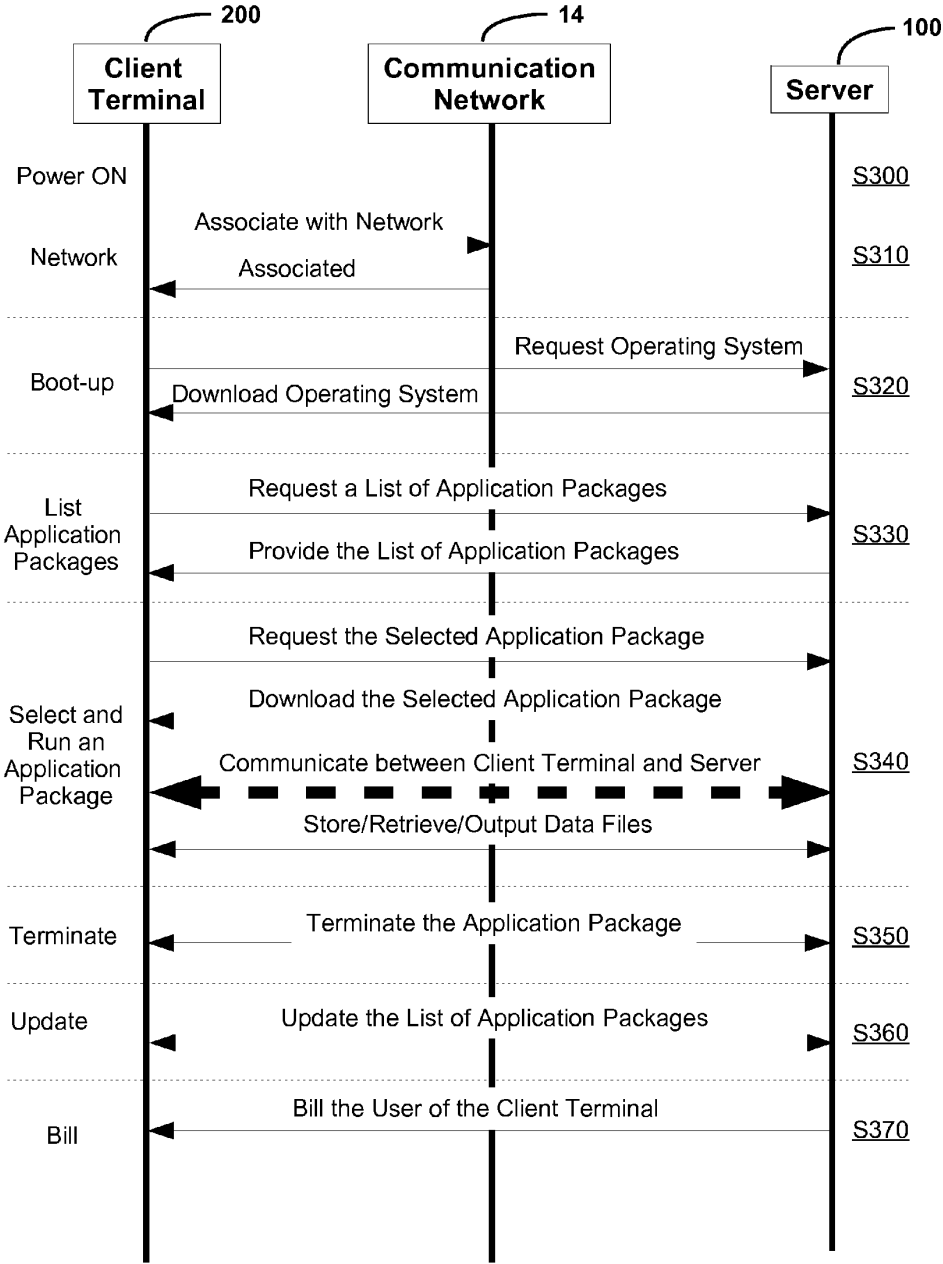


FIG. 3

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1

METHOD AND SYSTEM FOR DELIVERING APPLICATION PACKAGES BASED ON USER DEMANDS

This is a continuation of U.S. application Ser. No. 11/944, 456, entitled METHOD AND SYSTEM FOR DELIVERING APPLICATION PACKAGES BASED ON USER DEMANDS, filed on Nov. 22, 2007, the entire contents of which are incorporated herein by reference.

BACKGROUND

The present invention relates to a method and a system for delivering application packages. More particularly, the present invention relates to a method and a system for delivering application packages based on user demands.

In order to normally operate a data processor, such as a personal computer, it is often required that an operating system (OS) and some application packages operable under the OS be installed in the data processor. The OS may provide resources for operating the data processor and manage the sharing of the resources. The application packages may use the resources of the OS to perform specific tasks.

In certain cases, the data processor may be purchased including an OS and some basic application packages pre-installed in the data processor. The user of the data processor may then obtain a license for the OS and/or the application packages with or without additional fees. If the user wants the data processor to perform a special task and none of the pre-installed application packages can perform the task, the user will then need to purchase a special application package that performs the task and install the purchased special application package in the data processor before use.

Normally, the purchase of an application package means the purchase of a license which allows a user to use that application package on a single machine with an unlimited time period. However, the purchase of such a license may be very costly. Accordingly, many other types of licenses have been developed recently.

Among the recently developed licenses, an on-demand license has attracted much attention. The on-demand license allows the user to pay a fee only when the licensed application package is subscribed and/or used. The user will not need to pay anything if the application package is unsubscribed and/or not in use.

Currently, the on-demand license type is applicable mostly to web applications. However, running a web application, i.e., under a web browser, may be several times slower than running the application directly under an OS. Accordingly, there is a need to develop a method and a system that can more efficiently deliver application packages based on user demands.

SUMMARY

In light of the above, there is provided a method and a system for delivering application packages based on user demands.

In one embodiment, the method includes subscribing services of a service provider operating a server, the server including an operating system and a plurality of application packages installed therein, initiating a client terminal by performing a network booting process using the operating system installed in the server, and executing in the client

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terminal a subscribed application package installed in the server using resources of the operating system resident in the client terminal.

In another embodiment, the method includes initiating a client terminal using an operating system installed in a server situated in a communication network, the client terminal accessing the server via a service provider, providing, to the user, a list of application packages subscribed by the user, the application packages being installed in the server, selecting an application package from the list, running the selected application package on the client terminal using resources of the operating system, and charging the user a fee by the service provider according to the list of subscribed application packages.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a system for delivering application packages according to an embodiment consistent with the present invention.

FIG. 2 illustrates a system for delivering application packages according to another embodiment consistent with the present invention.

FIG. 3 illustrates a method for delivering application packages according to an embodiment consistent with the present invention.

DETAILED DESCRIPTION

Hereinafter, embodiments consistent with the present invention will be described in detail with reference to the accompanying drawings, in which like reference numerals refer to like elements.

Referring to FIG. 1, there is illustrated a system for delivering application packages according to an embodiment consistent with the present invention.

As shown in FIG. 1, a server 100, which may be operated and maintained by a service provider, is connected to a wide area network (WAN) 10. In one embodiment, server 100 may include an operating system (OS) server 110, an application package (AP) server 120, and a user data (UD) server 130. Although three different servers 110, 120, and 130 have been shown and described, it is to be understood that servers 110, 120, and 130 may be realized as one server, two servers, or three different servers. Further, server 100 may include a billing module 140 and an output unit 150.

OS server 110 may include one or more operating systems installed therein. In one embodiment, the installed operation systems may be open source operating systems, such as Linux, BSD, and the like, or proprietary operating systems, such as Windows® of Microsoft Corp., "Mac OS X" of Apple Inc., and the like.

AP server 120 may include a plurality of application packages installed therein. The application packages may be open source software packages, such as "OpenOffice.org," or proprietary software packages, such as "Office 2007" of Microsoft Corp.

UD server 130 may include a plurality of storage units. Each storage unit may correspond to a user account for storing data of the user. Each storage unit has a capacity quota. For example, the capacity quota may be 100 GB. In one embodiment, UD server 130 may include a plurality of hard disks, thereby forming a file system under Redundant Array of Independent Disks (RAID) architecture. Accordingly, storing user data in UD server 130 may be better secured than saving them in mass storage device 260, which does not normally employ a RAID architecture. In addition,

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to protect privacy of the user, the user data stored in UD server 130 may be encrypted.

A user may subscribe services provided by the service provider. The services may include licenses to use one or more of the operating systems and/or one or more application packages installed in server 100. The services may further include rights to use the storage unit of a certain capacity quota. Further, the services may include output services. The user who has subscribed the output services may utilize output unit 150 to output, for example, documents, pictures, and the like, or to prepare a recording medium, such as a CD, a DVD, and the like. In one embodiment, the output services for preparing the recording medium may be used to backup data files of the user. The service provider may then ship the documents, pictures, data CDs, data DVDs, and the like, to the user via courier. Billing module 140 may issue a bill to charge the user for the services the user subscribed and/or used.

Referring again to FIG. 1, a client terminal 200 may be connected to WAN 10 via an access point 20. In one embodiment, client terminal 200 may be a data processor, such as a personal computer, a personal digital assistant, and the like, a communication apparatus, such as a cell phone, a smart phone, and the like, or a consumer electronic product, such as a television set, a game box, and the like.

Client terminal 200 may include a central processing unit (CPU) 210, a random access memory (RAM) 220, a read only memory (ROM) 230, an input/output (I/O) unit 240, an extension port (EP) 250 (for example, a universal serial bus (USB) port, or a card reader), a mass storage device 260 (for example, a hard disk), and a network interface (NI) 270. In one embodiment, client terminal 200 may not require mass storage device 260. Client terminal 200 may be operated using UD server 130 as a substitute mass storage device, with or without mass storage device 260 in client terminal 200.

Access point 20 may be a wireless access point (for example, a wireless router, a base station, and the like), or a wired access point (for example, a cable/DSL modem, an optical modem, and the like). Client terminal 200 uses NI 270 to gain access to WAN 10 via access point 20, so as to communicate with server 100. In one embodiment, NI 270 may be a wired network card, such as an Ethernet card, or a wireless network card, such as a WiMAX or WiFi interface device, depending on the type of access point 20 used.

Referring to FIG. 2, there is illustrated a system for delivering application packages according to another embodiment consistent with the present invention. As shown, a server 100 is connected to a local area network (LAN) 12. As discussed above, server 100 may include an operating system (OS) server 110, an application package (AP) server 120, and a user data (UD) server 130. In one embodiment, server 100 may be managed by the service provider. However, it is appreciated that server 100, which is connected to LAN 12, may be managed by the administrator of LAN 12, such as a corporate information technology (IT) department. The service provider provides licenses for a client terminal 200 to use the operating systems installed in OS server 110 and the application packages installed in AP server 120.

As shown in FIG. 2, client terminal 200 is connected to LAN 12. Client terminal 200 may use NI 270 to access server 100 via LAN 12. In one embodiment, LAN 12 may comprise Ethernet, and NI 270 may comprise an Ethernet card. However, it is to be understood that LAN 12 may comprise an Intranet, which may connect client terminal 200 and server 100 under the same domain but located at

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different geographical locations. Further, LAN 12 may be connected to WAN 10 via an access point 20.

Referring to FIG. 3, there is illustrated a method for delivering application packages according to an embodiment consistent with the present invention. Hereinafter, the method consistent with the present invention will be described in detail with reference to FIG. 3 as well as to FIGS. 1 and/or 2.

First, the user needs to obtain a client terminal and subscribe the services of the service provider. In one example, the user may already have a client terminal. Accordingly, the user only needs to subscribe the services without acquiring a new client terminal. In another example, the user may not already have a client terminal. Accordingly, the user needs to obtain a client terminal first. In certain cases, however, the service provide may provide a client terminal to the user when the user subscribes their services.

If the user does not yet have a client terminal and desires to subscribe the services, the user may visit a vendor store of the service provider located at, for example, a shopping center close to the user's neighborhood. The user may then subscribe the services using a client terminal of the vendor store. On the other hand, if the user already have a client terminal, the user may then visit a web store of the service provider, and subscribe the services of the service provider through the web store.

After the user subscribes the services, the service provider may then issue a user identification device, such as a SIM card, an IC card, a flash memory drive, a memory card, a CD-ROM, and the like, which may record subscription information of the user. The user identification device may be connected with client terminal 200 via EP 250. The subscription information may include user information, pass code, account information, subscription details, and/or system configurations of client terminal 200. In one embodiment, the user identification device may be integrated with ROM 230 of client terminal 200. For example, the subscription information may be recorded in ROM 230 of client terminal 200, if client terminal 200 is provided to the user by the service provider.

Referring to FIG. 3, in Step 300, the user powers on client terminal 200. Immediately after powering on client terminal 200, client terminal 200 may begin performing a network booting process.

In Step 310, client terminal 200 attempts to associate with a communication network 14 (for example, WAN 10 or LAN 12) by sending out a request to communication network 14. In one embodiment, communication network 14 may include a wireless communication network, which is accessible to client terminal 200 via a wireless access point, such as a base station. Once client terminal 200 is associated with communication network 14, client terminal 200 may have access to server 200. In one embodiment, client terminal 200 may be assigned a network address upon association with communication network 14. Alternatively, client terminal 200 may use a predetermined network address included in the subscription details recorded in the user identification device.

In Step 320, after client terminal 200 is associated with communication network 14, client terminal 200 may broadcast a request for finding server 100 that includes an operating system installed therein. In one embodiment, a server address of server 100 may be included in the subscription details recorded in the user identification device. In this case, client terminal 200 may find server 100 within a short time period. Once server 100 is found, client terminal 200 may begin a booting process (or initiating process) based on the

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subscription information by transferring from server 100 the operating system subscribed by the user. Before the booting process, however, server 100 may need to authenticate the user. In one embodiment, server 100 may authenticate the user by requesting, for example, the subscription information from client terminal 200. Because the operating system is installed in server 100, client terminal 200 does not require the operating system be installed in mass storage device 260 of client terminal 200. If client terminal 200 includes mass storage device 260, the user may then use the entire capacity of mass storage device 260 to store user data, without sacrificing storage space for the operating system.

The network booting process described above may be time consuming, especially when the bandwidth of communication network 14 is narrow. Accordingly, in one embodiment, client terminal 200 may further include a non-volatile memory module (not shown) having a storage capacity substantially the same as that of RAM 220. If the user wants to power off client terminal 200 to save energy, but does not want to spend time on the network booting process when powering on client terminal 200 again, dynamic data in RAM 220 of client terminal 200 may be transferred to the non-volatile memory when powering off, so as to allow client terminal 200 to enter a hibernation mode. When the user powers on client terminal 200 again, the dynamic data stored in the non-volatile memory module may be loaded back to RAM 220. In this manner, client terminal 200 may return to its original state of operation at the time the power is turned off. Accordingly, no reboot of client terminal 200 may be necessary. Essentially, client terminal 200 may need to go through this network booting process only when client terminal 200 is powered on for the first time. Nevertheless, client terminal 200 may still need to reboot when certain portions of the operating system go crashed and are unrecoverable.

