

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

**INTELLECTUAL VENTURES I, LLC;
INTELLECTUAL VENTURES II, LLC**

Plaintiffs,

v.

**LENOVO GROUP LTD., LENOVO
(UNITED STATES) INC.,
LENOVOEMC PRODUCTS USA, LLC,
and EMC CORP.**

Defendants.

Civil Action No. 1:16-cv-10860-IT

JURY TRIAL DEMANDED

CORRECTED AMENDED COMPLAINT FOR PATENT INFRINGEMENT

This is an action for patent infringement arising under the Patent Laws of the United States of America, 35 U.S.C. § 1 *et seq.* in which Plaintiffs Intellectual Ventures LLC I (“IV I”) and Intellectual Ventures LLC II (“IV II”) (collectively “IV” or “Plaintiff”) makes the following allegations against Defendants Lenovo Group Ltd., (“Lenovo”) Lenovo (United States) Inc., (“Lenovo USA”), LenovoEMC Products LLC (“LenovoEMC”) and EMC Corp. (“EMC”). Defendants Lenovo and Lenovo USA shall be referred to collectively hereinafter as “Lenovo Defendants,” and all Defendants shall be referred to collectively hereinafter as “Defendants.”

PARTIES

1. IV I and IV II are Washington limited liability companies, and have a place of business at 3150 139th Ave SE, Building 4, Bellevue, Washington 98005.

2. On information and belief, Lenovo is a Chinese corporation with its principal places of business at No. 6 Chuang Ye Road, Haidian District, Shangdi Information Industry Base 100085 Beijing, China and 1009 Think Place, Morrisville, North Carolina 27560. On information and belief, Lenovo does business in the United States, including in this state and in

this district, through at least its subsidiary Lenovo USA, which is also named as a Defendant in this action. On information and belief, Lenovo also does business in the United States, including in this state and in this district, through at least its majority-owned joint venture Lenovo EMC, named as a Defendant in this action, and having a principal place of business in this state at 22 South Street, Hopkinton, MA 01748.

3. On information and belief, Lenovo USA is a Delaware corporation with its principal place of business at 1009 Think Place, Morrisville, N.C. 27560. On information and belief, Lenovo USA is registered to do business in the State of Massachusetts and it may be served with process by delivering a summons and a true and correct copy of this complaint to its registered agent for receipt of service of process, The Corporation Trust Company, Corporation Trust Center 1209 Orange Street, Wilmington, DE 19801.

4. On information and belief, LenovoEMC is a Delaware corporation with a primary place of business at 22 South Street, Hopkinton, MA 01748. On information and belief, LenovoEMC is a joint venture between Lenovo and EMC that is jointly operated by both. On information and belief, LenovoEMC is registered to do business in the State of Massachusetts and it may be served with process by delivering a summons and a true and correct copy of this complaint to its registered agent for receipt of service of process, The Corporation Trust Company, Corporation Trust Center 1209 Orange Street, Wilmington, DE 19801.

5. On information and belief, EMC is a Massachusetts corporation with a primary place of business at 176 South Street, Hopkinton, MA 01748. On information and belief, EMC is registered to do business in the State of Massachusetts and it may be served with process by delivering a summons and a true and correct copy of this complaint to its registered agent for receipt of service of process, the C.T. Corporation System, 155 Federal Street Suite 700, Boston, MA 02110.

JURISDICTION AND VENUE

6. This action arises under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

7. This Court has personal jurisdiction over Defendants in this action because, among other reasons, Defendants have committed acts within the District of Massachusetts giving rise to this action and has established minimum contacts with the forum state of Massachusetts. Defendants, directly and/or through subsidiaries or intermediaries (including distributors, retailers, and others), have committed and continue to commit acts of infringement in this District by, among other things, making, using, importing, offering for sale, and/or selling products and/or services that infringe the patents-in-suit. Defendant EMC is also incorporated in and maintains its principal place of business in Massachusetts. Thus, Defendants purposefully availed themselves of the benefits of doing business in the State of Massachusetts and the exercise of jurisdiction over Defendants would not offend traditional notions of fair play and substantial justice. Defendants are registered to do business in the State of Massachusetts. Lenovo Defendants and LenovoEMC have appointed The Corporation Trust Company, Corporation Trust Center 1209 Orange Street, Wilmington, DE 19801 as their agent for service of process, and EMC has appointed the C.T. Corporation System, 155 Federal Street Suite 700, Boston, MA 02110 as its agent for service of process.

