UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE

REALTIME DATA LLC d/b/a IXO, Plaintiff, v. CTERA NETWORKS, LTD., Defendant.	C.A. No. 1:18-cv-02017-CFC **JURY TRIAL DEMANDED**

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT AGAINST CTERA, 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 CTERA Networks, LTD. ("CTERA" 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 40 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, CTERA is a Delaware entity with its principal place of business at 205 E. 42nd Street, New York, New York 10017. CTERA can be served through its registered agent, VCORP Services, LLC, 1013 Centre Road Suite 403-B, Wilmington, Delaware 19805.

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 CTERA in this action because CTERA 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 CTERA would not offend traditional notions of fair play and substantial justice. CTERA, 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, CTERA 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.

ASSERTED PATENTS

6. 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.

7. 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.

8. 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.

9. 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.

10. In addition to the factual allegations set forth below for each of the Counts, the following are non-exhaustive list of fact-based claim constructions that confirm that the claimed solutions do not just cover any form of digital data compression techniques but

instead are more focused—and covers a technical sub-species of digital data compression. These constructions include the following:[1]

a. "compressing" / "compressed" / "compression": [representing / represented / representation of] data with fewer bits.

b. "descriptor": recognizable digital data

c. "data stream": one or more data blocks transmitted in sequence

d. "data block": a single unit of data, which may range in size from individual bits through complete files or collection of multiple files

e. "analyze": directly examine

11. Prior constructions in earlier-filed cases involving the '728, '530, and '908 patents, and patent related to the '751 patent confirm that the claimed methods and systems are in fact limited to *the compression of digital data*. For example, pursuant to a stipulation, a Texas court construed the term "compress"—a term used in all patents—to mean "represent data **with fewer bits**." *Realtime Data LLC v. Actian Corp. et al.*, Case No. 15-cv-463-RWS-JDL, Dkt. No. 362 (E.D. Tex. July 28, 2016). This construction confirmed that the claimed inventions were limited to the realm of digital-data compression, as a "bit" is a unit of digital data. The constructions of other claim terms, such as "data block" and "accelerator" also confirmed that the patented inventions are unique to the compression of digital data. For example, the plain and ordinary meaning of the term "data block" was stipulated to be "a single **unit of data**," which may only "range in size from individual **bits**

[1] Realtime reserves the right to modify these constructions as case progresses, consistent with the practice of meeting and conferring that are typical in any claim construction proceeding.

through complete files or collection of multiple files." *Realtime Data LLC v. Actian Corp. et al.*, Case No. 15-cv-463-RWS-JDL, Dkt. No. 362 (E.D. Tex. July 28, 2016).

12. The asserted '728, '530, and '908 patents, and a patent related to the '751 patent have gone through §101 scrutiny before in multiple districts. In a detailed, twenty-two-page opinion issued on September 20, 2017, a court in Texas ruled, in a Report and Recommendation by Magistrate Judge Love, that the asserted '728, '530, and '908 patents and a patent that is related to the '751 patent are "inventive" and "directed to patent eligible subject matter" because they disclose "specific improvement[s] in computer capabilities." *Realtime Data LLC v. Carbonite, Inc.*, Case No. 17-cv-121, D.I. 70 (E.D. Tex. Sept. 20, 2017), *e.g.,* at 7, 10, 15, 16, 20.[2]

13. On March 7, 2018, after the Carbonite case was transferred to Massachusetts, District Judge Young in Massachusetts adopted in full Judge Love's rulings "[a]fter careful consideration." *Realtime Data LLC v. Carbonite, Inc.*, Case No. 1:17-cv-12499, D.I. 97 (D. Mass. March 7, 2018).

14. In addition, two judges in Texas also denied other §101 motions involving two of the three patent families at issue here. In one, Magistrate Judge Love held that "an assessment of the claims at issues—by a careful reading of the claims themselves—does not clearly reveal that the patents are abstract." *Realtime Data LLC v. Actian Corp.*, 6:15-CV-463-RWS-JDL, D.I. 184 (E.D. Tex. Nov. 30, 2015). In the other, District Judge Schroeder adopted this ruling and further held that under Realtime's view, namely, that the claims are directed to the compression of digital data, the argument that the patents are

[2] U.S. Pat. No. 8,717,204 at issue in the Carbonite case is related to (and shares substantially the same specification as) the '751 patent asserted here.

directed to an abstract idea "would fail" because the patents "provide technological solutions to problems arising specifically in the realm of computer technology." *Realtime Data LLC v. Actian Corp.*, 6:15-CV-463-RWS-JDL, D.I. 226 (E.D. Tex. Jan. 21, 2016). Thus, in affirming the denial of the motions to dismiss, Judge Schroeder stated that, if the claim construction proceedings confirmed that the claimed inventions are specific to the methods and systems for the compression of digital data, then the claims would indeed be patent-eligible. *Realtime Data LLC v. Actian Corp. et al.* (E.D. Tex. Case No. 15-cv-463) involved the '530 and '908 patents asserted in this case, as well as Pat. Nos. 7,378,992 and 8,643,513, which are related to (and share substantially the same specification as) the '728 patent asserted here.

15. These rulings show that the patents are directed to patent eligible subject matter, and that they are also inventive.

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

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

17. 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.

18. The claims at issue here are not abstract, but rather are limited to particularized technological solutions that improve computer capabilities—e.g., digital data compression systems to increase the capacity of a computer system to store or transfer data more efficiently.

19. The '728 patent teaches various improved, particularized digital data compression systems and methods to address problems specific to digital data. Indeed, the patent itself states that it deals specifically with limitations and problems arising in the realm of compressing "**[d]iffuse digital data"** which is **"a representation of data that . . . is typically not easily recognizable to humans in its native form**." '728 patent at 1:52-54.

20. In their most basic form, and ignoring many claim limitations, the claims of The '728 patent is directed to systems and methods of digital-data compression utilizing multiple encoders to compress data blocks based on an analysis of the specific content or type of the data being encoded. *See*, *e.g.*, '728 patent at Abstract, 3:59–5:12. The '728 patent addresses specific problems in the field of losslessly compressing digital data, including:

a. "their content sensitive behavior . . . often referred to as data dependency"

b. "significant variations in the compression ratio obtained when using a single lossless data compression[3] technique for data streams having different data content and data size [*i.e.*,] natural variation"

'728 patent at 1:55–3:55. The patent further explains that, while "conventional content dependent techniques may be utilized" to combat some of the problems described above, even those content dependent techniques had limitations because they relied exclusively

[3] In "lossless" compression, "the decoded (or reconstructed) data is identical to the original uncompressed/unencoded data." *See, e.g*., '728 patent at 2:21-24.

on a descriptor such as, e.g., file extensions (e.g., ".doc," ".txt," etc.). The limitations included:

