

EXHIBIT A

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

Portsmouth Network Corporation

Plaintiff,

v.

Cisco Systems, Inc.

Defendant.

Civil Action No. 2:23-cv-00441-JRG

JURY TRIAL DEMANDED

**DECLARATION OF DR. JAMES OLIVIER
IN SUPPORT OF PORTSMOUTH'S CLAIM CONSTRUCTION POSITIONS**

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Exhibit No.	Description
1	Curriculum Vitae of Dr. James Olivier
2	Newton's Telecom Dictionary, 23rd Edition definition of "edge switch"
3	Merriam Webster's Collegiate Dictionary, 10th Edition definition of "predetermine"
4	Newton's Telecom Dictionary, 23rd Edition definition of "multi-cast packets"

I, Dr. James Olivier, declare:

I. INTRODUCTION

1. I have been retained by counsel for Portsmouth Network Corporation (“Portsmouth”) to evaluate U.S. Patent No. 6,917,986 (the “’986 patent”), U.S. Patent No. 7,035,279 (the “’279 patent”), U.S. Patent No. 8,014,394 (the “’394 patent”), and U.S. Patent No. 8,199,637 (the “’637 patent”) (collectively, “patents-in-suit”).

2. This Declaration provides opinions relevant to claim construction of certain claim terms or phrases of the patents-in suit from the perspective of a person of ordinary skill in the art (“POSA”).

II. BACKGROUND AND QUALIFICATIONS

3. I possess the knowledge, skills, experience, training, and education to form an expert opinion and testimony in this case. I am an expert in the field of networking technologies and have been an expert in this field since before 2001. I have designed and developed access systems such as those described in the patents-in suit while working at Marconi Communications and teach MAC bridging and Virtual Private LAN Services like those systems described in the patents-in suit in my Multiprotocol Label Switching class.

4. I have a Ph.D. from The Ohio State University in Electrical Engineering with minors in Discrete Mathematics, Computer Science, and Microelectronics. My Ph.D. dissertation was based on coding theory and was titled “Concurrent Error Detection in Arithmetic Processors using GAN Codes,” in which I developed new codes for use in Arithmetic Processors such as microprocessors. I have published papers on coding theory and continued my work in coding theory for arithmetic processors while at the General Motor Research Laboratory.

5. I have extensive experience in network systems design and development and have specialized in networking product development. I have developed and designed equipment for

networks since my time at AT&T Bell Laboratories in the 1990s, where I worked on AT&T 5ESS, Network Control Point, and Autoplex Series base stations as a Member of the Technical Staff. These systems made extensive use of a counter-rotating ring network topology known as the Common Network Interface, much like the network described in the '279 Patent. It was there where I first began my work with telecommunication standards bodies as a contributing member of the Asynchronous Transfer Mode ("ATM") ATM Forum. Later at DSC Communications, I was the Senior Manager of the ATM systems engineering group developing ATM packet switches for a new generation base station for Motorola's use in their Centralized Base Station Controller. While at DSC, I was also their corporate representative to the ATM Forum, participating in bi-monthly standards body development. I was one of the first contributors to the wireless standards at the ATM Forum.

6. At Samsung Telecommunications America, I was a Principal Engineer for wireless broadband services over Universal Mobile Telecommunications System ("UMTS"). UMTS is a third-generation ("3G") broadband standard developed by the 3rd Generation Partnership Project ("3GPP"). At Samsung, I worked on designing their next-generation cellular switch, a UMTS mobile switching center ("MSC"). While at Samsung, I was also their corporate representative to the International Telecommunication Union ("ITU"), the United Nations agency responsible for standardizing information and communication technologies. The ITU, under its International Mobile Telecommunications-2000 effort, was part of the 3GPP standards body. It was there that I participated in the development of standards for advanced wireless networks. While at Samsung, I was responsible for the 'services portion' of the UMTS switch. This subsystem provided Internet service, email, and the like to the subscribers.

7. At Marconi, I worked on several systems for the access network, such as Digital Subscriber Line ("DSL") modems and Digital Subscriber Line Access Multiplexers ("DSLAMs"),

along with the design of point-to-point wireless systems. At Navini Networks, I was responsible for layer 2 and layer 3 network protocols for their Wideband Code Division Multiplexed Access (“WCDMA”) wireless base stations and broadband modems. These layers were responsible for packet transmissions for various services over the WCDMA air interface. I was also responsible for the development of a Single Sign On (“SSO”) system which allowed users to gain information relating to their wireless subscription and delete or add services.

8. I am currently an Adjunct Professor in the Network Engineering Graduate Program at Southern Methodist University’s School of Electrical Engineering, where I teach MPLS networked-enabled applications. Among the MPLS applications I teach is the use of MPLS in advanced network design, including content delivery networks, (CDNs) service provider network design and Intranet vs Internet network designs. In my class I cover access networks and core networks. I am also the owner of Olivier Consulting, where I provide consulting services for advanced network/product design along with Intellectual Property consulting. This year I received a three-year Fulbright specialist award in the area of computer science for my work at the Hunt Institute for Engineering and Humanity, which is part of the Lyle School of Engineering at Southern Methodist University in Dallas, Texas. There, I served as the Program Lead for Transformational Technology. Among the transformational technologies I investigate at the Hunt Institute is the Internet of Things (“IoT”), which makes extensive use of Fourth-Generation and Fifth-Generation networks.

9. I am a co-inventor of U.S. patent No. 8,334,775 issued Dec. 18, 2012 and entitled “RFID-Based Asset Security and Tracking System, Apparatus and Method.” This invention relates to a Radio-Frequency Identification (RFID)-based Global Positioning System (GPS) tracking system to provide control and security of assets. This system integrates an RFID-based detection system with a conventional GPS tracking system. The GPS tracking system includes GPS receivers connected over a network to a centrally based GPS monitoring system.

10. A copy of my curriculum vitae with my publications and technical consulting experience is provided as Ex. 1.

III. COMPENSATION

11. I am being compensated for my time at my standard consulting rate, which is \$685.00 per hour. My compensation is not dependent in any way upon the outcome of this matter and in no way affects the substance of my Declaration.

IV. MATERIALS CONSIDERED

12. In preparing this Declaration, I have reviewed the patents-in suit and their respective prosecution histories, Portsmouth's Complaints against Defendant Cisco Systems Inc ("Cisco") (including all exhibits attached thereto), the parties' Patent Rule 4-2 disclosures and the exhibits cited, and all the documents mentioned in this Declaration. Additionally, I am aware of information generally available to, and relied upon by, persons of ordinary skill in the art at the relevant times, including technical dictionaries and technical reference materials (including textbooks, manuals, and technical papers and articles). I also relied on my education, knowledge, and experience and considered the level of ordinary skill in the art as discussed below.

V. PERSON OF ORDINARY SKILL IN THE ART

13. Counsel for Portsmouth has informed me that a person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. In my opinion, the relevant field of art for the patents-in-suit is that of networking configuration, protocols, and switching.

14. I have been informed by counsel for Portsmouth that the person of ordinary skill is generally familiar with the type of problems encountered in the field and the prior art solutions to those problems and possesses an ordinary level of creativity.

15. In my opinion, a person of ordinary skill in the art of the patents-in-suit would

include someone who had a bachelors or graduate degree in computer science, computer engineering, electrical engineering, or an equivalent training regarding network switching, configuration, and protocols, and approximately two or three years of experience in the field relating to network configuration, protocols, and switching. Lack of work experience can be remedied by additional education, and vice versa.

VI. LEGAL STANDARDS

16. I understand that the words of a claim are generally given their ordinary and customary meaning, which I understand is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. I understand that the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.

I understand that claim construction focuses on the “intrinsic evidence,” which consists of the claims themselves, the specification, and the prosecution history. I understand that the claims can provide helpful context for how the claim term is used. I understand that the specification is highly relevant to the claim construction analysis and usually dispositive concerning the meaning of a claim term. I further understand, however, that it is inappropriate to import limitations from preferred embodiments recited in the specification into the claim language. I also understand that, unless the steps of a method actually recite an order, the steps are not ordinarily construed to require an order.

