IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

REALTIME DATA LLC d/b/a IXO, Plaintiff, v. DELL INC., and EMC CORPORATION, Defendants.	Case No. 6:16-cv-89 JURY TRIAL DEMANDED

SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT AGAINST DELL INC. AND EMC CORPORATION

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 Defendants Dell Inc. ("Dell") and EMC Corporation ("EMC") (collectively, "Defendants"):

PARTIES

1. Realtime is a New York limited liability company. Realtime has places of business at 5851 Legacy Circle, Plano, Texas 75024, 1828 E.S.E. Loop 323, Tyler, Texas 75701, and 116 Croton Lake Road, Katonah, New York, 10536, and is organized under the laws of the State of New York. Realtime has been registered to do business in Texas since May 2011. Since the 1990s, Realtime has researched and developed specific solutions for digital 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 47 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, Defendant Dell is a Delaware corporation, with its principal place of business at One Dell Way, Round Rock, Texas 78682. On information and belief, Dell has a large services and data center location in Plano, Texas.[1] On information and belief, Dell can be served through its registered agent, Corporation Service Company, 211 East Seventh Street, Suite 620, Austin, Texas 78701-3218.

3. On information and belief, Defendant EMC is a Massachusetts corporation, with its principal place of business at 176 South Street Hopkinton, MA 01748. On information and belief, EMC can be served through its registered agent, CT Corporation System, 1999 Bryan St., Ste. 900, Dallas, TX 75201. On information and belief, EMC has known about Realtime's patent portfolio, years before it starting infringing Realtime's patents. Specifically, in February of 2004, EMC received a letter regarding Realtime's innovative digital-data compression technology. That letter also attached 5 issued U.S. Realtime Patents, which taught various embodiments of digital-data compression. On information and belief, EMC reviewed that letter and the attachments during the following 30 days, and sent a responsive letter to Realtime on March 15, 2004, stating that it refused to discuss licensing Realtime's patented technology. Years later, EMC began to infringe Realtime's patented technology, in numerous ways, including those discussed in this Complaint.

4. On information and belief, Defendant Dell has a business alliance with Defendant EMC that includes customization of Dell products to work together with EMC products such as EMC Data Domain.[2] Dell and EMC also market joint products such as

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[1] http://www.dell.com/content/topics/global.aspx/sitelets/solutions/perot/contact_us?c=us&l=en&cs=RC966726

[2] https://www.emc.com/data-protection/data-domain/data-domain-operating-system/dell-integrations.htm

the Dell / EMC DD Series deduplication storage systems (including DD140, DD610, DD630, and DD670), which are appliances incorporating EMC's Data Domain technology, including Global Compression™ together with Stream Informed Segment Layout (SISL™) Scaling Architecture.[3] On information and belief, Defendant Dell will complete its acquisition of Defendant EMC later this year.[4] Defendant Dell thus promotes the use of EMC products together with Dell's own products and services. On information and belief, these arrangements between EMC and Dell are based on ongoing contractual agreements between them. As further explained below, EMC Data Domain and related products such as Dell / EMC DD Series deduplication storage systems (including DD140, DD610, DD630, and DD670) infringe the asserted patents. Accordingly, Dell and EMC are properly joined in this action pursuant to 35 U.S.C. § 299.

JURISDICTION AND VENUE

5. 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).

6. This Court has personal jurisdiction over Defendant Dell in this action because Dell has committed acts within the Eastern District of Texas giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction over Dell would not offend traditional notions of fair play and substantial justice. Dell, 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. Dell is registered to do business in the State of Texas and has appointed Corporation Service

[3] http://www.dell.com/downloads/global/products/pvaul/en/dell-emc-dd-series-brochure.pdf

[4] http://www.usatoday.com/story/tech/2015/10/12/dell-buy-emc-largest-tech-deal-ever/73727530/

Company, 211 East Seventh Street, Suite 620, Austin, Texas 78701-3218 as its agent for service of process. In addition, Dell has a principal place of business and a large services and data center location in Texas.

7. This Court has personal jurisdiction over Defendant EMC in this action because EMC has committed acts within the Eastern District of Texas giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction over EMC would not offend traditional notions of fair play and substantial justice. EMC, 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. EMC is registered to do business in the State of Texas and has appointed CT Corporation System, 1999 Bryan St., Ste. 900, Dallas, TX 75201 as its agent for service of process. In addition, EMC has offices in Austin, Dallas, and Houston in Texas.[5]

8. Venue is proper in this district under 28 U.S.C. §§ 1391(b), 1391(c) and 1400(b). Upon information and belief each of Defendants Dell and EMC has transacted business in the Eastern District of Texas and has committed acts of direct and indirect infringement in the Eastern District of Texas. In addition, Defendant Dell is registered to do business in Texas and has a principal place of business in Texas, and Defendant EMC is registered to do business in Texas and has places of business in Texas.