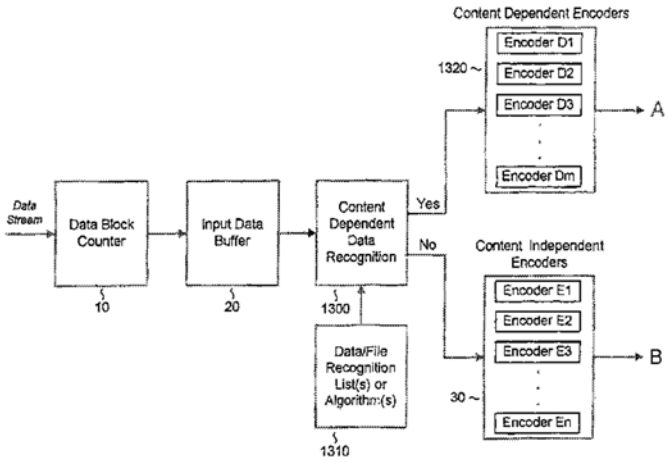
c. "the extremely large number of application programs, some of which do not possess published or documented file formats, data structures, or data type descriptors"

d. "the ability for any data compression supplier or consortium to acquire, store, and access the vast amounts of data required to identify known file descriptors and associated data types, data structures, and formats"

e. "the rate at which new application programs are developed and the need to update file format data descriptions accordingly"

Id. at 3:8–19.

21. The '728 patent solves these technological problems and others with a novel technological solution in digital-data compression utilizing multiple encoders to compress data blocks based on an analysis of the specific content or type of the data being encoded without relying solely on a descriptor such as, e.g., file extensions. For example, when one or more digital-data parameters are identified in the content of the digital data blocks, the inventions will utilize one form of a compression encoder. And if no such digital-data parameter is identified, the inventions will utilize a different form of a compression encoder. The analysis of the digital data is not based solely a descriptor (e.g., file extensions). *See, e.g.,* '728 patent claim 1. Figure 13A of the '728 patent is illustrative of one preferred embodiment:



22. To address the technological problems, the claims requires unconventional combination of elements, e.g., (1) "wherein determining is not based solely on a descriptor that is indicative of the parameter or attribute of the data within the data block"; (2) "compressing, if the parameter or attribute of the data … is identified, the data block with at least one encoder associated with the parameter or attribute," and (3) "compressing, if the parameter or attribute … is not identified, the data block with at least one encoder associated with a non-identifiable parameter or attribute."

23. Further, the file history confirms that the claims were inventive over prior art and not well-understood, routine, and conventional. For instance, the patent claims were allowed by the PTO after the PTO considered hundreds of references, which are cited in the "References Cited" portion of the patent.

24. Claim 1 is not representative of all claims of the '728 patent. For example, claim 24 requires "a default data compression encoder," which is not a limitation in claim 1 or other claims.

25. The claims do not merely recite a result. Instead, they recite specific steps for accomplishing a result—e.g., comprising performing determination of parameter or

attribute wherein the determining is not based solely on a descriptor that is indicative of the parameter or attribute of the data within the data block, and compressing using two different encoders based on the determined parameter or attribute, among other things.

26. The dependent claims contain limitations not found in independent claims. For example, dependent claim 2 recites "wherein the data block is received in an uncompressed form, the data block being included in one or more data blocks transmitted in sequence originating from an external source"; claim 11 recites "wherein the content dependent data compression further comprises associating a plurality of encoders to the one or more parameters or attributes of the data, wherein at least one of the plurality of encoders provides lossy compression and at least another one of the plurality of encoders provides lossless compression"; claim 12 recites "wherein the content dependent data compression is lossy or lossless depending on the one or more parameters or attributes of the data"; claim 13 recites "wherein the content dependent data compression is lossy and an amount of desired resolution of the lossy compression is selected"; claim 16 recites "wherein the processor is further configured to output the data block in uncompressed form if the content dependent data compression results in a compressed data block indicative of data expansion"; claim 23 recites "wherein at least one content dependent data compression technique performed by the one or more content dependent data compression encoders is lossy and a data compression technique performed by the single data compression encoder is lossless." These elements are also unconventional and novel over the numerous prior art references cited and considered during patent prosecution.

27. In a patent filed by Altera in 2012, it admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression

system: "In order to better meet the requirements of higher speed data transfer, reduced memory utilization and minimal computation in many computing applications, a need exists for computationally efficient compression and decompression." U.S. Pat. No. 9,026,568 at 2:43-47.

28. Similarly, in a 2013 patent filed by Western Digital, it also admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression system: "It is desirable to provide mechanisms and architectures for increasing capacity, reliability, and performance of data storage systems." U.S. Pat. No. 9,448,738 at 1:33-35.

29. The statements in these later-filed patents confirm that Realtime's patent at issue here are directed to technical solutions to technical problems, and improves computer functionalities. The statements in these later-filed patents also confirm that the limitations recited in Realtime's patent at issue here are not well-understood, routine, or conventional, and that the claims are not directed to other ideas "identified by the courts as abstract ideas," that recently have been synthesized into three groups: "(a) mathematical concepts"; "(b) methods of organizing human activity"; or "(c) mental processes." 84 Fed. Reg. 50 (Jan. 7, 2019) (2019 PTO §101 Guidance, citing and surveying post-*Alice* decisions).

30. On information and belief, CTERA has offered for sale, sold and/or imported into the United States CTERA 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, CTERA's products and services, *e.g.*, Enterprise File Services Platform, CTERA Cloud Storage Gateways, CTERA Drive, CTERA platform,

and the system hardware on which they operate, and all versions and variations thereof since the issuance of the '728 Patent ("Accused Instrumentalities").

31. On information and belief, CTERA 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 perform the computer implemented method for compressing data claimed by Claim 25 of the '728 Patent, comprising: analyzing, using a processor, data within a data block to identify one or more parameters or attributes of the data within the data block; determining, using the processor, whether to output the data block in a received form or in a compressed form; and outputting, using the processor, the data block in the received form or the compressed form based on the determination, wherein the outputting the data block in the compressed form comprises determining whether to compress the data block with content dependent data compression based on the one or more parameters or attributes of the data within the data block or to compress the data block with a single data compression encoder; and 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 only on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block. Upon information and belief, CTERA uses the Accused Instrumentalities, which perform the infringing method, 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 CTERA's customers.