17. I understand that “extrinsic evidence” may also be considered when determining the meaning of a claim. I understand that there are different sources of extrinsic evidence, including dictionaries, inventor testimony, expert testimony, and learned treatises. I understand that intrinsic evidence is generally favored over extrinsic evidence, and that extrinsic evidence

may not be used to contradict the meaning of the claim term when read in light of the intrinsic evidence.

VII. '986 PATENT

A. "edge switch"

18. "Edge switch" is a common term in computer networking that has a plain and ordinary meaning in the art. It is my opinion that the plain and ordinary meaning of "edge switch" is a switch located at the edge of a network. My opinion in this respect is informed by a review of the intrinsic record and my understanding as a POSA.

19. My understanding is also supported by the extrinsic evidence. For example, Newton's Telecom Dictionary defines "edge switch" as "[a] Broadband Switching System which is located at the edge of the network" (emphasis added). Ex. 2 (PNC-CSC0027044).

20. I understand that Cisco contends that "edge switch" in claims 1-4, 6-8, 11, 14, 16, 18-20, and 23 mean "core switch that is directly connected to (an) access switch(es)." See Defendant's P.R. 4-2 Disclosures, Ex. A at 1. In my opinion, this construction is too narrow because it inserts additional requirements to the claims, such as that the edge switch be a "core switch that is directly connected to (an) access switch(es)."

21. When discussing the different classifications of switches, the '986 patent discloses in the Background of the Invention that "[c]ore switches that are directly connected to access switches are referred to herein as edge switches." '986 patent, 1:36-38. I do not see anything in the claim language that would cause the POSA to limit their understanding of edge switch to one that is limited to a core switch that is directly connected to an access switch where the claims do not impose that requirement.

22. Additionally, the '986 patent discloses that "[a]lthough preferred embodiments are described herein with reference to certain switches, and particularly to edge switches and access

switches used in a WAN, the principles of the present invention are generally applicable to bridges of other types and to other network configurations.” ’986 patent, 4:50-54. Therefore, a POSA would understand that the edge switch does not need to be directly connected to an access switch in other embodiments.

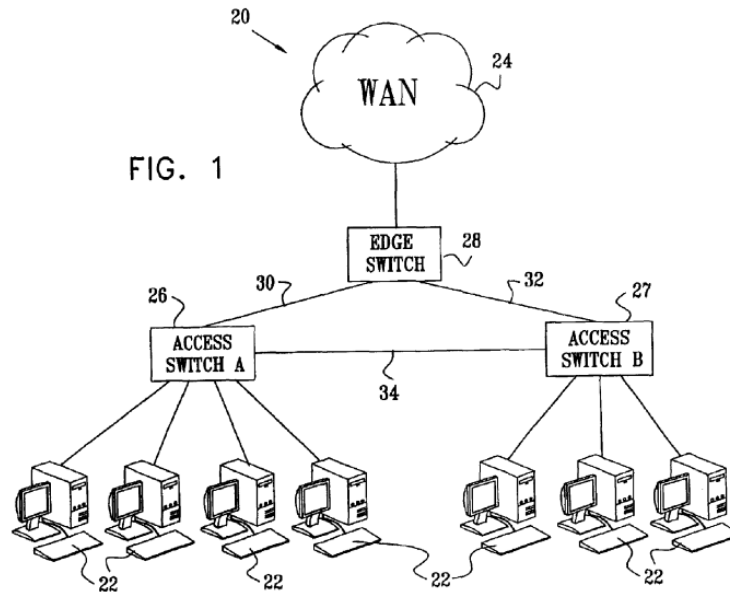
B. “access switch”

23. “Access switch” is a common term in computer networking that has a plain and ordinary meaning in the art. It is my opinion that the plain and ordinary meaning of “access switch” is a switch providing access to a network. My opinion in this respect is informed by a review of the intrinsic record and my understanding as a POSA.

24. I understand that Cisco contends that “access switch” in claims 1, 2, 5, 6, 10, 11, 13, 14, 17, 18, 22, and 23 mean “switch with ports that connect to LANs and/or to other network endpoints.” See Defendant’s P.R. 4-2 Disclosures, Ex. A at 1. In my opinion, this construction is too narrow because it inserts additional requirements to the claims, such as that the switch has ports “that connect to LANs or other network access point.” For example, a switch that is part of an access network and is not connected directly to a LAN or other network endpoint may still be considered an access switch by a POSA. A POSA would also understand that an access switch could make use of other network technologies such as radio or fiber.

25. When discussing the different classifications of switches, the ’986 patent discloses that in one embodiment in the specification “[a]n access switch has ports that connect to LANs and/or to other network endpoints, such as user computer systems.” ’986 patent, 1:30-32. As discussed above, I understand that it is inappropriate to import limitations from embodiments described in the specification into the claim language. I do not see anything in the claim language that would cause the POSA to limit their understanding of access switch to one that is limited to connecting to LANs or other network endpoint where the claims do not impose that requirement.

26. Figure 1 of the '986 patent discloses a network that uses a Wide Area Network (WAN) 24. Figure 1 is reproduced below:



'986 patent, FIG. 1.

27. When discussing Figure 1, the '986 patent discloses that the multiple users 22 “are connected via access switches 26 and 27 (marked access switches A and B) to a WAN 24.” '986 patent, 7:12-14. Additionally, while the '986 patent mentions that “[t]ypically, users are connected to access switches 26 and 27 by a LAN,” the '986 patent makes clear that this is only one embodiment. '986 patent, 7:43-46. For example, the '986 patent discloses that “the principles of the present invention may be implemented using network types and bridge devices of other sorts.” '986 patent, 7:36-38. Therefore, the '986 patent discloses that access switches are not limited to connecting to LANs.

VIII. '279 PATENT

C. “predetermined”

28. “Predetermined” is a term that does not have a specific meaning in the art, however, it is my opinion, based on years of experience in the networking field, that a person of ordinary

skill would apply the plain and ordinary meaning to this term, which is “to determine beforehand.”

29. My understanding is also supported by the extrinsic evidence. For example, Merriam Webster’s Collegiate Dictionary defines “predetermined” as “to determine beforehand.” Ex. 3 (PNC-CSC0027040).

30. Cisco’s proposed construction of “determined before the data flow request” is too narrow and unsupported by the ’279 Patent’s specification. The claims of the ’279 Patent provide that resource allocation is increased by a “predetermined quantum” upon a request for additional resources. ’279 Patent, claims 1, 15. Neither the claims nor the specification requires that the units of the quantum are determined before any data flow request, as proposed by Cisco. Rather, based on the claim language, it is my opinion that a POSA would understand that the quantity of the quantum is determined before the system increases the allocated resources of a node.

D. “quantum”

31. “Quantum” is a term that does not have a specific meaning in the art, however, it is my opinion, based on years of experience in the networking field, that a person of ordinary skill would apply the plain and ordinary meaning to this term, which is simply an “amount.” ’279 Patent, at 5:26-30.

32. My understanding, and the understanding of the POSA, is confirmed by the specification of the ’279 Patent. The specification defined “node quantum” as the “**amount** by which to increase or decrease node_used_In or Out at each resource allocation or deallocation.” ’279 Patent, 5:26-30.

33. Cisco’s proposed construction of “an amount of a requested resource by which to increase or decrease” is unnecessarily narrow and is not grounded in any intrinsic or extrinsic evidence. While the claims of the ’279 Patent describe increasing or decreasing resources by a predetermined quantum, this does not mean that the actions of “increase[ing] or decreas[ing]”

should be read into the term “quantum” itself. Moreover, the claim language and the specification do not support limiting the term “quantum” to only the “amount of the **requested resource**.” For example, the ’279 Patent describes a “resource retainment step” in which a node instead of “returning a quantum to the dispatcher...keeps the [quantum] for subsequent use.” ’279 Patent, 7:20-24. In this instance, the term “quantum” is untethered to any specific **request**. Thus, to require that the term “quantum” only corresponds to a request is too narrow and unsupported by the ’279 Patent.