In Step S330, after performing the network booting process, client terminal 200 may request server 100 to send a list of application packages installed in AP server 120. Server 100 may then provide the list of application packages to client terminal 200. According to the subscription information recorded in the user identification device, the user is licensed to use one or more application packages in the list. For those application packages not subscribed by the user, the user is not licensed to use them. Because the subscribed application packages are installed in server 100, client terminal 200 does not require the application packages be installed in mass storage device 260 of client terminal 200. Accordingly, if client terminal 200 includes mass storage device 260, the user may use the entire capacity of mass storage device 260 to store user data.

In Step S340, in order to execute or run a subscribed application package on client terminal 200, the user may select the subscribed application package from the list of application packages, and send a request for the selected application package to server 100. In one embodiment, server 100 may need to verify the user's subscription of the selected application package before activating the selected application package. Once the user's subscription is verified, client terminal 200 then begin transferring the selected application package and execute the selected application package on client terminal 200, using resources of the operating system resident in RAM 220 of client terminal 200.

While running the selected application package on client terminal 200, client terminal 200 may communicate with server 100, and vice versa, to obtain component parts or add-on modules of the selected application package from AP

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server of server 100, and/or to store temporary data into U D server 130 of server 100, for example. Further, while running the selected application package, the user of client terminal 200 may store a newly created data file into server 100 and/or retrieve a previously created data file from server 100. Moreover, the user may output a data file through output unit 150 of server 100. The service provider may then ship the output material, such as document papers, to the user via courier.

In Step S350, when the user is to terminate the execution of the selected application package, client terminal 200 may inform server 100 that the selected application package is to be terminated. Client terminal 200 may then release the running application package from RAM 220 of client terminal 200.

In Step S360, when the user wants to change his subscription of services, the user may use client terminal 200 to send a request for subscription update to server 100. In response, server 100 may send a list of application packages including currently subscribed application packages and available application packages not currently subscribed.

If the user wants to subscribe a new application package, the user may search for the new application package from the available application packages. The user may then select the new application package found from the available application packages. Further, the user may subscribe the new application package by updating the list of application packages, that is, by adding the new application package to the subscribed application packages.

If the user wants to unsubscribe a currently subscribed application package, the user may select the application package to be unsubscribed from the currently subscribed application packages. Further, the user may unsubscribe the selected application package by updating the list of application packages, that is, by removing the selected application package from the subscribed application packages.

Accordingly, application packages can be delivered to the user according to the user's demands. When the user demands an application package, the user may simply subscribe it from the service provider. On the other hand, when the user no longer demands a certain application package, the user may simply unsubscribe it. In one embodiment, the user may subscribe or unsubscribe the license of the application package on a daily basis, a weekly basis, a monthly basis, and the like. In this manner, the user only pays for the license of an application package when he subscribes and/or uses the application package. Thus, the user does not need to pay the large fee for purchasing the license of an application package as in the related art.

In Step S370, the service provider may charge the user a fee for the services that are subscribed. More specifically, billing module 140 of server 100 may issue a bill according to the user's subscription of the services of the service provider. In one embodiment, billing module 140 may issue a bill to the user periodically, such as monthly, weekly, and the like. In one embodiment, the bill may be sent to the user via an electronic mail.

In view of the above, the present invention may provide a system and a method for delivering application packages based on user demands. Unlike the delivery method of application packages in the related art, the present invention does not require the application packages be executed on top of a web browser. Rather, the application packages may be executed directly on a client terminal using resources of an operating system resident in the RAM of the client terminal. Accordingly, the performance of the application packages

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may be several times better than running the application packages over a web browser.

Further, because application packages may be executed directly on the client terminal, not on the server, the minimum system requirement of the server may be largely reduced. The server may fully dedicate to the management of the application packages and/or the operating systems without sharing computing time for execution of those application packages. Accordingly, the same server may support much more client terminals under the architecture of the present invention than under the architecture of the related art.

While embodiments consistent with the present invention have been described in detail, it is to be understood by those skilled in the art that various modifications and/or alterations may be made without departing from the spirit and scope of the appended claims. Accordingly, it is intended that the scope of the present invention be defined in the appended claims and their equivalents.

What is claimed is:

1. A method for providing software applications through a computer network based on user demands, the method comprising:

accepting, through a web store, a subscription of one or more software application packages from a user;
 sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling the user identification module to a client terminal device of the user;
 a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network;
 upon authentication of the user, the server device providing, to the client terminal device of the user, a listing of one or more software application packages subscribed through the web store in accordance with the subscription information;
 the server device receiving, from the client terminal device and through the computer network, a selection of a first software application package from said listing of one or more software application packages;
 the server device transmitting the first software application package to the client terminal device through the computer network; and
 executing the first software application package by a processor of the client terminal device using resources of an operating system resident in a memory of the client terminal device.

2. The method of claim 1, further comprising:

the server device receiving an update request from the client terminal device and updating said subscription of one or more software application packages in response to the update request by removing the first software application package from said listing of one or more software application packages; and
 providing to the client terminal device an updated listing of one or more software application packages in accordance with the updated subscription.

3. The method of claim 1, further comprising:

the server device receiving an update request from the client terminal device and updating said subscription of one or more software application packages in response to the update request by adding a second software application package to said listing of one or more software application packages;
 the server device receiving, from the client terminal device and through the computer network, a selection

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of the second software application package from said updated listing of one or more software application packages;

the server device transmitting the second software application package to the client terminal device through the computer network; and

executing the second software application package by the processor of the client terminal device using the resources of the operating system resident in the memory of the client terminal device.

4. The method of claim 1, further comprising:

accepting, through the web store, a subscription of the operating system installed in the server device; and
 initiating the client terminal device by transmitting the operating system to the client terminal device through the computer network so as to perform a booting process.

5. A method for providing software applications over a through a computer network based on user demands, the method comprising:

accepting, through a web store, a subscription of one or more software application packages from a user;
 accepting, through the web store, a subscription of a storage unit remote from a client terminal device of the user;

sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling the user identification module to the client terminal device;

a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network;
 upon authentication of the user, the server device providing, to the client terminal device of the user, a listing of one or more software application packages subscribed through the web store in accordance with the subscription information;

the server device receiving, from the client terminal device and through the computer network, a selection of a first software application package from said listing of one or more software application packages;

the server device transmitting the first software application package to the client terminal device through the computer network;

executing the first software application package by a processor of the client terminal device using resources of an operating system resident in a memory of the client terminal device; and

while executing the first software application package on the client terminal device, saving in the remote storage unit a data file generated by the first software application package.

6. The method of claim 5, further comprising encrypting the data file saved in the remote storage unit.

7. The method of claim 1, wherein authenticating the user comprises requesting the subscription information including a pass code through the user identification module.

8. A method for providing software applications through a computer network based on user demands, the method comprising:

accepting, through a web store, a subscription of one or more software application packages from a user;

sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling the user identification module to a client terminal device of the user;

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a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network; upon authentication of the user, the server device providing, to the client terminal device of the user, a listing of one or more software application packages subscribed through the web store in accordance with the subscription information; the server device receiving, from the client terminal device and through the computer network, a selection of a first software application package from said listing of one or more software application packages; the server device transmitting the first software application package to the client terminal device through the computer network; and executing the first software application package by a processor of the client terminal device using resources of an operating system resident in a memory of the client terminal device; wherein the method further comprises: prior to executing the first software application package, the server device verifying a subscription status of the first software application package; and initiating said executing of the first software application package after the subscription status is verified.

9. The method of claim 1, wherein executing the first software application package comprises executing the first software application package by the processor without using a web browser application package.

10. The method of claim 1, further comprising accepting a payment from the user in accordance with said subscription of one or more software application packages.

11. The method of claim 10, wherein accepting the payment comprises accepting the payment periodically.

12. The method of claim 1, further comprising: prior to powering off the client terminal device, hibernating the client terminal device by transferring dynamic data in the memory of the client terminal device to a non-volatile memory of the client terminal device; and powering off the client terminal device.

13. The method of claim 12, wherein hibernating the client terminal device comprises transferring the dynamic data in the memory to the non-volatile memory having a storage capacity same as that of the memory.

14. The method of claim 1, wherein executing the first software application package comprises: executing the first software application package by the processor, while transmitting component parts of the first software application package to the client terminal device through the computer network.

15. The method of claim 1, wherein transmitting the first software application package comprises transmitting the first software application package through a wide area network.

16. The method of claim 1, wherein transmitting the first software application package comprises transmitting the first software application package through a wireless network.

17. The method of claim 1, further comprising searching for the first software application package among a plurality of available software application packages in the web store.

18. The method of claim 5, further comprising: the server device receiving an update request from the client terminal device and updating said subscription of one or more software application packages in response to the update request by removing the first software

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application package from said listing of one or more software application packages; and providing to the client terminal device an updated listing of one or more software application packages in accordance with the updated subscription.

19. The method of claim 5, further comprising: the server device receiving an update request from the client terminal device and updating said subscription of one or more software application packages in response to the update request from the client terminal device by adding a second software application package to said listing of one or more software application packages; the server device receiving, from the client terminal device and through the computer network, a selection of the second software application package from said updated listing of one or more software application packages; the server device transmitting the second software application package to the client terminal device through the computer network; and executing the second software application package by the processor of the client terminal device using the resources of the operating system resident in the memory of the client terminal device.

20. The method of claim 5, further comprising: accepting, through the web store, a subscription of the operating system; and initiating the client terminal device by transmitting the operating system to the client terminal device through the computer network so as to perform a booting process.

21. The method of claim 5, wherein authenticating the user comprises requesting the subscription information including a pass code through the user identification module.

22. The method of claim 5, wherein executing the first software application package comprises: executing the first software application package by the processor, while transmitting component parts of the first software application package to the client terminal device through the computer network.

23. The method of claim 8, further comprising: the server device receiving an update request from the client terminal device and updating said subscription of one or more software application packages in response to the update request by removing the first software application package from said listing of one or more software application packages; and providing to the client terminal device an updated listing of one or more software application packages in accordance with the updated subscription.

24. The method of claim 8, further comprising: the server device receiving an update request from the client terminal device and updating said subscription of one or more software application packages in response to the update request by adding a second software application package to said listing of one or more software application packages; the server device receiving, from the client terminal device and through the computer network, a selection of the second software application package from said updated listing of one or more software application packages; the server device transmitting the second software application package to the client terminal device through the computer network; and executing the second software application package by the processor of the client terminal device using the

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resources of the operating system resident in the memory of the client terminal device.

25. The method of claim 8, further comprising:

accepting, through the web store, a subscription of the operating system; and

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initiating the client terminal device by transmitting the operating system to the client terminal device through the computer network so as to perform a booting process.

26. The method of claim 8, wherein authenticating the user comprises requesting the subscription information including a pass code through the user identification module.

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27. The method of claim 8, wherein executing the first software application package comprises:

executing the first software application package by the processor, while transmitting component parts of the first software application package to the client terminal device through the computer network.

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Appeal No. 2020-1646, -1656

**THE UNITED STATES COURT OF APPEALS FOR THE
FEDERAL CIRCUIT**

RAIN COMPUTING, INC.,

Plaintiff-Appellant,

v.

SAMSUNG ELECTRONICS AMERICA, INC., SAMSUNG
ELECTRONICS CO., LTD., SAMSUNG RESEARCH AMERICA, INC.,

Defendants-Cross-Appellants.

Appeal from the United States District Court for the District of
Massachusetts, Case No. 1:18-cv-12639-RGS, Judge Richard G. Stearns

APPELLANT'S RESPONSE AND REPLY BRIEF

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STATUTES

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I. INTRODUCTION

Appellant Rain Computing, Inc. (“Rain”¹) maintains that the claims of its ‘349 patent are clearly and properly directed to delivery over a network – upon selection by a user authenticated by a server that requests and receives “subscription information” from a “user identification module,” which thereby “controls access of” – a software application package to a client terminal for execution at the terminal by an operating system. Blue Br. at 4-5:

1. Rain maintains its “Statement of the Issues” (Blue Br. at 1-2), but specifically recasts Samsung’s statement under the proper standard – whether the district court erred in re-writing of the “executing” step to preclude local “installation” of the software where there was no “clear, unmistakable and unambiguous” surrender of that scope under *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788 (Fed. Cir. 2019).
2. Whether the district court erred in denying invalidation of the ‘349 patent claims for indefiniteness where it considered and found no clear and convincing evidence that the challenged ‘349 patent claims “failed to inform, with reasonable certainty, those skilled in the art about the scope

¹ Rain adopts the abbreviation conventions used in its Corrected Opening Brief for Plaintiff-Appellant, Doc. 22 (“Blue Br.”) and refers to Cross-Appellants’ Principal and Response Brief, Doc. 25 as “Red Br.”

of the invention” under *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

Samsung argues that disclosed embodiments with “installation” of an operating system and applications at the server and “execution” at the client somehow preclude “installation” at the client (Red Br. at 4²) However, the claimed invention is execution at the client processor with an operating system (whether or not downloaded or “installed” locally) an application transmitted from somewhere (whether or not “installed” locally), and the specification discloses two counter-examples as options. Samsung would divide the world of software into “unlimited license” and “on-demand license” and impose a “non-installation” limitation to achieve that dichotomy.³ It would ignore whether the claims “inform, with

² The Abstract (Appx46) refers to an implementation in which an operating system and application packages are “installed” on a server and in which an operating system “resident” in the client terminal is used to execute an application at the client terminal; there is no restriction of “installation” of either the operating system or the application at the client terminal. Nor do the cited portions of the specification state such restriction: Appx51, 1:36-41 (“normal” license may allow unlimited use, but “may be very costly” resulting in “many other types of licenses”), 1:62-2:3 (same as Abstract), 2:4-14 (same as Abstract), Appx52, 3:3-6 (“may subscribe” to license to use applications installed on server – nothing about not installing downloaded applications), 3:57-60 (license to operating system and application installed on server – nothing about installation of either on client device, Appx52, 5:36-38 (list of applications sent – nothing about installation on client device).

³ From a single mention of “unlimited”, Samsung would have had the specification explain “other way[s] of preventing the user from using the software on an unlimited basis” (Red Br. at 5), the “many other types of licenses” that had arisen in part to meet that objective (Appx51, 1:36-41) was stated to include the prevalent, browser-

reasonable certainty . . . the scope of the invention.” Rain maintains that the claims should be read as a whole with the ordinary meanings of their text, subject to the district court’s construction except for its rewriting of the “executing” step, which should be reversed.

II. REPLY TO APPELLANTS’ COUNTER-STATEMENT OF THE CASE

Rain incorporates here its detailed review of the ‘349 patent specification and claims (Blue Br. at 2-30) and addresses misstatements and new material in Samsung’s counter-statement.