32. CTERA also indirectly infringes the ’728 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 ’728 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 perform the computer implemented method for compressing data claimed by Claim 25 of the ’728 Patent, comprising: analyzing, using a processor, data within a data block to identify one or more parameters or attributes of the data within the data block; determining, using the processor, whether to output the data block in a received form or in a compressed form; and outputting, using the processor, the data block in the received form or the compressed form based on the determination, wherein the outputting the data block in the compressed form comprises determining whether to compress the data block with content dependent data compression based on the one or more parameters or attributes of the data within the data block or to compress the data block with a single data compression encoder; and 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 only on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block. Because the Accused Instrumentality is designed to perform the claimed method for compressing data, the Accused Instrumentality has no substantial non-infringing uses, and any other uses would be unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental. CTERA’s manufacture, use, sale, offering for sale, and/or importation of the Accused Instrumentality constitutes contributory infringement of the ’728 Patent.

33. On information and belief, CTERA 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, CTERA knew of the '728 Patent and knew of its infringement, including by way of this lawsuit.

34. CTERA'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 25 of the '728 Patent, knowing that when the Accused Instrumentalities are used in their ordinary and customary manner with such compatible systems, such systems perform a computer implemented method for compressing data comprising: analyzing, using a processor, data within a data block to identify one or more parameters or attributes of the data within the data block; determining, using the processor, whether to output the data block in a received form or in a compressed form; and outputting, using the processor, the data block in the received form or the compressed form based on the determination, wherein the outputting the data block in the compressed form comprises determining whether to compress the data block with content dependent data compression based on the one or more parameters or attributes of the data within the data block or to compress the data block with a single data compression encoder; and 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 only on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block. For example, CTERA explains to customers the benefits of using the Accused Instrumentalities, such as by touting their performance advantages: "CTERA employs source-based de-

duplication and compression, minimizing impact on WAN bandwidth and reducing storage usage by up to 90%." https://www.ctera.com/technology/platform/. CTERA specifically intended and was aware that the normal and customary use of the Accused Instrumentalities on compatible systems would infringe the '728 Patent. CTERA 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, CTERA engaged in such inducement to promote the sales of the Accused Instrumentalities, *e.g.,* through CTERA'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, CTERA 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.

35. The Accused Instrumentalities perform a computer implemented method for compressing data. For example, the Accused Instrumentalities "performs deduplication, compression, and encryption before the data is transferred to minimize costs." *See* CTERA Platform Overview & Architecture. As another example, the Accused Instrumentalities run "on endpoints, mobile devices, and servers" and are "OS-integrated including right-click synchronization and self-restore." *See* CTERA Platform Overview & Architecture. As such, the mobile devices, servers, and endpoints include a processor.

36. The Accused Instrumentalities perform a computer implemented method for compressing data comprising analyzing, using a processor, data within a data block to identify one or more parameters or attributes of the data within the data block, for example, whether the data is duplicative of data previously transmitted and/or stored. For example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture.

37. The Accused Instrumentalities perform a computer implemented method for compressing data comprising determining, using the processor, whether to output the data block in a received form or in a compressed form. For example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture. For example, the Accused Instrumentalities state that "[I]n addition to de-dup, all data is compressed before being sent over WAN." Moreover, the Accused Instrumentalities state that "[O]nce the chunks are encrypted, they are compressed via snappy or gzip." *See* CTERA Platform Overview & Architecture. Realtime is informed and believes that if the block is not outputted as a compressed block after the use of deduplication or Gzip, e.g. because the use of compression on the block caused it to increase in size, the block is outputted in received form.

38. The Accused Instrumentalities perform a method of compressing data comprising outputting, using the processor, the data block in the received form or the compressed form based on the determination, wherein the outputting the data block in the compressed form comprises determining whether to compress the data block with content dependent data compression based on the one or more parameters or attributes of the data within the data block or to compress the data block with a single data compression encoder. For example, the Accused Instrumentalities "performs deduplication, compression, and encryption before the data is transferred to minimize costs." *See* CTERA Platform Overview & Architecture. As another example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size" and "[O]nce the chunks are encrypted, they are compressed via snappy or gzip." *See* CTERA Platform Overview & Architecture. For example, deduplication is an example of content dependent data compression. For example, snappy or gzip are examples of a single compression encoder.

39. The Accused Instrumentalities perform a computer implemented method for compressing 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 only on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block. For example, the Accused Instrumentalities analyze data within a data block to identify whether the data is duplicative of data previously transmitted and/or stored, where the analysis does not rely only on the descriptor. For example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks),

and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture.

40. 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.

41. 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, CTERA has injured Realtime and is liable to Realtime for infringement of the '728 Patent pursuant to 35 U.S.C. § 271.

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

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

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

44. 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.

45. The claims at issue here are not abstract, but rather are limited to particularized technological solutions that improve computer capabilities—e.g., digital

data compression systems to increase the capacity of a computer system to store or transfer data more efficiently.

46. The '751 patent teaches various improved, particularized digital data compression systems and methods to address problems specific to digital data. Indeed, the patent itself indicate that it deals specifically with limitations and problems arising in the realm of compressing digital data. *See, e.g.,* '751 patent at 3:38-45.

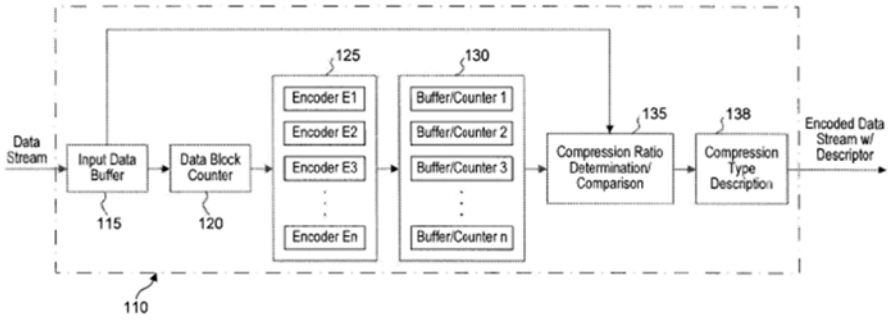
47. In their most basic form, and ignoring many claim limitations, the claims of the '751 patent are directed to systems and methods for providing accelerated data transmission of digital data and effectively increasing the bandwidth of the communication channel and/or reducing the latency of data transmission. '751 patent at Abstract, 5:33–50. The '751 patent addresses specific problems in the field of optimally transmitting digital data, including:

a. "the latency induced by the act of encryption, compression, decryption, and decompression"
b. "substantial latency caused by aggregating data packets due to poor data compression efficiency and packet overhead"
c. capacity limitations of data transmission using existing T1 lines
d. "[t]he limitation of highly significant bandwidth and/or long delays with co-location processing and long latency times"

'751 patent at 1:40–5:22.

