

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

REALTIME DATA LLC d/b/a IXO,

Plaintiff,

v.

NUTANIX, INC.,

Defendant.

C.A. No. _____

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT
AGAINST NUTANIX, INC.

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 Plaintiff Realtime Data LLC d/b/a IXO (“Plaintiff,” “Realtime,” or “IXO”) makes the following allegations against Defendant Nutanix, Inc. (“Nutanix” or “Defendant”):

PARTIES

1. Realtime is a limited liability company organized under the laws of the State of New York. Realtime has places of business at 5851 Legacy Circle, Plano, Texas 75024, 1828 E.S.E. Loop 323, Tyler, Texas 75701, and 66 Palmer Avenue, Suite 27, Bronxville, NY 10708. Since the 1990s, Realtime has researched and developed specific solutions for data compression, including, for example, those that increase the speeds at which data can be stored and accessed. As recognition of its innovations rooted in this technological field, Realtime holds 50 United States patents and has numerous pending patent applications. Realtime has licensed patents in this portfolio to many of the world’s leading technology companies. The patents-in-suit relate to Realtime’s development of advanced systems and methods for fast and efficient data compression using numerous

innovative compression techniques based on, for example, particular attributes of the data.

2. On information and belief, Nutanix is a Delaware corporation with its principal place of business at 1740 Technology Drive, Suite 150, San Jose, California 95110. Nutanix can be served through its registered agent, Corporation Services Company, 251 Little Falls Drive, Wilmington, Delaware 19808.

JURISDICTION AND VENUE

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

4. This Court has personal jurisdiction over Defendant Nutanix in this action because Nutanix is incorporated in Delaware and has committed acts within the District of Delaware giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction over Nutanix would not offend traditional notions of fair play and substantial justice. Nutanix, directly and through subsidiaries or intermediaries, has committed and continues to commit acts of infringement in this District by, among other things, offering to sell and selling products and/or services that infringe the asserted patents.

5. Venue is proper in this district under 28 U.S.C. § 1400(b). Upon information and belief, Nutanix is incorporated in Delaware, has transacted business in the District of Delaware, and has committed acts of direct and indirect infringement in the District of Delaware.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 9,054,728

6. Plaintiff realleges and incorporates by reference the foregoing paragraphs, as if fully set forth herein.

7. Plaintiff Realtime is the owner by assignment of United States Patent No. 9,054,728 (“the ’728 Patent”) entitled “Data compression systems and methods.” The ’728 Patent was duly and legally issued by the United States Patent and Trademark Office on June 9, 2015. A true and correct copy of the ’728 Patent is included as Exhibit A.

8. On information and belief, Nutanix has offered for sale, sold and/or imported into the United States Nutanix products and services that infringe the ’728 patent, and continues to do so. By way of illustrative example, these infringing products and services include, without limitation, Nutanix’s products and services, *e.g.*, Nutanix Enterprise Cloud Platform, Acropolis (Acropolis Operating System), Acropolis File Services, Container Storage Services, Backup and Recovery, Enterprise Cloud OS M10, FlashArray M20, FlashArray M50, FlashArray M70, and FlashArray X70, and the system hardware on which they operate, and all versions and variations thereof since the issuance of the ’728 Patent (“Accused Instrumentalities”).

9. On information and belief, Nutanix has directly infringed and continues to infringe the ’728 Patent, for example, by making, selling, offering for sale, and/or importing the Accused Instrumentalities, and through its own use and testing of the Accused Instrumentalities, which constitute systems for compressing data claimed by Claim 1 of the ’728 Patent, comprising: a processor; one or more content dependent data compression encoders; and a single data compression encoder; wherein the processor is

configured: to analyze data within a data block to identify one or more parameters or attributes of the data wherein the analyzing of the data within the data block to identify the one or more parameters or attributes of the data excludes analyzing based solely on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block; to perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified; and to perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified. Upon information and belief, Nutanix uses the Accused Instrumentalities, which are infringing systems, for its own internal non-testing business purposes, while testing the Accused Instrumentalities, and while providing technical support and repair services for the Accused Instrumentalities to Nutanix's customers.