COUNT I

INFRINGEMENT OF U.S. PATENT NO. 7,161,506

9. Plaintiff realleges and incorporates by reference paragraphs 1-8 above, as if fully set forth herein.

10. Plaintiff Realtime is the owner by assignment of United States Patent No. 7,161,506 ("the '506 patent") entitled "Systems and methods for data compression such

[5] https://jobs.emc.com/location/united-states-texas-jobs/414/6252001-4736286/3

as content dependent data compression." The '506 patent was duly and legally issued by the United States Patent and Trademark Office on January 9, 2007. A true and correct copy of the '506 patent, including its reexamination certificates, is included as Exhibit A.

Dell Rapid Recovery Software

11. On information and belief, Dell has, or will soon have, made, used, offered for sale, sold and/or imported into the United States Dell products that infringe the '506 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Dell's compression products and services, such as, *e.g.,* the Rapid Recovery software product (v6.0.1),[6] the AppAssure v5.4 software product,[7] the Dell DL1000 Backup and Recovery Appliance,[8] the Dell PowerVault DL4000 Backup and Recovery Appliance,[9] the Dell DL4300 Backup and Recovery Appliance,[10] the Dell DR4100 Disk Backup Appliance, the Dell DR6000 Disk Backup Appliance,[11] the Dell DR2000v backup disk virtual appliance,[12] the Dell SonicWALL WAN Acceleration Virtual Appliance (WXA) 5000,[13] and all versions and variations thereof since the issuance of the '506 patent ("Accused Instrumentality").

12. On information and belief, Dell has directly infringed and continues to infringe the '506 patent, for example, through its own use and testing of the Accused Instrumentality to practice compression methods claimed by Claim 104 of the '506 patent, namely, a computer implemented method for compressing data, comprising: analyzing

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[6] http://software.dell.com/landing/6178

[7] http://documents.software.dell.com/appassure/5.4.1/user-guide/introduction-to-appassure-5/about-appassure-5

[8] http://software.dell.com/products/appassure-dl1000-backup-and-recovery-appliance/

[9] https://partnerdirect.dell.com/sites/channel/Documents/Dell-PowerVault-DL4000-Spec-Sheet.pdf

[10] http://software.dell.com/products/dl4300-backup-and-recovery-appliance/

[11] http://software.dell.com/products/dr-series-disk-backup-appliances/

[12] http://software.dell.com/products/dr2000v-virtual-backup-appliance/

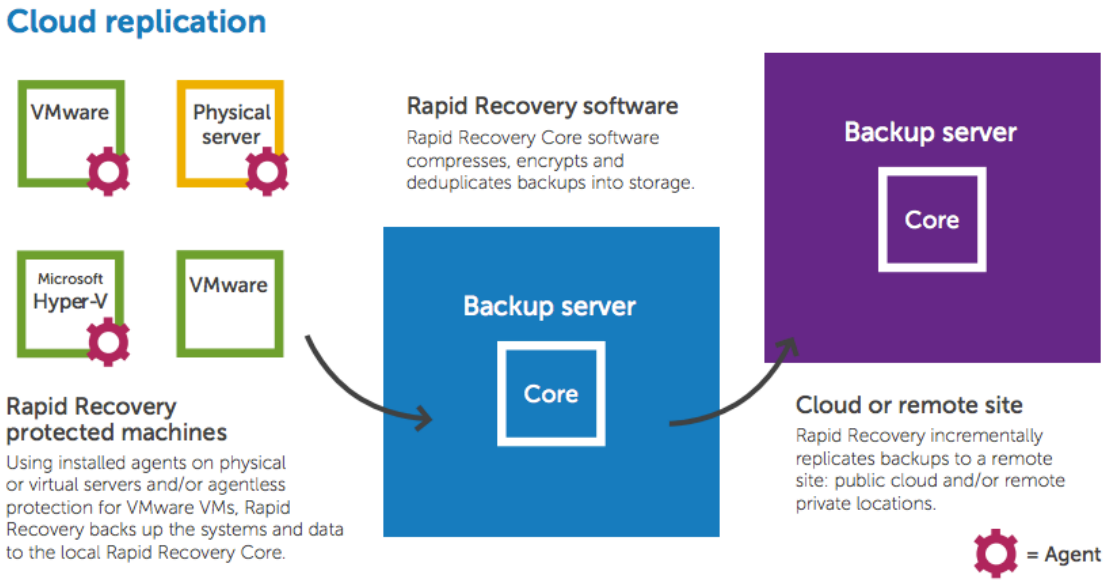
[13] http://accessories.dell.com/sna/PopupProductDetail.aspx?c=us&l=en&cs=04&sku=A7004425&price=4,495.00&client=config

data within a data block of an input data stream to identify one or more data types of the data block, the input data stream comprising a plurality of disparate data types; performing content dependent data compression with a content dependent data compression encoder if a data type of the data block is identified; and performing data compression with a single data compression encoder, if a data type of the data block is not identified, wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block. Upon information and belief, Dell uses the Accused Instrumentality to practice infringing methods 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 Dell's customers.

13. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "A computer implemented method for compressing data". This system minimizes the amount of data transmitted over a network and stored on a backup device. The Accused Instrumentality employs several data compression techniques to achieve this goal.

14. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "analyzing data within a data block of an input data stream to identify one or more data types of the data block, the input data stream comprising a plurality of disparate data types". Even if the determination of whether particular data within a data block of an input data stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality were found not to literally meet the "analyzing data within a data block of an input data stream to identify one or more data types of the data block, the input data stream comprising a plurality of disparate data types" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, determining whether particular data within a data block of an input data

stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality performs substantially the same function (for example, to provide the Accused Instrumentality with some parameter of the data that can be used as a basis to select the optimal data compression method among multiple available data compression methods) in substantially the same way (by, for example, identifying some characteristic of the data, beyond a mere descriptor that is indicative of the data type of the data within the data block, that is relevant to selecting among multiple available data compression methods) to achieve substantially the same result (for example, enabling the Accused Instrumentality to select the optimal data compression method from among multiple available data compression methods). *See, e.g.* http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf.



See also http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf ("The new Rapid Recovery Repository (R3) is powered by the same leading-edge technology as Dell DR series backup and deduplication appliances."); http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf:

> The Dell DR4000 uses sophisticated pattern-matching algorithms to scan the next section of the data stream. This process determines the optimum chunk size for the incoming data and assigns the chunk a unique value, called a fingerprint. The Dell DR4000 uses industry-standard techniques to guarantee that a given fingerprint is assigned to single, unique, set of bits. The Dell DR4000 then checks the fingerprint against its dictionary. If the fingerprint corresponds to data already in the dictionary, the Dell DR4000 creates a pointer and adds one to the reference count. If the fingerprint does not correspond to data in the dictionary, the data is stored and the fingerprint is added to the dictionary. Having processed the chunk, the Dell DR4000 then continues processing the data stream.

15. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "performing content dependent data compression with a content dependent data compression encoder if a data type of the data block is identified". Even if the deduplication function in the Accused Instrumentality were found to not literally meet the "performing content dependent data compression with a content dependent data compression encoder if a data type of the data block is identified" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, deduplication performs substantially the same function (for example, reducing the overall amount of bits to store) in substantially the same way (by, for example, applying a technique based on the specific content of the incoming data in order to present for storage fewer overall bits) to achieve substantially the same result (for example, storage of fewer bits of data overall). *See, e.g.*, http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf ("The R3, powered by the best-of-breed data deduplication technology platform used in Dell DR series appliances, can reside on separate Windows or Linux servers … Client-side data deduplication (also called source-side deduplication) uses the agent to remove redundant backup data before transmitting data to the R3. Using client-side data deduplication in tandem with target deduplication greatly reduces the amount of data sent over a LAN."); http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("AppAssure becomes the Rapid Recovery product under a Dell Data Protection (DDP) brand. The product is block- and snapshot-based, only storing unique,

changed blocks with a five-minute RPO."). See also http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf:

> The Dell DR4000 uses sophisticated pattern-matching algorithms to scan the next section of the data stream. This process determines the optimum chunk size for the incoming data and assigns the chunk a unique value, called a fingerprint. The Dell DR4000 uses industry-standard techniques to guarantee that a given fingerprint is assigned to single, unique, set of bits. The Dell DR4000 then checks the fingerprint against its dictionary. If the fingerprint corresponds to data already in the dictionary, the Dell DR4000 creates a pointer and adds one to the reference count. If the fingerprint does not correspond to data in the dictionary, the data is stored and the fingerprint is added to the dictionary. Having processed the chunk, the Dell DR4000 then continues processing the data stream.

16. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "performing data compression with a single data compression encoder, if a data type of the data block is not identified". *See, e.g.,* http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."); http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf ("The Dell DR4000 has made further optimizations, and can actually dedupe and compress as part of the same inline process. This provides the benefits of compression without requiring that space be dedicated to staging uncompressed data.").

17. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block." Even if the determination of whether particular data within a data block of an input data stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality were found not to literally meet the "wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on

a descriptor that is indicative of the data type of the data within the data block" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, determining whether particular data within a data block of an input data stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality performs substantially the same function (for example, to provide the Accused Instrumentality with some parameter of the data that can be used as a basis to select the optimal data compression method among multiple available data compression methods) in substantially the same way (by, for example, identifying some characteristic of the data, beyond a mere descriptor that is indicative of the data type of the data within the data block, that is relevant to selecting among multiple available data compression methods) to achieve substantially the same result (for example, enabling the Accused Instrumentality to select the optimal data compression method from among multiple available data compression methods). *See also* http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf:

> The Dell DR4000 uses sophisticated pattern-matching algorithms to scan the next section of the data stream. This process determines the optimum chunk size for the incoming data and assigns the chunk a unique value, called a fingerprint. The Dell DR4000 uses industry-standard techniques to guarantee that a given fingerprint is assigned to single, unique, set of bits. The Dell DR4000 then checks the fingerprint against its dictionary. If the fingerprint corresponds to data already in the dictionary, the Dell DR4000 creates a pointer and adds one to the reference count. If the fingerprint does not correspond to data in the dictionary, the data is stored and the fingerprint is added to the dictionary. Having processed the chunk, the Dell DR4000 then continues processing the data stream.