A. What the Background and Description Actually Say

Samsung incorrectly asserts that “the patent contrasts its ‘on-demand’ model with prior ‘unlimited’ software licenses” and that it distinguishes “prior art on-demand licenses . . . limited to remotely executed web applications.” Red Br. at 7.

The actual patent text, reviewed in detail at Blue Br. at 6-10, recites general background and mentions “unlimited” only once (Appx51, 1:39), with the frequent situation in which “an operating system (OS) and some application packages [are]

based approach (*id.*, 1:49-55), which allows metering of “use” through reliance on connection with the server (Blue Br. at 7-9). Samsung continues to conflate the ‘349 patent invention with the art from which it was distinguished in the specification (Appx51, 1:51-55) by arguing that what it calls “on-demand execution” (distinguished from “on-demand delivery”) requires “verification” each time (Red Br. at 5).

pre-installed” on the same computing devices assumed in the patent (*id.*, 1:19-21, Appx48-49 (Figs. 1 and 2)), and the user can later “obtain a license for the OS and/or the application packages with or without additional fees” (Appx51, 1:29-30). If “none of the pre-installed application packages can perform [a desired special] task,” then a “special application package” may be purchased and installed. *Id.*, 1:33-35. “Normally, the purchase of an application package means purchase of a license [which] may be very costly.” *Id.*, 1:36-40 (emphasis added). Nothing in the specification disclaims or distinguishes the above so as to preclude installation of applications at the client terminal.

The specific technology distinguished was not, as Samsung states, “unlimited” licenses or “remotely executed ‘web applications’,”⁴ but, in the actual quotation, “running a web application, i.e., under a web browser” (Appx51, 1:50-51), that is, at the client device, but not under the web browser. The ‘349 patent distinguishes that mode of operation – to which “the on-demand license type is applicable mostly” – by “running the application directly under an OS” (*id.*, 1:52). This alternative mode is the basis for the limitation in the “executing” step of “using resources of an operating system resident in a memory of the client terminal device”

⁴ Red Br. at 7, quoting Appx51, 1:49-55. The specification never refers to an “unlimited license.”

(Blue Br. at 8-9, 16-17, quoting Appx53, 6:59-7:3), which the district court improperly rewrote (*e.g.*, Blue Br. at 33).

Samsung's counter-statement ignores Rain's detailed explanation of the specification (Blue Br. at 6-17), drawing conclusions from the specification (Red Br. at 7-9), no text of which precludes local "installation". *See* note 2 *supra*. The only assertion (Red Br. at 8) even partly supported is the option in an illustrative embodiment not to store locally, that might have an advantage of saving space, but assumes the default option of storing locally (Blue Br. at 14, quoting Appx53, 5:44-50). However, another option was to "hibernate" at device shut-down the "dynamic data" of the RAM in non-transient storage to reload into RAM at re-start to avoid re-downloading (Blue Br. at 13, quoting Appx43, 5:15-29 and citing Appx54, 9:36-45 (claims 12 and 13)). Both options disclose local storage.

Samsung's repeated resorts to a supposed "key" objective of avoiding "very costly unlimited time licenses" (Red Br. at 9) ignore the specification's application to open source software (Blue Br. at 9, citing Appx51, 2:54-55), record examples of which include "web-based" applications, of better ways to meter "use" (Blue Br. at 9, citing Appx943-944, Appx946 and Appx958). Samsung argues at Red Br. at 9 that the '349 patent invention requires "verifying the user's subscription each time the user's device is powered on" and releasing the application. This is contradicted by the two storage options reviewed in the last paragraph. Samsung mixes and

matches “unlimited”, “license”, “time” and “use” throughout its arguments from a single specification mention of “unlimited time period” (Appx51, 1:39-40), and three mentions of “on-demand license” in two adjacent paragraphs (*id.*, 1:43-49). The Court may take notice that no software (and thus its license) is forever – software becomes obsolete or corrupted; frequent update is a way to avoid “unlimited use”. It may also take notice that over time more client devices are “always on,” such that software may reside in ever-larger RAM and be used without reloading or re-downloading. The ‘349 patent invention is “deliver-on-demand” with “use” possible later, even much later.

Samsung did not include in its review of the specification the disclosed structure of the “user identification module.” For reference:

After the user subscribes the services, the service provider may then issue a user identification device, such as a SIM card, an IC card, a flash memory drive, a memory card, a CD-ROM, and the like, which may record subscription information of the user. The user identification device may be connected with client terminal 200 via EP 250. The subscription information may include user information, pass code, account information, subscription details, and/or system configurations of client terminal 200. In one embodiment, the user identification device may be integrated with ROM 230 of client terminal 200. For example, the subscription information may be recorded in ROM 230 of client terminal 200, if client terminal 200 is provided to the user by the service provider.

Appx52, 4:27-40.⁵

B. The Parent Application on OS Streaming

Rain reviewed in detail the proceedings on the parent '456 application, which focused on OS streaming. Blue Br. at 17-20. Samsung's selective reading of the Examiner's interview summary misquotes it as suggesting client RAM for applications. Red. Br. at 11. Actually, it specifically referred to OS streaming.

At the time of the interview, the original claim 1 of the parent '456 application, filed November 22, 2007, was:

1. A method, comprising:

subscribing services of a service provider operating a server, the server including an operating system and a plurality of application packages installed therein;

initiating a client terminal by performing a **network booting** process using the operating system installed in the server; and

executing in the client terminal a subscribed application package installed in the server using resources of the operating system resident in the client terminal.

Appx1667 (emphasis added). The original '456 application also included a system (apparatus) claim 18, including express "means-plus-function" claim elements.

Appx1669-1670.

⁵ The specification also provides for alternatives that the user identification device include "a predetermined network address" of the server (Appx52, 4:55-58) or "server address" (*id.*, 4:62-64)

Samsung argues that Dr. Chang's early efforts to attract investment in proposed implementations should limit the claims actually issued years later.

Samsung offers an undated "to do list" apparently prior to the application. Red Br. at 13, citing Appx381. A note for discussion was a proposal to have a small hard disk to optimize operation, but not install software locally. Clearly there was a possibility that the software could be installed locally.

Samsung offers a February 19, 2010 email requesting discussion of a business idea of a "software retailer" selectively quoting delivering an operating system and applications without installation at the client but when in use . . . executed locally on the client computer." Red Br. at 14, citing Appx391. Left out was "without using a web browser" (Appx391 (emphasis in original).) Again, this does not say that client installation could not be made for either the operating system or the application.

Samsung offers February 2011 emails requesting discussions of a similar OS/application streaming system. Red Br. at 14, citing Appx362, Appx365.⁶

In none of these proposals was it stated that client installation was precluded, but that it would save user time for installation. This Court may take notice that

⁶ Samsung also offers a 2011 National Science Foundation proposal for an OS/application streaming system with storage at the server (Red Br. at 14, citing Appx371).

while operating systems typically take substantial time for installation, most applications today do not.

Samsung relies on the '456 application Examiner's interview of a May 27, 2011, interview discussing a "first action" non-final rejection:

Mr. Chang indicated that the inventive entity is the use of a downloaded OS, with the use of server-based applications, while accessing and utilizing the permanent storage unit of the server.

Examiners suggested explicit recitation of the use of RAM in the client terminal, since the OS is downloaded and executed in the client terminal, and the permanent "storage unit" of the sever is utilized, vs. any permanent storage unit in the client terminal.

Appx289 (emphasis added). It is clear from the actual quotation that the suggestion was for RAM for the downloaded OS.

Dr. Chang corrected the summary on June 17, 2011, rejecting the suggested limitation:

Applicant respectfully notes that, during the interview, Applicant mentioned several terms, such as "server-based applications," "Live CD," and "Desktop Virtualization," etc., merely for the purposes of illustration and explanation. Applicant submits that Applicant's claims may cover other examples or embodiments, such as "client-based applications." Accordingly, Applicant declines to subscribe to any limitations not recited in the claims.

Appx1503 (emphasis added). Dr. Chang amended claim 1 explicitly reciting "using the resources of the operating system resident in the random access memory of the client terminal" drawn directly from the specification (Appx53, 6:65-66) among many adjustments to the text – none of which limited any other storage of operating

systems or applications in the client terminal or of user data sent to, retrieved from or modified in the “storage unit” at the server. Appx1495-96. Dr. Chang canceled the “means-plus-function” apparatus claim. Appx1499.

After a final rejection on different art (Appx1446), Dr. Chang requested continued examination on November 28, 2011, with claim 1 further amended to include the recitation of a “user identification device” for the first time, adding the following:

receiving a user identification device from the service provider after completion of the subscription step the user identification device containing user information for identifying and authenticating a subscribed user;

connecting the user identification device to an extension port of a client terminal and powering on the client terminal;

Appx1408 (emphasis added). It was clear from this claim language and the description in the specification that the user identification device was a storage device configured to be connected to the extension port (EP) 250 (for example, a universal serial bus (USB) port, or a card reader)” (Appx52, 3:29-31).

C. The Application Leading to the '349 Patent

The OS streaming '456 application was ultimately abandoned, and Dr. Chang filed the '217 application in 2013, for methods of “providing software applications over a communication network based on user demands” (Blue Br. at 20) – not “pay-per-use” – leading to the patent in suit, as explained in detail at Blue Br. at 20-24.

Regarding Samsung's cross-appeal, claim 20 in the application (that resulted in claim 1 of the '349 patent) recited the following actions on a "user identification module":

sending a user identification module to the user, the user identification module being coupled to a client terminal device of the user;

authenticating the user by requesting subscription information of the user through the user identification module;

Appx889 (emphasis added). "User identification module," with a connotation of including software, was substituted for the '456 application "user identification device" and contrasted with "client terminal device" in the same phrase, which clearly was hardware.⁷ As in the '456 application, a structural constraint included the "coupling."

The "user identification module" was further limited on September 8, 2013, in response to a restriction requirement, not prior art:

sending, to the user, a user identification module ~~to the user for~~ accessing said one or more application packages, the user identification module being coupled to a client terminal device of the user;

Appx804 (showing amendment).

⁷ In addition to the contrast, there is the connotation of "modularity." Figs. 1 and 2 show the use of "module" in the '349 patent in "billing module 140" and "backup module 160" as software modules integrated in server 100, a "device." Appx48-49.

In a January 22, 2014 office action, the Examiner challenged the “for accessing” language as an “intended use,” and “MPEP § 2103 I C states that language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation.” Appx753. Dr. Chang responded on February 14, 2014, by further amending claim 20, including:⁸

sending, to the user, a user identification module configured to control access of for accessing said one or more software application packages, and coupling the user identification module ~~being coupled~~ to a client terminal device of the user;

Appx711 (showing amendment). With the removal of arguably means-plus-function (“module for accessing”) language, this made clear the non-optional “configuration” of the “user identification module” as an object or a subject of the actions in performing the controlling steps, including the clearly stated “coupling” step. To meet the Examiner’s challenge, “claim 20 has been amended to recite ‘a

⁸ Dr. Chang also added language that the application packages were “installed in a server device,” but on June 18, 2014, deleted the reference there to “server device” and moved it to be the subject of the “authentication” step doing the requesting of the subscriber information from the user identification module, of the “providing” step of providing the application list, of the “receiving” step of a user selection, and of the “transmitting” step of the application to the client terminal. Appx194. *Also* Appx195-197. This resulted in the issued claims which do not require nor preclude “installation” of applications on any particular device, only that the server causes transmission to the client of selected subscribed applications.

user identification module configured to control access of said one or more software application packages,’ (emphasis added).” Appx725.

[T]o meet a claimed method step concerning the claimed user identification module, the cited references must teach or suggest something that is configured to control access of one or more **software application packages**, as required by amended claim 20. Anything in the cited references that is merely *capable* of controlling access of one or more software application packages cannot meet the recited claim limitations. See, *In re Giannelli*, No. 2013-1167, Slip. Op. at 8 (Fed. Cir. Jan. 13, 2014).

Appx727-728 (emphasis in original). This actual amendment was central to the Dr. Chang’s arguments against the Examiner’s combination of Cover and Kirkland – not that the ‘349 patent was distinguished from Kirkland by precluding local “installation” of applications, as argued by Samsung citing Dr. Chang’s introduction of his amendments (Red Br. at 12, citing Appx727).

Samsung’s only prosecution history argument for rewriting the “executing” step to preclude local “installation” is its selective quotation (Red Br. at 12-13, 31-32) of Dr. Chang’s arguments in five sections of his sixteen pages of remarks (Appx724-740) against combining Cover and Kirkland (Appx728-736) reviewed in greater detail in Rain’s review (Blue Br. at 21-22). Samsung mischaracterizes Dr. Chang’s argument as “Kirkland’s disclosures of software packages like a streaming media player and web browser were inapposite because they ‘are included in the client device . . . not in [the] server’” (Red Br. at 12, citing Appx731). The quoted language, out of seven paragraphs of that one of five sections (Appx730-732), not

only ignores descriptions of Kirkland's system, and the fact that it was the authentication, not software packages that were inapposite, but edits out the emphasis in the original: "not in the streaming server" (Appx 731 (emphasis in original)). It is because none of the applications used by the Kirkland client are "in" the media-streaming server and thus no access is required for such non-existent applications that "Kirkland's authentication device cannot be configured to control access of one or more [non-existent] software application packages installed in a server device" and Kirkland also fails to teach "sending to the user, a user identification module configured to control access of said one or more software application packages" (Appx731). This distinguishing of Kirkland, among other arguments, as not needing downloading of application (and thus authentication by the server) is no disclaimer of local installation of downloaded applications.

Dr. Chang argued to the Patent Trial and Appeal Board ("PTAB"), among other things, that the Examiner erred in applying Kirkland's "authentication device" that merely was "capable of" being used to control access of software applications and that that device was distinguished from claim 20's "user identification module configured to control access of software application packages" where the module was also part of "sending" and "authenticating" steps. Appx552-553, citing *In re Raymond Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014) ("adapted to" ruled to be more limiting than "capable of").

The Examiner and conferees (Primary and Supervisory Examiners) further defended Examiner’s original resort to the MPEP § 2103(I)(C) rule about “optional” language, determining in its context of a method claim, the limitation ‘user identification module configured to control access of said one or more software application packages,’ does not invoke 112, 6th paragraph, or 112(f).” Appx531 (emphasis added).⁹

Dr. Chang replied that the language of claim 20 “do[es] not suggest or make anything *optional*. Rather, it requires that the claimed method steps be performed to a particular user identification module specifically configured to control access of one or more software application packages. Accordingly, the Examiner's citation to MPEP § 2103(I)(C) is irrelevant.” Appx487 (emphasis in original).