10. On information and belief, Nutanix has had knowledge of the '728 Patent since at least the filing of the original Complaint in this action, or shortly thereafter, and on information and belief, Nutanix knew of the '728 Patent and knew of its infringement, including by way of this lawsuit.

11. Nutanix's affirmative acts of making, using, selling, offering for sale, and/or importing the Accused Instrumentalities have induced and continue to induce users of the Accused Instrumentalities to use the Accused Instrumentalities in their normal and customary way on compatible systems to infringe Claim 1 of the '728 Patent, knowing that when the Accused Instrumentalities are used in their ordinary and customary manner with such compatible systems, such systems constitute infringing systems for compressing data comprising; a processor; one or more content dependent

data compression encoders; and a single data compression encoder; wherein the processor is configured: to analyze data within a data block to identify one or more parameters or attributes of the data wherein the analyzing of the data within the data block to identify the one or more parameters or attributes of the data excludes analyzing based solely on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block; to perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified; and to perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified. For example, Nutanix explains to customers the benefits of using the Accused Instrumentalities, such as by touting their performance advantages: “Proprietary storage efficiency technologies have been built into Nutanix to maximize the usable capacity within a cluster. Effective storage capacity can be increased through compression, deduplication, and erasure coding (EC-X).” *See* Nutanix All-Flash Solutions. For similar reasons, Nutanix also induces its customers to use the Accused Instrumentalities to infringe other claims of the ’728 Patent. Nutanix specifically intended and was aware that the normal and customary use of the Accused Instrumentalities on compatible systems would infringe the ’728 Patent. Nutanix performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the ’728 Patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Nutanix engaged in such inducement to promote the sales of the Accused Instrumentalities, *e.g.*, through Nutanix’s user manuals, product support, marketing materials, and training materials to

actively induce the users of the accused products to infringe the '728 Patent. Accordingly, Nutanix has induced and continues to induce end users of the accused products to use the accused products in their ordinary and customary way with compatible systems to make and/or use systems infringing the '728 Patent, knowing that such use of the Accused Instrumentalities with compatible systems will result in infringement of the '728 Patent.

12. The Accused Instrumentalities include a system for compressing data, comprising a processor. For example, Nutanix discloses that “[U]nlike traditional architectures where compression operations run on one or two CPUs, Nutanix compression runs on each node in the cluster to leverage all system compute and memory resources.” *See* <https://www.nutanix.com/products/acropolis/enterprise-storage-capabilities/>. Moreover, Nutanix states that its “data reduction technologies are delivered in software on commodity x86 servers.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>

13. The Accused Instrumentalities include a system for compressing data, comprising one or more content dependent data compression encoders. For example, the Accused Instrumentalities perform block-level deduplication, which is a content dependent data compression encoder. For example, Nutanix’s deduplication engine “performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Nutanix specifies that “[D]eduplication in storage is a data reduction technique that

eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Performing deduplication results in compression by representing data with fewer bits.

14. The Accused Instrumentalities comprise a single data compression encoder. For example, Nutanix uses LZ4 or LZ4HC compression encoder. As such, Nutanix discloses that “[T]he data is first compressed with LZ4, which is a lightweight compression algorithm. After the data becomes cold and if the data is further compressible, the data is compressed with LZ4HC, which is a heavyweight compression algorithm.” *See* <https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>.

15. The Accused Instrumentalities analyze data within a data block to identify one or more parameters or attributes of the data, for example, whether the data is duplicative of data previously transmitted and/or stored, where the analysis does not rely only on the descriptor. Nutanix specifies that “[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

16. The Accused Instrumentalities perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified. For example, Nutanix’s deduplication engine “performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier,

optimizing across both the performance and capacity tiers without impacting foreground operations.” See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>. Nutanix specifies that “[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

17. The Accused Instrumentalities perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified. For example, Nutanix uses LZ4 or LZ4HC compression encoder. As such, Nutanix discloses that “[T]he data is first compressed with LZ4, which is a lightweight compression algorithm. After the data becomes cold and if the data is further compressible, the data is compressed with LZ4HC, which is a heavyweight compression algorithm.” See <https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>.

18. Nutanix also infringes other claims of the ’728 Patent, directly and through inducing infringement and contributory infringement.

