No. 22-246

IN THE

Supreme Court of the United States

CENTRIPETAL NETWORKS, INC.,

Petitioner,

v.

CISCO SYSTEMS, INC.,

Respondent.

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

BRIEF OF *AMICUS CURIAE* ALLIANCE OF U.S. STARTUPS & INVENTORS FOR JOBS ("USIJ") IN SUPPORT OF PETITIONER

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The Alliance of U.S. Startups and Inventors for Jobs ("USIJ") submits this brief as *amicus curiae* pursuant to Rule 37 in support of the Petition for Writ of Certiorari by Centripetal Networks, Inc. seeking this Court's review of the proper application of 28 U.S.C. §455(f). The panel decision of the Federal Circuit, authored by Judge Timothy Dyk, is unconscionably harsh given the unusual facts of this case and highly questionable as to the discretion that should be accorded a trial judge in comparable circumstances. Unless reversed by this Court, the panel decision will nullify months or years of judicial time spent in getting to a final judgement, and will inflict enormous harm on a creative and innovative small company and its entrepreneur founders and investors who, through no fault of their own, would see millions of dollars and years of their hard work obliterated. Neither Section 455 nor common sense supports the outcome reached by the panel.

INTEREST OF *AMICUS CURIAE*

Amicus curiae USIJ is a coalition of 21 startup companies and their affiliated entrepreneurs, inventors and investors that depend on stable and reliable patent protection as an essential foundation for making long term investments of capital and time commitments to high-risk businesses developing new technologies ("the Invention Community"). A list of USIJ members is attached as Appendix A.[1] USIJ was formed in 2012 to address concerns

1. No counsel for a party authored this brief in whole or in part, and no such counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than this *amicus curiae* made a monetary contribution to its preparation or submission. *Amicus* USIJ has provided proper notice to both parties and has the consent of both parties to file this brief.

that legislation, policies and practices adopted by the U.S. Congress, the Federal Judiciary and certain Federal agencies were and are placing members of the Invention Community at an unsustainable disadvantage relative to their larger incumbent rivals, both domestic and foreign, and others that would misappropriate their inventions. A disproportionately large number of strategically critical breakthrough inventions are attributable to individual inventors, startups, and small companies.

USIJ's fundamental mission is to assist and help inform Members of Congress, the Federal Judiciary and leaders in the Executive branch regarding the critical role that patents play in our nation's economic system and the particular importance of startups and small companies to our country's continued leadership in strategically critical technologies.

SUMMARY OF ARGUMENT

USIJ urges this Court to grant the petition for certiorari and to reverse the harsh decision of the three-judge panel at the Federal Circuit authored by Judge Timothy Dyk.[2] The panel decision unfairly penalizes

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2. It is not clear why the petitioner did not ask for *en banc* review, but the recent history of the Federal Circuit suggests that the court is highly unlikely to take up complicated or controversial matters *en banc*. *See, e.g.*, the recent votes in *Athena Diagnostics, Inc., et al v. Mayo Diagnostic Services LLC*, 915 F.3d 743 (Fed. Cir. 2019) (2019) *(per curiam* order denying *en banc* review with 8 separate concurrences and dissents consuming 82 pages*)* and *American Axle & Manufacturing, Inc. v. Neapco Holdings LLC*, Docket No. 2018-1763 (*per curiam* order filed 7/31/2020 denying *en banc* rehearing, accompanied by six separate concurring and

Centripetal and without justification. Given the evidence of malicious copying and willful infringement and the findings that led Judge Morgan to the conclusion that Cisco's behavior was egregious, it is unconscionable to ask this startup company with fewer than 100 employees and not yet profitable to come up with yet more cash to cover the millions of dollars that will be needed to repeat much of the same work it has already completed, to say nothing of the injurious impact of further delay in final resolution and the countless hours that company executives will be forced to repeat.