18. On information and belief, Dell also directly infringes and continues to infringe other claims of the '506 patent, for similar reasons as explained above with respect to Claim 104 of the '506 patent.

19. On information and belief, all of the Accused Instrumentalities perform the claimed methods in substantially the same way. In particular, similar deduplication and compression technology used in Dell's DR backup appliances (e.g. DR4100,

DR6000, and DR2000v) is used in Dell's Rapid Recovery software, Dell's AppAssure software, and in Dell's appliances built using Dell's AppAssure software (e.g. the Dell DL1000 Backup and Recovery Appliance, the Dell PowerVault DL4000 Backup and Recovery Appliance, and the Dell DL4300 Backup and Recovery Appliance). See, e.g., http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."); http://software.dell.com/products/appassure-dl1000-backup-and-recovery-appliance/ ("Built by Dell and powered by AppAssure, the DL1000 provides fast backup and restores on virtual machines, physical servers and in the cloud to enable local, offsite or disaster recovery."); http://software.dell.com/documents/dell-appassure-replication-technicalbrief-29890.pdf ("Dell™ AppAssure™ delivers advanced, flexible replication options to protect any organization, along with compression, deduplication and encryption"); http://documents.software.dell.com/appassure/5.4.3/user-guide-revision-b-english/configuring-the-appassure-core/managing-a-repository/modifying-repository-settings ("Enable Deduplication: Clear this checkbox to turn off deduplication, or select this checkbox to enable deduplication; Enable Compression: Clear this checkbox to turn off compression, or select this checkbox to enable compression.").

20. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '506 patent.

21. On information and belief, Dell has had knowledge of the '506 patent since at least the filing of the original Complaint or shortly thereafter, and on information and belief, Dell knew of the '506 patent and knew of its infringement, including by way of this lawsuit.

22. Upon information and belief, Dell'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 104 of the '506 patent by practicing a computer implemented method comprising: receiving a data block in an uncompressed form, said data block being included in a data stream; analyzing data within the data block to determine a type of said data block; and compressing said data block to provide a compressed data block, wherein if one or more encoders are associated to said type, compressing said data block with at least one of said one or more encoders, otherwise compressing said data block with a default data compression encoder, and wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block. For example, Dell instructs users of its Rapid Recovery software that "Rapid Recovery Core software compresses, encrypts and deduplicates backups into storage." See http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf. Dell also instructs customers about the benefits of using the deduplication / compression features of the Accused Instrumentalities and encourages its customers to use these infringing deduplication / compression features: "The Dell DR4000 has made further optimizations, and **can actually dedupe and compress as part of the same inline process**. This provides the benefits of compression without requiring that space be dedicated to staging uncompressed data."[14] Dell also explains to customers that the deduplication and compression engine in Rapid Recovery comes from the DR backup product line. *See, e.g.,*http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and

[14] http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf

compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."). Thus, with knowledge of the '506 patent gained from at least the filing and service of the original Complaint in this action, Dell encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '506 patent, knowing that such use constituted infringement of the '506 patent.

23. For similar reasons, Dell also induces its customers to use the Accused Instrumentalities to infringe other claims of the '506 patent. Dell specifically intended and was aware that these normal and customary activities would infringe the '506 patent. Dell performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '506 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Dell engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Dell has induced and continue to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '506 patent, knowing that such use constitutes infringement of the '506 patent.

24. 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, Dell has injured Realtime and is liable to Realtime for infringement of the '506 patent pursuant to 35 U.S.C. § 271.

25. As a result Dell's infringement of the '506 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Dell's infringement, but in no event less than a reasonable royalty for the use made of the invention by Dell, together with interest and costs as fixed by the Court.

EMC Data Domain

26. On information and belief, EMC has made, used, offered for sale, sold

and/or imported into the United States EMC products that infringe the '506 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, EMC's compression products and services, such as, *e.g.,* the EMC Data Domain product, the EMC VNX2 Series products (including the EMC VNX5200, VNX5400, VNX5600, VNX5800, VNX7600, & VNX8000 products),[15] the EMC XtremIO Storage Array,[16] and all versions and variations thereof since the issuance of the '506 patent ("Accused Instrumentality").