19. On information and belief, use of the Accused Instrumentalities in their ordinary and customary fashion results in infringement of the methods claimed by the ’728 Patent.

20. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentalities, and touting the benefits of using the Accused Instrumentalities’ compression features, Nutanix has injured Realtime and is liable to Realtime for infringement of the ’728 Patent pursuant to 35 U.S.C. § 271.

21. As a result of Nutanix's infringement of the '728 Patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Nutanix's infringement, but in no event less than a reasonable royalty for the use made of the invention by Nutanix, together with interest and costs as fixed by the Court.

COUNT II
INFRINGEMENT OF U.S. PATENT NO. 9,667,751

22. Plaintiff realleges and incorporates by reference the foregoing paragraphs, as if fully set forth herein.

23. Plaintiff Realtime is the owner by assignment of United States Patent No. 9,667,751 ("the '751 Patent") entitled "Data feed acceleration." The '751 Patent was duly and legally issued by the United States Patent and Trademark Office on May 30, 2017. A true and correct copy of the '751 Patent is included as Exhibit B.

24. On information and belief, Nutanix has offered for sale, sold and/or imported into the United States Nutanix products and services that infringe the '751 patent, and continues to do so. By way of illustrative example, these infringing products and services include, without limitation, Nutanix's products and services, *e.g.*, Nutanix Enterprise Cloud Platform, Acropolis (Acropolis Operating System), Acropolis File Services, Container Storage Services, Backup and Recovery, Enterprise Cloud OS M10, FlashArray M20, FlashArray M50, FlashArray M70, and FlashArray X70, and the system hardware on which they operate, and all versions and variations thereof since the issuance of the '751 Patent ("Accused Instrumentalities").

25. On information and belief, Nutanix has directly infringed and continues to infringe the '751 Patent, for example, through its own use and testing of the Accused Instrumentalities, which in the ordinary course of their operation form a system for

compressing data claimed by Claim 25 of the '751 Patent, including: a data server implemented on one or more processors and one or more memory systems; the data server configured to analyze content of a data block to identify a parameter, attribute, or value of the data block that excludes analysis based solely on reading a descriptor; the data server configured to select an encoder associated with the identified parameter, attribute, or value; the data server configured to compress data in the data block with the selected encoder to produce a compressed data block, wherein the compression utilizes a state machine; and the data server configured to store the compressed data block; wherein the time of the compressing the data block and the storing the compressed data block is less than the time of storing the data block in uncompressed form. Upon information and belief, Nutanix uses the Accused Instrumentalities, which are infringing systems, for its own internal non-testing business purposes, while testing the Accused Instrumentalities, and while providing technical support and repair services for the Accused Instrumentalities to Nutanix's customers.

26. On information and belief, Nutanix has had knowledge of the '751 Patent since at least the filing of the original Complaint in this action, or shortly thereafter, and on information and belief, Nutanix knew of the '751 Patent and knew of its infringement, including by way of this lawsuit.

27. Upon information and belief, Nutanix's affirmative acts of making, using, and selling the Accused Instrumentalities, and providing implementation services and technical support to users of the Accused Instrumentalities, have induced and continue to induce users of the Accused Instrumentalities to use them in their normal and customary way to infringe Claim 25 of the '751 Patent by making or using a data server

implemented on one or more processors and one or more memory systems; the data server configured to analyze content of a data block to identify a parameter, attribute, or value of the data block that excludes analysis based solely on reading a descriptor; the data server configured to select an encoder associated with the identified parameter, attribute, or value; the data server configured to compress data in the data block with the selected encoder to produce a compressed data block, wherein the compression utilizes a state machine; and the data server configured to store the compressed data block; wherein the time of the compressing the data block and the storing the compressed data block is less than the time of storing the data block in uncompressed form. For example, Nutanix explains to customers the benefits of using the Accused Instrumentalities, such as by touting their efficiency: “Proprietary storage efficiency technologies have been built into Nutanix to maximize the usable capacity within a cluster. Effective storage capacity can be increased through compression, deduplication, and erasure coding (EC-X).” *See* Nutanix All-Flash Solutions. For similar reasons, Nutanix also induces its customers to use the Accused Instrumentalities to infringe other claims of the ’751 Patent. Nutanix specifically intended and was aware that these normal and customary activities would infringe the ’751 Patent. Nutanix performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the ’751 Patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Nutanix engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Nutanix has induced and continues to induce users of the accused products to use the accused products in their

ordinary and customary way to infringe the '751 Patent, knowing that such use constitutes infringement of the '751 Patent.