In 2017, a PTAB panel of three administrative patent judges reversed the Examiner’s rejection of the ‘349 patent claims for improperly combined references, but without addressing Dr. Chang’s other arguments. *Ex parte Chang*, Appeal No. 2015-003805, Decision on Appeal (PTAB Aug. 23, 2017), Appx471-477.

⁹ The three Examiners agreed that 35 U.S.C. § 112 para. 6 (now 35 U.S.C. § 112(f), referred to here as Section 112 ¶ 6) would not be invoked to apply a specification description of structure for the “user identification module” to differentiate the authentication device of Kirkland. Appx531. The Examiner had opined that the relevant structure for a method claim “must affect the method in a manipulative sense and not amount to the mere claiming of a use of a particular structure.” Appx642, citing *Ex parte Pfeiffer*, 135 U.S.P.Q. (BNA) 31 (Pat. & Tr. Office Bd. App. 1961).

D. The Proceedings in the District Court

Rain described in detail the proceedings in the district court relevant to its appeal of the district court's rewriting of the "executing" step. Blue Br. at 24-30. In particular, Rain demonstrated that the district court was improperly swayed by at least Samsung's (1) repeated mischaracterization of all "on-demand licensing" as releasing a downloaded application upon powering off – a representation belied by the example of hibernation in the specification; and (2) mischaracterization of Dr. Chang's distinguishing of Kirkland. The district court heard but did not cite any extrinsic evidence.

Rain responds hereto Samsung's characterization of the proceedings, including its characterization of the district court's determination of non-indefiniteness of the term offered by Samsung for construction, that on its cross-appeal, it characterizes as a free-standing "user identification module" requiring further specification of structure, rather than as the object of several steps.

1. Samsung's Comments About the Complaint

It is unclear what is the point of Samsung's comments about the complaint (Red Br. at 15). The text it cites (Appx61, ¶16) states:

Samsung allows users of the electronic devices to select certain software applications for delivery through the app stores. Samsung controls access to the apps stores by requiring the users to register, subscribe, and/or agree to certain terms before that user can receive apps offered through the app stores. Users of the electronic devices who desire to use the apps available through the app stores must download

and install those apps on the electronic devices. Samsung further establishes the manner in which the users perform such download and installation by requiring the users to access the app stores to do so.

Samsung does not contest that it controls access to applications based on subscription which are delivered by download upon user selection (demand). Whether or not this is “unlimited” after it is delivered may depend on the “life” of the application, which Samsung may determine.

Samsung would infringe under the district court’s understanding that loading an application from non-volatile memory into RAM means that it is not “installed in non-volatile memory during execution” – the premise on which the district court distinguished the ‘349 patent counter-example to Samsung’s argument of required “re-downloading” (Appx20 n. 8). This understanding may be attributed to Samsung counsel’s representation at the Markman hearing:

And we can see here the graphic. You download it, install it in the mass storage device. And when you want to use that software, what you do, you turn your machine on, it's right there ready to go. And it goes into temporary memory, called "RAM," and it's running through the RAM. And when you shut your computer off, it goes right back to mass storage.

Appx1772, 19:5-11 (emphasis added). This representation that the application could not be in mass storage at the same time that it was loaded from there into RAM was baseless and incorrect and just one of multiple incorrect depictions by Samsung counsel about “on-demand licensing” not allowing local installation. *Also* Appx1749-54, Appx1774, Blue Br. at 25-28.

2. District Court Proceedings on the “Executing” Step

Samsung states (Red Br. at 16) that it argued that “the executing step cannot be extended to cover local installation,” while it admits that Rain argued that the executing step need not be construed – extended or restricted.¹⁰ In fact, except the attorney-framed testimony of its expert (properly not relied on by the district court), Samsung’s recited evidence shows that its argument was addressed to the proposition that the subject applications are “server-based,” even though the term does not appear in the claims. Thus, its cited Appx92 (Red Br. at 16) was part of its argument Appx91 that “[t]he ‘software applications are ‘server-based’,” and it describes “the prosecution history [as] addressing server-based installation” (Red Br. at 16). Whether or not applications are “based” at a server for delivery to multiple users (“not” for Kirkland) or are merely “transmitted” (as claimed) by the server upon authenticated selection (demand) does not preclude some storage of the delivered application at least until execution at the client device, and maybe multiple executions (as in Samsung devices).

¹⁰ Contrary to Samsung’s allegation of non-“elaboration,” Rain argued for the plain and ordinary meaning, without construction, arguing against Samsung’s proposed rewriting as improperly based on selective misquoting of the prosecution history and noting that claims 12 (Appx52, 9:36-41) and 13 (Appx52, 9:42-45) called for storage of “dynamic data” (including application instances) in persistent memory between “power ons.” Appx1692-1693. Rain made the same argument earlier, referring to how “installation” was used in the specification. Appx430-431.

Samsung at the Markman hearing repeatedly – and incorrectly – maintained that a constant server connection was required by the ‘349 patent invention for execution of the application. Blue Br. at 25-27.

When I wanted to use these applications, I would go communicate with the server, use them locally through the browser, and that's great because I got my on-demand license. When I shut the computer off, that connection is gone. These applications are no longer sitting on the computer. They're gone. All right? That's how the on-demand concept comes into play.

Appx1751, 18:11-17 (emphasis added).

And this slide is really important, your Honor, and we're going to talk about it later. This is where we terminate the application. So I've terminated that connection. And the arrows go both ways, which means that termination happens over the network. The application is gone. It's not on my machine after that termination.

Appx1754, 21: 18-23 (emphasis added). Fig. 3 (Appx50) does show two arrow heads, but not a common line between them as shown for some other processes. The actual description is that they are independent: “client terminal 200 may inform server . . . Client terminal 200 may then release the running application.” Appx53, 6:11-14 (emphasis added).

Remember we talked about in the tutorial when you want to write a Word document, your Honor, you turn your commuter on, it's there. You're not going to a server or downloading the application. The very method that's claimed contemplates that I'm -- in order to go execute, which is the last step in the claim, execute, in order to do that, I have to go through all these steps.

Now, if this invention was about just turning a machine on and there's an application, why would I go through all these steps every time I had

to do the execution? So even the claim structure, admittedly not specifically saying "don't install," the whole formulation of the claim is about going through these steps to get to my execution point.

Appx1772, 39:4-16 (emphasis added). An answer is that one might go through the steps to get an updated or an uncorrupted copy of the subscribed software. Moreover, if the user doesn't choose to "terminate," the application may be executed repeatedly.

And you see here from the figure [Samsung's slide] it's terminating. I've got that arrow in both directions. We're terminating it from the RAM 220. That means we're running this application in that RAM 220, and then when you terminate it, it is gonzo. That's what they're saying here.

Appx1774, 41:13-17 (emphasis added). Again, each arrow is optional. Appx50 (Fig. 3), Appx53, 6:10-15.

Samsung misrepresented Dr. Chang's argument about Kirkland not authenticating at the server as the '349 patent not storing applications locally:

Again, the same point. They're making this specific point that the prior art's no good because it's storing it locally.

Appx1777, 44:17-19. Rain refuted this point. Blue Br. at 21-23, also pages 12 to 14 *supra*.

Rain reviewed the independent claims as explained by the total process, without further construction (Appx1739-1742), that they were "fully explained within the claim itself with perhaps a little help from the specification, but not much" (Appx1741, 8:11-13).

there is no special thing about "installed" other than it is in what is called "non-volatile memory," something is a little bit more long term than random access memory.

Appx1743, 10:18-20.

In rebuttal to Samsung's presentation, a reference in the slide to Ubuntu, argued to be the OS analog of the patent (Appx1753, 20:11-14), dispute, referring to Tuzi, "there is background for downloading and actually storing at the client computer." Appx1753-1754.

Rain criticized in detail the district court's decision to adopt Samsung's "pay-per-use" characterization of the '349 patent that was founded on Samsung's incorrect characterizations of the specification and Dr. Chang's arguments about the inapplicability of Kirkland. Blue Br. at 25-29.

3. District Court Proceedings on Indefiniteness of the "User Identification Module."

The district court found the "hardware" structure that Samsung proposed, but declined to modify the structure of the object of several steps of the challenged claim, "a user identification module configured to control access of said one or more software application packages" with Samsung's proposed "function," "to control access to one or more server-based"¹¹ software application packages to which the user

¹¹ Even in its Opening Claim Construction Brief proposing the same hardware structure and functional limitation (Appx103), rewriting the claims to be limited to its views of "on-demand" operation and "server-based" applications were Samsung's priority (Appx90-96). Rain opposed this rewriting. Appx425-426,

has a subscription” (Appx10, Appx1728). That is, Samsung sought to put functional limitations on “a user identification module,” as though the user identification module was itself the means for control, rather than being “configured to control” as the appropriately configured object (with appropriate subscription information stored, adapted to the actions) of the “sending” and “coupling” steps (*e.g.*, Appx54, 7:26-29) and the “requesting” sub-step of the “authenticating” step (*e.g.*, *id.*, 7:30-32) of the challenged claims, which with the other steps control user selection or access of the subject software application packages.

Rain made this argument of looking to the steps of the claims acting with the configured user identification module for any requisite structure both in arguing against the application of Section 112 ¶ 6, and in applying it.¹² Appx423-425, Appx1684-1688, Appx1738-1739, Appx1742-1743. Rain argued that the module would store the appropriate subscription information, be configured to be coupled to the client device and respond to requests for the information (using common software algorithms). Appx423-424, Appx1766-1767. It explained, with a detailed

Appx1688, Appx1689-1670. The district court rejected the terms, finding that “the claimed methods are concerned with providing software applications based on a user’s subscription, not the ‘on demand use’ of the application.” Appx30.

¹² Rain argued that “module” had a meaning imparted from its amendment from “device” to connote software as well as hardware implementations. Appx421-422, Appx1679-1680, Appx1684-1686. Rain supports the district court’s decision that “user identification module” is adequately claimed in its hardware implementation.

review of the context, that “specifically configured” did not suggest a “specially programmed” algorithm, but merely distinguished Kirkland’s non-control of access to software application packages as opposed to media files, as clear from the very page on which the language appears (Appx487). Appx1680-1683, Appx1687-1688.

Rain further argued that the three Examiners defending the USPTO on Dr. Chang’s appeal – who were familiar with what the claims claimed and were proxies for a POSA – had determined that in the context of a method claim, rather than an apparatus claim, the limitation ‘user identification module configured to control access of said one or more software application packages,’ does not invoke 112, 6th paragraph, or 112(f).” Appx1682-1684 quoting Appx531. Rain argued that this, as well as the three Administrative Patent Judges on the PTAB who voiced no issue over the definiteness of the claim, corroborated Rain’s reading of the intrinsic record of the steps of the claims invoking the user identification module (and the supporting specification) to reasonably delineate the scope of the claims under *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014), and that Samsung’s proffered evidence was not the kind of clear and convincing evidence that this Court requires for invalidation of a claim for indefiniteness under *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374 (Fed. Cir. 2015). Appx1686-1688, Appx1768.

The district court did not address Rain’s arguments of the inapplicability of Section 112 ¶ 6 (Appx423-424, Appx1684-1686), but only referred to “Rain’s

suggestion” in a footnote stating that Rain argued that Section 112 ¶ 6 did not apply only because “‘user identification module’ appears in a method rather than in an apparatus claim” (Appx13, n. 4). Rain distinguished at the hearing the overwhelming number of Samsung’s authorities as addressed to apparatus claims,¹³ but distinguished the two method claim cases characterized by Samsung as “nested means-plus-function” as involving an actual recitation of “means-plus-function” and a “very generic situation.” Appx1765-1766. Rain reviewed the intrinsic disclosure of the structure of the user identification, noted the three Examiner’s determination that Section 112 ¶ 6 did not apply, and closed that Samsung failed to present clear and convincing evidence on the issue. Appx1766-1769.

Despite Rain’s presentation of the intrinsic evidence on the role and action of the user identification module – in support of “control of access” – in the specification and claims, the district court seized upon the notion that “module” was necessarily a “nonce word” devoid of structure, based on citations to the word in apparatus claim cases (Appx11-12) and misunderstanding Rain’s explanations

¹³ The text of Section 112 ¶ 6 was enacted in 1952 to provide patent applicants the *privilege* of electing to claim functionally, overruling the earlier invalidation in *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1 (1946), of an apparatus claim setting forth structure only in two means-plus-function elements. See *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1358, 1356 (Fed. Cir. 2015) (Newman, J. dissenting). “Means-plus-function claiming applies only to purely functional limitations that do not provide the structure that performs the recited function.” *Phillips*, 415 F.3d at 1311.

otherwise.¹⁴ “Having [thus] determined that the phrase ‘user identification module’ triggers Section 112, para. 6,” without further analysis, the district court proceeded to apply the means-plus-function formality of *Williamson*. Appx13, quoting *Williamson*, 792 F.3d at 1350 (“This passage, as lengthy as it is, is nonetheless in a format consistent with traditional means-plus-function claim limitations.”)

Contrary to Samsung’s characterization (Red Br. at 20) that the district court “jettison[ed]” the “function” for which it sought structure under *Williamson*, the district court reviewed the intrinsic evidence of how the “function” of “control[ing] access of . . . software application packages” is performed as claimed (and disclosed) and the central role of the user identification module in the steps recited for performing that function (Appx14-15). The district court’s description was a subset of the description of the claims and specification argued by Rain to make Section

¹⁴ The district court cited (Appx12-13) to the part of Rain’s argument which opposed Samsung’s argument for limiting “user identification module” to a hardware implementation, where Rain argued that the free-standing word “module” had “a plain meaning of a component unit that serves a function” that included in the context of the specification a “logical unit” (Appx421-422). This was hardly the “black box” means-plus-function scenario the district court assigned to Rain’s words (Appx12). Far from even suggesting that “user identification module” was a Section 112 ¶ 6 election to substitute a claimed function for claiming structure, Rain set forth in detail the description in the specification and prosecution history the structure, function (storage), and service role of the user identification module. Appx422 nn. 3 & 4. In the part of that opening brief actually addressing the applicability of Section 112 ¶ 6, Rain recited the structure confirmed in the claims and understood by the POSA. Appx423-424; *also* A1684-1686,

112 ¶ 6 inapplicable (Appx423-424, Appx1684-1686, Appx1738-1739, Appx1742-1743) and to meet Section 112 ¶ 6 if applied (Appx424-425, A1686, Appx1738-1739, Appx1742-1743).¹⁵

On the district court’s analysis of the “control access function” that it read under Section 112 ¶ 6 into “user identification module,”¹⁶ as receiving and responding to requests for subscription information thereby controlling access to the subject application (*see also* notes 14 and 15 *supra*), it found adequate structure in

¹⁵ The district court is not entirely correct that the steps it recited – and no other algorithm (steps) – “perform[] the access control function” and that “the sole access control mechanism is the request and retrieval of a user’s subscription information from a ‘user identification device’” (Appx15 (emphasis added)). The claims require the server to authenticate by the request “through the computer network” (Appx54, 8:30-3) and to provide to the client device a listing of access-allowed applications (*id.*, 8:33-37), which, as argued by Rain, include structural implications for the configuration of the user identification module to “control access.” However, the district court is correct that the user identification module is “configured to” and necessary (versus optional) for the “control access” aspect of the claims performed. The module was not characterized to perform the entire “control access” process as the kind of short-cut functional claiming allowed by Section 112 ¶ 6 for applicants to elect. Samsung’s argument otherwise ignores the plain meaning of the claims and the specification.