8. Venue is proper in this District under 28 U.S.C. §§ 1391 (b)-(c) and 1400(b) because Defendants are subject to personal jurisdiction in this District, have transacted business in this District and have committed acts of patent infringement in this District.

BACKGROUND

9. Intellectual Ventures I and II are part of a broader Intellectual Ventures organization that was founded in 2000 on the fundamental premise that inventions are valuable. Since its founding, IV has built on this premise by working to ensure that a market for invention continues to thrive. IV has been deeply involved in the business of invention by creating and

filing patent applications covering its own inventions, and collaborating with others to develop and patent inventions. IV also acquires and licenses patents from individual inventors, universities and other institutions. A significant aspect of IV's business is managing the plaintiffs in this case.

10. IV's business includes purchasing important inventions from individual inventors and institutions and then licensing the inventions to those who need them. Through this business, IV allows inventors to reap a financial reward from their innovations, which is frequently difficult for individual inventors to do. To date, IV has acquired more than 70,000 assets and, in the process, has paid individual inventors hundreds of millions of dollars for their inventions. IV, in turn, has earned more than \$3 billion by licensing these patents to some of the world's most innovative and successful technology companies, which continue to use them to make computer equipment, software, semiconductor devices, and a host of other products.

11. IV also creates inventions. IV has a staff of scientists and engineers who develop ideas in a broad range of fields, including agriculture, computer hardware, life sciences, medical devices, semiconductors, and software. IV has invested millions of dollars developing such inventions and has filed hundreds of patent applications on its inventions every year, making it one of the top patent filers in the world. IV has also invested in laboratory facilities to assist with the development and testing of new inventions.

12. This action asserts infringement of patents that IV acquired as part of its effort to create an efficient market for inventions, and involves the patents described below and attached to this complaint as Exhibits A-F (collectively, "Asserted Patents").

13. IV II is the owner by assignment of United States Patent No. 6,516,442 ("the '442 Patent") entitled "Channel interface and protocols for cache coherency in a scalable symmetric multiprocessor system." The '442 Patent was duly and legally issued by the United States Patent and Trademark Office on February 4, 2003. A true and correct copy of the '442 Patent is included as Exhibit A.

14. IV I is the owner by assignment of United States Patent No. 6,775,745 (“the ’745 Patent”) entitled “Method and apparatus for hybrid data caching system.” The ’745 Patent was duly and legally issued by the United States Patent and Trademark Office on August 10, 2004. A true and correct copy of the ’745 Patent is included as Exhibit B.

15. IV II is the owner by assignment of United States Patent No. 6,968,459 (“the ’459 Patent”) entitled “Computing environment having secure storage device.” The ’459 Patent was duly and legally issued by the United States Patent and Trademark Office on November 22, 2005. A true and correct copy of the ’459 Patent is included as Exhibit C.

16. IV I is the owner by assignment of United States Patent No. 8,275,827 (“the ’827 Patent”) entitled “Software-based network attached storage services hosted on massively distributed parallel computing networks.” The ’827 Patent was duly and legally issued by the United States Patent and Trademark Office on September 25, 2012. A true and correct copy of the ’827 Patent is included as Exhibit D.

17. IV I is the owner by assignment of United States Patent No. 8,387,132 (“the ’132 Patent”) entitled “Information packet communication with virtual objects.” The ’132 Patent was duly and legally issued by the United States Patent and Trademark Office on February 26, 2013. A true and correct copy of the ’132 Patent is included as Exhibit E.

18. IV I is the exclusive licensee of United States Patent No. 9,098,685 (“the ’685 Patent”) entitled “Flexible method of user identification.” IV I’s license to the ’685 Patent conveys to IV I all substantial rights in the ’685 Patent, including the sole right to assert claims against EMC’s infringement of the ’685 Patent. The ’685 Patent was duly and legally issued by the United States Patent and Trademark Office on August 4, 2015. A true and correct copy of the ’132 Patent is included as Exhibit F.