28. The Accused Instrumentalities include a system for compressing data. For example, Nutanix on its website discloses that Acropolis File Services include “intelligent tiering, deduplication, erasure coding, and compression from DSF.” *See* <https://www.nutanix.com/products/acropolis/file-services/>. As another example, Nutanix “offers a suite of data reduction capabilities such as inline and post-process compression and deduplication.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

29. The Accused Instrumentalities include a data server implemented on one or more processors and one or more memory systems. For example, Nutanix discloses that “[U]nlike traditional architectures where compression operations run on one or two CPUs, Nutanix compression runs on each node in the cluster to leverage all system compute and memory resources.” *See* <https://www.nutanix.com/products/acropolis/enterprise-storage-capabilities/>. Moreover, Nutanix states that its “data reduction technologies are delivered in software on commodity x86 servers.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>. Furthermore, Nutanix offers storage tiers that are divided into two categories: “performance tiers (RAM and SSD)” and “capacity tiers (HDD).” *See* https://portal.nutanix.com/#/page/docs/details?targetId=Web_Console_Guide-Acr_v4_5:sto_dedup_recommend_c.html. On information and belief, all of the Accused Instrumentalities use one or more memory systems in substantially the same way.

30. The Accused Instrumentalities include a data server configured to analyze content of a data block to identify a parameter, attribute, or value of the data block that excludes analysis based solely on reading a descriptor. For example, Nutanix's deduplication engine "performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations." See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>. Furthermore, Nutanix specifies that "[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored." See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

31. The Accused Instrumentalities include a data server configured to select an encoder associated with the identified parameter, attribute, or value. For example, the Accused Instrumentalities select between deduplication or other compression. For example, Nutanix provides "intelligent tiering, deduplication, erasure coding, and compression from DSF." See <https://www.nutanix.com/products/acropolis/file-services/>. Nutanix specifies that "[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored." See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

32. The Accused Instrumentalities include a data server configured to compress data in the data block with the selected encoder. For example, Nutanix's deduplication engine "performs inline deduplication in the performance tiers (RAM and

flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations.” See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>. Nutanix specifies that “[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

33. The Accused Instrumentalities include a data server configured to store the compressed data block. For example, the Accused Instrumentalities have storage devices, such as SSDs, RAM, and HDDs that are managed by controllers. See https://portal.nutanix.com/#/page/docs/details?targetId=Web_Console_Guide-Acr_v4_5:sto_dedup_recommend_c.html. (“Nutanix storage tiers are divided into two categories: *performance tiers* (RAM and SSD) and *capacity tiers* (HDD).”). Nutanix states that “[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>. Moreover, Nutanix also mentions that “[C]ompression optimizes the use of storage capacity.” See <https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>. On information and belief, all of the Accused Instrumentalities include a data server configured to store the compressed data block in substantially the same way.

34. The time of the compressing the data block and the storing the compressed data block in the Accused Instrumentalities is less than the time of storing the data block in uncompressed form. Due to the data reduction and acceleration features of the specific compression algorithms used, the time of the compressing the data block and the storing the compressed data block is less than the time of storing the data block in uncompressed form. For example, Nutanix’s deduplication engine “performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Moreover, Nutanix offers “a flexible solution per VM that optimizes both the performance and capacity tier, intelligently selects only the high yield candidates to deduplicate, and is mindful of system resources, metadata and fragmentation.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>

35. On information and belief, Nutanix also infringes, directly and through induced infringement, and continues to infringe other claims of the ’751 Patent.

36. On information and belief, use of the Accused Instrumentalities in their ordinary and customary fashion results in infringement of the methods claimed by the ’751 Patent.

37. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentalities, and touting the benefits of using the Accused Instrumentalities’ compression features, Nutanix has injured Realtime and is liable to Realtime for infringement of the ’751 Patent pursuant to 35 U.S.C. § 271.

38. As a result of Nutanix's infringement of the '751 Patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Nutanix's infringement, but in no event less than a reasonable royalty for the use made of the invention by Nutanix, together with interest and costs as fixed by the Court.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 7,415,530

39. Plaintiff realleges and incorporates by reference the foregoing paragraphs, as if fully set forth herein.

40. Plaintiff Realtime is the owner by assignment of United States Patent No. 7,415,530 ("the '530 Patent") entitled "System and methods for accelerated data storage and retrieval." The '530 Patent was duly and legally issued by the United States Patent and Trademark Office on August 19, 2008. A true and correct copy of the '530 Patent is included as Exhibit C.

41. On information and belief, Nutanix has made, used, offered for sale, sold and/or imported into the United States Nutanix products that infringe the '530 Patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Nutanix's products and services, e.g., Nutanix Enterprise Cloud Platform, Acropolis (Acropolis Operating System), Acropolis File Services, Container Storage Services, Backup and Recovery, Enterprise Cloud OS M10, FlashArray M20, FlashArray M50, FlashArray M70, and FlashArray X70, and the system hardware on which they operate, and all versions and variations thereof since the issuance of the '530 patent ("Accused Instrumentality").

42. On information and belief, Nutanix has directly infringed and continues to infringe the '530 Patent, for example, through its own use and testing of the Accused

Instrumentality, which constitutes a system comprising: a memory device; and a data accelerator, wherein said data accelerator is coupled to said memory device, a data stream is received by said data accelerator in received form, said data stream includes a first data block and a second data block, said data stream is compressed by said data accelerator to provide a compressed data stream by compressing said first data block with a first compression technique and said second data block with a second compression technique, said first and second compression techniques are different, said compressed data stream is stored on said memory device, said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received form, a first data descriptor is stored on said memory device indicative of said first compression technique, and said first descriptor is utilized to decompress the portion of said compressed data stream associated with said first data block. Upon information and belief, Nutanix uses the Accused Instrumentality, an infringing system, for its own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Nutanix's customers.

43. On information and belief, Nutanix has had knowledge of the '530 Patent since at least the filing of this Complaint or shortly thereafter, and on information and belief, Nutanix knew of the '530 Patent and knew of its infringement, including by way of this lawsuit.

44. Upon information and belief, Nutanix's affirmative acts of making, using, and selling the Accused Instrumentalities, and providing implementation services and technical support to users of the Accused Instrumentalities, have induced and continue to

induce users of the Accused Instrumentalities to use them in their normal and customary way to infringe Claim 1 of the '530 Patent by making or using a system comprising: a memory device; and a data accelerator, wherein said data accelerator is coupled to said memory device, a data stream is received by said data accelerator in received form, said data stream includes a first data block and a second data block, said data stream is compressed by said data accelerator to provide a compressed data stream by compressing said first data block with a first compression technique and said second data block with a second compression technique, said first and second compression techniques are different, said compressed data stream is stored on said memory device, said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received form, a first data descriptor is stored on said memory device indicative of said first compression technique, and said first descriptor is utilized to decompress the portion of said compressed data stream associated with said first data block.

45. For example, Nutanix explains to customers the benefits of using the Accused Instrumentality: "Proprietary storage efficiency technologies have been built into Nutanix to maximize the usable capacity within a cluster. Effective storage capacity can be increased through compression, deduplication, and erasure coding (EC-X)." *See* Nutanix All-Flash Solutions.

46. Nutanix also induces its customers to use the Accused Instrumentalities to infringe other claims of the '530 Patent. Nutanix specifically intended and was aware that these normal and customary activities would infringe the '530 Patent. Nutanix performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '530 Patent and with the knowledge, or willful

blindness to the probability, that the induced acts would constitute infringement. On information and belief, Nutanix engaged in such inducement to promote the use of the Accused Instrumentalities. Accordingly, Nutanix has induced and continues to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '530 Patent, knowing that such use constitutes infringement of the '530 Patent.