27. On information and belief, Dell has made, used, offered for sale, sold and/or imported into the United States combination products incorporating EMC products that infringe the '506 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Dell / EMC DD Series deduplication storage systems (including DD140, DD610, DD630, and DD670), which are appliances incorporating EMC's Data Domain Operating System,[17] including Global Compression™, and all versions and variations thereof since the issuance of the '506 patent ("Accused Instrumentality").

28. On information and belief, Dell and EMC have directly infringed and continue to infringe the '506 patent, for example, through their own use and testing of the Accused Instrumentality to practice compression methods claimed by Claim 104 of the '506 patent, namely, a computer implemented method for compressing data, comprising: analyzing data within a data block of an input data stream to identify one or more data types of the data block, the input data stream comprising a plurality of disparate data types; performing content dependent data compression with a content dependent data compression encoder if a data type of the data block is identified; and performing data compression with a single data compression encoder, if a data type of the data block is

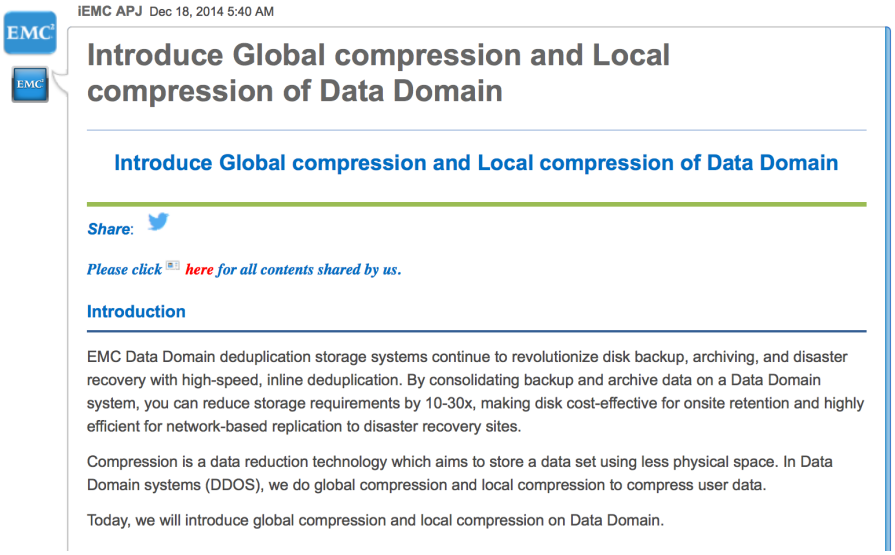
[15] https://www.emc.com/collateral/white-papers/h12145-intro-new-vnx-series-wp.pdf
[16] https://www.emc.com/collateral/white-papers/h11752-intro-to-XtremIO-array-wp.pdf
[17] http://www.emc.com/data-protection/data-domain/data-domain-operating-system.htm

not identified, wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block. Upon information and belief, Dell and EMC use the Accused Instrumentality to practice infringing methods for their own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Dell's and EMC's customers.

29. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "A computer implemented method for compressing data". This system minimizes the amount of data transmitted over a network and stored on a backup device. The Accused Instrumentality employs several data compression techniques to achieve this goal.

30. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "analyzing data within a data block of an input data stream to identify one or more data types of the data block, the input data stream comprising a plurality of disparate data types". Even if the determination of whether particular data within a data block of an input data stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality were found not to literally meet the "analyzing data within a data block of an input data stream to identify one or more data types of the data block, the input data stream comprising a plurality of disparate data types" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, determining whether particular data within a data block of an input data stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality performs substantially the same function (for example, to provide the Accused Instrumentality with some parameter of the data that can be used as a basis to select the optimal data compression method among multiple available data

compression methods) in substantially the same way (by, for example, identifying some characteristic of the data, beyond a mere descriptor that is indicative of the data type of the data within the data block, that is relevant to selecting among multiple available data compression methods) to achieve substantially the same result (for example, enabling the Accused Instrumentality to select the optimal data compression method from among multiple available data compression methods). *See, e.g.*, https://community.emc.com/thread/203751:



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Introduce Global compression and Local compression of Data Domain

Introduce Global compression and Local compression of Data Domain

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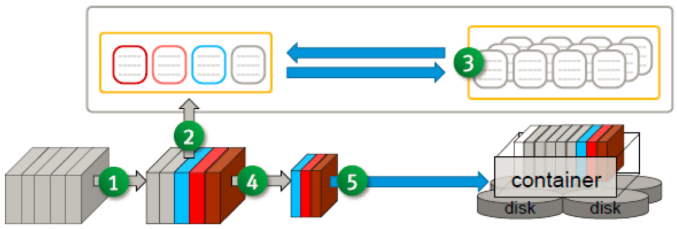
Introduction

EMC Data Domain deduplication storage systems continue to revolutionize disk backup, archiving, and disaster recovery with high-speed, inline deduplication. By consolidating backup and archive data on a Data Domain system, you can reduce storage requirements by 10-30x, making disk cost-effective for onsite retention and highly efficient for network-based replication to disaster recovery sites.