¹⁶ It rejected Samsung’s proposed function of controlling access to “server-based” applications as possibly (but not specifically) implicated in the server transmission limitation, but not was not implicated in the proposed limitation of “user identification module.” Appx14 n. 5.

the disclosure of the “user identification module” as “a hardware device capable of recording a user’s subscription information.” Appx15-16.¹⁷

Samsung complains about an alleged failure of the district court to consider its alleged undisputed evidence,¹⁸ but fails to acknowledge that the district court had

¹⁷ The district court did not address Rain’s argument that the user identification module should include software implementations, which was a reason for the amendment from “device” to “module,” a term used in the specification for standard software modules (Appx421-422, Appx1679-1680, Appx1684-1686). However, its finding of disclosure of appropriate structure is firmly supported by the hardware example in the specification (Appx15, quoting Appx52, 4:27-40; *see* Appx424, Appx1685)

¹⁸ Samsung cites opinions of its expert, Dr. Chatterjee, which are narrowly directed to Samsung’s legal theory and were not “unopposed” but addressed by Rain and the district court. For example, Dr. Chatterjee opined (Appx133, ¶ 67) that the only thing he deemed relevant to the supposed means-plus-function phrase was the specification’s recitation of hardware storage devices and that such devices needed “special programming or software” to be “configured to control access.” Rain provided extensive intrinsic evidence on the operation of controlling access and the role of the user identification module, including the use of open source routines for straightforward operations. Appx423-425, Appx1684-1688, Appx1767 (referring to Appx298-299, cited in Red Br. at 21). In view of this, including its express reference to that very paragraph of Dr. Chatterjee’s opinion, the district court found:

the structure of “a user identification module” is not a general computer performing a specialized function requiring a disclosure of the function’s algorithm. Recording and retrieving a user’s subscription is precisely the intended and ordinary function of “a hardware device capable of recording a user’s subscription information.”

Appx16 & n. 6 (citation omitted). Samsung also cites the supposed concession at Appx178-179 by Dr. Chang the module must be “specifically configured” instead of merely “capable of” (Red Br. at 6, 21, 57), but Rain previously explained that the language simply meant the claimed identification module had to be specifically structured to operate to control access to applications rather than media files

considered Samsung’s contention about “configured to control access” and rejected it under the applicable clear and convincing evidence standard that Samsung nowhere mentions in its brief. *Compare* Red Br. at 20-21 with Appx16 n. 6.

The district court correctly concluded under that standard of *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015), that Samsung failed to carry its burden of showing “[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” Appx16 n. 6, quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014).

4. Samsung Did Not Request Reconsideration of the District Court’s Determination of Non-Indefiniteness.

Having prevailed on its proposal to limit the user identification module to the hardware storage structure exemplified in the ‘349 patent specification, Samsung did not seek reconsideration of the district court’s determination that any software

(Appx1687) – it said nothing about special-versus-ordinary programming, and the district court correctly decided that no special programming was required (Appx16 n. 6). Finally, Samsung cites (Red Br. at 6, 21, 57) to its deposition testing of Dr. Chang’s memory of decade-earlier open source software (Appx297-299), which Rain argued to be the kind of extrinsic evidence to be disfavored (Appx1687), but in any case showed that common open source software could have been used (Appx1767); again, the district court correctly decided that no special programming was required (Appx16 n. 6).

needed for the user identification module “configured to control access” by its receiving inquiry for and returning subscription information was ordinary and did not require additional disclosure.

III. STANDARD OF REVIEW

The parties agree that claim construction is ultimately a question of law that this Court reviews *de novo* as reviewed in *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788, 795 (Fed. Cir. 2019). Blue Br. at 30-31, Red. Br. at 23. However, Samsung may not circumvent the *Continental Circuits* standard that “[t]o disavow claim scope, the specification must contain ‘expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope’,” 915 F.3d at 797.

Samsung’s cross-appeal to reverse the district court’s non-indefiniteness determination is subject to the “clear and convincing evidence” standard for all invalidity claims in district court as expressly applied by this Court in *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015). Samsung must show that the district court erred as a matter of law or was not supported by substantial evidence.

IV. SUMMARY OF ARGUMENT

Rain incorporates its opening brief showing that the district court erred as a matter of law in rewriting the “executing” step and replies here to Samsung’s

responses that repeat its unsupported “unlimited license” versus “on-demand license” argument.

The district court did not err in rejecting under *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014), Samsung’s invalidity argument.

V. ARGUMENT

A. The District Court Erred as a Matter of Law in Rewriting the “Executing” Step.

Rain has shown that the district court erred as a matter of law in rewriting the “executing” step by (1) impermissibly departing from the plain claim language which set forth the actual distinction from the prior art of executing a downloaded application under a web browser in mis-“alignment” with description of the invention under *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (Blue Br. at 32-36) and (2) failing to find *Continental Circuits* clear and unmistakable disavowal under its own adopted analysis under *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). Blue Br. at 37-49.

Samsung did not address these arguments directly, but continued to press – contrary to the true description in the claims and supporting specification – its false dichotomy of “unlimited license” and “on-demand license” and mis-placing the technology claimed by the ‘349 patent in the latter.

1. The Specification Makes Clear that Downloaded Applications Are Executed Under an OS Locally, But Although They May Be “Installed” in the Server for Such Download, Are Not Precluded from Local Storage in Non-Volatile Memory.

Despite Rain’s detailed review of the specification showing that the distinction from the prior art was the execution of downloaded applications under an OS locally (Blue Br. at 6-17, supplemented here at Section II(E)(2) *supra*), Samsung passes off open-ended examples as unambiguous, cites authorities which Samsung’s own descriptions distinguish from the present facts, and ignores specification counter-examples to its false dichotomy:

1. Blue Br. at 24-25: The Abstract summarized an example of where the OS and subscribed applications may be found for downloading or “streaming”. The issued claims are agnostic as to the location of the subscribed applications for downloading (only requiring that the server authenticates subscription and causes transmission upon user selection). The Abstract does not preclude local “installation” of subscribed applications along with previously installed applications.
2. Blue Br. at 25: The disclosed illustrative embodiment (with internal variations) was for OS-and-application “streaming” from the server, and thus is “consistent” with the OS and subscribed applications being sourced from the server. As detailed at Blue Br. at 10-17, there is no preclusion of local installation of an application, where non-transient

storage of a downloaded application was optional (*id.* at 14), as was “release” from memory (*id.* at 15), and one variant allowed non-transient storage of both OS and applications being run with it for re-loading upon start-up (*id.* at 16).

3. Blue Br. at 25: The above is hardly “‘compelling’ intrinsic evidence” that “establishes that in the claimed invention, the applications are installed on the server, not on the client terminal,” and the district court was clearly erroneous in so determining from this evidence. Dr. Chang declined to add the “server-based” limitation to the OS streaming claims and reserved the possibility of “client-based applications.” Blue Br. at 16, quoting Appx1503. On non-local “installation,” the specification only provides in one variant of the OS-subscribed-application streaming that the downloaded application is not stored locally. Blue Br. at 14, quoting Appx53, 5:44-50.

4. Red Br. at 25-26. Samsung’s “supporting” authorities are actually distinguished by Samsung’s own explanations.

- “Non-local installation” was not “repeatedly and consistently used to characterize the invention” under *VirtnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1318-19 (Fed. Cir. 2014), just as an option (Blue Br. at 14, quoting Appx53, 5:44-50) and least “a

single embodiment” were disclosed which included storage in non-transient memory (Blue Br. at 13, quoting Appx53, 5:15-29).

- There was no “consistent emphasis on [a] fundamental feature of the invention” as “non-local installation” under *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1323-24 (Fed. Cir. 2008). Non-storage in local mass storage was an option in the illustrative embodiment – not a fundamental feature – of the invention. Blue Br. at 14, quoting Appx53, 5:44-50.
- Again, “non-local installation,” disclosed as an option (Blue Br. at 13, quoting Appx53, 5:15-29), is not an implied “feature” under *Alloc, Inc. v. Int’l Trade Comm’n*, 343 F.3d 1361, 1370 (Fed. Cir. 2003). Certainly the “specification read as a whole” does not lead to “the inescapable conclusion that the claimed invention must include [the feature] in every embodiment” (emphasis added).

5. Red Br. at 26-27: Samsung continues its “unlimited license” versus “on-demand license” dichotomy based on one mention in the background licenses for “unlimited time period” and three of class of “on-demand license” (Appx51, 1:39-40, 1:43-49) where some licenses

for unlimited-time licenses *may* be “very costly” and “on-demand licenses” arose as a solution. Blue Br. at 6-9, page 6 *supra*. Samsung ignores the counter-examples to non-local installation of downloaded applications (Blue Br. at 6-17, page 4 *supra*), including as a default alternative to the disclosed option (Blue Br. at 14, quoting Appx53, 5:44-50) and as non-transient storage (Blue Br. at 13, quoting Appx53, 5:15-29).

6. Red Br. at 27-28: Samsung manufactures an inoperability argument based on its positing of an “on-demand model” – changed from its purported “essential feature” of avoiding payment for “unlimited use” to avoiding “unsubscribed” use.¹⁹ There was no such model.²⁰ The claims recite delivery by transmission upon selection from an authorized list and later execution by the OS at the client terminal.

¹⁹ Samsung changed its avoidance of payment for “unlimited license” argument in face of the open-source (“free”) applicability by citing the issued claims. Red Br. at 27 n. 4. Samsung thus concedes that the claims are not directed to preventing avoidance of “very costly” payment for “unlimited license.” Again, other than distinguishing in the background prior art systems that implemented “on-demand licenses,” the specification only disclosed an option not to consume limited mass storage, not to avoid “unlimited license”.

²⁰ Samsung’ two incomplete and out-of-context questions and corresponding answers, Appx294-295 (“better control your software” by verifying subscription), do not hardly establish such a model.

They nowhere require “re-download” upon each “power on” or “boot-up” as posited by Samsung. Even in the illustrative example, there is an option for avoiding “re-downloading” by storing the OS and application in non-transient memory and reloading from there. Blue Br. at 13, quoting Appx53, 5:15-29. The district court erroneously distinguished this process as not executing the application while it was also stored in non-transient memory (Appx20 n. 8); the only basis for this was Samsung’s suggestion that the application could be in both places at the same time. Page 17 *supra*, quoting Appx1752.

The prevention of “unlimited use” – however that is defined – is not a stated objective of the patent, much less a “feature,” much less an “essential feature.” The download of subscribed application is limited by the subscription, not its use. See Appx30. This is the same for Samsung’s accused app store delivery. Only if the application becomes obsolete or corrupted might “re-download” be required.

Samsung further revised its purported purpose as distribution, changed from “use”, on an ‘on-demand’ – not unlimited – basis,” then alleges that local installation somehow makes that purpose “inoperable.” Red Br. at 27-28. But local installation is irrelevant to distribution as claimed, and Samsung’s cases, *Power Integrations, Inc.*

v. Fairchild Semiconductor Int'l, Inc., 904 F.3d 965, 972 (Fed. Cir. 2018) and *AIA Eng'g Ltd. v. Magotteaux Int'l S/A*, 657 F.3d 1264, 1278 (Fed. Cir. 2011) are irrelevant.²¹

7. Red Br. at 28-29: Samsung misquotes Rain's argument at Blue Br. at 45 as conceding a "preference" for non-installation locally, and then argues that the "preference" is bolstered by alleged "emphasis" of "server-based" as the source of downloaded applications in the OS-application downloading illustrative embodiment. However, "server-based" does not appear anywhere in the specification or claims, and the specification discloses non-installation only as an alternative option to the default understanding (Blue Br. at 14, quoting Appx53, 5:44-50, page 4 *supra*). Non-mass storage at the client of a downloaded application was disclosed only as an option of an illustrative embodiment, unlike the repeated and consistently limiting "group" of *Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295 (Fed. Cir. 2004).

²¹ Samsung asserts a new argument of "written description," *Ruckus Wireless, Inc. v. Innovative Wireless Solutions, LLC*, 824 F.3d 999 (Fed. Cir. 2016), where a proposed inclusion of "wireless communication" was proposed to be added to the scope of "communication." Here, mass storage is the default "normal" (page 4 *supra*) and "non-installation" of downloaded applications the optional alternative (Blue Br. at 14, quoting Appx53, 5:44-50).

2. The Claims Are Clear in Distinguishing Web-Based Execution by Requiring Execution by the OS in the Client and Do Not Require Applications To Be Installed or Not Installed at the Server or the Client.

Rain reviewed in depth the wording of the issued claims. Blue Br. at 4-5. Samsung simply reproduced claim 1 and argues that it is “consistent” with its reading of the specification, which is dismantled in the section preceding this one.

However, even if the claims as issued are “consistent” with non-installation of downloaded applications at the client, they are also “consistent” with the installation,²² and the additional limitation proposed by Samsung and accepted by the district court are disfavored for the reasons reviewed at Blue Br. at 32-49, particularly the district court’s own standard, *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (“we indulge a ‘heavy presumption’ that a claim term carries its ordinary and customary meaning”).

Samsung argues that the steps of claim 1 of authentication “would make little sense if the user only needed to authenticate a ‘subscription’ once and then could download, install and use the software on an unlimited basis.” Red Br. at 30. As

²² Samsung raises and claims that Rain waived the argument that transmission and receipt of the subscribed application necessarily involves some storage (Red Br. at 31 n. 6). That the downloaded application does not go directly to RAM is clear from the standard structure of a client device to include a network interface 270 separate from RAM 220 (Appx48-49). Storage in mass storage 260 or some other non-transient memory does not interfere with the operation of the claimed invention and is thus consistent.

discussed in section V(A)(1)(6) *supra*, even with Samsung’s shifting alleged “on-demand” model apparently stabilized for the moment on “unlimited use,” there are alternatives for preventing “unlimited use” other than by precluding non-transient storage. Samsung authenticates subscribers for downloads from its app store that are stored in the client and, like everyone else in the business, offer downloads of updates or replacements, all of which are limited in use by obsolescence or corruption. Indeed, the “unlimited use” fully paid-up special applications recited in the ‘349 patent background (Appx51, 1:19-21) are not forever. Samsung’s “‘unlimited time period’ prior art” (Appx51, 1:36-42²³), supposedly including these steps, are not so described, and, as clear from the specification, it was the running of the application under the web browser that the ‘349 patent specifically distinguished. As reviewed at Blue Br. at 32-36, Samsung’s proposed and the district court’s rewriting of the “executing” step compromised that distinction

Samsung further premises its argument for rewriting the “executing” step on the supposed inconsistency of the claims as issued with the specification. As demonstrated in the Blue Br. at 5-17, the claims are consistent with the specification, perhaps most importantly in specifically distinguishing of execution under the web

²³ Samsung also cites to descriptions by Dr. Chatterjee of downloading systems (Appx60, Appx120) that seem to correspond to Samsung’s “on-demand license” versus “unlimited license” dichotomy that Samsung baselessly continues to push, although in mutated form.

browser (Blue Br. at 8-9, quoting Appx51,1:51-55, Blue Br. at 16-17, quoting Appx53, 6:59-7:3), which the district court's construction dilutes.²⁴ Without such inconsistency, *In re Suitco Surface, Inc.*, 603 F.3d 1255 (Fed. Cir. 2010) and *In re Bond*, 910 F.2d 831 (Fed. Cir. 1990), are by Samsung's own description inapposite, as is *Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388, 1399-400 (Fed. Cir. 2016) where the '349 patent "unequivocally distinguishes" execution on top of a web browser, not whether or not an application was stored locally for some limited period of time.