47. Nutanix also indirectly infringes the '530 Patent by manufacturing, using, selling, offering for sale, and/or importing the accused products, with knowledge that the accused products were and are especially manufactured and/or especially adapted for use in infringing the '530 Patent and are not a staple article or commodity of commerce suitable for substantial non-infringing use. On information and belief, the Accused Instrumentality is designed to function with compatible hardware to create a system comprising: a memory device; and a data accelerator, wherein said data accelerator is coupled to said memory device, a data stream is received by said data accelerator in received form, said data stream includes a first data block and a second data block, said data stream is compressed by said data accelerator to provide a compressed data stream by compressing said first data block with a first compression technique and said second data block with a second compression technique, said first and second compression techniques are different, said compressed data stream is stored on said memory device, said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received form, a first data descriptor is stored on said memory device indicative of said first compression technique, and said first descriptor is utilized to decompress the portion of said compressed data stream associated with said

first data block. Because the Accused Instrumentality is designed to operate as the claimed system for compressing, the Accused Instrumentality has no substantial non-infringing uses, and any other uses would be unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental. Nutanix's manufacture, use, sale, offering for sale, and/or importation of the Accused Instrumentality constitutes contributory infringement of the '530 Patent.

48. The Accused Instrumentality includes the memory device and includes the data accelerator, wherein said data accelerator is coupled to said memory device. For example, Nutanix offers storage tiers that are divided into two categories: "performance tiers (RAM and SSD)" and "capacity tiers (HDD)." *See* https://portal.nutanix.com/#/page/docs/details?targetId=Web_Console_Guide-Acr_v4_5:sto_dedup_recommend_c.html. Nutanix also "offers a suite of data reduction capabilities such as inline and post-process compression and deduplication." *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

49. The Accused Instrumentality receives an incoming stream of data. *See* <https://www.nutanix.com/products/acropolis/enterprise-storage-capabilities/> ("Unlike traditional storage systems that break up incoming I/O requests into fixed 4KB chunks, Nutanix efficiently handles block sizes of variable length across the entire write path.").

50. The Accused Instrumentality's received data stream comprise more than one data block. *See* <https://www.nutanix.com/products/acropolis/enterprise-storage-capabilities/> ("Unlike traditional storage systems that break up incoming I/O requests into fixed 4KB chunks, Nutanix efficiently handles block sizes of variable length across the

entire write path.”).

51. The Accused Instrumentality compresses said data stream to provide a compressed data stream by compressing said first data block with a first compression technique and said second data block with a second compression technique. For example, Nutanix’s deduplication engine “performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Furthermore, Nutanix uses LZ4 or LZ4HC compression encoder. As such, Nutanix discloses that “[T]he data is first compressed with LZ4, which is a lightweight compression algorithm. After the data becomes cold and if the data is further compressible, the data is compressed with LZ4HC, which is a heavyweight compression algorithm.” *See* <https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>.

52. The first and second compression techniques used by the Accused Instrumentality described above are different. For example, Nutanix “offers a suite of data reduction capabilities such as inline and post-process compression and deduplication.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>. Nutanix specifies that “[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Furthermore, Nutanix uses LZ4 or LZ4HC compression encoder. As such, Nutanix discloses that “[T]he data is first compressed with LZ4, which is a lightweight compression algorithm. After the data becomes cold and if the data is further compressible, the data is compressed with LZ4HC, which is a heavyweight compression algorithm.” *See* <https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>.

53. After compression, said compressed data stream is stored on said memory device. Nutanix states that “[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Moreover, Nutanix also mentions that “[C]ompression optimizes the use of storage capacity.” *See* <https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>.

54. Said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received form. For example, Nutanix’s deduplication engine “performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>. Moreover, Nutanix offers “a flexible solution per VM that optimizes both the performance and capacity tier, intelligently selects only the high yield candidates to deduplicate, and is mindful of system resources, metadata and fragmentation.” *See*

<https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

55. The Accused Instrumentality stores a first data descriptor on said memory device indicative of said first compression technique. For example, Nutanix states that “[D]eduplication in storage is a data reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” See <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

56. On information and belief, Nutanix also infringes, directly and through induced infringement and contributory infringement, and continues to infringe other claims of the ’530 Patent.

57. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the ’530 Patent.

58. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentalities, and touting the benefits of using the Accused Instrumentalities’ compression features, Nutanix has injured Realtime and is liable to Realtime for infringement of the ’530 Patent pursuant to 35 U.S.C. § 271.

59. As a result of Nutanix’s infringement of the ’530 Patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Nutanix’s infringement, but in no event less than a reasonable royalty for the use made of the invention by Nutanix, together with interest and costs as fixed by the Court.

COUNT IV
INFRINGEMENT OF U.S. PATENT NO. 9,116,908

60. Plaintiff Realtime realleges and incorporates by reference the foregoing paragraphs, as if fully set forth herein.

61. Plaintiff Realtime is the owner by assignment of United States Patent No. 9,116,908 (“the ’908 Patent”) entitled “System and methods for accelerated data storage and retrieval.” The ’908 Patent was duly and legally issued by the United States Patent and Trademark Office on August 25, 2015, and Claims 1, 2, 4-6, 9, 11, 21, 22, 24, and 25 of the ’908 Patent confirmed as patentable in a Final Written Decision of the Patent Trial and Appeal Board on October 31, 2017. A true and correct copy of the ’908 Patent is included as Exhibit D.

62. On information and belief, Nutanix has offered for sale, sold and/or imported into the United States Nutanix products and services that infringe the ’908 Patent, and continues to do so. By way of illustrative example, these infringing products and services include, without limitation, Nutanix’s products and services, *e.g.*, Nutanix Enterprise Cloud Platform, Acropolis (Acropolis Operating System), Acropolis File Services, Container Storage Services, Backup and Recovery, Enterprise Cloud OS M10, FlashArray M20, FlashArray M50, FlashArray M70, and FlashArray X70, and the system hardware on which they operate, and all versions and variations thereof since the issuance of the ’908 Patent (the “Accused Instrumentality”).

63. On information and belief, Nutanix has directly infringed and continues to infringe the ’908 Patent, for example, through its own use and testing of the Accused Instrumentality, which constitutes a system comprising: a memory device; and a data accelerator configured to compress: (i) a first data block with a first compression

technique to provide a first compressed data block; and (ii) a second data block with a second compression technique, different from the first compression technique, to provide a second compressed data block; wherein the compressed first and second data blocks are stored on the memory device, and the compression and storage occurs faster than the first and second data blocks are able to be stored on the memory device in uncompressed form. Upon information and belief, Nutanix uses the Accused Instrumentality, an infringing system, for its own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Nutanix's customers.

64. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the systems claimed by the '908 Patent.

65. On information and belief, Nutanix has had knowledge of the '908 Patent since at least the filing of this First Amended Complaint or shortly thereafter, and on information and belief, Nutanix knew of the '908 Patent and knew of its infringement, including by way of this lawsuit.

66. Upon information and belief, Nutanix's affirmative acts of making, using, and selling the Accused Instrumentalities, and providing implementation services and technical support to users of the Accused Instrumentalities, have induced and continue to induce users of the Accused Instrumentalities to use them in their normal and customary way to infringe Claim 1 of the '908 Patent by making or using a system comprising: a memory device; and a data accelerator configured to compress: (i) a first data block with a first compression technique to provide a first compressed data block; and (ii) a second

data block with a second compression technique, different from the first compression technique, to provide a second compressed data block; wherein the compressed first and second data blocks are stored on the memory device, and the compression and storage occurs faster than the first and second data blocks are able to be stored on the memory device in uncompressed form. For example, Nutanix explains to customers the benefits of using the Accused Instrumentalities, such as by touting their performance advantages: “Proprietary storage efficiency technologies have been built into Nutanix to maximize the usable capacity within a cluster. Effective storage capacity can be increased through compression, deduplication, and erasure coding (EC-X).” *See* Nutanix All-Flash Solutions. For similar reasons, Nutanix also induces its customers to use the Accused Instrumentalities to infringe other claims of the '908 Patent. Nutanix specifically intended and was aware that these normal and customary activities would infringe the '908 Patent. Nutanix performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '908 Patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Nutanix engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Nutanix has induced and continues to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '908 Patent, knowing that such use constitutes infringement of the '908 Patent.