Compression is a data reduction technology which aims to store a data set using less physical space. In Data Domain systems (DDOS), we do global compression and local compression to compress user data.

Today, we will introduce global compression and local compression on Data Domain.



1. **Segment**: SISL slices the incoming data into segments, 4 to 12 KB in size.
2. **Fingerprint**: SISL then creates fingerprint for each segment.
3. **Filter**: The summary vector and segment locality techniques identify 99% of the duplicate segments in RAM, inline, before storing to disk. If a segment is a duplicate, it is referenced and discarded. If a segment is new, the data moves on to step 4.
4. **Compress**: New segments are grouped and compressed using common algorithms: lz, gz, gzfast (lz by default).
5. **Write**: Writes data (segments, fingerprints, metadata and logs) to containers, and containers are written to disk.

Understanding global compression and local compression

After understanding SISL data flow, let us look at what global compression and local compression is.

Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments.

Global compression corresponds to the 1st, 2nd and 3rdsteps data deduplication of SISL. Global compression **cannot** be turned off.

Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast).

Local compression corresponds to the 4th and 5th steps data deduplication of SISL. Local compression **can**be turned off.

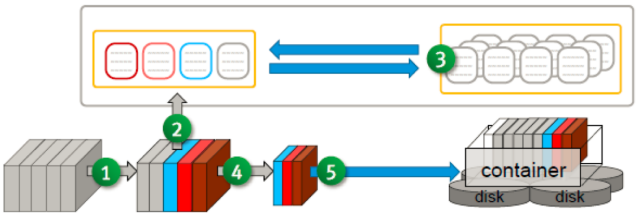
The overall user data compression is the joint effort of global compression and local compression. This is the final result of deduplication. DDOS uses "compression ratio" to measure the effectiveness of its data compression.

31. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "performing content dependent data compression with a content dependent data compression encoder if a data type of the data block is identified". Even if the deduplication function in the Accused Instrumentality were found to not literally meet the "performing content dependent data compression with a content dependent data compression encoder if a data type of the data block is identified"

limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, deduplication performs substantially the same function (for example, reducing the overall amount of bits to store) in substantially the same way (by, for example, applying a technique based on the specific content of the incoming data in order to present for storage fewer overall bits) to achieve substantially the same result (for example, storage of fewer bits of data overall). *See, e.g.*, https://community.emc.com/mobile/mobile-access.jspa#jive-document?content=%2Fapi%2Fcore%2Fv2%2Fposts%2F11050 (authored by "a Senior Consultant, Software Engineer at EMC Corporation"):

> **What is data deduplication and how is it implemented?**
>
> **Data deduplication** (sometimes referred to as "intelligent compression" or "single-instance storage") **is a specialized form of data compression** that's designed to eliminate redundant data. **Much like other forms of compression, deduplication works by inspecting data and identifying sections that have identical byte patterns.** When such patterns are found, only one unique instance of the data is written to storage; **duplicate occurrences are replaced with a "data pointer" that references the previously stored instance.** Given that the same byte pattern may occur dozens, hundreds, or even thousands of times, **the amount of data that must be physically stored (and transported across a network) can be greatly reduced when deduplication is utilized.**

https://community.emc.com/thread/203751:



1. **Segment**: SISL slices the incoming data into segments, 4 to 12 KB in size.
2. **Fingerprint**: SISL then creates fingerprint for each segment.
3. **Filter**: The summary vector and segment locality techniques identify 99% of the duplicate segments in RAM, inline, before storing to disk. If a segment is a duplicate, it is referenced and discarded. If a segment is new, the data moves on to step 4.
4. **Compress**: New segments are grouped and compressed using common algorithms: lz, gz, gzfast (lz by default).
5. **Write**: Writes data (segments, fingerprints, metadata and logs) to containers, and containers are written to disk.

Understanding global compression and local compression

After understanding SISL data flow, let us look at what global compression and local compression is.

Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments.

Global compression corresponds to the 1st, 2nd and 3rdsteps data deduplication of SISL. Global compression **cannot** be turned off.

32. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "performing data compression with a single data compression encoder, if a data type of the data block is not identified":[18]

Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast).

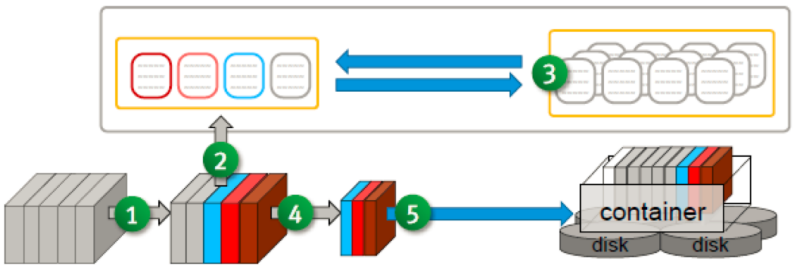
Local compression corresponds to the 4th and 5th steps data deduplication of SISL. Local compression **can**be turned off.