48. The '751 patent solves these and other technological problems and limitations in the prior art by providing novel technological solutions in digital data transmission, which provide, among other things, transmission and transparent

multiplication of digital-data communication bandwidth, as well as a potential reduction of the latency associated with data transmission of conventional systems, and also by utilizing a state machine to compress data blocks based on an analysis of the specific content of the data being encoded. *Id.* at 5:13–29, 6:13–40. "The effective increase in bandwidth and reduction of latency of the communication channel is achieved by virtue of the faster than real-time, real-time, near real-time, compression of a received data stream prior to transmission." *Id.* at 6:28–40. The claimed invention recognizes a characteristic, attribute, or parameter of data to select a compression encoder, and uses a state machine to provide compressed data. *Id.* Advantages of the claimed inventions include "a consistent reduction in latency" where "[t]he data compression ratio is substantial and repeatable on each data packet," and packet independence (i.e., "no packet-to-packet data dependency"). *Id.* at 7:52–8:2. Figure 5 of the '751 patents is illustrative of one preferred embodiment.



49. To address the technological problems, the claims requires unconventional combination of elements, e.g.,: (a) "identif[ying] a parameter, attribute, or value of the data block," (b) analysis "that excludes analyzing based solely on reading a descriptor," (c) "selecting an encoder associated with the identified parameter, attribute, or value"; (c) "compressing data … with the selected encoder … utilizing a state machine"; (d) "storing

compressed data block"; and (e) 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."

50. Further, the file history confirms that the claims were inventive over prior art and not well-understood, routine, and conventional. For instance, the patent claims were allowed by the PTO after the PTO considered hundreds of references, which are cited in the "References Cited" portion of the patent.

51. Claim 1 is not representative of all claims of the '751 patent. For example, claim 15 requires "transmitting the compressed data blocks in a packetized data stream of data packets having control and compressed data information, and resetting the one or more local state machines at a predetermined point of each data packet in the packetized data stream," which is not a limitation in claim 1 or other claims.

52. The claims do not merely recite a result. Instead, they recite specific steps for accomplishing a result—e.g., comprising doing analysis that excludes analyzing based solely on reading a descriptor, selecting an encoder associated with the identified parameter, attribute, or value, and utilizing a state machine, among other things.

53. The dependent claims contain limitations not found in independent claims. For example, dependent claim 2 recites "transmitting the compressed data block in a data packet to a client, the data packet including both control information and compressed data information"; claim 3 recites "wherein the compressed data block is transmitted utilizing Transmission Control Protocol/Internet Protocol (TCP/IP)"; claim 10 recites "wherein the at least one synchronization point is a predetermined byte sequence"; and claim 11 recites "transmitting the compressed data block in a packetized data stream having data packets

that include control information and compressed data information, and wherein the selected encoder is a packet independent encoder." These elements are also unconventional and novel over the numerous prior art references cited and considered during patent prosecution.

54. In a patent filed by Altera in 2012, it admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression system: "In order to better meet the requirements of higher speed data transfer, reduced memory utilization and minimal computation in many computing applications, a need exists for computationally efficient compression and decompression." U.S. Pat. No. 9,026,568 at 2:43-47.

55. Similarly, in a 2013 patent filed by Western Digital, it also admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression system: "It is desirable to provide mechanisms and architectures for increasing capacity, reliability, and performance of data storage systems." U.S. Pat. No. 9,448,738 at 1:33-35.

56. The statements in these later-filed patents confirm that Realtime's patent at issue here are directed to technical solutions to technical problems, and improves computer functionalities. The statements in these later-filed patents also confirm that the limitations recited in Realtime's patent at issue here are not well-understood, routine, or conventional, and that the claims are not directed to other ideas "identified by the courts as abstract ideas," that recently have been synthesized into three groups: "(a) mathematical concepts"; "(b) methods of organizing human activity"; or "(c) mental processes." 84 Fed. Reg. 50 (Jan. 7, 2019) (2019 PTO §101 Guidance, citing and surveying post-*Alice* decisions).

57. On information and belief, CTERA has offered for sale, sold and/or imported into the United States CTERA 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, CTERA's products and services, *e.g.*, Enterprise File Services Platform, CTERA Cloud Storage Gateways, CTERA Drive, CTERA platform, and the system hardware on which they operate, and all versions and variations thereof since the issuance of the '751 Patent ("Accused Instrumentalities").

58. On information and belief, CTERA 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, CTERA 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 CTERA's customers.

59. On information and belief, CTERA 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, CTERA knew of the '751 Patent and knew of its infringement, including by way of this lawsuit.

60. Upon information and belief, CTERA'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, CTERA explains to customers the benefits of using the Accused Instrumentalities, such as by touting their efficiency: "CTERA employs source-based de-duplication and compression, minimizing impact on WAN bandwidth and reducing storage usage by up to 90%."

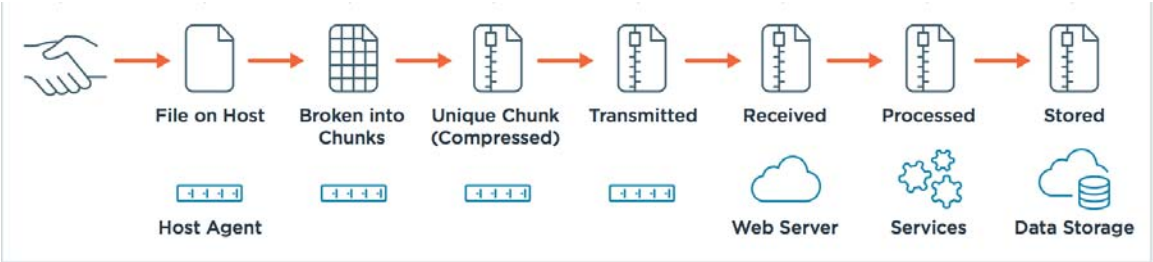
https://www.ctera.com/technology/platform/. For similar reasons, CTERA also induces its customers to use the Accused Instrumentalities to infringe other claims of the '751 Patent. CTERA specifically intended and was aware that these normal and customary activities would infringe the '751 Patent. CTERA 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, CTERA engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, CTERA 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.

61. CTERA also indirectly infringes the '751 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 '751 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 as 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. 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. CTERA's manufacture, use, sale, offering for sale, and/or importation of the Accused Instrumentality constitutes contributory infringement of the '751 Patent.

62. The Accused Instrumentalities include a system for compressing data. For example, the Accused Instrumentalities provide "deduplication, compression, and encryption before the data is transferred to minimize costs." *See* CTERA Platform Overview & Architecture.

63. The Accused Instrumentalities include a data server implemented on one or more processors and one or more memory systems. For example, the Accused Instrumentalities run "on endpoints, mobile devices, and servers" and are "OS-integrated including right-click synchronization and self-restore." *See* CTERA Platform Overview & Architecture. As such, the mobile devices, servers, and endpoints include a processor. As another example, the Accused Instrumentalities disclose "[T]he encrypted, compressed, unique chunks are received by the Portal and placed in a storage node." *See* CTERA Platform Overview & Architecture.