67. The Accused Instrumentality includes a memory device and a data accelerator configured to compress: (i) a first data block with a first compression technique (e.g., deduplication) to provide a first compressed data block; and (ii) a second

data block with a second compression technique (e.g., another compression), different from the first compression technique, to provide a second compressed data block. For example, the Accused Instrumentalities also use one or more memory devices, including, e.g., solid state drives (SSDs), RAM, and HDDs. For example, Nutanix offers storage tiers that are divided into two categories: “performance tiers (RAM and SSD)” and “capacity tiers (HDD).” *See*

[https://portal.nutanix.com/#/page/docs/details?targetId=Web_Console_Guide-](https://portal.nutanix.com/#/page/docs/details?targetId=Web_Console_Guide-Acr_v4_5:sto_dedup_recommend_c.html)

[Acr_v4_5:sto_dedup_recommend_c.html](https://portal.nutanix.com/#/page/docs/details?targetId=Web_Console_Guide-Acr_v4_5:sto_dedup_recommend_c.html). Nutanix also “offers a suite of data reduction capabilities such as inline and post-process compression and deduplication.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Nutanix’s deduplication engine “performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Moreover, Nutanix uses LZ4 or LZ4HC compression encoder. As such, Nutanix discloses that “[T]he data is first compressed with LZ4, which is a lightweight compression algorithm. After the data becomes cold and if the data is further compressible, the data is compressed with LZ4HC, which is a heavyweight compression algorithm.” *See*

<https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>.

68. The Accused Instrumentality stores the compressed first and second data blocks on the memory device. Nutanix states that “[D]eduplication in storage is a data

reduction technique that eliminates redundant copies of bit sequences. Instead of storing multiple copies of the same chunk of data, references to a single copy are stored.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Moreover, Nutanix also mentions that “[C]ompression optimizes the use of storage capacity.” *See* <https://portal.nutanix.com/#/page/docs/details?targetId=Web-Console-Guide-Prism-v50:sto-compression-c.html>. The compression and storage occurs faster than the first and second data blocks are able to be stored on the memory device in uncompressed form. For example, Nutanix’s deduplication engine “performs inline deduplication in the performance tiers (RAM and flash), and post-process deduplication of high-yield only candidates in the capacity tier, optimizing across both the performance and capacity tiers without impacting foreground operations.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>.

Moreover, Nutanix offers “a flexible solution per VM that optimizes both the performance and capacity tier, intelligently selects only the high yield candidates to deduplicate, and is mindful of system resources, metadata and fragmentation.” *See* <https://www.nutanix.com/2014/11/05/adaptive-vs-inlinealways-on-deduplication/>

69. On information and belief, Nutanix also infringes, directly and through induced infringement, and continues to infringe other claims of the ’908 Patent.

70. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentalities, and touting the benefits of using the Accused Instrumentalities’ compression features, Nutanix has injured Realtime and is liable to Realtime for infringement of the ’908 Patent pursuant to 35 U.S.C. § 271.

71. As a result of Nutanix's infringement of the '908 Patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Nutanix's infringement, but in no event less than a reasonable royalty for the use made of the invention by Nutanix, together with interest and costs as fixed by the Court.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Realtime respectfully requests that this Court enter:

- a. A judgment in favor of Plaintiff that Nutanix has infringed, either literally and/or under the doctrine of equivalents, the '728 Patent, the '751 Patent, the '530 Patent, and the '908 Patent;
- b. A permanent injunction prohibiting Nutanix from further acts of infringement of the '728 Patent, the '751 Patent, the '530 Patent, and the '908 Patent;
- c. A judgment and order requiring Nutanix to pay Plaintiff its damages, costs, expenses, and prejudgment and post-judgment interest for its infringement of the '728 Patent, the '751 Patent, the '530 Patent, and the '908 Patent; and
- d. A judgment and order requiring Nutanix to provide an accounting and to pay supplemental damages to Realtime, 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 Plaintiff its reasonable attorneys' fees against Defendants; and
- f. Any and all other relief as the Court may deem appropriate and just under the circumstances.

DEMAND FOR JURY TRIAL

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

Dated: August 7, 2018

BAYARD, P.A.

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