3. Dr. Chang's Argument that Kirkland's "Authentication Device" Could Not Be Added to Cover Is No Disavowal of "Installation" of a Downloaded Application at the Client Device.

As reviewed in the Blue Br. at 22-24 and 38-40 and at pages 12 to 14 *supra*, Dr. Chang's February 14, 2014 Response to Non-Final Office Action was directed to opposing the "authentication device" disclosed in Kirkland's media player device with Cover, where Dr. Chang amended the claims to make clear that the user identification module was "configured to" act in the steps of "control[ing] access" of subscribed software application packages.

²⁴ Samsung argues that addition of an installation step would "undo the very improvement alleged over the prior art" (Red Br. at 31), when in the immediately prior paragraph it cited to Dr. Chatterjee's prior art of downloading that the '349 patent supposedly critically distinguished. The reality is that Rain does not seek to add a step, just to reverse the rewriting of the "executing" step to limit its plain meaning consistent with the specification and file history.

Rain criticized the district court's critical reliance on language it claimed distinguished the '349 patent invention from Kirkland "on the basis that the software applications of the on-demand media streaming system were resident on the client device and not 'streamed' from the server." Blue Br. at 38-40, quoting Appx21, citing Appx619. Those criticisms applied the requirements of *CSS Fitness*, page 37 *supra*, to show that Dr. Chang made no disclaimer of "installation" at the client device of downloaded applications.

Samsung excerpts six lines (Red Br. at 31-32, quoting Appx731) from sixteen pages of remarks (Appx724-740). It misleadingly states that its excerpt had only the underscored highlight from the original. The full paragraph is as follows:

Kirkland does not disclose that the authentication device could be configured to control access of one or more **software application packages** (such as Kirkland's web browser 460 and streaming media player 470). Moreover, Kirkland clearly discloses that web browser 460, streaming media player 470, and other software application packages are included in client device 108, 410, or 700, not in streaming server 104, 400, or 600. Accordingly, Kirkland's authentication device cannot be configured to control access of one or more software application packages installed in a server device. Therefore, Kirkland also fails to teach or suggest a combination comprising, "sending, to the user, a user identification module configured to control access of said one or more software application packages," as recited in amended claim 20.

Appx731 (emphasis in original). It is clear that the argument, particularly in the larger context of the remarks reviewed at pages 12 to 14 *supra*, was over whether the Kirkland authentication device could be "configured to" (as opposed to the

objected language that the Examiner considered “optional”) control access to applications externally (at the server at that stage of the claims where they resided for download) – not the scope of the “execute” step or whether the device to which the claims applied had installed applications or could store downloaded applications. The fact that Kirkland already had all the applications it needed to authenticate the user to download media files meant that it was not, “could not be” configured to download applications. Even Samsung’s rewriting of what Dr. Chang argued is not an argument that applications downloaded under the ‘349 patent could not be stored in local non-transient memory.

This was not “unmistakably a disavowal of local installation” – Samsung’s incorrect premise for application of *Cordis Corp. v. Boston Scientific Corp.*, 658 F.3d 1347, 1356-57 (Fed. Cir. 2011) (applicant specifically argued an “undulating shape,” and the specification showed an “hour-glass shape”), *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1324-25 (Fed. Cir. 2011) (applicant expressly excluded personally composed passwords from “personal identification data”), and *Research Plastics, Inc. v. Federal Packaging Corp.*, 421 F.3d 1290, 1297 (Fed. Cir. 2005) (claim amended to distinguish). Samsung’s selective and elliptical quotation of Dr. Chang’s argument still cannot identify any argument about the ‘349 patent precluding local “installation” as the *Cordis*

applicant expressly argued the “undulating shape,” corroborated by the specification.

Samsung tries to rebut (at Red Br. at 35-38) Rain’s showing that the Dr. Chang’s argument that Kirkland did not disclose a device “configured to control access” to an externally stored applications was no disclaimer that an application downloaded according to the ‘349 patent claims. Samsung simply recycles the same snippet of Dr. Chang’s arguments that Kirkland’s authentication device could not be combined with Cover:

- Blue Br. at 35-36: Citing seven words, two brackets and ellipses from the same seven-line snippet from Appx731, that Kirkland’s software applications are “included in [the] client device . . . , not in [the] server,” Samsung ignores Rain’s reference of the district court’s own standard:

Although the construction of a claimed term is usually controlled by its ordinary meaning, we will adopt an alternative meaning “if the intrinsic evidence shows that the patentee [1] distinguished that term from prior art on the basis of a particular embodiment, [2] expressly disclaimed subject matter, or [3] described a particular embodiment as important to the invention.”

Appx17, quoting *Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1329 (Fed. Cir. 2009), quoting *CCS Fitness*, page 37 *supra*, 288 F.3d at 1366.

Rain addressed the absence of each of these exceptions. Blue Br. at 37-49. Instead of arguing how a “particular embodiment” met exceptions [1] or [3], Samsung apparently resorts to exception [2] in citing *Computer Docking*

Station Corp. v. Dell, Inc., 519 F.3d 1366, 1374 (Fed. Cir. 2008), which it describes as requiring “clear and unmistakable disavowal.” The quoted “disavowal” is no way “expressly disclaimed subject matter” or was a “clear and unmistakable disavowal” of local installation of downloaded applications. Recognizing this, Samsung baselessly continues its “alignment” argument as a substitute for any evidence of disavowal of local installation.

- Red Br. at 36: Samsung again resorts to the same snippet of Dr. Chang’s argument to argue that it is irrelevant that Kirkland did not have an “executing” step to distinguish from the ‘349 patent “executing” step. Yet it is the ‘349 patent step that Samsung succeeding in having the district court erroneously rewrite.
- Red Br. at 37: Samsung again resorts to the same snippet and cites again to *Cordis* and *Katz*, page 41 *supra*, which required express disclaimer of subject matter not even close in the snippet.
- Red Br. at 37: Samsung cites a number of cases in which disavowals were found without an amendment. But Samsung fails to address Rain’s elimination of each of the *CCS Fitness*, page 37 *supra*, exceptions.
- Red Br. at 38: Samsung claims that Rain “reframes” Dr. Chang’s argument and “mischaracterizes the prosecution history.” Rain outlined the arguments in the Blue Br. at 22-24 and 38-40 and at pages 12 to 14 *supra*, including the

change of the “user identification module” limitation for a “for [function]” format to a “configured to” format. Samsung criticizes Rain’s argument relative to Dr. Chang’s later (June 18, 2014), but similar arguments (Appx607-626, described at Blue Br. at 22-23) cited by the district court (Blue Br. at 38-40, quoting Appx21, citing Appx619). It is Samsung that continues to try to “reframe” a seven-word snippet about Kirkland’s software being in its client device and not in the server into some implied disavowal of local installation in the ‘349 patent’s method claims, when those words were drawn from a section arguing that Cover and Kirkland do not teach or suggest a combination comprising the step of sending a “user identification module to control access” (Appx730). The first sentence of the paragraph from which Samsung draws the seven words, but omits, reads, “Kirkland does not disclose the authentication device could be configured to control access of one or more **software application packages . . .**” (Appx731 (emphasis in original), and the last sentence, also omitted, concludes that that Kirkland therefore fails to teach or suggest the “sending” step.

Samsung’s seven-word snippet fails to be a disavowal under either the *CSS Fitness* or *Continental Circuits* formulations of exceptions from the plain meaning.

4. The Interview Regarding the Parent Application on OS Streaming Resulted in the Recitation of RAM-Residence of the OS that Did Not and Does Not Preclude “Client-Based Applications.”

As reviewed in the Blue Br. at 17-18 and at section II(C) *supra*, the interview summary by the Examiner in the parent application on OS streaming did not meet Dr. Chang’s satisfaction, who expressly responded,

Applicant submits that Applicant's claims may cover other examples or embodiments, such as "client-based applications." Accordingly, Applicant declines to subscribe to any limitations not recited in the claims.

Appx1503 (emphasis added).

At Red Br. at 33-34, Samsung again argues snippets in its selective quotation from Appx289, without advising that the emphases were its own – and omitting the fact that the Examiner was recommending recitation of RAM for the streamed OS, and was silent about the applications, which Dr. Chang expressly stated could be “client-based.”

Incorrectly implying that the Examiner made a recommendation to limit applications to the client RAM, Samsung incorrectly draws from the amendment a conclusion that downloaded software may not be installed in the client. None of the exchanged text says this. The amendment called for execution of downloaded software under an OS in RAM – distinguished from the web-based execution under a web browser, the only express distinction in the specification. The Examiner’s

suggestion and the amendment are silent about software stored or not stored in “any permanent storage unit in the client terminal.” Indeed, the amendment was entered notwithstanding Dr. Chang’s express reservation of the possibility of “client-based applications.” The amendment was an unambiguous disavowal of execution under a web browser and not of local storage of downloaded software. Accordingly, Samsung’s cases are inapposite.

The same “executing” step limitation to execution by OS in the client RAM rather than by a web browser is part of each issued claim and has that effect and no other “limitations not recited in the claims,” as stated by Dr. Chang reserving the possibility of “client-based applications.”

5. Dr. Chang’s 2010-11 Business Proposals for OS Streaming Are Irrelevant to the Scope of the ‘349 Patent.

The district court correctly did not consider extrinsic evidence of the 2010-11 business proposals for various OS streaming platforms, according to its understanding of this Court’s view that “an inventor’s subjective understanding or intent is ‘irrelevant to the issue of claim construction.’” Docket Entry No. 35 (Appx42), quoting *Howmedica Osteonics Corp. v. Wright Medical Technology, Inc.*, 540 F.3d 1337, 1347 (Fed. Cir. 2008).

Although the documents asserted by Samsung were broadly responsive to Samsung’s request for documents “concerning” conception and reduction to

practice, they do not purport to explain or limit any disputed term of the ‘349 patent. Page 8 *supra*. At most, they demonstrated an intent to attract investment as to an OS streaming embodiment, in one case suggesting for discussion a choice of the disclosed option (*see* Blue Br. at 14) not to store downloaded software in a hard drive, even though it was possible.

Such originally confidential and subjective statements are not “part of the patent” as the intrinsic evidence, serving a public notice function, even qualifying arguments to the Examiner. In any case none of the statements is an unmistakable disavowal of any scope of the ‘349 patent, just as none of the intrinsic evidence shows any unmistakable disavowal of the other disclosed option of storing the downloaded application locally and Dr. Chang’s record reservation of the possibility of “client-based applications” (Appx1503).

In contrast, in Samsung’s case, *Core Wireless Licensing S.a.r.l. v. Apple Inc.*, 853 F.3d 1360, 1369-70 (Fed. Cir. 2017), required specific technological capability was specified in the intrinsic evidence and corroborated by extrinsic evidence.

6. The Disclosed Local Non-Transient Storage of the RAM Data Is an Intrinsic Counter-Example to Samsung’s Arguments.

Samsung attacks (Red Br. at 40-41) Rain’s assertion of the ‘349 patent example of the optional transfer of the contents of the client RAM into non-transient memory, powering off and then reloading into the client RAM when the client device

is restarted (Blue Br. at 13, quoting Appx53, 5:15-29) as unbacked by evidence. However, it is explained in that detail, unlike Samsung's attorney repeated arguments – without express intrinsic evidence except another '349 patent option of not using mass storage (Blue Br. at 14, quoting Appx53, 5:44-50) – of a false dichotomy of “unlimited license” and “on-demand license” restated in many ways, without any intrinsic evidence of how those concepts are technologically achieved or distinguished.

Samsung makes the same kind of unsupported argument in by stating that “the transfer of dynamic data to non-volatile memory does not occur simultaneously with the executing step” this supports its quotation of the district court's finding on the matter – with “citation omitted” (Red Br. at 41). A review of the entire finding with citation shows its conclusion that “the patent does not disclose that a software application may be installed in non-volatile memory during execution” is clearly erroneous and unsupported by any evidence. The district court's conclusion that the hibernated contents do not coexist simultaneously,²⁵ installed in non-volatile memory during reloaded execution is based on its assumption (“[a]ccordingly”) that

²⁵ Samsung's suggestion now that the district court was referring to the “transfer” rather than the storage in non-volatile memory “installation” – if taken – would eliminate the non-coexistence basis for the district court's conclusion that the optional hibernation is not a specification counter-example of storage in both RAM and non-volatile memory during execution.

when the data is reloaded into RAM, it is no longer installed in non-volatile memory. There is no evidence to support this inference, only Samsung's continuous argument of its "on-demand" model, particularly Samsung's erroneous statement at the hearing that in normal operation, an application is loaded from non-volatile memory and then back into that memory after execution in RAM (*see* page 1717 *supra*). This is the only "evidence" that a program loaded from non-volatile memory for execution in RAM does not ordinarily remain installed in the non-volatile memory during execution. As Samsung's unsupported tutorial statement is not evidence, the district court's conclusion of non-installation during execution was unsupported by any evidence, much less "substantial evidence."

7. Samsung's Argument that *Continental Circuits* Does Not Apply Is Circular.

Samsung (Red Br. at 42-43), circularly argues that *Continental Circuits*, page 29 *supra*, doesn't apply because it only applies to "permissive" language and Samsung allegedly has shown that the "permissive" language of the '349 patent specification – particularly the local storage options (Blue Br. at 14, quoting Appx53, 5:44-50 and Blue Br. at 13, quoting Appx53, 5:15-29) – were proven not to be permissive. Thus, Samsung apparently hopes to avoid the "clear and unmistakable" standard of *Continental Circuits*. In any case, Rain thoroughly covered (Blue Br. at 36-49) the considerations of *CSS Fitness*, page 37 *supra*, the

district court's basis for its decision.²⁶ Samsung's rebuttal – its continued, but mutating resort to its “unlimited license” versus “on-demand license” dichotomy, a seven-word snippet from an argument on “authentication device” and an amendment to make exactly the distinction of execution on top of the OS in the client device that was the only distinction in the specification (and that the challenged construction re-wrote).