Such an outcome is grossly unfair and utterly disproportionate to the events that brought it about. The outcome is also inconsistent with the underlying rationale for adding Subsection (f) to 28 U.S.C. §455 in the first place, which was to preserve the value of judicial resources upon the discovery of what otherwise might be a conflict. It would be particularly prejudicial for Centripetal to be forced to retry the case, as Cisco is now asking of the trial court, because a significant portion of Judge Morgan's ruling was based on his assessment of Cisco's witnesses whose testimony was often refuted by the company's own documents and who based their opinions of noninfringement on Cisco's legacy products rather than the ones that incorporated the new technology.[3] On retrial, Cisco would enjoy a distinct advantage over Centripetal in that the original witnesses are likely to be replaced or, at the very least, to give new testimony carefully

dissenting opinions consuming 46 pages). Petitioner will not be well served by any further delay.

3. Opinion and Order, Docket No. 2:18cv94 (E.D.Va October 5, 2020), pp. 8, 24, 29, 35 and153 are exemplary.

restructured in light of the first trial. Every trial lawyer knows it is more difficult to achieve a successful outcome the second time a matter is tried.

The trial judge in this case did precisely what 28 U.S.C. §455(f) required under the circumstances. Upon learning that his wife owned 100 shares of Cisco stock, Judge Morgan informed the parties of the apparent conflict and then chose to divest his family of the stock in the only way that made sense to him at the time, as required by Section 455(f). The judge was reluctant to sell the stock outright because he thought that he might be criticized for selling the stock personally at a time when he was about to make public his final judgment against Cisco, the contents of which had at least the possibility of materially affecting Cisco's public stock price. Accordingly, Judge Morgan did what he concluded was the next best alternative for compliance with Section 455(f) – he divested the stock into a blind trust with instructions to the trustee to refrain from providing any information to himself or his wife regarding the stock until it was disposed of.

There is nothing in the record or the panel decision of the Federal Circuit to suggest that any of Judge Morgan's actions was motivated by bad faith or had any possible impact on the outcome of the case. Indeed, he told the parties that his opinion was essentially complete at the time he discovered the ownership issue, except for some further work to finish the issue of damages. Op., pp 5 – 6. Cisco has not asserted that the Judge's discovery of the stock had any impact on his final judgment. Despite this, the panel decision of the Federal Circuit goes through a rigidly technical and result-oriented analysis that runs counter to the fundamental reason that Section 455(f)

was added to the judicial conflict statute in the first place, namely to preserve, for both the parties and the judiciary, the sunken cost of "substantial judicial time" already expended by a judge. The decision below is also devoid of any appreciation of the actual outsized impact the ruling would have on Centripetal and, as precedent, on other small companies similarly situated. Centripetal is far less able to absorb the cost of a retrial than Cisco, which has a market cap of approximately $250 billion and claims to have a 90% market share for enterprise routers and switches.

The panel decision relies primarily on the fact that Judge Morgan retained a "beneficial interest" in the Cisco stock, even though he divested himself of any control of the stock by placing it into a blind trust. The decision cites no binding authority that the word "divest" should be given such a narrow reading in all situations, relying instead on an advisory opinion by the Judicial Conference in a more general context and by commentators and others written without the benefit of the extenuating circumstances of this case. (Op., pp 11 – 14). That advisory opinion should be given no weight in this case.[4]

The panel decision also concludes that by placing 100 shares of a publicly traded stock into a blind trust, Judge

4. See also, Hochbaum, "Taking Stock: The Need to Amend 28 U.S.C. § 455 to Achieve Clarity and Sensibility in Disqualification Rules for Judges' Financial Holdings," Fordham Law Review, Vol. 71, Issue 4 (2003), p. 1692 ("Because the Judicial Conference has no specific statutory grant of authority to enact binding ethical rules, the Code does not have the force of law. As such, it is of minimal value to litigants as a basis for disqualifying a federal judge.").

Morgan would be failing to keep himself apprised of the status of his own financial affairs. Op. at 14. It is difficult to follow the logic of that analysis, since the only asset placed in the trust was 100 shares of Cisco stock that the Judge, as someone with insider knowledge, did not want to sell outright on his own. That is hardly a failure to stay on top of his own assets.