19. Lenovo Defendants are a leading provider of computing products and services for consumer, commercial, and enterprise applications. Lenovo earned over \$46 billion in revenue in 2015. Through subsidiary companies such as Lenovo USA, and its joint venture LenovoEMC, Lenovo Defendants manufacture, use, sell, offer to sell, and import their products and services in

the United States, including in the State of Massachusetts. On information and belief, Lenovo Defendants also supply all or substantial components of their products and services from the United States. On information and belief, the activities described in this paragraph occur, at least in part, through a Massachusetts place of business located at 22 South Street, Hopkinton MA 01748.

20. EMC is a leading provider of computing and information technology products and services incorporated and headquartered in Massachusetts. Leveraging its portfolio of products, services, and solutions, EMC's 2015 revenue exceeds \$24 billion. EMC's products and services are used, sold, offered for sale, and imported in the United States, including the State of Massachusetts. On information and belief, EMC also supplies all or substantial components of these its products, services, and solutions from the United States, including the State of Massachusetts. On information and belief, the activities described in this paragraph occur, at least in part, through EMC's Massachusetts place of business located at 176 South Street, Hopkinton MA 01748.

21. LenovoEMC is a joint venture between Lenovo Defendants and EMC, and on information and belief is based at least in part upon computing and storage products developed by Iomega Corporation ("Iomega"). EMC acquired Iomega Corporation in June of 2008. On January 3 2013, EMC and Lenovo entered into a joint venture wherein Lenovo, the majority stakeholder, incorporated aspects of EMC's Iomega business. LenovoEMC's products are used, sold, offered for sale, and imported in the United States, including in the State of Massachusetts. On information and belief, LenovoEMC also supplies all or substantial components of its products from the United States, including the State of Massachusetts. On information and belief, the activities described in this paragraph occur, at least in part, through LenovoEMC's Massachusetts place of business located at 22 South Street, Hopkinton MA 01748.

COUNT I

INFRINGEMENT OF THE '442 PATENT

22. IV incorporates by reference paragraphs 1 through 21 of this Complaint.

23. On information and belief, Lenovo Defendants and EMC (collectively referred to within Count I as “Defendants”) make, use, offer for sale and/or sell in the United States products and/or services that infringe various claims of the ’442 Patent, and continue to do so. By way of illustrative example, Lenovo Defendants’ infringing products include without limitation all versions and variations of Lenovo’s Flex System Interconnect Fabric technology, which includes at least the Lenovo RackSwitch G8264CS, Lenovo Flex System Fabric SI4093 System Interconnect Module, Lenovo Flex System Fabric EN4093R 10Gb Scalable Switch, Embedded VFA or CN4054/CN4054R adapters, IBM Storwize V7000 for Lenovo, Single IP managed multi-rack cluster (hDFP), and its Multi-rack Flex System Interconnect software.¹ EMC’s infringing products include without limitation VMAX storage arrays.² Lenovo Defendants’ and EMC’s infringing products are referred to collectively hereinafter as “the ’442 Accused Instrumentalities.”

24. On information and belief, the ’442 Accused Instrumentalities are shared-memory multiprocessor systems comprising a switch fabric configured to switch packets containing data.³

25. On information and belief, the ’442 Accused Instrumentalities comprise a plurality of channels configured to transfer packets.⁴

¹ See, e.g., https://lenovopress.com/tips1307-lenovo-flex-system-interconnect-fabric?cm_mc_uid=93385974634614594500131&cm_mc_sid_50200000=1459450013.

² See, e.g., <https://www.emc.com/lt-lt/storage/vmax.htm>.

³ See generally, e.g., Ilya Krutov and Scott Lorditch, *IBM Flex System Interconnect Fabric Technical Overview and Planning Considerations* at 4, available at <https://lenovopress.com/pdfs/420/redp5106.pdf>; <https://www.emc.com/lt-lt/storage/vmax.htm>; <https://www.emc.com/lt-lt/storage/vmax.htm> (EMC VMAX systems support, for example 96-384 processors, and 4-16TB of cache).

⁴ See generally, e.g., Ilya Krutov and Scott Lorditch, *IBM Flex System Interconnect Fabric Technical Overview and Planning Considerations* at 25, available at <https://lenovopress.com/pdfs/420/redp5106.pdf> (“when the packet from the compute node enters the fabric, the ingress SI4093 applies trunk hashing rules to determine the egress uplink trunk port that is used by the packet to leave the fabric.”).