8. The District Court's Rewriting of the “Executing” Step Is Wrong as a Matter of Law.

Samsung tries to avoid vacating of the rewriting of the “executing” step by recasting Rain's argument as a waived and inconsistent contention of overbreadth. Red Br. at 43-45.

²⁶ Regarding Samsung's note 10 (Red Br. at 43), *Phillips*, page 30 *supra*, 415 F.3d at 1313, stated:

In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.

Rain contended and still maintains that this is such a case and that the “plain and ordinary” meanings of the words of the claims should apply, but accepts the district court's constructions except for its rewriting of the “execution” step, which it challenges as a matter of law and as clearly erroneous based on clearly erroneous inferences on as to whether the '349 patent allows local installation of downloaded applications.

Rain continues its argument from below that the “executing” step needs no construction, that Samsung’s proposed rewriting was not supported by the evidence, and that the district court’s adoption of that rewriting was wrong as a matter of law because its rewriting relaxed the actual distinguishing by the original, issued text of prior art stated in the specification and added limitations unsupported by the specification.²⁷ Rain has not waived this argument.

Samsung’s argument of claim differentiation also fails. Rain has used “web-based” as shorthand for the “execution under a web-browser” art that the specification expressly distinguished by the claimed execution on top of an OS in the processor of the client device (Blue Br. at 8-9, quoting Appx51, 1:51-55, Blue Br. at 16-17, quoting Appx53, 6:59-7:3) – as so limited in all the claims. Claim 9 does not duplicate this limitation, but specifically precludes the executing processor from “using a web browser application” for any reason. All the claims require use of the OS to execute the application; claim 9 specifically precludes any use of a “web-browser application” simultaneously. Accordingly, Samsung’s claim differentiation argument and authorities are inapposite.

Finally, Samsung’s argument (and supporting authorities, Red Br. at 45) that construction of overbreadth is harmless error is inapposite here where the district

²⁷ Samsung’s proposed authority, *SimpleAir, Inc. v. Google LLC*, 884 F.3d 1160, 1170 (Fed. Cir. 2018), related to issue preclusion by judgment in a different case.

court's adoption of the entire text of Samsung's rewriting of the "executing" step is wrong as a matter of law. It was wrong both for relaxing the step's distinction, mirroring the distinction expressly made in the specification, of an OS executing the downloaded application in a processor of the client device, and for imposing a preclusion of non-transient local storage based on Samsung's false "unlimited license" versus "on-demand license" dichotomy based on background characterizations of other technologies and business models when the specification actually offers options of non-transient local storage. The district court also drew erroneous conclusions about those options based not on substantial evidence, but on Samsung's unsupported dichotomy, and, crucially for the district court's rejection of the "hibernation" counterexample, Samsung's suggestion that normally an application loaded from non-transient memory into RAM does not coexist in the non-transient memory, but needs to be returned there after execution (page 17 *supra*).

B. The District Court Correctly Determined that the '349 Patent Claims Are Not Indefinite Under Nautilus.

1. Samsung Ignores the Controlling Law.

It is telling that Samsung's cross-appeal of the district court's sound rejection of Samsung's indefiniteness argument (for which Samsung did not request reconsideration) fails to cite, much less discuss, the Supreme Court's establishment of the law in indefiniteness in *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S.

898 (2014), on which the district court expressly relied in rejecting Samsung’s claim of invalidity, repeated here, because the patent allegedly does not explain how a “user identification module” is “configured to control access (Appx16 n. 14).

Samsung also fails to recognize its burden of proof of “clear and convincing evidence” as expressly applied by this Court in *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015) to the Supreme Court’s substantive requirements for a showing of indefiniteness. Applying this standard, the district court determined that “the structure of ‘a user identification module’ is not a general computer performing a specialized function requiring a disclosure of the function’s algorithm.” Appx16 n. 14, citing *Aristocrat Techs. Australia Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

Avoiding mention of the controlling standards, Samsung separately criticizes the district court’s decision (Red Br. 18-21) and makes its lower court arguments anew (Red Br. at 51-59). Rain addresses the district court proceedings in detail in Section II(E)(3) *supra* and summarizes and incorporates those arguments below.

The controlling standard is that “a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty those skilled in the art about the scope of the claim.” *Nautilus*, 572 U.S. at 901, quoted at Appx16 n. 4. Samsung did not produce clear and convincing evidence showing this. The district court

correctly found that the ‘349 patent was not invalid for the alleged indefiniteness of a “user identification module configured to control access.”

2. The Full Claims, Read in Light of the Specification, Do Not Leave Uncertain the Scope of the Invention.

Claim 1 is exemplary of the claims of the ‘349 patent and sets forth how a user identification module is “configured to control access of said one or more software application packages” and how it acts or is acted upon in the steps of the method claim:

[b] **sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling** the user identification module *to a client terminal device* of the user;

[c] a *server device* **authenticating** the user **by requesting subscription information** of the user **from the user identification module** *through the computer network*;

[d] *upon authentication* of the user, the *server device* providing, to the client terminal device of the user, *a listing* of one or more *software application* packages subscribed through the web store in accordance with the **subscription information**;

[e] the server device receiving, from the client terminal device and through the computer network, a *selection* of a first software application package from said listing of one or more software application packages;

[f] the server device transmitting the first *software application* package to the client terminal device through the computer network;

Appx54, 7:26-44 (emphasis added). Under step [b] the *user identification module* is *sent to* and *coupled to* a client terminal device. Under step [c] the server *requests*

subscription information from the user identification module through the computer network. Under step [d] the server *authenticates* the user as subscribed to certain applications *based on the subscription information from the user identification module* and provides to the user terminal device a list of applications to which the user has access under its subscription. Under step [e] the user selects from the list, thereby exercising the access allowed by the list. Under step [f] the selected subscribed application is transmitted to the user. This role of the user identification module in “control[ing] access” is corroborated by the specification in Fig. 3 (Appx50) and descriptions (Appx52-53, 4:4-6:50), supplemented by the description (Appx52, 4:27-40) of the user identification device (later amended to “module”, page 11 *supra*), plus the extension port (EP) 250 in Figs. 1 and 2 (Appx48-49) allowing the recited communication over the network. *See* page 22 *supra*. The district court concurred (pages 23 to 25 *supra*), thereby meeting the *Nautilus* test of finding no uncertainty in how the user identification module was configured to control access to the subscribed applications (Appx16 n. 4).

Samsung’s complaint that the district court ignored its evidence – while not recognizing its burden of proof – is disposed of at page 27 *supra*. Again, the district court did not find clear and convincing evidence – despite the intrinsic and extrinsic offered by both parties – to support invalidation by alleged indefiniteness of the “user identification module configured to control access” term (Appx16 n. 4).

3. Samsung's Insistence on an Algorithm Was Met.

The district court met Samsung's demand below for an "algorithm" with its express finding that under *Aristocrat*, page 53 *supra*, no special algorithm needed to be specified for the straightforward role of the user identification module as reviewed above. Appx16 n. 6. Samsung recognizes (Red Br. at 56) the exception in *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316-17 (Fed. Cir 2011), which cites *Aristocrat*, but repeatedly argues, as it did below, that Dr. Chang argued for "special programming" – when in Samsung's citations actually lead to Dr. Chang's argument for "specific configuration."

Samsung reargues its case below by alleging that the district court "jettisoned" the actual functional requirement of "user identification module configured to control access" (Red Br. at 20). *See* page 25 *supra*. Samsung wants a "link" of the "user identification module" to the "function" of "control[ling] access" of subscribed applications, but the district court found such link in the claims as required by *Nautilus*, as reviewed in the previous section.

Samsung would have all of the "function" found in a single user identification module, as is appropriate for a means-plus-function component of an apparatus where the applicant partook of the privilege of claiming structure functionally in return for being limited to the structure disclosed in the specification. Note 13 *supra*. Dr. Chang canceled an early apparatus claim with means-plus-function elements

(Appx1499). Section 112 ¶ 6 also provides for “steps”-plus-function claiming, of which Dr. Chang also did not avail. Instead, Dr. Chang modified a “for” clause to “configured to” similar to “adapted for” to make it clear, in response to an Examiner’s objection that the prior language might read something merely “capable”, that the user identification module was “specifically configured” to control access. Page 12 *supra*, quoting Appx711. The three Examiners, POSA proxies considering claim scope, determined that section 112 ¶ 6 would not apply to the “user identification module.” Page 15 *supra*, *see* note 9 *supra*. Samsung counsel argued “nested means-plus-function” term cases, repeated at Red Br. at 48 n. 11. However, *Media Rights Technologies, Inc. v. Capital One Financial Corp.*, 800 F.3d 1366, 1370 (Fed. Cir. 2015), involved terms like “compliance mechanism” and “custom media device,” which are clearly indefinite on their face without additional disclosed structure. Similarly, the other case, *On Demand Machine Corp. v. Ingram Industries, Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006) expressly used the “means-plus” form, “providing means for a customer to visually review said sales information.” In contrast, the ‘349 patent claims provided a defined object and subject of the various action of the claim to “control access.” *See* page 23 *supra*.

The district court was persuaded to apply Section 112 ¶ 6 to require structure and found it in the specification description of the user identification device (Appx52, 4:27-40). *See* pages 23 to 25 *supra*. Neither party challenges this.

In view of the facts that Dr. Chang did not partake of the Section 112 ¶ 6 privilege to “functionally claim,” and the structure of the user identification module is straightforward, including its configuration as a subject and object of the steps (algorithm) of the claim to control access, it cannot be said that the specification did not provide adequate links to “control[ing] access to meet the *Nautilus* standard of certainty of the scope of the claims. Certainly, there is no clear and convincing evidence otherwise.

VI. CONCLUSION

For the reasons set forth above and in the Blue Brief, (1) the district court’s construction (Appx22) to impose on the “executing” step the negative limitation of “without installing it on the client terminal device” should be reversed and the Order amended to leave the “executing” step to its plain and ordinary meaning, the judgment of non-infringement reversed, (2) the district court’s finding of non-indefiniteness should be affirmed, and the case remanded to the district court for further proceedings.

Dated: September 21, 2020

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

CERTIFICATE OF SERVICE

I certify that I served a copy on counsel of record on September 21, 2020
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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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**United States Court of Appeals
for the Federal Circuit**

RAIN COMPUTING, INC.,
Plaintiff-Appellant

v.

**SAMSUNG ELECTRONICS AMERICA, INC.,
SAMSUNG ELECTRONICS CO., LTD., SAMSUNG
RESEARCH AMERICA, INC.,**
Defendants-Cross-Appellants

2020-1646, 2020-1656

Appeals from the United States District Court for the District of Massachusetts in No. 1:18-cv-12639-RGS, Judge Richard G. Stearns.

JUDGMENT

THIS CAUSE having been considered, it is

ORDERED AND ADJUDGED:

REVERSED-IN-PART, DISMISSED-IN-PART

ENTERED BY ORDER OF THE COURT

March 2, 2021

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

**United States Court of Appeals
for the Federal Circuit**

RAIN COMPUTING, INC.,
Plaintiff-Appellant

v.

**SAMSUNG ELECTRONICS AMERICA, INC.,
SAMSUNG ELECTRONICS CO., LTD., SAMSUNG
RESEARCH AMERICA, INC.,**
Defendants-Cross-Appellants

2020-1646, 2020-1656

Appeals from the United States District Court for the District of Massachusetts in No. 1:18-cv-12639-RGS, Judge Richard G. Stearns.

MANDATE

In accordance with the judgment of this Court, entered March 2, 2021, and pursuant to Rule 41 of the Federal Rules of Appellate Procedure, the formal mandate is hereby issued.

FOR THE COURT

April 8, 2021

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

the form of Dr. Arunachalam's misconduct, we conclude that a lesser sanction is appropriate.¹⁶ Accordingly, the scandalous and irrelevant statements in Dr. Arunachalam's briefs alleging, inter alia, "obstruction of justice," "a corrupt criminal enterprise," "libel," "willful misrepresentations," and "fraud" by the District Court, Judges Stark and Andrews, and Appellees' counsel, Appellant's Br. 2-17, as well as "treason," collusion in a "collateral estoppel farce," and "fraud" by the PTAB, this Court and its Judges, and "the Courts" generally, *id.* at 13-17, are stricken.

CONCLUSION

[16] We have considered Dr. Arunachalam's remaining arguments and find them unpersuasive.¹⁷ Accordingly, the Judgment of the U.S. District Court for the District of Delaware is

AFFIRMED

COSTS

Costs to IBM, SAP, and JPMorgan.



16. In addition to the assessments of costs, further submissions of a similar character would raise the possibility of monetary sanctions from this Court. See *Chambers*, 501 U.S. at 44-45, 111 S.Ct. 2123.

17. In her Notice of Appeal, Dr. Arunachalam stated that, in addition to the District Court's grant of monetary sanctions, she was also appealing the denials of her Motion to Enforce the Mandated Prohibition and Motion for the Court to Vacate Its Unconstitutional Orders. Notice of Appeal 1-2, ECF No. 1. Yet,

RAIN COMPUTING, INC., Plaintiff-Appellant

v.

SAMSUNG ELECTRONICS AMERICA, INC., Samsung Electronics Co., Ltd., Samsung Research America, Inc., De- fendants-Cross-Appellants

2020-1646

2020-1656

United States Court of Appeals,
Federal Circuit.

Decided: March 2, 2021

Background: Patent owner sued competitor for infringement of patent for method of delivering on-demand software packages. United States District Court for the District of Massachusetts, Richard G. Stearns, J., 2020 WL 708125, entered stipulated judgment in competitor's favor, stating that asserted claims were neither infringed nor invalid for indefiniteness. Owner appealed, and competitor cross-appealed.

Holdings: The Court of Appeals, Moore, Circuit Judge, held that:

- (1) term "user identification module" was a means-plus-function claim term, and
- (2) term "user identification module" lacked sufficient structure and rendered the claims indefinite.

Reversed in part, and dismissed in part.

Dr. Arunachalam's briefs did not address the reasons for the District Court's denial of these motions—namely, that she had filed the first motion "in eight different cases," without explaining its relevance or untimeliness, and that the second motion was an attempt to rechallenge the dismissal of her Amended Complaint, which we had already affirmed. C.A. 2; see *Arunachalam III*, 759 F. App'x at 934; see generally Appellant's Br. 1-58; Reply Br. 1-27. Accordingly, these issues are waived. See *SmithKline Beecham Corp.* 439 F.3d at 1320.