The panel decision also speculates that the trial judge might have "bent over backwards" by being tougher on Cisco than was otherwise warranted. Op., p. 23. With all due respect, this speculation is fanciful; it is contradicted by the Judge's statement that his opinion was essentially finished at the time he discovered the ownership issue and that the Cisco stock had no impact on his ruling, a statement that Cisco does not contest and therefore must be taken as established. The panel might just as well have speculated that the judge actually discovered the 100-share purchase earlier than he did and misrepresented that fact to the parties. There is no basis to support either theory.

From the standpoint of the entrepreneurs and inventors who start new companies and the investors who back them, the reliability and integrity of their property rights in new technology are essential requirements to offset the risk of having that technology simply copied by much larger incumbent companies, as happened here. Few things will undermine the perception of patent reliability in this community more effectively than letting a small startup company spend the millions of dollars and the months of effort to get to a final judgment, and then forcing it to repeat much of that effort and incur further cost based on a rigid and unreasonable reading of a statutory provision regarding a judicial conflict for which

the startup company is entirely blameless. Whatever may be the rationale, the decision below, if allowed to stand, will simply add to the inherent risk already perceived by many entrepreneurs and investors and there will no doubt be some investments that never get made as a result the increase. The tragic part is that we can never know what investments were turned down on this basis and what the outcomes might have been.

ARGUMENT

I. Centripetal Exemplifies the Reason Our Nation Has a Patent System in the First Place.

Centripetal Networks is a poster child for all the things our country believes about invention and innovation. The company was founded by experts in cybersecurity who might have taken jobs with large established incumbents, such as Cisco or Google or Apple, but who chose instead to form their own company and address security problems that larger companies had not been able to solve. The company was successful in its efforts to improve the defense of a computer network and owns 72 issued U.S. patents to show for its efforts, with nearly as many additional applications in the pipeline.

After beginning to sell its innovative improvements in network security installations, Centripetal made the business mistake of expecting Cisco to behave honorably and in good faith when the smaller company made an effort, pursuant to an NDA, to sell Cisco on the idea of incorporating its invention into Cisco products. Cisco went through the motions of negotiating a business arrangement until its engineers knew enough to copy

the innovations, after which it ended the discussions and proceeded to do just that – copy Centripetal's work. Cisco essentially ignored the NDA, interpreting it as covering only what was protected by the Centripetal patents, and copied what it had been shown.[5] Centripetal brought this patent infringement case against Cisco and, after running the usual gauntlet of IPRs, motion practice and a lengthy trial, prevailed. The size of the award – $2.75 billion – reflected the enormous profitability to Cisco in passing off the patented technology as its own.

Dozens of American companies have been started in a similar fashion since the founding of this country, almost all in the belief that their U.S. patents would protect their innovative work from being copied by large incumbents selling similar products. Patents are critical in this respect; large corporations such as Cisco are not particularly innovative, but do enjoy the advantage of established manufacturing infrastructure and distribution channels and the economies of scale that accompany these operations, all of which diminish their existential need for patents. Patents are essential to encourage entrepreneurs, inventors and investors to assume the risks associated with starting a new company and developing a new technology, particularly one that is easily copied once the feasibility of new technology is established.[6]

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5. Opinion and Order, Docket No. 2:18cv94 (E.D.Va October 5, 2020), pp. 149 - 157, 160 (Morgan, J.)

6. The list of inventors who followed a similar trajectory is a legendary set of iconic names that we have revered since the founding of the country. Exemplary are Wilbur and Orville Wright, Eli Whitney, Charles Goodyear, Ray Dolby, Edwin Land, Steve Jobs, Chester Carlson, Sergei Brin and Larry Page,

It is against this backdrop that the reputational impact of the ruling below must be measured. Cybersecurity is one of several key strategic technologies of the 21st Century, and it is critical to our nation's security. If we are to maintain our prominence as the world's leading developer of new science and technology, the nation needs to energize on a nationwide basis as many of its inventive scientists and engineers to participate in this task, not just the engineers and inventors who choose to work for the corporate giants of Silicon Valley that dominate the digital technology industries.[7]

Maintaining a properly functioning patent system is not merely a legal problem, it is a matter of grave concern to national security. Two years ago, the National Security Commission on Artificial Intelligence issued its report on, *inter alia*, the preparedness of our country to compete on a global basis with our most important competitor nations. https://www.nscai.gov/2021-final-report. The report includes the following cautionary observations about the state of U.S. patent law (p. 201):

Robert Swanson, Jennifer Doudna – and hundreds of others. Few Americans looking at the foregoing list would fail to recognize the important inventions for which each was responsible.