26. On information and belief, the '442 Accused Instrumentalities comprise a plurality of switch interfaces configured to exchange the packets with the switch fabric, exchange the packets over channels, and perform error correction of the data in the packets exchanged over the channels.

27. On information and belief, the '442 Accused Instrumentalities comprise a plurality of microprocessor interfaces configured to exchange the data with a plurality of microprocessors, exchange the packets with the switch interfaces over the channels, and perform error correction of the packets exchanged over the channels.

28. On information and belief, the '442 Accused Instrumentalities' comprise a memory interface configured to exchange the data with a memory device, exchange the packets with the switch interfaces over the channels, and perform error correction of the data in the packets exchanged over the channels.

29. On information and belief, Defendants have directly infringed and continue to directly infringe the '442 Patent by, among other things, making, using, offering for sale, and/or selling the '442 Accused Instrumentalities. On information and belief, such products and/or services are covered by one or more claims of the '442 Patent's including at least claim 1.

30. By making, using, offering for sale, and/or selling the '442 Accused Instrumentalities infringing the '442 Patent, Defendants have injured IV and are liable to IV for infringement of the '442 Patent pursuant to 35 U.S.C. § 271.

31. To the extent facts learned in discovery show that Defendants' infringement of the '442 Patent is or has been willful, IV reserves the right to request such a finding at time of trial.

32. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '442 Patent.

33. As a result of Defendants' infringement of the '442 Patent, IV has suffered monetary damages in an amount adequate to compensate for Defendants' infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together

with interest and costs as fixed by the Court, and IV will continue to suffer damages in the future unless Defendants' infringing activities are enjoined by this Court.

34. Unless a permanent injunction is issued enjoining Defendants and their agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the '442 Patent, IV will be greatly and irreparably harmed.

COUNT II

INFRINGEMENT OF THE '745 PATENT

35. IV references and incorporates by reference paragraphs 1 through 34 of this Complaint.

36. On information and belief, Defendants make, use, offer for sale and/or sell in the United States products and/or services that infringe various claims of the '745 Patent, and continue to do so. By way of illustrative example, LenovoEMC's infringing products include without limitation, all versions and variations of its network-attached-storage products such as the PX4-300D, PX4-400d and PX4-400r.⁵ Lenovo Defendants' exemplary infringing products include without limitation all versions and variations of its ThinkServer, such as the SA120 JBOD.⁶ EMC's exemplary infringing products include without limitation all versions and variations of EMC FAST Cache technology, and all EMC products that utilize this technology.⁷ EMC, LenovoEMC, and Lenovo Defendants' infringing products are referred to collectively hereinafter as "the '745 Accused Instrumentalities."

⁵ See, generally e.g., http://www.lenovo.com/shop/emea/content/pdf/Storage/px4-400d/PRI_px4-400d_PRO_EN.pdf;
http://www.lenovo.com/images/products/server/pdfs/datasheets/lenovoemc_px4400r_data_sheet.pdf;
[http://www.lenovo.com/shop/emea/content/pdf/Storage/Product%20Release%20Information%20\(PRI\)/PRI_Lenovo_EMC_px4-300d_PRO_EN.pdf](http://www.lenovo.com/shop/emea/content/pdf/Storage/Product%20Release%20Information%20(PRI)/PRI_Lenovo_EMC_px4-300d_PRO_EN.pdf).

⁶ See generally, e.g., <http://shop.lenovo.com/us/en/servers/network-storage/lenovoemc/sa120/>.

⁷ See, e.g., <http://www.emc.com/corporate/glossary/fully-automated-storage-tiering-cache.htm>.

37. On information and belief, the '745 Accused Instrumentalities perform a caching method for enhancing system performance for a computer.⁸

38. On information and belief, the '745 Accused Instrumentalities read an extended segment of data in response to a request from an operating system.

39. On information and belief, the '745 Accused Instrumentalities store copies of files associated with the extended segment in a cache.