IX. ’394 PATENT

E. “a high-capacity port”

34. “A high-capacity port” is a term that does not have a specific meaning in the art. However, it is my opinion that “a high-capacity port” means “a port formed by aggregating two or more ports.” My opinion in this respect is informed by a review of the intrinsic evidence and my understanding as a POSA.

35. The claim language confirms that “a high-capacity port” is a port formed by aggregating two or more ports. For example, claim 1 discloses “wherein operating the network element comprises aggregating two or more of the ports to form a high-capacity port.” ’394 patent, claim 1. This disclosure is repeated in claim 11, which discloses “wherein two or more of the ports are aggregated to form a high-capacity port.” ’394 patent, claim 11. This disclosure is also found throughout the specification. *See* ’394 patent, 2:24-26, 6:61-64.

36. I understand that Cisco contends that “a high-capacity port” in claims 1, 5, 11, and 15 means “a link aggregation group (LAG).” *See* Defendant’s P.R. 4-2 Disclosures, Ex. A at 1. In my opinion, Cisco’s proposed construction of “a high-capacity port” is too narrow, and the POSA would not understand the meaning of “a high-capacity port” to be so narrow. The claim language confirms as much. For example, independent claim 1 of the ’394 patent discloses “aggregating two

or more of the ports to form a high-capacity port” without requiring that the aggregated ports form a LAG. ’394 patent, claim 1. Similarly, independent claim 11 of the ’394 patent discloses that “two or more of the ports are aggregated to form a high-capacity port” but does not require that the aggregated ports form a LAG. ’394 patent, claim 11.

37. When discussing Figure 1, the ’394 patent discloses that “ports can be aggregated to form a Link Aggregation Group (LAG), as specified in the IEEE 802.1AX standard,” but that is one embodiment from the specification. ’394 patent, 6:64-66. As discussed above, I understand that it is inappropriate to import limitations from embodiments described in the specification into the claim language. I do not see anything in the claim language that would cause the POSA to limit their understanding of “a high-capacity port” to one that is limited to a LAG where the claims do not impose that requirement.

F. “a new processing unit added to the network element”

38. “A new processing unit added to the network element” is a term that does not have a specific meaning in the art. However, it is my opinion that a POSA would readily understand this term based on its plain language without any construction. My opinion in this respect is informed by a review of the intrinsic evidence and my understanding as a POSA.

39. I understand that Cisco contends that “a new processing unit added to the network element” in claims 8 and 18 means “a processing unit newly-inserted into the network element.” See Defendant’s P.R. 4-2 Disclosures, Ex. A at 2. In my opinion, Cisco’s proposed construction is unnecessary and lacks clarity. For example, Cisco’s proposed construction imposes the additional requirement that a processing unit is “newly-inserted.” However, the inclusion of “newly-inserted” introduces a temporal aspect to the claim term that is not defined. Therefore, it is my opinion that Cisco’s proposed construction would only add uncertainty and ambiguity, which goes against the purpose of claim construction.

G. “multicast packet stream”

40. “Multicast packet stream” is a term that has plain and ordinary meaning in the art. In general, it is my opinion that the plain and ordinary meaning of “multicast packet stream” is a packet stream that can be sent to multiple devices. My opinion in this respect is informed by a review of the intrinsic evidence and my understanding as a POSA.

41. The ’394 patent confirms that “multicast packet stream” is a packet stream that can be sent to multiple devices. The ’394 patent in general discloses that multicast traffic is used to deliver content to multiple recipients over a network. *See* ’394 patent, 1:12-14. For example, when discussing Figure 1, the ’394 patent discloses that “[a]t least some of the traffic communicated over network 20 comprises multicast traffic, i.e., streams of multicast packets that are addressed to multiple recipients.” ’394 patent, 5:61-64.

42. My understanding is also supported by the extrinsic evidence. For example, Newton’s Telecom Dictionary discloses that “[m]ulticast packets are addressed to multiple devices within a group of devices.” Ex. 4 (PNC-CSC002750).

43. I understand that Cisco contends that “multicast packet stream” in claims 1 and 3-18 means “the actual content coming from a multicast source, such as a channel or movie.” *See* Defendant’s P.R. 4-2 Disclosures, Ex. A at 2. In my opinion, Cisco’s proposed construction of “multicast packet stream” is too narrow, and the POSA would not understand the meaning of “multicast packet stream” to be so narrow.

44. In addition, the ’394 patent discloses that “[s]ource 24 may transmit multicast packet streams that carry, for example, live IP Television (IPTV) channels, video movies, audio content, stock quotes and/or any other suitable type of multicast content.” ’394 patent, 5:66-6:3. The ’394 patent therefore discloses that the multicast packet stream can carry multicast content but does not state that a multicast packet stream is the multicast content itself.

45. Furthermore, Cisco’s proposed definition of “multicast packet stream” recites “a channel or movie.” *See* Defendant’s P.R. 4-2 Disclosures, Ex. A at 1. To the extent that Cisco’s proposed definition limits the type of multicast content to “a channel or movie,” I believe that such a limitation is inappropriate. Based on my review of the intrinsic evidence and my understanding as a POSA, “multicast packet stream” is not limited to a specific type of content and is not the same as a channel or movie. No such requirement exists in the claims, and the ’394 patent discloses that multicast packet streams can carry “any other suitable type of multicast content.” ’394 patent, 5:66-6:3.

X. ’637 PATENT

A. “a network”/“a communication network”

46. “A network”/ “a communication network” is a term that has a plain and ordinary meaning in the art. It is my opinion that the plain and ordinary meaning of “a network”/ “a communication network” is “two or more stations capable of intercommunication.” My opinion in this respect is informed by a review of the intrinsic record and my understanding as a POSA.

47. My understanding, along with the understanding of the POSA, is confirmed by the specification and claim language of the ’637 Patent. The “Field of the Invention” section describes that the “invention relates generally to communication networks.” ’637 Patent, 1:16-17.

48. Cisco’s proposed construction of “a VPLS network” is too narrow and unsupported by the language of the Patent. While the specification notes that it relates “particularly to methods and systems for providing virtual private LAN services (VPLS),” it does not note that the invention is limited to this system. In fact, the specification explicitly provides that the invention is applicable “generally to communication networks. ’637 Patent, 1:16-17. Thus, it is my opinion that a POSA would not construe this term in the narrow fashion proposed by Cisco.

B. “deactivating a physical layer of the first set of links connected thereto” / “deactivate the physical layer resources of each node to links in the first set of links connected to that node”

49. “Deactivating a physical layer of the first set of links connected thereto” / “deactivate the physical layer resources of each node to links in the first set of links connected to that node” is a phrase that a POSA would readily understand based on its plain language without any construction.

50. For example, claims 1 and 16 clearly state the following respectively:

[1f] deactivating a physical layer of the first set of links connected [to the network nodes traversed by the first set of links], thereby causing a loss of connectivity in the first set of links;

[16 g] responsively to receiving the second message indicating the remote failure, to deactivate the physical layer resources of each node to links in the first set of links connected to that node upon receiving the second message,...

51. In my opinion, a POSA would easily understand the language of these claims without the need for any construction. Cisco’s proposed construction of “deactivating the physical layer [] of all links connected [to] all other nodes other than the detecting node” / “deactivate the physical layer[] of all links connected [to] all other nodes other than the detecting node,” reads in additional language into the claims and unnecessarily introduces “the detecting node” into both claims 1 and 16. However a POSA would not need this additional language, and would rely on the express language of the claims themselves. Cisco’s proposed construction would only cause confusion and uncertainty regarding additional limitations that are not recited in the claims.