1. Patents ⇔1970(13)

Whether claim language invokes patent statute governing means-plus-function claim limitations, is a question of law that is reviewed de novo. 35 U.S.C.A. § 112.

2. Patents ⇔1969

In patent cases, Court of Appeals reviews any of district court's underlying findings of fact for clear error.

3. Patents ⇔915

Means-plus-function patent claims are construed to cover only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof. 35 U.S.C.A. § 112.

4. Patents ⇔915

To determine whether patent statute governing means-plus-function claim limitations applies to a claim limitation, court must inquire whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure; if those lack a sufficiently definite meaning, the statute applies. 35 U.S.C.A. § 112.

5. Patents ⇔915

If patent claim limitation uses word “means,” there is rebuttable presumption that means-plus-function statute applies; if not, there is rebuttable presumption that provision does not apply, but that presumption can be overcome and statute will apply if challenger demonstrates that claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function. 35 U.S.C.A. § 112.

6. Patents ⇔915

Term “user identification module,” in patent for method of delivering on-demand software packages, was a means-plus-func-

tion claim term; “module” was a substitute for “means,” and patent owner failed to point to any claim language providing any structure for performing the module's claimed function of being configured to control access, nor did prefix “user identification” impart structure, as it merely described the function of the module, to identify a user, and further, term “user identification module” had no commonly understood meaning and was not generally viewed by one skilled in the art to connote a particular structure. 35 U.S.C.A. § 112.

7. Patents ⇔915

The word “module” in patent claim is a well-known nonce word that can operate as a substitute for “means,” so as to invoke rebuttable presumption that means-plus-function statute applies. 35 U.S.C.A. § 112.

8. Patents ⇔915

First step in construing a means-plus-function claim is to identify the claimed function. 35 U.S.C.A. § 112.

9. Patents ⇔915

After identifying claimed function of means-plus-function claim, the court determines what structure, if any, disclosed in the specification corresponds to that function; under this second step, structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. 35 U.S.C.A. § 112.

10. Patents ⇔915

Under means-plus-function form of claiming, if the function is performed by a general purpose computer or microprocessor, then the specification must also disclose the algorithm that the computer performs to accomplish that function; however, in rare circumstances where any general-purpose computer without any

special programming can perform the function, an algorithm need not be disclosed. 35 U.S.C.A. § 112.

11. Patents ⇄816

If the patentee fails to disclose adequate structure corresponding to the claimed function, in a means-plus-function claim, then the claim is indefinite. 35 U.S.C.A. § 112.

12. Patents ⇄1970(3)

In patent cases, the Court of Appeals reviews the district court's indefiniteness determination de novo.

13. Patents ⇄822

Patent for method of delivering on-demand software packages lacked sufficient structure, and thus was indefinite, in absence of an algorithm to achieve the claimed function of a "user identification module," which controlled access to one or more software application packages to which the user had a subscription; function required specialized programming, but nothing in the claim language or written description provided it. 35 U.S.C.A. § 112.

Patents ⇄2091

9,805,349. Invalid.

Appeals from the United States District Court for the District of Massachusetts in No. 1:18-cv-12639-RGS, Judge Richard G. Stearns.

Stephen Yee Chow, Hsuanyeh Law Group, PC, Boston, MA, argued for plaintiff-appellant. Also represented by Hsuanyeh Chang.

Michael J. Mckeon, Fish & Richardson PC, Washington, DC, argued for defendants-cross-appellants. Also represented by Christopher Dryer.

Before Lourie, Dyk, and Moore, Circuit Judges.

Moore, Circuit Judge.

Rain Computing, Inc. appeals a final judgment of noninfringement of the asserted claims of U.S. Patent No. 9,805,349 and Samsung Electronics America, Inc.; Samsung Electronics Co., Ltd.; and Samsung Research America, Inc. (collectively Samsung) cross-appeal the final judgment that the asserted claims of the '349 patent are not invalid as indefinite. For the reasons below, we reverse the district court's judgment on indefiniteness and dismiss Rain's appeal.

BACKGROUND

Rain sued Samsung for infringement of claims of the '349 patent. The '349 patent is directed to delivering software application packages to a client terminal in a network based on user demands. *See* '349 patent at Abstract, 1:59–2:14. The claimed invention purports to deliver these packages more efficiently by using an operating system in a client terminal rather than a web browser. '349 patent at 1:49–55, 1:59–2:14. Claim 1 is representative:

1. A method for providing software applications through a computer network based on user demands, the method comprising:

accepting, through a web store, a subscription of one or more software application packages from a user;

sending, to the user, a user identification module configured to control access of said one or more software application packages, and coupling the user identification module to a client terminal device of the user;

a server device authenticating the user by requesting subscription information of the user from the user identification module through the computer network;

upon authentication of the user, the server device providing, to the client terminal device of the user, a listing of one or more software application packages subscribed through the web store in accordance with the subscription information;

the server device receiving, from the client terminal device and through the computer network, a selection of a first software application package from said listing of one or more software application packages;

the server device transmitting the first software application package to the client terminal device through the computer network; and

executing the first software application package by a processor of the client terminal device using resources of an operating system resident in a memory of the client terminal device.

In a February 12, 2020 order, the district court construed various claim terms. Relevant here, it construed “executing the [first/second] software application package . . . in a memory of the client terminal device” and “user identification module configured to control access of . . . software application packages.” *Rain Computing, Inc. v. Samsung Elecs. Co.*, No. 18-12639-RGS, 2020 WL 708125, at *3–7 (D. Mass. Feb. 12, 2020). The district court determined “user identification module” was a means-plus-function term subject to 35 U.S.C. § 112 ¶ 6 and was not indefinite. *Id.* at *3–5. Following that order, the district court entered judgment, based on the parties’ joint stipulation, that the asserted claims were neither infringed nor invalid for indefiniteness. Rain appeals and Samsung cross-appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

Rain challenges the district court’s construction of the “executing” term. Sam-

sung challenges the court’s determination that “user identification module” does not render the claims indefinite. Because we agree with Samsung that “user identification module” renders the claims indefinite, we do not reach the merits of Rain’s appeal.

I

[1–3] Whether claim language invokes 35 U.S.C. § 112 ¶ 6 is a question of law we review de novo. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346 (Fed. Cir. 2015). We review any underlying findings of fact for clear error. *Id.* Under § 112 ¶ 6, a patentee may draft claims “as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.” But such claims are construed to cover only “the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” *Williamson*, 792 F.3d at 1347.

[4, 5] To determine whether § 112 ¶ 6 applies to a claim limitation, we must inquire “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Id.* at 1349. If those words lack a sufficiently definite meaning, § 112 ¶ 6 applies. If the limitation uses the word “means,” there is a rebuttable presumption that § 112 ¶ 6 applies. *Id.* at 1348–49. If not, there is a rebuttable presumption that the provision does not apply. *Id.* But that “presumption can be overcome and § 112 para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.” *Id.* at 1348 (quotations and brackets omitted).

[6, 7] We first determine whether “user identification module” is a means-plus-function term. Because the term does not include the word “means,” there is a rebuttable presumption that § 112 ¶ 6 does not apply. “‘Module’ is a well-known nonce word that can operate as a substitute for ‘means.’” *Id.* at 1350. In *Williamson*, we held that the word “module” in the claim term “distributed learning control module” “does not provide any indication of structure because it sets forth the same black box recitation of structure . . . as if the term ‘means’ had been used.” *Id.* Likewise, “module” here does not provide any indication of structure, and Rain fails to point to any claim language providing any structure for performing the claimed function of being configured to control access. Nor does the prefix “user identification” impart structure because it merely describes the function of the module: to identify a user. *See id.* at 1351 (“The prefix ‘distributed learning control’ does not impart structure into the term ‘module.’”). Thus, the claim language fails to provide any structure for performing the claimed functions.

The parties do not dispute that “user identification module” has no commonly understood meaning and is not generally viewed by one skilled in the art to connote a particular structure. In *Media Rights Technologies, Inc. v. Capital One Financial Corp.*, we held that the written description of a “copyright compliance mechanism,” including how it was connected to various parts of the system, how it functioned, and its potential functional components, was not enough to provide sufficient structure to the claimed “compliance mechanism.” 800 F.3d 1366, 1372–73 (Fed. Cir. 2015). Here, the specification does not impart any structural significance to the term; in fact, it does not even mention a “user identification module.” “Without more, we cannot find that the claims, when read in light of the specification, provide

sufficient structure for the [] term.” *Id.* at 1373. Accordingly, we hold “user identification module” is a means-plus-function term subject to § 112 ¶ 6.

Rain argues an amendment made during prosecution of “a user identification module for accessing . . .” to “a user identification module configured to control access of . . .” prevents “user identification module” from being a means-plus-function term. Appellant Resp. & Reply Br. at 12–13, 56–57 (emphases added). According to Rain, replacing “for” with “configured to” removed the means-plus-function language. *Id.* But the purely functional claim language reciting what the “user identification module” is configured to do provides no structure. *See MTD Prods. Inc. v. Iancu*, 933 F.3d 1336, 1343 (Fed. Cir. 2019) (construing “a mechanical control assembly . . . configured to actuate . . .” as a means-plus-function limitation).

Rain also argues that an appellate brief filed by Patent Office examiners defending a final rejection of the applicant’s claims supports its position that the term is not a means-plus-function term. The examiners’ brief states, in relevant part:

Additionally, as claim 20 is directed to a method rather than an apparatus, the limitation “user identification module configured to control access of said one or more software application packages,” does not invoke 112, 6th paragraph, or 112(f).

J.A. 531. To the extent the examiners or the Patent and Trademark Office understood that a means-plus-function term cannot be nested in a method claim, they were incorrect. Applicants are free to invoke § 112 ¶ 6 for a claim term nested in a method claim. We have never held otherwise. *See, e.g., Media Rights*, 800 F.3d at 1374 (holding “compliance mechanism” nested in a method claim was a means-plus-

function term); *On Demand Machine Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1340 (Fed. Cir. 2006) (holding “providing means for a customer to visually review” nested in a method claim was a means-plus-function term).

II

[8, 9] Having concluded “user identification module” is a means-plus-function term, we must consider the term’s construction, which occurs in two steps. The first step in construing a means-plus function claim is to “identify the claimed function.” *Williamson*, 792 F.3d at 1351. After identifying the function, we then “determine what structure, if any, disclosed in the specification corresponds to the claimed function.” *Id.* “Under this second step, structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *Sony Corp. v. Iancu*, 924 F.3d 1235, 1239 (Fed. Cir. 2019) (citation omitted).

[10] If the function is performed by a general-purpose computer or microprocessor, then the second step generally further requires that the specification disclose the algorithm that the computer performs to accomplish that function. *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). However, “in the rare circumstances where any general-purpose computer without any special programming can perform the function . . . an algorithm need not be disclosed.” *Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1365 (Fed. Cir. 2012). For means-plus-function claims “in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm,” we have held that “the disclosed structure is not the general purpose computer, but rather the special purpose

computer programmed to perform the disclosed algorithm.” *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999).

[11, 12] And finally, if the patentee fails to disclose adequate corresponding structure, the claim is indefinite. *Williamson*, 792 F.3d at 1352. We review the district court’s indefiniteness determination de novo and any underlying factual questions for clear error. *Media Rights*, 800 F.3d at 1371.

The parties do not dispute that the function of “user identification module” is “to control access to one or more software application packages to which the user has a subscription,” as determined by the district court. We agree.

Next, we must identify the structure in the specification that is clearly linked with this function, controlling access. The district court found that the structural examples linked to the function of the “user identification module” are all “computer-readable media or storage device[s].” *Rain Computing*, 2020 WL 708125, at *5; see e.g., ’349 patent at 4:28–31 (“a SIM card, an IC card, a flash memory drive, a memory card, a CD-ROM, and the like”). The district court erred, however, in concluding that the disclosure of computer-readable media or storage devices provided sufficient structure for the “control access” function. *Id.* These computer-readable media or storage devices amount to nothing more than a general-purpose computer. See, e.g., *HTC Corp. v. I/PCOM GmbH & Co., KG*, 667 F.3d 1270, 1280 (Fed. Cir. 2012) (the disclosed “processor and transceiver amount[ed] to nothing more than a general-purpose computer”). And “control[ling] access to one or more software application packages to which the user has a subscription” requires more “than merely plugging in a general purpose computer.” *Ergo Licensing*, 673 F.3d at 1365.

Rather, some special programming, *i.e.*, an algorithm, would be required to control access to the software application packages. Rain even agrees that the “user identification module” should include software algorithms. *See, e.g.*, Appellant’s Resp. & Reply Br. at 22, (“the module would . . . be configured to . . . respond to requests for information (using common software algorithms”), *id.* at 27 n.17 (“the user identification module should include software implementations”). And the inventor agreed that “there are certain algorithms out there” such as “open source software that can implement” the user identification module. J.A. 297–99. Under these circumstances, where a general purposes computer is the corresponding structure and it is not capable of performing the controlling access function absent specialized software, an algorithm is required.

[13] Nothing in the claim language or the written description provides an algorithm to achieve the “control access” function of the “user identification module.” When asked at oral argument to identify an algorithm in the written description, Rain could not do so. Oral argument at 32:54–34:40, *available at* http://oralarguments.cafc.uscourts.gov/default.aspx?fl=20-1646_02022021.mp3. Without an algorithm to achieve the “control access” function, we hold the term “user identification module” lacks sufficient structure and renders the claims indefinite.¹ As this term appears in all of the claims relating to Rain’s appeal, our decision moots the noninfringement appeal.

CONCLUSION

Because we hold “user identification module” renders the asserted claims indefi-

1. We recently held, in a separate proceeding involving a different patent, that the failure to provide an algorithm for the recited function of a “user identification module” rendered

nite, we reverse the district court’s judgment that the asserted claims of the ’349 patent are not invalid as indefinite and dismiss Rain’s appeal as moot.

REVERSED-IN-PART, DISMISSED-IN-PART

COSTS

No costs.



AUTHENTIC APPAREL GROUP, LLC, Ron Reuben, Plaintiffs- Appellants

v.

UNITED STATES, Defendant-Appellee 2020-1412

United States Court of Appeals,
Federal Circuit.

Decided: March 4, 2021

Background: Licensee sued United States, claiming that Department of Army breached trademark licensing agreement by denying licensee right to fully exploit Army trademarks including “U.S. Army” and “Army Strong,” failing to approve advertising featuring licensee’s celebrity spokesperson, and refusing to permit licensee to truthfully advertise its relationship with Army’s morale, welfare, and recreation (MWR) fund, and that Army breached duty of good faith and fair dealing by preventing licensee from both obtaining financing for footwear line and reselling

the challenged claims indefinite. *See Synchronoss Techs., Inc. v. Dropbox, Inc.*, Nos. 2019-2196, 2019-2199, 987 F.3d 1358, 1367–68 (Fed. Cir. Feb. 12, 2021).