40. On information and belief, the '745 Accused Instrumentalities assign frequency factors to each of the files stored in the cache, the frequency factor indicating how often each of the corresponding files are requested by the operating system.⁹

41. On information and belief, the '745 Accused Instrumentalities scan the frequency factors, the scanning being performed in response to a target capacity of the cache being attained.¹⁰

42. On information and belief, the '745 Accused Instrumentalities identify a least frequently and least recently used file.

43. On information and belief, the '745 Accused Instrumentalities eliminate the least frequently and least recently used file to liberate capacity of the cache.

⁸ See, e.g., <http://www.emc.com/corporate/glossary/fully-automated-storage-tiering-cache.htm> (“FAST cache monitors incoming I/O for access frequency and automatically copies frequently accessed data from the back-end drives into the cache.”); <http://shop.lenovo.com/us/en/servers/network-storage/lenovoemc/sa120/> (“Coupled with ThinkServer host servers configured with LSI® CacheCade technology, these SSD drives enable the ThinkServer SA120 to provide additional cache”); http://www.lenovo.com/shop/emea/content/pdf/Storage/px4-400d/PRI_px4-400d_PRO_EN.pdf (“Set up dedicated SSDs for fast reads & writes of frequently accessed data, *providing improved performance* for I/O intensive applications such as databases.”) (emphasis added).

⁹ See, e.g., <http://www.emc.com/corporate/glossary/fully-automated-storage-tiering-cache.htm> (“FAST cache monitors incoming I/O for *access frequency* and automatically copies *frequently accessed data* from the back-end drives into the cache.”) (emphasis added); http://www.lenovo.com/shop/emea/content/pdf/Storage/px4-400d/PRI_px4-400d_PRO_EN.pdf (“Set up dedicated SSDs for fast reads & writes of *frequently accessed data*, providing improved performance for I/O intensive applications such as databases.”) (emphasis added).

¹⁰ See, e.g., *id.*

44. On information and belief, Defendants have directly infringed and continue to directly infringe the '745 Patent by, among other things, making, using, offering for sale, and/or selling the '745 Accused Instrumentalities. On information and belief, such products and/or services are covered by one or more claims of the '745 Patent including at least claim 4.

45. By making, using, offering for sale, and/or selling the '745 Accused Instrumentalities infringing the '745 Patent, Defendants have injured IV and are liable to IV for infringement of the '745 Patent pursuant to 35 U.S.C. § 271.

46. To the extent facts learned in discovery show that Defendants' infringement of the '745 Patent is or has been willful, IV reserves the right to request such a finding at time of trial.

47. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '745 Patent.

48. As a result of Defendants' infringement of the '745 Patent, IV has suffered monetary damages in an amount adequate to compensate for Defendants' infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court, and IV will continue to suffer damages in the future unless Defendants' infringing activities are enjoined by this Court.

49. Unless a permanent injunction is issued enjoining Defendants and their agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the '745 Patent, IV will be greatly and irreparably harmed.

COUNT III

INFRINGEMENT OF THE '459 PATENT

50. IV references and incorporates by reference paragraphs 1 through 49 of this Complaint.

51. On information and belief, Defendants make, use, offer for sale and/or sell in the United States products and/or services that infringe various claims of the '459 Patent, and continue to do so. By way of illustrative example, Lenovo Defendants' infringing products include without limitation all versions and variations of the Full Disk Encryption (FDE)

technology available on all of its storage and computing products.¹¹ LenovoEMC's exemplary infringing products include without limitation all versions and variations of its network-attached-storage products such as the PX4-300D, PX4-400d and PX4-400r.¹² EMC's exemplary infringing products include its Unisphere platform and systems, including without limitation EMC CLARiiON, Celerra, and VNX systems. Defendants' infringing products are referred to collectively hereinafter as "the '459 Accused Instrumentalities."

52. On information and belief, the '459 Accused Instrumentalities perform a method of sensing whether a storage device has device-specific security information stored thereon.¹³

53. On information and belief, the '459 Accused Instrumentalities operate in a full-access mode when the storage device has the device-specific security information.

54. On information and belief, the '459 Accused Instrumentalities operate in a restricted-access mode when the storage device does not have the device-specific security information.

55. On information and belief, Defendants have directly infringed and continue to directly infringe the '459 Patent by, among other things, making, using, offering for sale, and/or selling the '459 Accused Instrumentalities. On information and belief, such products and/or services are covered by one or more claims of the '459 Patent's including at least claim 18.