* * *

52. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these

statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: September 11, 2024

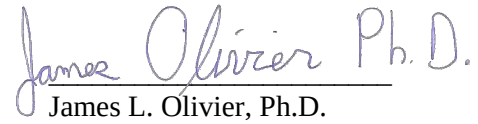
James L. Olivier, Ph.D.

EXHIBIT 1

Curriculum Vitae of Dr. James L. Olivier

PROFESSIONAL SUMMARY

The foundation for my career began over thirty years ago with a Doctorate in Electrical Engineering.

I am currently an Adjunct Professor in Network Engineering Program at SMU's Graduate School of Electrical and Computer Engineering. I am also the owner of Olivier Consulting, where I provide consulting services for advanced network / system design along with IP consulting. In 2022 I was appointed Research Professor at SMU's Hunt Institute for Engineering and Humanity specializing in Transformational Technologies. Recently I have recently received a Fulbright Specialist Award in the area of Computer Science.

I have three degrees from The Ohio State University: a Bachelor of Science degree in Electrical Engineering; a Master of Science degree in in Electrical Engineering and a Doctor of Philosophy degree in Electrical Engineering. I have published papers in the areas in fault tolerant computing and error detection in multiprocessor computer systems.

Over the last 20 years I have devoted my attention to industry consulting in the areas of intellectual property and networking technologies.

EDUCATION PROFILE

Ph.D. Electrical Engineering, The Ohio State University, Columbus, Ohio, 1988 Dissertation: "*Concurrent Error Detection in Arithmetic Processors using GAN Codes*", Received separate minors in fields of Computer Science, Fault Tolerant Computing, and Discrete Mathematics.

Recipient of the prestigious Kodak Fellowship, awarded nationally to 12 doctoral students in the fields of science and engineering.

MS. Electrical Engineering, The Ohio State University, Columbus, Ohio, 1985 Thesis: "*A Navigation System for a Vehicle with a Laser Rangefinder*"; Major areas of study were robotics and artificial intelligence.

BS. Electrical Engineering, The Ohio State University, Columbus, Ohio, 1983 Cum Laude.

PUBLICATIONS

Curriculum Vitae of Dr. James L. Olivier

Olivier, J., Ozguner, F. “*A navigation algorithm for an intelligent vehicle with a laser rangefinder*”, Proceedings of the 1986 IEEE International Conference on Robotics and Automation, Vol. 3, April 1986.

Olivier, J. L. and Ozguner, F. “*Design of Concurrent Error Detecting Systolic Arrays Using GAN Codes*” IEEE Transactions on Computer Aided Design, vol. 9, no. 10 October 1989.

Olivier, J.L. “*Low Cost Residue Prediction for Improved Addition Efficiency*”, G. M. Research Publication, December 1989.

Olivier, J.L. and Tkacik, T.E., “*RELY, a Markov Modeling Package for System Reliability Prediction*” G.M. Research Publication, January 1990.

EXPERIENCE PROFILE

2022 – 2023 Research Professor at SMU’s Hunt Institute for Engineering and Humanity Southern Methodist University

- Program Lead of Hunt Institute’s Transformational Technology Hub responsible for strategy formulation and project implementation.

2019 – 2022 Program Lead and Adjunct Executive in Residence SMU’s Hunt Institute for Engineering and Humanity Southern Methodist University

- Program Lead of Hunt Institute’s Transformational Technology Hub responsible for strategy formulation and project implementation.

2018- 2024 Faculty Fellow at the SMU Hunt Institute for Engineering and Humanity at the SMU Lyle School of Engineering.

2017 – present Adjunct Professor for Network Engineering Program at Southern Methodist University’s Lyle School of Electrical Engineering

- Teaching Advanced Switching and Routing with MPLS at SMU’s nationally rated Network Engineering program. Research interests include Fault Tolerant Algorithms, Video Transport, SD-WANs, Blockchain, IoT, and In-Networking Processing.

Curriculum Vitae of Dr. James L. Olivier

2003 - present **Olivier Consulting – Dallas Texas**
IP Consultant M^cAlexander Sound

- Technology Research and Intellectual Property Management, including, IP Protection, IP Validity, IP Portfolio Valuation, IP Strategy and IP Technical Consultation. Clients include Arista Networks, HTC Corporation, T-Mobile, Samsung, Vizio, Google Corporation, Level 3 Communications, AT&T, Amazon, Ericsson, and S.T Microelectronics.

Recognized Expert before United States Federal District Courts in the Areas of

- Congestion Control in Packet Switching
QPSX v Nortel 2:05-CV-268, 2007
- Cellular High Speed Packet Access Networks
Wi-LAN Inc., v. Alcatel-Lucent et. al CV-6:10, 2013
- Signaling Protocols in Cellular Networks
Core Wireless Licensing S.A.R.L v. Apple 6:12-CV-100, 2015

Recognized Expert before the International Trade Commission in the Areas of

- Security and Firewalls in Routers and Switches;
Investigation 337-TA-628, 2007
- Cellphone Hardware and Software for Imaging;
Investigation 337-TA-726, 2010
- Operating Systems for Mobile Devices;
Investigation 337-TA-744, 2011
- Mobile Devices Hardware and Software Architectures;
Investigation 337-TA-850, 2012
- Ethernet Switch Packet Processor Hardware and Software;
Investigation 337-TA-945, 2015

Lead Technology Research and Intellectual Property investigations in the following areas

Curriculum Vitae of Dr. James L. Olivier

- Technology related to mobile camera system's software systems architecture. *HTC Corporation*
- Technology related to gateway protocols between Cellular /PSTN Networks and the Internet. Investigated the design of a Packet Gateway and associated soft switch. *Level 3 Communications*
- Technology related to content delivery server systems based on demographic information received from client systems. *AT&T*
- Technology investigation related to Metro Ethernet, MPLS, 802.17, and 802.3 access products. *Transpacific IP*
- Technology investigation related to the research, specification, design, and architecture of the Telstrat's Next Generation Switch, which provided video, including analog, digital, HDTV, along with IP based voice, and also provided internet service. *Telstrat*
- Technology investigation into the specification, design, and architecture of the Crane Wireless Sensor Network. Investigated scalability, address assignment, access, and security for a large IoT Wireless Sensor Network. *Crane Aerospace*

2002 - 2003
Manager

Navini Networks - Richardson, Texas Senior

- Performed research and development in Navini's Wireless CDMA broadband System. Responsible for definition and implementation of layer 2 and layer 3 network protocols for Navini's Broadband Wireless Products. Developed servers for network security, network services, service provisioning and subscriber management for a CDMA network. Responsible for the design and development of a sign-on web site which managed and authorized users for different services in a broadband CDMA network. This system consisted of multiple Apache Web Servers providing the web pages to the users and a centralized key storage facility to manage the various keys needed to authorize the different services.

1999 – 2002

**Marconi Communications - Irving, Texas Manager
of Systems Engineering**

Curriculum Vitae of Dr. James L. Olivier

- Responsible for design and development of new products and product evolution for Marconi's North American Access Division. I developed systems for the access video market, such as Digital Subscriber Line (DSL) networks, Hybrid fiber-coaxial (HFC) networks and DOCSIS systems. These systems were triple play systems which provide voice, video and data. While at Marconi, I was also responsible for the web servers design for the Network Management System for the North American Access product division.

**1996– 1999 Samsung Telecommunications America -
Richardson, Texas Principal Engineer**

- Responsible for Service Control subsystem of Samsung's next generation wireless broadband UMTS switching system. Designed and developed a Java based platform for defining services for Samsung's next generation high-speed wireless switch. Areas of responsibility include traditional telephony services, wireless services, broadband services, and Internet services, such as an email portal. While at Samsung, I was also their corporate representative to the International Telecommunication Union, ("ITU"), which is the agency of the United Nations responsible for information and communication technologies. I was also Samsung's corporate representative to the 3GPP standards body. It was there that I participated in the development of standards for advanced wireless networks, including multimedia transport.