The overall user data compression is the joint effort of global compression and local compression. This is the final result of deduplication. DDOS uses "compression ratio" to measure the effectiveness of its data compression.

33. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "wherein the analyzing of the data within the data

[18] See https://community.emc.com/thread/203751

block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block." Even if the determination of whether particular data within a data block of an input data stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality were found not to literally meet the "wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, determining whether particular data within a data block of an input data stream is duplicative of data that has been previously compressed and/or stored by the Accused Instrumentality performs substantially the same function (for example, to provide the Accused Instrumentality with some parameter of the data that can be used as a basis to select the optimal data compression method among multiple available data compression methods) in substantially the same way (by, for example, identifying some characteristic of the data, beyond a mere descriptor that is indicative of the data type of the data within the data block, that is relevant to selecting among multiple available data compression methods) to achieve substantially the same result (for example, enabling the Accused Instrumentality to select the optimal data compression method from among multiple available data compression methods). *See, e.g.* https://community.emc.com/thread/203751:



1. **Segment**: SISL slices the incoming data into segments, 4 to 12 KB in size.
2. **Fingerprint**: SISL then creates fingerprint for each segment.
3. **Filter**: The summary vector and segment locality techniques identify 99% of the duplicate segments in RAM, inline, before storing to disk. If a segment is a duplicate, it is referenced and discarded. If a segment is new, the data moves on to step 4.
4. **Compress**: New segments are grouped and compressed using common algorithms: lz, gz, gzfast (lz by default).
5. **Write**: Writes data (segments, fingerprints, metadata and logs) to containers, and containers are written to disk.

Understanding global compression and local compression

After understanding SISL data flow, let us look at what global compression and local compression is.

Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments.

Global compression corresponds to the 1st, 2nd and 3rdsteps data deduplication of SISL. Global compression **cannot** be turned off.

34. On information and belief, Dell and EMC also directly infringe and continue to infringe other claims of the '506 patent, for similar reasons as explained above with respect to Claim 104 of the '506 patent.

35. On information and belief, all of the Accused Instrumentalities perform the claimed methods in substantially the same way. In particular, similar deduplication and compression technology used in EMC's Data Domain product is also used in Dell / EMC DD Series deduplication storage systems (including DD140, DD610, DD630, and DD670), which are appliances incorporating EMC's Data Domain Operating System,[19] including Global Compression™.

36. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '506 patent.

[19] http://www.emc.com/data-protection/data-domain/data-domain-operating-system.htm

37. On information and belief, Dell has had knowledge of the '506 patent since at least the filing of the original Complaint or shortly thereafter, and on information and belief, Dell knew of the '506 patent and knew of its infringement, including by way of this lawsuit.

38. Upon information and belief, Dell'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 104 of the '506 patent by practicing a computer implemented method comprising: receiving a data block in an uncompressed form, said data block being included in a data stream; analyzing data within the data block to determine a type of said data block; and compressing said data block to provide a compressed data block, wherein if one or more encoders are associated to said type, compressing said data block with at least one of said one or more encoders, otherwise compressing said data block with a default data compression encoder, and wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block. For example, Dell instructs customers of the Dell / EMC DD Series deduplication storage systems of the benefits of implementing deduplication and compression and encourages its customers to use the infringing deduplication and compression features of the Dell/EMC DD series products: "The Dell / EMC DD Series are mature backup to disk solutions with integrated deduplication. The solutions are designed to be easily incorporated into enterprise environments for customers who want to implement deduplication without changing their backup software. Data Domain technology has been built from the ground up to optimize Global Compression™ together with Stream Informed Segment Layout (SISL™) Scaling Architecture so that customers reap the benefits of both CPU performance scalability and reductions in backup media

requirements."[20] Thus, with knowledge of the '506 patent gained from at least the filing and service of the original Complaint in this action, Dell encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '506 patent, knowing that such use constituted infringement of the '506 patent.

39. For similar reasons, Dell also induces its customers to use the Accused Instrumentalities to infringe other claims of the '506 patent. Dell specifically intended and was aware that these normal and customary activities would infringe the '506 patent. Dell performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '506 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Dell engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Dell has induced and continue to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '506 patent, knowing that such use constitutes infringement of the '506 patent.

40. On information and belief, EMC has had knowledge of the '506 patent since at least the filing of the original Complaint or shortly thereafter, and on information and belief, EMC knew of the '506 patent and knew of its infringement, including by way of this lawsuit.