56. By making, using, offering for sale, and/or selling the '459 Accused Instrumentalities infringing the '459 Patent, Defendants have injured IV and are liable to IV for infringement of the '459 Patent pursuant to 35 U.S.C. § 271.

¹¹ See, generally e.g., http://www.lenovo.com/us/en/PDFs/lenovo_full_disk_encryption.pdf.

¹² See, generally e.g., http://www.lenovo.com/shop/emea/content/pdf/Storage/px4-400d/PRI_px4-400d_PRO_EN.pdf; http://www.lenovo.com/images/products/server/pdfs/datasheets/lenovoemc_px4400r_data_sheet.pdf; [http://www.lenovo.com/shop/emea/content/pdf/Storage/Product%20Release%20Information%20\(PRI\)/PRI_Lenovo_EM_C_px4-300d_PRO_EN.pdf](http://www.lenovo.com/shop/emea/content/pdf/Storage/Product%20Release%20Information%20(PRI)/PRI_Lenovo_EM_C_px4-300d_PRO_EN.pdf).

¹³ See, e.g., <https://support.lenovo.com/us/en/documents/ht002240> ("Since the key is *maintained by the drive*, it is possible to move the drive to another system still access the data.") (emphasis added).

57. To the extent facts learned in discovery show that Defendants' infringement of the '459 Patent is or has been willful, IV reserves the right to request such a finding at time of trial.

58. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '459 Patent.

59. As a result of Defendants' infringement of the '459 Patent, IV has suffered monetary damages in an amount adequate to compensate for Defendants' infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court, and IV will continue to suffer damages in the future unless Defendants' infringing activities are enjoined by this Court.

60. Unless a permanent injunction is issued enjoining Defendants and their agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the '459 Patent, IV will be greatly and irreparably harmed.

COUNT IV

INFRINGEMENT OF THE '827 PATENT

61. IV references and incorporates by reference paragraphs 1 through 60 of this Complaint.

62. On information and belief, Lenovo Defendants and EMC (collectively referred to within Count IV as "Defendants") make, use, offer for sale and/or sell in the United States products and/or services that infringe various claims of the '827 Patent, and continue to do so. By way of illustrative example, Lenovo Defendants' infringing products include without limitation all versions and variations of its M5 series of servers such as the Flex System x240 M5, System x3500 M5, System x3550 M5, and System x3650 M5, as well as the NeXtScale System M5 servers such as, for example, the NeXtScale nx360 and NeXtScale System with Water Cool Technology.¹⁴ EMC's exemplary infringing products include without limitation all

¹⁴ See, generally e.g., <https://lenovopress.com/pdfs/1527/tips1193.pdf>; http://www.lenovo.com/images/products/system-x/pdfs/datasheets/x240_ds.pdf;

versions and variations of its Isilon scale-out storage solutions.¹⁵ EMC and Lenovo Defendants' infringing products are referred to collectively hereinafter as "the '827 Accused Instrumentalities."

63. On information and belief, the '827 Accused Instrumentalities configure a distributed processing system comprising several distributed devices coupled to a network, wherein these several distributed devices include respective client agents configured to process respective portions of a workload for the distributed processing system, wherein the respective client agents for particular distributed devices of these several distributed devices have corresponding software-based network attached storage (NAS) components configured to assess unused or under-utilized storage resources in selected distributed devices of the plurality of distributed devices.

64. On information and belief, the '827 Accused Instrumentalities represent with a corresponding software-based NAS component that the selected distributed devices respectively comprise NAS devices having an available amount of storage resources related to the unused and under-utilized storage resources for the selected distributed devices.

65. On information and belief, the '827 Accused Instrumentalities process one or more of data storage or access workloads for the distributed processing system by accessing data from or storing data to at least a portion of the available amount of storage resources to provide NAS service to a client device coupled to the network.

66. On information and belief, the '827 Accused Instrumentalities enable at least one of the selected distributed devices to function as a location distributed device to store location information associated with data stored by the selected distributed devices through use of the respective client agents for the particular distributed device.

<http://shop.lenovo.com/us/en/systems/servers/high-density/nextscale-m5/>;

<http://shop.lenovo.com/us/en/systems/servers/racks/systemx/x3550-m5/>.