**1995 – 1996 DSC Communications Switch Products Division –
Plano, Texas**

**Senior Manager: Intelligent Network Evolution and
Business Planning**

- Responsible for architecture and development of DSC's Intelligent Network product line. These products demonstrated at SuperComm 1996; a U.S. telecommunications trade show showed the integration of streaming media servers together with the interactivity of the Internet. I also actively interacted with key customers on their system designs and participated in relevant standards work.

Senior Manager: ATM Systems Engineering Group

- Lead the systems engineering group in defining a new high-speed ATM switches for enterprise and telecommunication networks. These efforts

Curriculum Vitae of Dr. James L. Olivier

include, multiprocessor architectures, communications subsystems, and software architectures. In addition, I was responsible for responding to RFIs and RFPs for a number of clients server based multimedia systems and served as DSC corporate representative to the ATM Forum.

1990 – 1995 AT&T Bell Laboratories - Columbus, Ohio
Member of Technical Staff

- Designed and implemented a variety of fault tolerant multiprocessor systems for use in the computer/multimedia systems. These systems included Asynchronous Transfer Mode 'ATM' based Internet and video distribution system. I also participated in the design and development of client server based systems for database access. Developed fault detection and fault recovery algorithms for AT&T products.

1989 – 1990 General Motors Research Laboratories Warren
Michigan

Senior Research Engineer: Computer Science
Department

- Conducted research into basic computer science problems associated with the future development of vehicular systems. These areas include the design of fault tolerant control systems, new cost affective microprocessor architectures and software for reliability and performance modeling. Lead the development of an automotive testbed for the evaluation of prototype systems.

1988 – 1989 Harris Communications – Melbourne, Florida
Principal Engineer

- Conducted research and development into innovative computer systems for use in space systems. Studied coherency protocols for microprocessor memory systems. Developed fault tolerant multi-processor computer systems for use in Strategic Defense Initiative.

Curriculum Vitae of Dr. James L. Olivier

ISSUED PATENTS AND PATENT APPLICATIONS

- US 8334775 RFID-based asset security and tracking system, apparatus and method Network based asset management system.
- US 20090174772 Security and surveillance system Network based surveillance and security system.
- US 20130201337 Rfid-based asset security and tracking system, apparatus and method Network based asset management system.

ADDITIONAL ACTIVITIES

Member of the Social Enterprise Advisory Council at the Hunt Institute for Engineering & Humanity, a member of the United Nations Sustainable Development Solutions Network.

Fellow at SMU's Hunt Institute for Engineering and Humanity.

Chairman of IEEE Dallas Blockchain Group

Cases Worked Past 5 Years

Year Engaged

2024

Expert Engagement: IPR
Type of Matter: Provide Opinion
Case Name: IPR2024-00590 and IPR2024-00593
Engaged on behalf of: Identitii Limited
Technology at Issue: Blockchain based Systems
Services Provided: Consulting
Law Firm: Bunsow De Mory
Year Engaged: 2024

Expert Engagement: Litigation
Type of Matter: Provide Opinion
Case Name: Foras Technologies Limited vs Bayerische Motoren Werke AG and Robert Bosch GMBH Case No. 6:23-cv-00386
Engaged on behalf of: Bayerische Motoren Werke AG ("BMW") and Robert Bosch GMBH ("Bosch")
Technology at Issue: Fault Tolerant Computer Systems
Services Provided: Consulting
Law Firm: Finnegan, Henderson, Farabow, Garrett & Dunner
Year Engaged: 2024

2022

Expert Engagement: Licensing
Type of Matter: Consulting
Case Name:
Engaged on behalf of: Ericsson
Technology at Issue: Power Control in Cellular Networks

Curriculum Vitae of Dr. James L. Olivier

Services Provided: Consulting
 Law Firm: BakerBotts
 Year Engaged: 2022

Expert Engagement: Litigation
 Type of Matter: Provide Opinion
 Case Name: Telecom Network Solutions, LLC v. T-Mobile USA, Case No. 2:21-cv-00418-JRG
 Engaged on behalf of: T-Mobile and Sprint Spectrum
 Technology at Issue: QoS in Cellular Networks
 Services Provided: Consulting
 Law Firm: K&L Gates LLP
 Year Engaged: 2022

Expert Engagement: IPR
 Type of Matter: Inter partes review
 Case Name: PTAB IPR on U.S. Patent No. 7,623,033 and 8,766,797
 Engaged on behalf of: Qualcomm
 Technology at Issue: Sensor networks
 Services Provided: Wrote Declarations
 Law Firm: Norton Rose
 Year Engaged: 2022

Expert Engagement: Litigation
 Type of Matter: Inter partes review
 Case Name: PTAB IPR on U.S. Patent No. 10,325,159
 Engaged on behalf of: Vivint
 Technology at Issue: Electronic Monitoring
 Services Provided: Wrote Declarations
 Law Firm: Foley and Lardner
 Year Engaged: 2022

Expert Engagement: Patent Review

Curriculum Vitae of Dr. James L. Olivier

Type of Matter: Inter partes review
Case Name: PTAB IPR on
U.S. Patents No. 9,965,233, 9,389,822
Engaged on behalf of: Roku, Inc.
Technology at Issue: Protected or Encrypted Content delivery over Internet
Services Provided: Wrote Declarations
Law Firm: Perkins Coie
Year Engaged: 2022

Expert Engagement: Litigation
Type of Matter: Expert Consulting
Case Name: Corrigent Corporation v. Cisco Systems, Dell and Arista
Networks 6:22-cv-00396-ADA-DTG, 1:22-cv-00496-RGA,
22-497-RGA
Engaged on behalf of: Corrigent Corporation.
Technology at Issue: 3GPP Network Elements
Services Provided: Wrote Declarations
Law Firm: Steptoe & Johnson
Year Engaged: 2022

2021

Expert Engagement: Litigation
Type of Matter: Inter partes review
Case Name: PTAB IPRs on
U.S. Patent No. 7,979,070, 8,879,503
Engaged on behalf of: Thales AIS DIS
Technology at Issue: Signaling Messages in 3GPP networks
Services Provided: Wrote Declaration
Law Firm: AddyHart LLP
Year Engaged: 2021

Expert Engagement: Litigation

Curriculum Vitae of Dr. James L. Olivier

Type of Matter:	Inter partes review
Case Name:	PTAB IPR on U.S. Patent No. 10,346,114
Engaged on behalf of:	Roku, Inc.
Technology at Issue:	Content delivery over wireless networks
Services Provided:	Wrote Declarations
Law Firm:	Perkins Coie
Year Engaged:	2021
Expert Engagement:	Litigation
Type of Matter:	Inter partes review
Case Name:	PTAB IPR on U.S. Patent No. 7,580,388
Engaged on behalf of:	Thales AIS DIS
Technology at Issue:	Signaling Messages in 3GPP networks
Services Provided:	Wrote Declarations
Law Firm:	AddyHart LLP
Year Engaged:	2021
Expert Engagement:	PTAB
Type of Matter:	Inter partes review
Case Name:	PTAB IPR on U.S. Patent No. 9,54,426, 10,924,500, and 9,372,098
Engaged on behalf of:	Ericsson Inc.
Technology at Issue:	Signaling Messages in 3GPP networks
Services Provided:	Wrote Declaration, Deposition Testimony
Law Firm:	Baker Botts
Year Engaged:	2021
Expert Engagement:	PTAB
Type of Matter:	Inter partes review
Case Name:	PTAB IPRs or PGR on U.S. Patent No. 10,601,948, 11,190,622, 11,206,317, 11,272,034, 11,349,953, 11,616,826, 10,965,770
Engaged on behalf of:	Metacluster
Technology at Issue:	Computer networks

Curriculum Vitae of Dr. James L. Olivier

Services Provided: Wrote Declarations, attended depositions
Law Firm: Norton Rose
Year Engaged: 2021