See CTERA Platform Overview & Architecture. On information and belief, all of the Accused Instrumentalities use one or more memory systems in substantially the same way.

64. 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 the Accused Instrumentalities determine if the block has previously been compressed (i.e. if the block is "new data"). For example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture.

65. 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. As such, the Accused Instrumentalities "performs deduplication, compression, and encryption before the data is transferred to minimize costs." *See* CTERA Platform Overview & Architecture. For example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture. For example, if the block has been seen before, deduplication will be applied to the block. For example, if the block has not been seen before, it will be compressed with gzip and/or snappy.

66. The Accused Instrumentalities include a 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. For example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture.

67. The Accused Instrumentalities include a data server configured to store the compressed data block. For example, the Accused Instrumentalities have storage devices, such as cloud storage. For example, the Accused Instrumentalities disclose "[T]he encrypted, compressed, unique chunks are received by the Portal and placed in a storage node." *See* CTERA Platform Overview & Architecture. 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.

68. 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, the Accused Instrumentality uses "data compression and data deduplication techniques to ensure that the backup happens as quickly and efficiently as possible." *See* CTERA Platform Overview & Architecture.

69. On information and belief, CTERA also infringes, directly and through induced infringement, and continues to infringe other claims of the '751 Patent.

70. 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.

71. 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, CTERA has injured Realtime and is liable to Realtime for infringement of the '751 Patent pursuant to 35 U.S.C. § 271.

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

COUNT III

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

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

74. 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.

75. The claims at issue here are not abstract, but rather are limited to particularized technological solutions that improve computer capabilities—e.g., digital data compression systems to increase the capacity of a computer system to store or transfer data more efficiently.

76. The '530 patent teaches various improved, particularized digital data compression systems and methods to address problems specific to digital data. Indeed, the patent itself states that it deals specifically with limitations and problems arising in the realm of compressing "**[d]iffuse digital data"** which is **"a representation of data that . . . is typically not easily recognizable to humans in its native form**." '908 patent at 1:33-37.[4]

77. In their most basic form, and ignoring many claim limitations, the claims of the '530 patent is directed to systems and methods of digital data compression utilizing a plurality of different encoders for accelerated storage and retrieval of data blocks. *See*, *e.g.*, '908 patent at Abstract, 2:58–60. The '530 patent addresses problems that existed in the realm of digital data compression, including:

a. "high performance disk interface standards . . . offer only the promise of higher data transfer rates through intermediate data buffering in random access memory"

b. "[f]aster disk access data rates are only achieved by the high cost solution of simultaneously accessing multiple disk drives with a technique known within the art as data striping"

[4] The '908 and '530 patents share substantially the same specification. Accordingly, citation to the '908 patent is equally applicable to the '530 patent, and vice versa.

c. "problems with bandwidth limitations similarly occur within the art by all other forms of sequential, pseudorandom, and random access mass storage devices"

'908 patent at 2:20–54.

78. The '530 patent solves the foregoing problems with novel technological solutions in digital data compression utilizing a plurality of different encoders, and optionally a compression descriptor, for accelerated storage and retrieval of data blocks. The novel approaches taught in the specification, include:

a. Using digital compression type descriptor "for output so as to indicate the type of compression format of the encoded data block"

b. "data storage and retrieval accelerator method and system [being] employed in a disk storage adapter to reduce the time required to store and retrieve data from computer to a disk memory device"

c. "data storage and retrieval accelerator method and system [being] employed in conjunction with random access memory to reduce the time required to store and retrieve data from random access memory"

d. "provid[ing] an effective increase of the data storage and retrieval bandwidth of a memory storage device"

'908 patent at 2:58–3:58; 12:14-59. Figure 8 illustrates of one preferred embodiment:

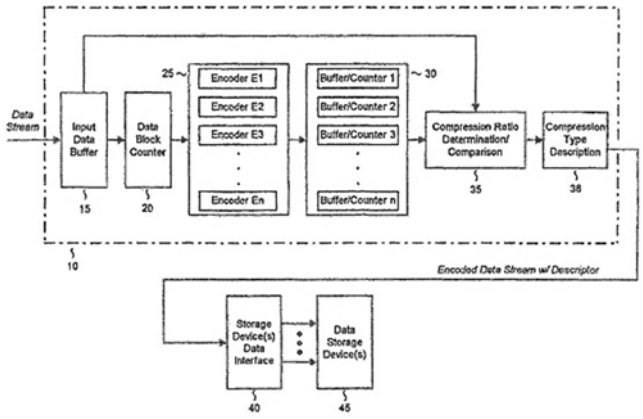


FIGURE 8

79. The claims require unconventional combination of elements, *e.g.*: (a) "a data accelerator" with two different compression techniques; (b) "a memory device"; (c) where the accelerator is configured to compress two data blocks; (d) including "a first data block with a first compression technique"; and (e) a "second data block with a second [and different] compression technique." ('530 patent cl. 1.) The accelerator is unconventional, as it requires two different compression techniques and the structural capability of compressing and storing digital data faster than the digital data can be stored in uncompressed form.

80. The novelty and unconventional nature of the '530 patent is further confirmed by the fact that the '530 patent has gone through the adversarial *inter partes* review process, after which all challenged claims were confirmed to be patentable. *E.g.,* IPR2016-00972 (PTAB, May 15, 2018).

81. Further, the file history confirms that the claims were inventive over prior art and not well-understood, routine, and conventional. For instance, the patent claims were allowed by the PTO after the PTO considered hundreds of references, which are cited in the "References Cited" portion of the patent.

82. Claim 1 is not representative of all claims of the ‘530 patent. For example, claim 24 of the ‘530 patent requires “wherein a data rate of the compressed data stream is adjusted, by modifying a system parameter, to make a bandwidth of the compressed data stream compatible with a bandwidth of the memory device,” which is not a limitation in claim 1 or other claims.

83. The claims do not merely recite a result. Instead, they recite specific steps for accomplishing a result—e.g., comprising a memory device and a data accelerator configured to compress two data blocks with two different compression techniques.

84. The dependent claims contain limitations not found in the independent claims. For example, dependent claim 2 recites “wherein said data accelerator stores said first descriptor to said memory device”; claim 5 recites “wherein said data accelerator retrieves said compressed data stream from said memory device and said decompression of the portion of said compressed data stream associated with said first data block is performed by said data accelerator”; claim 15 recites “wherein said first compression technique includes compressing with a plurality of encoders in a serial configuration.” These elements are also unconventional and novel over the numerous prior art references cited and considered during patent prosecution.

85. In a patent filed by Altera in 2012, it admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression system: “In order to better meet the requirements of higher speed data transfer, reduced memory utilization and minimal computation in many computing applications, a need exists for computationally efficient compression and decompression.” U.S. Pat. No. 9,026,568 at 2:43-47.