7. A recent book by Jonathan M. Barnett, professor of law and economics at the University of Southern California, entitled "Innovators, Firms, and Markets: The Organizational Logic of Intellectual Property" (2020) details how corporate giants over the last few years have lobbied intensely for a weakening of patent enforcement so as to insulate themselves from the forces of competition from smaller, more nimble and more creative companies, with the relatively predictable effect that the R&D needed for developing new technologies and for improving old ones has become increasingly the sole domain of some of the corporate giants whose motivations are to retain the status quo at all costs.

> "China is both leveraging and exploiting intellectual property (IP) policies as a critical tool within its national strategies for emerging technologies … The United States has failed to similarly recognize the importance of IP in securing its own national security, economic interests, and technology competitiveness. … China is poised to 'fill the void' left by weakened U.S. IP protections, particularly for patents, as the U.S. has lost its comparative advantage in securing stable and effective property rights in new technological innovation."

Rather than strengthening the patent system to promote innovation, however, the message from this panel of the Federal Circuit is to discourage such entrepreneurial activities. By nullifying Centripetal's litigation success using a contorted analysis of Section 455, the panel might just as well have said:

> "Do not rely on your U.S. patents to protect your investments of time and money in developing new technologies that would challenge the incumbency of the digital technology giants. We the judiciary have no intention of letting stand an award of the size rendered by Judge Morgan. Have no doubts – we will find a way to squelch you!"

USIJ respectfully submits that this Court should not permit a single panel of the Federal Circuit to send such a sweeping message to the investment and invention communities and the public in general.

II. Section 455(f) Was Added to the Statute to Prevent the Waste of Judicial Resources and Prejudice to the Parties.

Section 455 was originally enacted in 1974 to address judicial conflict issues that had arisen in a number of different contexts. The touchstone of the statute is to avoid the "appearance of conflict," a test that Congress intended to preserve public confidence in the fairness and impartiality of judges deciding important cases, but nevertheless a test to be applied with care:

> "[I]n assessing the reasonableness of a challenge to his impartiality, each judge must be alert to avoid the possibility that those who would question his impartiality are in fact seeking to avoid the consequences of his expected adverse decision. **Disqualification ... must have a reasonable basis. Nothing in this proposed legislation should be read to warrant the transformation of a litigant's fear that a judge may decide a question against him into a 'reasonable fear' that the judge will not be impartial**. Litigants ought not have to face a judge where there is a reasonable question of impartiality, but they are not entitled to judges of their own choice."

H.R. Rep. No. 93-1453, at 5 (1974) (emphasis supplied).

Subsection 455(f) was added in 2000 to deal with situations in which a judge learned, only after expending "substantial judicial resources" on a matter, that he or she has a financial interest of some kind in one of the

parties. Although originally designed to correct situations in class actions where the judge often was not aware of class membership until well into a case, the statute as enacted more broadly covers other situations as well, in particular the one here. The primary objective was to spare both the parties and the courts the wasteful costs of repeating work already done. As noted in the House Report on the addition:

> "When [late discovery of a conflict] happens now, the case must be assigned to a different judge, an event which disrupts the efficient administration of the case and can be very costly to litigants." *Id.*

Newly added subsection (f) provides that in cases where an otherwise disqualifying "financial interest in a party" is discovered "after substantial judicial time has been devoted to the matter," the judge may resolve the conflict by divesting the interest creating the conflict. H.R. Doc. No. 100-889, at 68 (1988).