2020

Expert Engagement: Litigation
Type of Matter: Patent
Case Name: Intellectual Ventures I LLC and Intellectual Ventures II LLC
v. VMware, Inc., Western District of Texas Case No. 6:19-
cv-449
Engaged on behalf of: VMware
Technology at Issue: Layer 3 Networking
Services Provided: Wrote Declaration
Law Firm: Winston & Strawn
Year Engaged: 2020

Expert Engagement: Litigation
Type of Matter: Patent
Case Name: Exafer Ltd. v. Microsoft Corporation, Case No: 20-CV-
00131 ADA
Engaged on behalf of: Microsoft
Technology at Issue: Layer 2 forwarding in Data Center
Services Provided: Wrote Declarations, attended depositions
Law Firm: Winston & Strawn
Year Engaged: 2020

Expert Engagement: Litigation
Type of Matter: Copyright
Case Name: Apple Inc. v Corellium, LLC
CASE NO. 9:19-cv-81160-rs Southern District of Florida
Engaged on behalf of: Corellium LLC
Technology at Issue: Software and image copyrights
Services Provided: Wrote Declaration, attended deposition

Curriculum Vitae of Dr. James L. Olivier

Law Firm: Hecht Partners LLP
Year Engaged: 2020

Expert Engagement: Litigation
Type of Matter: Inter partes review
Case Name: PTAB IPR on
U.S. Patent No. 7,894,443
Engaged on behalf of: Thales AIS DIS
Technology at Issue: Radio Link Control
Services Provided: Wrote Declaration
Law Firm: AddyHart LLP
Year Engaged: 2020

Expert Engagement: Litigation
Type of Matter: Inter partes review
Case Name: Sisvel International S.A. and 3G Licensing S.A. v.
Cradlepoint, Inc., Case No. 1:19- CV-1142-MN (District of
Delaware)
Engaged on behalf of: Cradlepoint and Sierra Wireless
Technology at Issue: Radio Link Control
Services Provided: Wrote Declaration
Law Firm: Perkins Coie
Year Engaged: 2020

Expert Engagement: PTAB Case No. IPR2021-00260
Type of Matter: Inter partes review
Case Name: PTAB IPR on U.S. Patent No. 9, 723,813 to Davis
Engaged on behalf of: Tomofun
Technology at Issue: Animal Interaction System
Services Provided: Wrote Declaration
Law Firm: Greenberg Traurig, LLP
Year Engaged: 2020

2019

Expert Engagement: Litigation

Curriculum Vitae of Dr. James L. Olivier

Type of Matter: Patent Investigation
Case Name: SIMO Holdings v Hong Kong uCloudlink Networks Technology Limited and uCloudlink (America) LTD.
CASE NO. 1:18-cv-05427 Southern District NY
Engaged on behalf of: uCloudlink Ltd
Technology at Issue: Wireless data links
Services Provided: Wrote Declarations
Law Firm: Fish & Richardson

Year Engaged: 2019

Expert Engagement: Litigation
Type of Matter: Patent Investigation
Case Name: Harris Corporation v. Huawei Device USA, Inc., et al.
Case No. 2:18-cv-439 ED-TX
Engaged on behalf of: Huawei Device USA
Technology at Issue: Network Security
Services Provided: Wrote Declaration, Gave Deposition testimony
Law Firm: Ropes & Gray LLP
Year Engaged: 2019

Expert Engagement: Consulting
Type of Matter: Consulting
Case Name:
Engaged on behalf of: Photobucket
Technology at Issue: Photo distribution in wireless networks
Services Provided: Analysis of content distribution in wireless networks
Law Firm: Norton Rose
Year Engaged: 2019

Expert Engagement: Consulting
Type of Matter: Opinion regarding U.S. Pat. Application 2014/0192800,
Case Name:
Engaged on behalf of: SonicTube Research
Technology at Issue: Packetized wireless networks
Services Provided: Declaration

Curriculum Vitae of Dr. James L. Olivier

Law Firm: SonicTube Research
Year Engaged: 2019

2018

Expert Engagement: Inter Partes Review
Type of Matter: Patent Review
Case Number: IPR2017-00829, -00830, -01131, -01133
Engaged on behalf of: Vidstream LLC
Technology at Issue: Networked Video
Services Provided: Wrote Declaration, attended deposition
Law Firm: Norton Rose
Year Engaged: 2018

Expert Engagement: Litigation
Type of Matter: Patent Investigation
Case Name: Arista Networks, Inc. v. Cisco Systems, Inc. No. 5:16-CV-00923-BLF (N.D. Cal.)
Engaged on behalf of: Arista Networks
Technology at Issue: Network protocols
Services Provided: Signed Declaration
Law Firm: Tensegrity Law Group
Year Engaged: 2018

Expert Engagement: Litigation
Type of Matter: Patent Investigation
Case Name: Intellectual Ventures I LLC v. HCC Insurance Holdings Inc. CA No. 6:15-cv-00660 ED-TX
Engaged on behalf of: HCC Insurance Holdings
Technology at Issue: Back end web site technology
Services Provided: Wrote expert report, attended deposition
Law Firm: Norton Rose Fulbright
Disposition: Settled
Year Engaged: 2018

Curriculum Vitae of Dr. James L. Olivier

2017

Expert Engagement:	Inter Partes Review
Type of Matter:	Patent Review
Case Number:	IPR2018-00287
Engaged on behalf of:	Comtech Mobile Datacom Corporation
Technology at Issue:	Vehicle Mapping Technology
Services Provided:	Wrote Declaration
Law Firm:	Perkins Coie LLP
Year Engaged:	2017

Expert Engagement:	ITC Matter
Type of Matter:	Patent Investigation
Case Name:	ITC Inv.No.337-TA-1057 Certain Robotic Vacuum Cleaning Devices and Components Thereof Such as Spare Parts,
Engaged on behalf of:	Shenzhen Silver Star Intelligent Technology
Technology at Issue:	Autonomous Vehicle Technology
Services Provided:	Wrote expert report, gave deposition and hearing testimony
Law Firm:	Pillsbury Winthrop Shaw Pittman
Year Engaged:	2017

2016

Expert Engagement:	Litigation and Inter Partes Review
Type of Matter:	Patent Investigation
Case Name:	International Business Machines Corp. v. The Priceline Group Inc., et al C.A. No. 15-137-LPS, and IPR2016-00608 and IPR2016-00609.
Engaged on behalf of:	The Priceline Group Inc.
Technology at Issue:	Web site Technology
Services Provided:	Wrote Expert Reports on Invalidity and Non-infringement. Attended Deposition.
Law Firm:	Norton Rose Fulbright

Curriculum Vitae of Dr. James L. Olivier

Year Engaged: 2016

Expert Engagement: Litigation
Type of Matter: Patent Investigation
Case Name: Evolv, LLC v. Joyetech USA, Inc.
Case No. 8:16-cv-00459-CJC-JCG CD-CA
Engaged on behalf of: Joytech USA
Technology at Issue: Computer controlled voltage source
Services Provided: Wrote Declaration
Law Firm: Pillsbury Winthrop Shaw Pittman LLP
Disposition: Settled
Year Engaged: 2016

Expert Engagement: Inter Partes Review
Type of Matter: Patent Review
Case Number: IPR2016-01431
Engaged on behalf of: HCC Insurance Holdings
Technology at Issue: Web site design; Network Agent Technology
Services Provided: Wrote Declarations for IPR
Law Firm: Norton Rose Fulbright
Disposition: Settled
Year Engaged: 2016

EXHIBIT 2

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Harry Newton

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I promise you I won't give your name to anybody. Nobody. Promise.

Harry Newton

edge interworking interfaces (e.g., Ethernet, token ring, etc.) and ATM packets based on data-link and network layer information but which does not participate in the naming of any network layer routing protocol. An Edge Device obtains forwarding descriptions using the route distribution protocol.