86. Similarly, in a 2013 patent filed by Western Digital, it also admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression system: "It is desirable to provide mechanisms and architectures for increasing capacity, reliability, and performance of data storage systems." U.S. Pat. No. 9,448,738 at 1:33-35.

87. The statements in these later-filed patents confirm that Realtime's patent at issue here are directed to technical solutions to technical problems, and improves computer functionalities. The statements in these later-filed patents also confirm that the limitations recited in Realtime's patent at issue here are not well-understood, routine, or conventional, and that the claims are not directed to other ideas "identified by the courts as abstract ideas," that recently have been synthesized into three groups: "(a) mathematical concepts"; "(b) methods of organizing human activity"; or "(c) mental processes." 84 Fed. Reg. 50 (Jan. 7, 2019) (2019 PTO §101 Guidance, citing and surveying post-*Alice* decisions).

88. On information and belief, CTERA has made, used, offered for sale, sold and/or imported into the United States CTERA products that infringe the '530 Patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, CTERA's products and services, e.g., Enterprise File Services Platform, CTERA Cloud Storage Gateways, CTERA Drive, CTERA platform, and all versions and variations thereof since the issuance of the '530 patent ("Accused Instrumentality").

89. On information and belief, CTERA 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, CTERA 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 CTERA's customers.

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

91. Upon information and belief, CTERA'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.

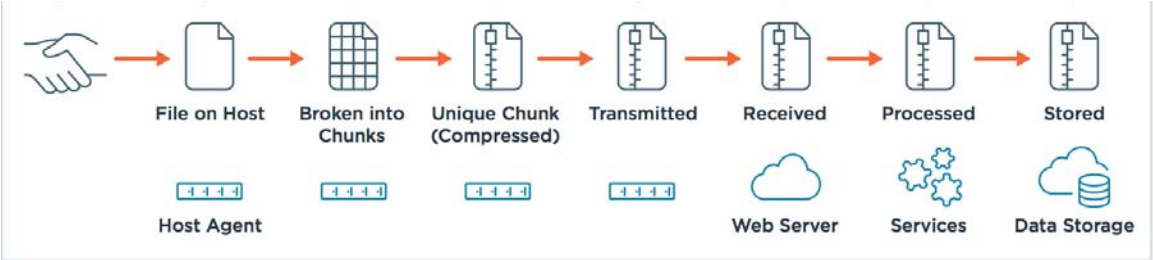
92. For example, CTERA explains to customers the benefits of using the Accused Instrumentality: "CTERA employs source-based de-duplication and compression, minimizing impact on WAN bandwidth and reducing storage usage by up to 90%." https://www.ctera.com/technology/platform/.

93. CTERA also induces its customers to use the Accused Instrumentalities to infringe other claims of the '530 Patent. CTERA specifically intended and was aware that these normal and customary activities would infringe the '530 Patent. CTERA 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, CTERA engaged in such inducement to promote the use of the Accused Instrumentalities. Accordingly, CTERA 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.

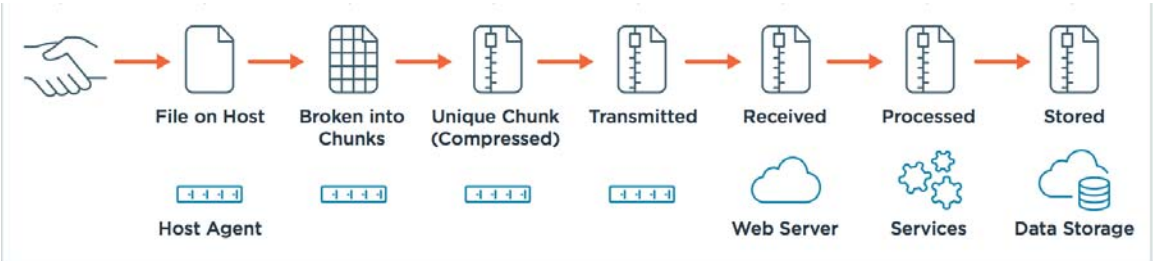
94. CTERA also indirectly infringes the ’530 Patent by manufacturing, using, selling, offering for sale, and/or importing the accused products, with knowledge that the accused products were and are especially manufactured and/or especially adapted for use in infringing the ’530 Patent and are not a staple 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. CTERA’s manufacture, use, sale, offering for sale, and/or importation of the Accused Instrumentality constitutes contributory infringement of the ’530 Patent.

95. The Accused Instrumentality includes the memory device and includes the data accelerator, wherein said data accelerator is coupled to said memory device. For example, the Accused Instrumentalities provide "deduplication, compression, and encryption before the data is transferred to minimize costs." *See* CTERA Platform Overview & Architecture.



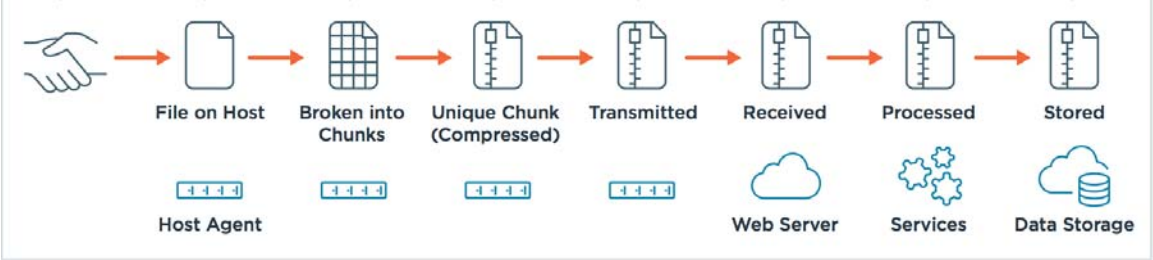
See CTERA Platform Overview & Architecture. Moreover, the Accused Instrumentalities disclose "[T]he encrypted, compressed, unique chunks are received by the Portal and placed in a storage node." *See* CTERA Platform Overview & Architecture.

96. The Accused Instrumentality receives an incoming stream of data. For example, the Accused Instrumentality receives data chunks of variable size. (*See* flow diagram below).



See CTERA Platform Overview & Architecture.

97. The Accused Instrumentality received data stream comprise more than one data block. For example, the Accused Instrumentality discloses that "the file is broken into chunks of variable size." *See* CTERA Platform Overview & Architecture.