¹⁵ See, e.g., <http://www.emc.com/collateral/software/data-sheet/h10541-ds-isilon-platform.pdf>.

67. On information and belief, Defendants have directly infringed and continue to directly infringe the '827 Patent by, among other things, making, using, offering for sale, and/or selling the '827 Accused Instrumentalities. On information and belief, such products and/or services are covered by one or more claims of the '827 Patent including at least claims 1 and 13.

68. By making, using, offering for sale, and/or selling the '827 Accused Instrumentalities infringing the '827 Patent, Defendants have injured IV and are liable to IV for infringement of the '827 Patent pursuant to 35 U.S.C. § 271.

69. To the extent facts learned in discovery show that Defendants' infringement of the '827 Patent is or has been willful, IV reserves the right to request such a finding at time of trial.

70. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '827 Patent.

71. As a result of Defendants' infringement of the '827 Patent, IV has suffered monetary damages in an amount adequate to compensate for Defendants' infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court, and IV will continue to suffer damages in the future unless Defendants' infringing activities are enjoined by this Court.

72. Unless a permanent injunction is issued enjoining Defendants and their agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the '827 Patent, IV will be greatly and irreparably harmed.

COUNT V

INFRINGEMENT OF THE '132 PATENT

73. IV references and incorporates by reference paragraphs 1 through 72 of this Complaint.

74. On information and belief, Lenovo Defendants and EMC (collectively referred to within Count V as "Defendants") make, use, offer for sale and/or sell in the United States products and/or services that infringe various claims of the '132 Patent, and continue to do so. By way of illustrative example, Lenovo Defendants' infringing products include without

limitation all versions and variations of its rack server products such as x3250 M6, x3650 M5, x3550 M5, RD650, RD550, ThinkServer RD450, ThinkServer RD350, x3250 M5, RS140, x3650 M4, x3550 M4, x3650 M4 BD, and x3630 M4.¹⁶ EMC's exemplary infringing products include without limitation all versions and variations of the EMC VIPR controller.¹⁷ EMC and Lenovo Defendants' infringing products are referred to collectively hereinafter as "the '132 Accused Instrumentalities."

75. On information and belief, the '132 Accused Instrumentalities assign by a packet processor executing on a processing unit of an electronic device, a first host address to a first virtual object, the first virtual object being a logical drive partition that represents an aggregation of storage capabilities of a plurality of storage devices.

76. On information and belief, the '132 Accused Instrumentalities assign a second host address to a second virtual object, wherein the first and second host addresses are different network mutable addresses that are both associated with a common frame address that corresponds to a network interface that communicatively couples the packet processor to a network.

77. On information and belief, the '132 Accused Instrumentalities receive an information packet from the network interface, the information packet having a control portion including the first host address.

78. On information and belief, the '132 Accused Instrumentalities issue the device-level request to the first storage device of the plurality of storage devices.

79. On information and belief, the '132 Accused Instrumentalities transform the information packet into a device-level request that is in a device format compatible with a first storage device of the plurality of storage devices.

¹⁶ See, generally e.g. <http://shop.lenovo.com/us/en/systems/servers/racks/>.

¹⁷ See, e.g., <http://www.emc.com/products/storage/software-defined-storage/vipr-controller.htm>.

80. On information and belief, Defendants have directly infringed and continue to directly infringe the '132 Patent by, among other things, making, using, offering for sale, and/or selling the '132 Accused Instrumentalities. On information and belief, such products and/or services are covered by one or more claims of the '132 Patent including at least claims 1 and 9.

81. By making, using, offering for sale, and/or selling the '132 Accused Instrumentalities infringing the '132 Patent, Defendants have injured IV and are liable to IV for infringement of the '132 Patent pursuant to 35 U.S.C. § 271.

82. To the extent facts learned in discovery show that Defendants' infringement of the '132 Patent is or has been willful, IV reserves the right to request such a finding at time of trial.

83. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '132 Patent.

84. As a result of Defendants' infringement of the '132 Patent, IV has suffered monetary damages in an amount adequate to compensate for Defendants' infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court, and IV will continue to suffer damages in the future unless Defendants' infringing activities are enjoined by this Court.

85. Unless a permanent injunction is issued enjoining Defendants and their agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the '132 Patent, IV will be greatly and irreparably harmed.