2. A physical device which sits on the edges of the Internet under the control of an ISP (Internet Service Provider) and allows the ISP to provide its customers with ancillary services, such as voice mail, fax forwarding, video downloading, etc. For an example of an edge device maker, see www.mediagate.com.

edge effect A video term. The overemphasizing of well defined objects from the addition of black or white outlines to the vertical edges of the objects. Examples of this phenomena are, trailing white, leading black around the outline of a figure in movement within a scene.

edge router A new device for Internet Service Providers which will forward packets at high speed, do tunneling, authentication, filtering, packet accounting, traffic shaping and address translation. With such a device, service providers will be able to save money and create different services - combining features in different ways. Edge routers sit at the edge of the Internet - just at the connection by the local phone company to the Internet.

edge site A remote network site. A site at the edge of the network.

edge switch A Broadband Switching System (BSS) which is located at the edge of the network. Conceptually equivalent to a Central Office in the voice world, an edge switch is the first point of user access (and the final point of exit) for a broadband network (i.e., Frame Relay, SMDS and ATM). Edge switches are interconnected by "Core Switches," which are the functional equivalent of Tandem switches in the circuit-switched voice world.

EDH Electronic Document Handling.

EDI Electronic Data Interchange. A series of standards which provide computer-to-computer exchange of business documents between different companies' computers over phone lines and the Internet. These standards allow for the transmission of purchase orders, shipping documents, invoices, invoice payments, etc. between an enterprise and its "trading partners." A trading partner in EDI parlance is a supplier, customer, subsidiary, or any other organization with which an enterprise conducts business. EDI is used for placing orders, for billing and paying for goods and services via private electronic networks or via the Internet. According to studies, it costs about \$50 to process a paper-based purchase order and about \$2.50 to process the same order with EDI. Internet-based EDI can lower the cost to less than \$1.25. EDI software translates fixed field or "flat" files that are extracted from applications into a standard format and hands off the translated data to communications software for transmission. EDI standards are supported (i.e. have been adopted) by virtually every computer company in the country and increasingly, by every packet switched data communications company. The formats used to convert the documents into EDI data are defined by international standards bodies and by specific industry bodies. See also Electronic Data Interchange and IES. www.edi-info-center.com/html

EDI Map A Verizon definition of an EDI message.

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EDI Map A Verizon definition of an EDI message.

physical delivery address component An X.400 address component that describes how to physically deliver a message. For example, the name and mail stop to hand deliver a message after it is printed. The concept is that the X.400 address would cause a message to be printed on a printer and an individual would complete the last delivery.

physical delivery office name Standard attribute of a Postal O/R (Originator/Recipient) Address, in the context of physical delivery, specifying the name of the city, town, etc., where the physical delivery is to be accomplished. An X.400 term.

physical delivery office number Standard attribute in a Postal O/R (Originator/Recipient) Address that distinguishes between more than one physical delivery office within a city, etc. An X.400 term.

physical delivery organization name A free form name of the addressed entity in the postal address, taking into account the specified limitations in length. An X.400 term.

physical delivery personal name In a postal address a free form name of the addressed individual containing the family name and optionally the given name(s), the initial(s), title(s) and generation qualifier, taking into account the specified limitations in length. An X.400 term.

physical delivery service The service provided by a Physical Delivery System. An X.400 term.

physical delivery service name Standard attribute of a Postal O/R (Originator/Recipient) Address in the form of the name of the service in the country electronically receiving the message on behalf of the physical delivery service. An X.400 term.

physical formatting The second step in structuring a hard drive so that you may write to it. Physical formatting follows partitioning.

Physical Interface Card PIC. An intelligent line card that provides a high-speed and secure processing capability beyond the typical connectivity of first generation router cards. This robust line card basically connects a communications channel or circuit to multi-port switching equipment. This term is used by Riverstone Networks and Juniper Networks and will most likely pick up popularity when competitors like Cisco also adopt PIC as a more robust term than Network Interface Card (NIC) or line card.

physical layer 1. The OSI model defines Layer 1 as the Physical Layer and as includ

ing all electrical and mechanical aspects relating to the connection of a device to a transmission medium, such as the connection of a workstation to a LAN. Included at this layer are issues specific to the manner in which a device gains physical access to the medium and how it goes about putting bits on the wire or extracting bits from the wire. As the lowest level of network processing, below the Link Layer, the Physical Layer deals with issues such as volts, amps, and pin configurations and handshaking procedures. Communications hardware (e.g., NICs and MAUs) and software drivers are specified at the Physical Layer.

2. The ATM Physical Layer (PHY) loosely corresponds with the OSI version. In the ATM world, Physical Layer functionality is discussed in terms of the Physical Medium sublayer (PM) and the Transmission Convergence (TC) sublayer. The implementation of the ATM Physical Layer is addressed in the ATM Forum's UNI (User Network Interface) specifications.

physical layer connection An association established by the PHY (OSI Physical Layer) between two or more ATM entities. A PHY connection consists of the concatenation of PHY links in order to provide an end-to-end transfer capability to PHY SAPs.

physical layer medium dependent The Physical Layer sublayer that defines the media dependent portion of the Physical Layer in FDDI. Items defined by PMD include transmit and receive power levels, connector requirements, and fiber optic cable requirements.

physical layer protocol The Physical Layer sublayer that defines the media independent portion of the Physical Layer in FDDI. Items defined by the PMD include transmit and receive power levels, connector requirements, and fiber optic cable requirements.

Physical link A real link which attaches two switching systems.

Physical Markup Language PML. An Auto-ID Center-designed method of describing products in a way computers can understand. PML is based on the widely accepted extensible Markup Language used to share data over the Internet in a format all computers can use.

physical media Any means in the world for transferring signals between OSI systems. Considered

Digital Assistant (PDA).

PIAFS PIAFS is a V.3110-44 found in Japan.

PIC 1. See Primary Interconnect

2. Plastic Insulated Conductors are covered with an ext this category. See also lcky

3. Also an imaging term image compression algorithm

4. Personal Intelligent people called a Personal D

5. Point In Call. See B

6. Programmable Inte generated by keyboards, PC in order of highest pri

PIC CARE Primary records are exchanged

change Carrier) at the identity of the IXC, on

PBX trunk) in use. PIC kind of long distance c

intraLATA and internat

PIC Freeze Pre-tomer tells his local

to change his prefer to prevent which is

PICC, Jamming and

Picasso Port sometimes be see

According to Roy

EXHIBIT 3

The image shows the front cover of a red, textured book. In the center is a large, circular gold-colored border. Inside this border, the words "Merriam Webster's Collegiate Dictionary" are printed in a large, gold-colored serif font, stacked in four lines. Below this, the words "TENTH EDITION" are printed in a smaller, gold-colored serif font, flanked by two horizontal gold lines.