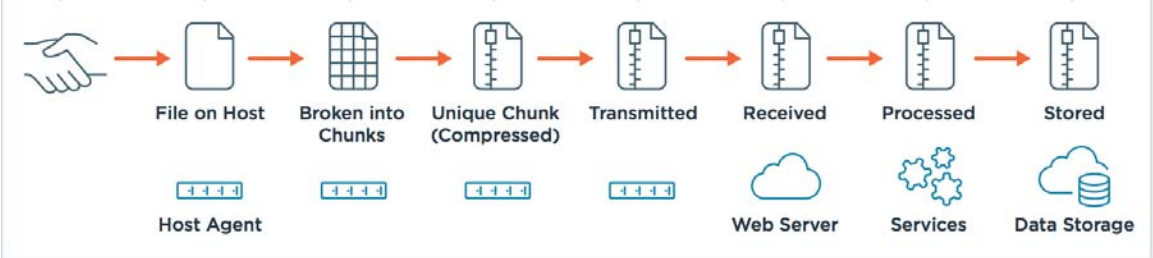
See CTERA Platform Overview & Architecture.

98. 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, deduplication is an example of a first compression technique. For example, gzip or snappy is an example of a second compression technique. For example, the Accused Instrumentalities provide "deduplication, compression, and encryption before the data is transferred to minimize costs." *See* CTERA Platform Overview & Architecture. As such, the Accused Instrumentalities perform deduplication to identify globally unique chunks and compresses the unique chunks via snappy or gzip. *See* CTERA Platform Overview & Architecture.

99. The first and second compression techniques used by the Accused Instrumentality described above are different. For example, the Accused Instrumentalities performs data deduplication. As such, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture. As another example, the Accused Instrumentalities state that "[I]n addition to de-dup, all data is compressed before being

sent over WAN." Moreover, the Accused Instrumentalities state that "[O]nce the chunks are encrypted, they are compressed via snappy or gzip." *See* CTERA Platform Overview & Architecture.

100. After compression, said compressed data stream is stored on said memory device. For example, the Accused Instrumentalities disclose "[T]he encrypted, compressed, unique chunks are received by the Portal and placed in a storage node." *See* CTERA Platform Overview & Architecture.



See CTERA Platform Overview & Architecture.

101. Said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received 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, the Accused Instrumentality uses "data compression and data deduplication techniques to ensure that the backup happens as quickly and efficiently as possible." *See* CTERA Platform Overview & Architecture.

102. The Accused Instrumentality stores a first data descriptor on said memory device indicative of said first compression technique. For example, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks

are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture. For example, the hash is an example of a descriptor indicative that deduplication was applied to the block.

103. On information and belief, CTERA also infringes, directly and through induced infringement and contributory infringement, and continues to infringe other claims of the '530 Patent.

104. 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.

105. 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, CTERA has injured Realtime and is liable to Realtime for infringement of the '530 Patent pursuant to 35 U.S.C. § 271.

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

COUNT IV

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

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

108. 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.

109. The claims at issue here are not abstract, but rather are limited to particularized technological solutions that improve computer capabilities—e.g., digital data compression systems to increase the capacity of a computer system to store or transfer data more efficiently.

110. The '908 patent teaches various improved, particularized digital data compression systems and methods to address problems specific to digital data. Indeed, the patent itself states that it deals specifically with limitations and problems arising in the realm of compressing "**[d]iffuse digital data"** which is **"a representation of data that . . . is typically not easily recognizable to humans in its native form**." '908 patent at 1:33-37.

111. In their most basic form, and ignoring many claim limitations, the claims of the '908 patent is directed to systems and methods of digital data compression utilizing a plurality of different encoders for accelerated storage and retrieval of data blocks. *See*, *e.g.*, '908 patent at Abstract, 2:58–60. The '908 patent addresses problems that existed in the realm of digital data compression, including:

a. "high performance disk interface standards . . . offer only the promise of higher data transfer rates through intermediate data buffering in random access memory"

b. "[f]aster disk access data rates are only achieved by the high cost solution of simultaneously accessing multiple disk drives with a technique known within the art as data striping"

c. "problems with bandwidth limitations similarly occur within the art by all other forms of sequential, pseudorandom, and random access mass storage devices"

'908 patent at 2:20–54.

112. The '908 patent solves the foregoing problems with novel technological solutions in digital data compression utilizing a plurality of different encoders, and optionally a compression descriptor, for accelerated storage and retrieval of data blocks. The novel approaches taught in the specification, include:

a. Using digital compression type descriptor "for output so as to indicate the type of compression format of the encoded data block"

b. "data storage and retrieval accelerator method and system [being] employed in a disk storage adapter to reduce the time required to store and retrieve data from computer to a disk memory device"

c. "data storage and retrieval accelerator method and system [being] employed in conjunction with random access memory to reduce the time required to store and retrieve data from random access memory"

d. "provid[ing] an effective increase of the data storage and retrieval bandwidth of a memory storage device"

'908 patent at 2:58–3:58; 12:14-59. Figure 8 illustrates of one preferred embodiment:

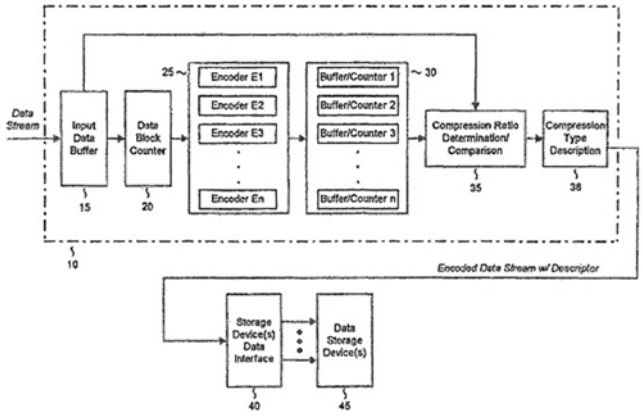


FIGURE 8

113. The claims require unconventional combination of elements, *e.g.*: (a) "a data accelerator" with two different compression techniques; (b) "a memory device"; (c) where the accelerator is configured to compress two data blocks; (d) including "a first data block with a first compression technique"; and (e) a "second data block with a second [and different] compression technique." (*Id.* 18:50-62.) The accelerator is unconventional, as it requires two different compression techniques and the structural capability of compressing and storing digital data faster than the digital data can be stored in uncompressed form.

114. The novelty and unconventional nature of the '908 patent is further confirmed by the fact that the '908 patent has gone through the adversarial *inter partes* review process, after which all challenged claims were confirmed to be patentable. *E.g.,* IPR2016-01002 (PTAB, Oct. 31, 2017).

115. Further, the file history confirms that the claims were inventive over prior art and not well-understood, routine, and conventional. For instance, the patent claims were

allowed by the PTO after the PTO considered hundreds of references, which are cited in the "References Cited" portion of the patent.

116. Claim 1 is not representative of all claims of the '908 patent. For example, claim 29 of the '908 patent requires "decompressing the first compressed data block and the second compressed data block, wherein the retrieval and decompression occurs faster than the first data block is able to be retrieved from the memory device in uncompressed form," which is not a limitation in claim 1 or other claims.