Cisco's opportunistic recusal motion here was filed nine days after Judge Morgan informed the parties that his wife had purchased, without his knowledge, 100 shares of Cisco stock. Granting that motion would have been inconsistent with the intent of Section 455 and highly prejudicial to the successful plaintiff, and Judge Morgan denied the motion. The facts in this case leave no room for doubt as to the adverse impact of the vacatur order on the judicial system and the parties. The judge spent years developing an understanding of a complex technology, as the cybersecurity of computer networks surely is, and presided over a 22-day trial with 26 witnesses and over

300 documents, followed by several months of sorting the record and writing an opinion that is 167 pages in length. The plaintiff as well, a small company that already has spent far more money and time on the case than should have been required, will be severely prejudiced if this Court allows the vacatur to stand.

III. The Panel's Interpretation of the Word "Divest" in Section 455(f) Is Contrary to the Reason That Section Was Added.

The Merriam-Webster online dictionary (https://www.merriam-webster.com/dictionary/divest) defines the word "divest" as follows:

> "a: to deprive or dispossess especially of property, authority, or title
>
> …
>
> "b: to undress or strip especially of clothing, ornament, or equipment
>
> …
>
> "c: RID, FREE."

Numerous similar definitions also can be found online, none of which narrowly equates with the word "sell." We found nothing in the legislative history of Subsection 455(f) to suggest such a narrow reading, and as noted in the Summary, the rationale for the provision suggests otherwise, *i.e.*, to preserve the prior judicial efforts in cases where there was no reason to believe the outcome

had been impacted by the discovery. In the circumstances here, placement of the stock beyond his control and without knowledge of what the trustee was going to do with it, is a reasonable way to avoid the criticism that others might see in the sale.

The panel decision acknowledges that the standard of review on a recusal motion is for abuse of discretion, but then appears to give no weight whatever to the compelling reason that the trial judge chose to use a blind trust to divest his family of the stock. This is an odd point of view, given that the underlying rationale for the entirety of Section 455 is to preserve the public perception of the judiciary. As the panel would have it, the trial judge had only two choices – make an "insider trade," which although not unlawful might nevertheless have been criticized by one of Cisco's many shareholders, or recuse himself after months of work. That is not what Section 455 intended, and is precisely the opposite of what Subsection (f) was intended to do.

The panel decision is, in short, an erroneous interpretation of the statute that could do a great deal of harm in both this and other cases.[8]

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8. The Federal Circuit in recent years has become a panel-determinative court in a great number of cases. Lawyers about to argue before the Court will have no idea about the strength of their position until the morning of the oral argument when the identity of the panel members is provided to the parties. This fact, combined with the infrequency of *en banc* review, is a serious impediment to the proper functioning of patent law. Predictability and reliability are essential if patents are to operate as incentives for innovation and invention.

IV. Inventor and Investor Confidence in the Reliability and Predictability of U.S. Patents Is Declining.

Although not directly relevant to the issues in this case, USIJ believes that this Court should be aware of the broader implications that the panel decision may have on investors and entrepreneurs. Cisco's behavior toward Centripetal is exemplary of an increasingly popular business strategy that has become pervasive in much of the digital technology industry, sometimes referred to by these large companies as "efficient infringement." This strategy is best described as one in which a large company with vastly greater resources simply refuses to take a license from a startup or small company whose patents it infringes, forcing it to litigate and deploying whatever funding and personnel are needed to prevail in any patent litigation – without regard to its merits, its duration or its impact on the patent owner. Cisco's pretense at negotiating a business arrangement with Centripetal, as found by the trial court, then copying the technology revealed to it, and then refusing to take a license reveals the efficient infringement strategy at work, as did Cisco's demand for recusal over Judge Morgan's divestiture of stock.[9] Even if

9. This pernicious strategy was described succinctly and candidly by a former Apple executive to a reporter from "The Economist":

> "Boris Teksler, Apple's former patent chief, observes that 'efficient infringement', where the benefits outweigh the legal costs of defending against a suit, could almost be viewed as a 'fiduciary responsibility,' **at least for cash-rich firms that can afford to litigate without end.**" https://www.economist.com/business/2019/12/14/the-trouble-with-patent-troll-hunting (The Economist, 12/14/2019) (emphasis supplied).

this Court overturns the opinion below, the strategy still will have effectively delayed a final resolution by weeks or months and will have added additional expenses to the cost of the litigation. Forcing Centripetal to retry this case is not what Congress had in mind for how the patent system should operate nor should it be tolerated by this Court.