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ing by predation : personal gain or profit (~ pricing practices) 2
 Case 2:23-cv-00441-JRG Document 18-1 Filed 10/23/24 Page 48 of 53 PageID #: 4936
 before (another person) ~ vi: to die first — **predecease** *n*
pre-de-ces-sor \ˈpre-də-se-sər, ˈprē-, ˈpre-də-, ˈprē- \ *n* [ME *predeces-*
sor retiring governor, fr. *decedere* to depart, retire from office — more
 at DECEASE] (14c) 1 : one that precedes; *esp* : a person who has previ-
 ously occupied a position or office to which another has succeeded 2
archaic : ANCESTOR
pre-des-ti-nar-i-an \(\,prē-des-tə-ˈner-ē-ən, ˈprē-des- \ *n* [*predestination*
 + *-arian*] (1667) : one who believes in predestination — **predestinar-**
ian *adj* — **pre-des-ti-nar-i-an-ism** \-ē-ə-,ni-zəm \ *n*
pre-des-ti-nate \prē-ˈdes-tə-nət, -nāt \ *adj* [ME, fr. L *praedestinatus*,
 pp. of *praedestinare*] (14c) : destined, fated, or determined beforehand
pre-des-ti-nate \-,nāt \ *vt* -nat-ed; -nat-ing [ME, fr. L *praedestinatus*,
 pp.] (15c) 1 : to foreordain to an earthly or eternal lot or destiny by
 divine decree 2 *archaic* : PREDETERMINE
pre-des-ti-na-tion \(\,prē-des-tə-ˈnā-shən, ˈprē-des- \ *n* (14c) 1 : the
 act of predestinating : the state of being predestinated 2 : the doc-
 trine that God in consequence of his foreknowledge of all events infalli-
 bly guides those who are destined for salvation
pre-des-ti-na-tor \prē-ˈdes-tə-,nā-tər \ *n* (1579) 1 *archaic* : PREDESTI-
 NARIAN 2 : one that predestinates
pre-des-tine \(\,prē-ˈdes-tən \ *vt* [ME, fr. MF or L; MF *predestiner*, fr. L
praedestinare, fr. *prae-* + *destinare* to determine — more at DESTINE]
 (14c) : to destine, decree, determine, appoint, or settle beforehand; *esp*
 : PREDESTINATE 1
pre-de-ter-mi-na-tion \,prē-di-,tər-mə-ˈnā-shən \ *n* (1647) 1 : the act
 of predetermining : the state of being predetermined: as a : the or-
 daining of events beforehand b : a fixing or settling in advance 2 : a
 purpose formed beforehand
pre-de-ter-mine \-di-ˈtər-mən \ *vt* [LL *praedeterminare*, fr. L *prae-* +
determinare to determine] (1625) 1 a : FOREORDAIN, PREDESTINE b
 : to determine beforehand 2 : to impose a direction or tendency on
 beforehand
pre-de-ter-min-er \-di-ˈtər-mə-nər \ *n* (1959) : a limiting noun modifier
 (as both or all) characterized by occurrence before the determiner in a
 noun phrase
pre-di-a-be-tes \,prē-,dī-ə-ˈbē-tēz, -təs \ *n* (1935) : an inapparent abnor-
 mal state that precedes the development of clinically evident diabetes
 — **pre-di-a-bet-ic** \-ˈbe-tik \ *adj* or *n*
pre-di-al \ˈprē-dē-əl \ *adj* [ME *prediall*, fr. ML *praedialis*, fr. L *praedium*
 landed property, fr. *praed-*, *praes* bondsman, fr. *prae-* + *vad-*, *vas*
 surety — more at WED] (15c) : of or relating to land or its products
pred-i-ca-ble \ˈpre-di-kə-bəl \ *n* [ML *praedicabile*, fr. neut. of
praedicabilis] (1551) : something that may be predicated; *esp* : one of
 the five most general kinds of attribution in traditional logic that in-
 clude genus, species, difference, property, and accident
predicable *adj* [ML *praedicabilis*, fr. LL *praedicare* to predicate] (ca.
 1598) : capable of being asserted
predic-a-ment \pri-ˈdi-kə-mənt, / is usu ˈpre-di-kə- \ *n* [ME, fr. LL
praedicamentum, fr. *praedicare*] (14c) 1 : the character, status, or

956 quantum • quartersawn

small subdivisions of a quantized physical magnitude (as magnetic moment)

²**quantum** *adj* (1942): LARGE, SIGNIFICANT (a ~ improvement)

quantum chromodynamics *n pl but sing in constr* (1975): a theory of fundamental particles based on the assumption that quarks are distinguished by differences in color and are held together (as in hadrons) by an exchange of gluons

quantum electrodynamics *n pl but usu sing in constr* (1927): quantum mechanics applied to electrical interactions (as between nuclear particles)

quantum field theory *n* (1948): a theory in physics: the interaction of two separate physical systems (as particles) is attributed to a field that extends from one to the other and is manifested in a particle exchange between the two systems

quantum jump *n* (1926) 1: an abrupt transition (as of an electron, an atom, or a molecule) from one discrete energy state to another 2: QUANTUM LEAP

quantum leap *n* (1956): an abrupt change, sudden increase, or dramatic advance

quantum mechanics *n pl but sing or pl in constr* (1922): a theory of matter that is based on the concept of the possession of wave properties by elementary particles, that affords a mathematical interpretation of the structure and interactions of matter on the basis of these properties, and that incorporates within it quantum theory and the uncertainty principle — called also *wave mechanics* — **quantum mechanical** *adj* — **quantum mechanically** *adv*

quantum number *n* (1902): any of a set of integers or half odd integers that indicate the magnitude of various discrete quantities (as electric charge) of a particle or system and that serve to define its state

quantum theory *n* (1912): a theory in physics based on the concept of the subdivision of radiant energy into finite quanta and applied to numerous processes involving transference or transformation of energy in an atomic or molecular scale

¹**quar-an-tine** \ˈkwôr-ən-tēn, ˈkwär-\ *n* [partly modif. of F *quarantaine*, fr. OF, fr. *quarante* forty, fr. L *quadraginta*, fr. *quadra-* (akin to *quatuor* four) + *-ginta* (akin to *viginti* twenty); partly modif. of It *quarantena* quarantine of a ship, fr. *quaranta* forty, fr. L *quadraginta* — more at FOUR, VIGESIMAL] (1609) 1: a period of 40 days 2 **a**: a term during which a ship arriving in port and suspected of carrying contagious disease is held in isolation from the shore **b**: a regulation placing a ship in quarantine **c**: a place where a ship is detained during quarantine 3 **a**: a restraint upon the activities or communication of persons or the transport of goods designed to prevent the spread of disease or pests **b**: a place in which those under quarantine are kept 4: a state of enforced isolation

²**quarantine** *vb* -tined; -tin-ing *vt* (1804) —

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EXHIBIT 4

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OVER 741,000 SOLD



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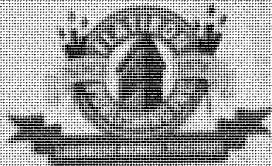
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multi-alternating routing Also called multi-alternate routing. A routing with provision for forwarding a call to more than one alternate route, each of which is tested in sequence in the process of seeking an idle path.

multi-carrier modulation MCM. A technique of transmitting data by dividing the data into several interleaved bit streams and using these to modulate several carriers. MCM is a form of frequency division multiplexing.

multi-cast Also spelled multicast. The broadcast of messages to a selected group of workstations on a LAN, WAN or the Internet. Multicast is communication between a single device and multiple members of a device group. For example, an IPv6 router might address a series of packets associated with a routing table update to a number of other routers in a LAN internetwork. Similarly, a LAN-attached workstation might address a transmission to a number of other LAN-attached devices. Companies are discovering they can distribute material to large numbers of employees and others on their intranets more efficiently using multicast than they can by sending such material in separate bursts to each user. In multi-cast mode, routers distribute a given file to all hosts that have signaled they want to receive the material, using the Class D addresses of the IP addressing hierarchy. See also Multicast and Multi-Cast Packets and IPV6. Contrast with Unicast, Anycast and Broadcast.

multi-cast packets Multi-cast packets are addressed to multiple devices within a group of devices. For example, LAN stations use multi-cast packets to deliver information to a specific set of devices such as routers, file servers, and hosts. See Multi-Cast.

multi-cast user message A user message generated at the source node and distributed to two or more destination nodes.

multi-casting The ability of one network node to send identical data to a number of end points - known as broadcast in other circles; one example is if new software or addressing updates need to be distributed to all users; also, a point-to-multipoint video transmission is a multi-cast operation.

multi-channel The use of a common channel to make two or more channels either by splitting the frequency band of the common channel into several narrower bands (called frequency division multiplexing) or by allocating time slots in the entire channel (time division multiplexing).

multi-channel aggregation A feature under some versions of Windows which gives remote users the option of using two phone lines for the same remote session. This way you double bandwidth, thus making their session go twice as fast. I've never used this feature and I'm doubtful that it works as advertised.

Multi-Channel Microwave Distribution Service MMDS. An FCC name for a service (operating in the frequency range 2150-2162 MHz and 2500-2686 MHz) where multiple NTSC video channels are broadcast within a limited geographic area (typically 25 mile radius from single omnidirectional antenna).