117. The claims do not merely recite a result. Instead, they recite specific steps for accomplishing a result—e.g., comprising a memory device and a data accelerator configured to compress two data blocks with two different compression techniques.

118. The dependent claims contain limitations not found in the independent claims. For example, dependent claim 3 recites "a second data descriptor on the memory device indicative of the second compression technique such that the second descriptor is capable of being utilized to decompress at least a portion of the second data block"; claim 9 recites "wherein the first compression technique applied to the first data block is a form of dictionary compression and the second compression technique applied to the second data block is a form of Lempel-Ziv compression"; claim 12 recites "wherein the first compression technique includes compressing with a plurality of encoders in a serial configuration"; claim 13 recites "wherein the first compression technique includes compressing with a plurality of encoders in a parallel configuration, each of the plurality of encoders having an identical type." These elements are also unconventional and novel over the numerous prior art references cited and considered during patent prosecution.

119. In a patent filed by Altera in 2012, it admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression system: "In order to better meet the requirements of higher speed data transfer, reduced memory utilization and minimal computation in many computing applications, a need exists for computationally efficient compression and decompression." U.S. Pat. No. 9,026,568 at 2:43-47.

120. Similarly, in a 2013 patent filed by Western Digital, it also admitted that there was still a technical problem associated with computer capacity and a need for a more efficient compression system: "It is desirable to provide mechanisms and architectures for increasing capacity, reliability, and performance of data storage systems." U.S. Pat. No. 9,448,738 at 1:33-35.

121. The statements in these later-filed patents confirm that Realtime's patent at issue here are directed to technical solutions to technical problems, and improves computer functionalities. The statements in these later-filed patents also confirm that the limitations recited in Realtime's patent at issue here are not well-understood, routine, or conventional, and that the claims are not directed to other ideas "identified by the courts as abstract ideas," that recently have been synthesized into three groups: "(a) mathematical concepts"; "(b) methods of organizing human activity"; or "(c) mental processes." 84 Fed. Reg. 50 (Jan. 7, 2019) (2019 PTO §101 Guidance, citing and surveying post-*Alice* decisions).

122. On information and belief, CTERA has offered for sale, sold and/or imported into the United States CTERA 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, CTERA's products and services, *e.g.*, Enterprise File

Services Platform, CTERA Cloud Storage Gateways, CTERA Drive, CTERA platform, and the system hardware on which they operate, and all versions and variations thereof since the issuance of the '908 Patent (the "Accused Instrumentality").

123. On information and belief, CTERA 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, CTERA 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 CTERA's customers.

124. 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.

125. On information and belief, CTERA 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, CTERA knew of the '908 Patent and knew of its infringement, including by way of this lawsuit.

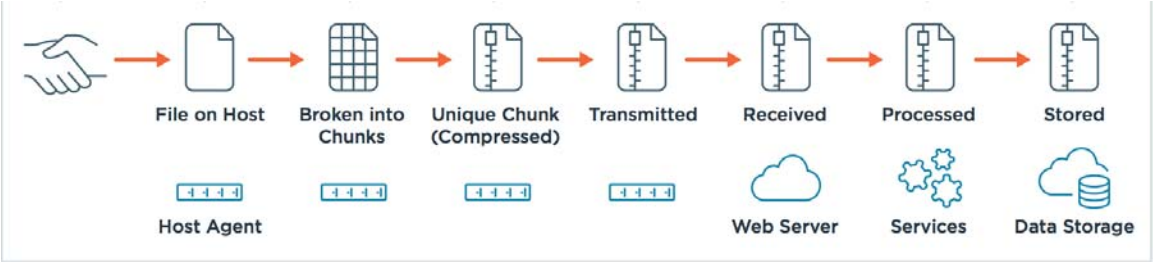
126. Upon information and belief, CTERA's affirmative acts of making, using, and selling the Accused Instrumentalities, and providing implementation services and technical support to users of the Accused Instrumentalities, have induced and continue to induce users of the Accused Instrumentalities to 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, CTERA explains to customers the benefits of using the Accused Instrumentalities, such as by touting their performance advantages: "CTERA employs source-based de-duplication and compression, minimizing impact on WAN bandwidth and reducing storage usage by up to 90%." https://www.ctera.com/technology/platform/. For similar reasons, CTERA also induces its customers to use the Accused Instrumentalities to infringe other claims of the '908 Patent. CTERA specifically intended and was aware that these normal and customary activities would infringe the '908 Patent. CTERA 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, CTERA engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, CTERA 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.

127. CTERA also indirectly infringes the ’908 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 ’908 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 as 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. 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. CTERA’s manufacture, use, sale, offering for sale, and/or importation of the Accused Instrumentality constitutes contributory infringement of the ’908 Patent.

128. 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, deduplication is an example of a first compression technique. For example, gzip or snappy is an example of a second compression technique. For example, the Accused Instrumentalities also use one or more memory devices, including, e.g., cloud storage. For example, the Accused Instrumentalities disclose "[T]he encrypted, compressed, unique chunks are received by the Portal and placed in a storage node." *See* CTERA Platform Overview & Architecture.



See CTERA Platform Overview & Architecture. Moreover, the Accused Instrumentalities performs data deduplication. As such, the Accused Instrumentalities disclose that "the file is broken into chunks of variable size. The chunks are hashed and compared with the existing list of hashes in the Portal (i.e. stored chunks), and identifies globally unique chunks. Only the globally unique chunks will eventually be transferred to the cloud." *See* CTERA Platform Overview & Architecture. Furthermore, the Accused Instrumentalities state that "[I]n addition to de-dup, all data is compressed before being sent over WAN." In particular, the Accused Instrumentalities state that "[O]nce the chunks are encrypted, they are compressed via snappy or gzip." *See* CTERA Platform Overview & Architecture.

129. The Accused Instrumentality stores the compressed first and second data blocks on the memory device. For example, the Accused Instrumentalities disclose "[T]he

encrypted, compressed, unique chunks are received by the Portal and placed in a storage node." *See* CTERA Platform Overview & Architecture. The "storage node" is an example of a memory device that stores the blocks that have been compressed with either deduplication, gizp or snappy. 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. 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, the Accused Instrumentality uses "data compression and data deduplication techniques to ensure that the backup happens as quickly and efficiently as possible." *See* CTERA Platform Overview & Architecture.

130. On information and belief, CTERA also infringes, directly and through induced infringement, and continues to infringe other claims of the '908 Patent.

131. 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, CTERA has injured Realtime and is liable to Realtime for infringement of the '908 Patent pursuant to 35 U.S.C. § 271.

132. As a result of CTERA's infringement of the '908 Patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for CTERA's infringement, but in no event less than a reasonable royalty for the use made of the invention by CTERA, 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 CTERA 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 CTERA 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 CTERA 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 CTERA 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: June 14, 2019

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