On numerous occasions during his tenure, the former Director of the U.S. Patent & Trademark Office, Andrei Iancu, emphasized that the incentive mechanisms of patent law only work if inventors and investors believe in the predictability and reliability of the property right granted.[10] Otherwise, patents are just pieces of paper with an impressive seal, but bereft of any protective benefit and more importantly, bereft of any real economic effect. The U.S. patent system, since the early 2000s, has been gradually and systematically weakened by judicial rulings

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See also, Adam Mossoff, Institutional Design in Patent Law: Private Property Rights or Regulatory Entitlements, 92 So. Cal. L. Rev. 921, 939-41 (2019) (describing "efficient infringement" and how the loss of injunctive remedies and the PTAB have promoted this business practice by large companies).

10. *E.g.*, Remarks by Andrei Iancu at His Swearing In as Director of the U.S. Patent & Trademark Office, February 23, 2018 ("As we do this important work, we must endeavor to provide reliable, predictable, and high-quality IP rights that give owners and the public alike confidence in those rights. This is the American intellectual property system as enshrined by our Founding Fathers in the Constitution."); Remarks by U.S. Patent & Trademark Office Director Andrei Iancu delivered to the American Enterprise Institute, June 21, 2018, Washington, D.C ("the patent grant needs to predictably mean something to both patent holders and the public. Both the owner and the public need to be able to rely on the grant.").

and the actions of the Patent Trial & Appeal Board, such that many inventors and entrepreneurs today have already shifted their focus away from the strategically critical activities that depend on patents and more toward fluffier projects that have lower risk and do not require patents. From the standpoint of many entrepreneurs, inventors and investors, legal protection for inventions and discoveries that once was a defining characteristic of U.S. law has become increasingly irrelevant, no longer providing adequate safety and incentives to investors to justify high risk commitments of time and capital or to visionary inventors who would forego secure jobs to pursue breakthrough technologies and challenge entrenched incumbents.

Numerous reports have called attention to the decline in startups and investment in patent intensive startups. For example, the Antitrust Subcommittee of the House Judiciary Committee in 2020 expressed alarm over the declining investment in startups that might serve to renew the world's leading innovation status our country has enjoyed for more than two centuries. A 451-page report in entitled "Investigation of Competition in Digital Markets, state at pages 46 - 47:

> "In recent decades, … there has been a sharp decline in new business formation as well as early-stage startup funding. The number of new technology firms in the digital economy has declined, while the entrepreneurship rate—the share of startups and young firms in the industry as a whole—has also fallen significantly in this market. Unsurprisingly, there has also been a sharp reduction in early-stage funding for technology startups.

Although aggregated investment data might suggest that entrepreneurs and investors continue to be quite active in this country, a closer look reveals that much of the current focus for such activity has shifted away from the inventions needed for strategically critical technologies that are essential if we are to maintain this country's leadership in science and technology, shifting instead toward investments such as entertainment, apparel, social media and the like, which either do not depend on patents at all or do not consider enforceable patents to be essential to their businesses.

The weakening of patent protection in the United States is one factor that has led to a decline in the willingness of entrepreneurs and inventors to rely on patents as the foundation for making investments. A survey of 475 venture capital investors across a broad variety of industries conducted by David O. Taylor, Associate Professor of Law and Co-Director of the Tsai Center for Law, Science and Innovation, Southern Methodist University, Dedman School of Law, shows that for those investors who pay attention to patent eligibility and the enforceability of the patents owned by their portfolio companies, there already is a growing unwillingness to commit time and capital to companies that require reliable patents to justify investing. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3340937. Moreover, not all investors are fully aware of the declines in the actual reliability of patents as enforceable property rights; as that reality becomes more fully understood within the investor and entrepreneur committees, it is not unreasonable to expect further shifts away from patent essential industries.