COUNT VI

INFRINGEMENT OF THE '685 PATENT

86. IV references and incorporates by reference paragraphs 1 through 85 of this Complaint.

87. On information and belief, EMC (referred to within Count VI as "Defendant") makes, uses, offers for sale and/or sells in the United States products and/or services that infringe various claims of the '685 Patent, and continue to do so. By way of illustrative example, Defendant's infringing products include without limitation all versions and variations of EMC's

RSA Authentication Manager, and all products that utilize this technology.¹⁸ Defendant's infringing products are referred to collectively hereinafter as "the '685 Accused Instrumentalities."

88. On information and belief, the '685 Accused Instrumentalities perform a method of authorizing a user to access a workstation using a security server.

89. On information and belief, the '685 Accused Instrumentalities receive security data relating to computing conditions in which an authorization will be performed, wherein the security data comprises at least one indication of a type of communication link between the workstation and the security server, a geographic location of the workstation, or a time of access of the workstation.

90. On information and belief, the '685 Accused Instrumentalities determine a security policy from a plurality of predetermined security policies based on previously stored policy data and the received indication of the type of communication link between the workstation and the security server, the geographic location of the workstation, or the time of access of the workstation.

91. On information and belief, the '685 Accused Instrumentalities receive user identification data and register the user identification data against stored user data in accordance with the determined authorization method, wherein different authorization methods for authorizing the user are determined upon receipt of different security data, and wherein the security data does not include identification information for a particular user.

92. On information and belief, Defendant has directly infringed and continues to directly infringe the '685 Patent by, among other things, making, using, offering for sale, and/or selling the '685 Accused Instrumentalities. On information and belief, such products and/or services are covered by one or more claims of the '685 Patent's including at least claims 1, 9, and 19.

¹⁸ See, e.g., <http://www.emc.com/microsites/authentication-manager-8/index.htm>.

93. By making, using, offering for sale, and/or selling the '685 Accused Instrumentalities infringing the '685 Patent, Defendant has injured IV and is liable to IV for infringement of the '685 Patent pursuant to 35 U.S.C. § 271.

94. To the extent facts learned in discovery show that Defendant's infringement of the '685 Patent is or has been willful, IV reserves the right to request such a finding at time of trial.

95. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been met with respect to the '685 Patent.

96. As a result of Defendant's infringement of the '685 Patent, IV has suffered monetary damages in an amount adequate to compensate for Defendant's infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendant, together with interest and costs as fixed by the Court, and IV will continue to suffer damages in the future unless Defendant's infringing activities are enjoined by this Court.

97. Unless a permanent injunction is issued enjoining Defendant and its agents, servants, employees, representatives, affiliates, and all others acting or in active concert therewith from infringing the '685 Patent, IV will be greatly and irreparably harmed.

PRAYER FOR RELIEF

Plaintiff respectfully requests the following relief from this Court:

A. A judgment that Defendants have, consistent with Counts I-VI, infringed one or more claims of the '442, '745, '459, '827, '132 and/or '685 Patents;

B. A permanent injunction enjoining Defendants and their officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert or participation with Defendants, from infringing the '442, '745, '459, '827, '132 and/or '685 Patents;

C. A judgment and order requiring Defendants to pay IV its damages, costs, expenses, and prejudgment and post-judgment interest for Defendants' acts of infringement in accordance with 35 U.S.C. § 284;

D. A judgment and order requiring Defendants to provide accountings and to pay supplemental damages to IV, including, without limitation, prejudgment and post-judgment interest;

E. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to IV its reasonable attorneys' fees against Defendants; and

F. Any and all other relief to which IV may show itself to be entitled.

JURY TRIAL DEMANDED

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, IV requests a trial by jury of any issues so triable by right.

DATED: December 8, 2016

Respectfully submitted,

INTELLECTUAL VENTURES I, LLC and
INTELLECTUAL VENTURES II, LLC,
By their attorneys,

/s/ Brian Ledahl

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CERTIFICATE OF SERVICE

I, David S. Godkin, hereby certify that a true copy of this document was served upon counsel of record for the plaintiffs through the Court's electronic court filing (ECF) system, this 8th day of December, 2016.

/s/ David S. Godkin