Professor Taylor's survey is consistent with and indeed confirms a similar study in 2018 by amicus USIJ of data collected by PitchBook, Inc. and supplied to the National Venture Capital Association. Venture capital investing trends over the period from 2004 to 2017 show that while the total amount of venture capital invested in the U.S. over that 14-year period increased by a factor of four (from approximately $20B to $80B), the portion invested in many of our most important and strategically critical industries suffered substantial declines. In 2004, for example, investments in semiconductors accounted for 1.2% of all the companies that received venture capital funding and 2% of all the venture capital dollars invested. By 2017, the number of companies that received funding for developing new semiconductor technology had fallen by an order of magnitude and the dollar commitment was negligible. https://www.usij.org/research/2018/7/9/us-startup-company-formation-and-venture-capital-funding-trends-2004-to-2017. Similar declines can be seen in drug discovery, medical devices, operating systems, core networking technology, etc. At the same time, investments in consumer apparel, hotels, social media and similar market segments increased substantially.

The following chart, which is copied from Page 9 of the USIJ study, provides a somewhat broader view of these significant shifts in venture capital investments:

▪ **Exemplary strategic sectors that have declined as a % of total VC funding:**	▪ **Exemplary sectors that have increased as a % of total VC funding:**
➢ Core internet networking ➢ Wireless communications ➢ Internet software ➢ Operating system software ➢ Semiconductors ➢ Pharmaceuticals ➢ Drug Discovery ➢ Surgical Devices ➢ Medical Supplies	➢ Social network platforms ➢ Software apps ➢ Consumer apparel and accessories ➢ Food products ➢ Restaurants, hotels and leisure ➢ B2C companies in general ➢ Consumer finance ➢ Financial services in general
▪ % of total VC funding in 2004: 20.95% ▪ % of total VC funding in 2017: 3.22%	▪ % of total VC funding in 2004: 11.4% ▪ % of total VC funding in 2017: 36.3%

The trends reflected in the USIJ study were confirmed more recently by Professor Mark F. Schultz, Goodyear Tire & Rubber Company Endowed Chair in Intellectual Property Law and Director, Intellectual Property and Technology Law Program at the University of Akron. His report, entitled "The Importance of an Effective and Reliable Patent System to Investment in Critical Technologies," was released July 2020. His conclusions confirm and strengthen the USIJ Study. It too is available

at www.usij.org/research. These declines in investment in new strategically critical technologies do not bode well for this country. Semiconductor technology, to use but one example, would rank high on almost any list of the most critical technologies for cybersecurity, artificial intelligence, national defense and virtually every other economic activity that depends on computational progress. Investment in startups likely to develop real breakthrough inventions in that field of technology has all but vanished. Although it may be years before the long term implications of this shift away from critical technologies becomes fully apparent, the trend line is readily visible today.

CONCLUSION

USIJ urges the Court to grant the petition for certiorari and hear from Centripetal Networks on this matter. The trial judge is now dead, but it would be a genuine tragedy from the standpoint of the entrepreneurial and investor community to allow the attached to stand.

Respectfully submitted,

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APPENDIX

APPENDIX — USIJ MEMBERSHIP LIST

USIJ
ALLIANCE FOR U.S. STARTUPS
& INVENTORS FOR JOBS

Member Companies

- AEGEA Medical
- BioCardia
- ConnectCloud
- Direct Flow Medical
- DivX, LLC
- Earlens
- ExploraMed
- Fogarty Institute for Innovation
- Headwater Research, LLC
- Lauder Partners, LLC
- Materna Medical
- Miramar Labs
- MoxiMed

- Original Ventures, LLCs
- Pavey Investments
- Prescient Surgical
- Puracath Medical
- Rearden Studios
- Revelle Aesthetics, Inc.
- SORAA
- Tallwood Venture Capital
- The Foundry
- Willow Innovations, Inc.