41. Upon information and belief, EMC'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 104 of the '506 patent by practicing a computer implemented method comprising: receiving a data block in an uncompressed form, said data block

[20] http://www.dell.com/downloads/global/products/pvaul/en/dell-emc-dd-series-brochure.pdf

being included in a data stream; analyzing data within the data block to determine a type of said data block; and compressing said data block to provide a compressed data block, wherein if one or more encoders are associated to said type, compressing said data block with at least one of said one or more encoders, otherwise compressing said data block with a default data compression encoder, and wherein the analyzing of the data within the data block to identify one or more data types excludes analyzing based only on a descriptor that is indicative of the data type of the data within the data block. For example, EMC instructs users of EMC Data Domain about the benefits of using the deduplication / compression features of the EMC Data Domain and encourages its customers to use these infringing deduplication / compression features: "EMC Data Domain deduplication storage systems continue to revolutionize disk backup, archiving, and disaster recovery with high-speed, inline deduplication. … Compression is a data reduction technology which aims to store a data set using less physical space. In Data Domain systems (DDOS), we do global compression and local compression to compress user data. … Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments. … Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast)." [21] *See also* https://community.emc.com/mobile/mobile-access.jspa#jive-document?content=%2Fapi%2Fcore%2Fv2%2Fposts%2F11050 (authored by "a Senior Consultant, Software Engineer at EMC Corporation") ("Data deduplication (sometimes referred to as "intelligent compression" or "single-instance storage") is a specialized form of data compression that's designed to eliminate redundant data. Much like other forms of compression, deduplication works by inspecting data and identifying sections that have identical byte patterns. … [T]he amount of data that must be physically stored (and

[21] See https://community.emc.com/thread/203751

transported across a network) can be greatly reduced when deduplication is utilized."). Thus, with knowledge of the '506 patent gained from at least the filing and service of the original Complaint in this action, EMC encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '506 patent, knowing that such use constituted infringement of the '506 patent.

42. For similar reasons, EMC also induces its customers to use the Accused Instrumentalities to infringe other claims of the '506 patent. EMC specifically intended and was aware that these normal and customary activities would infringe the '506 patent. EMC performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '506 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, EMC engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, EMC has induced and continue to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '506 patent, knowing that such use constitutes infringement of the '506 patent.

43. 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, Dell and EMC have injured Realtime and are liable to Realtime for infringement of the '506 patent pursuant to 35 U.S.C. § 271.

44. As a result Dell's and EMC's infringement of the '506 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Dell's and EMC's infringement, but in no event less than a reasonable royalty for the use made of the invention by Dell and EMC, together with interest and costs as fixed by the Court.

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

45. Plaintiff Realtime realleges and incorporates by reference paragraphs 1-44

above, as if fully set forth herein.

46. 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 B.

Dell Rapid Recovery Software

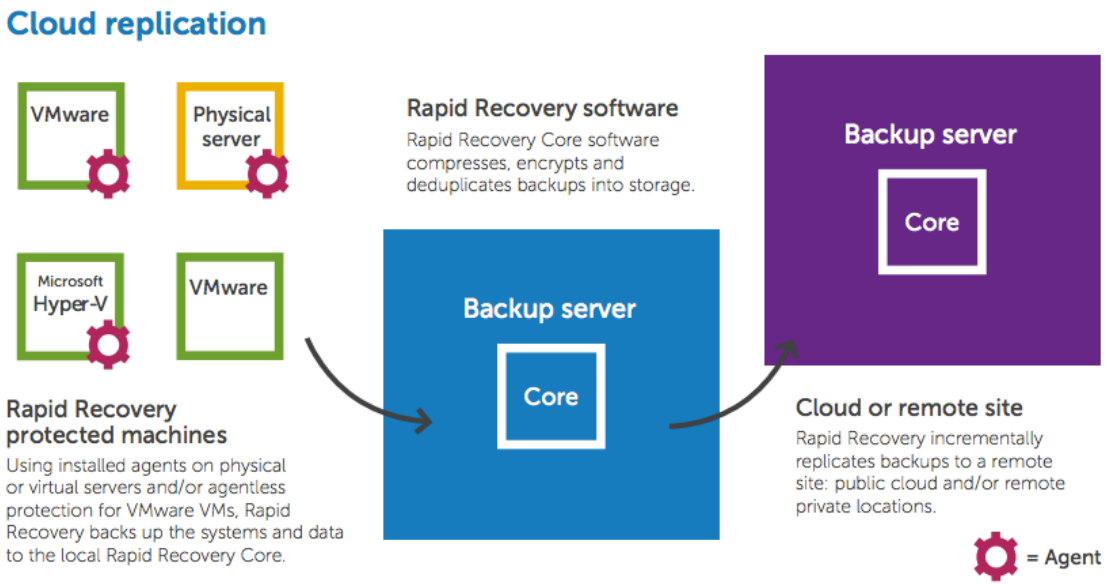
47. On information and belief, Dell has, or will soon have, used, offered for sale, sold and/or imported into the United States Dell products that infringe the '728 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Dell's compression products and services, such as, *e.g.,* the Rapid Recovery software product (v6.0.1),[22] the AppAssure v5.4 software product,[23] the Dell DL1000 Backup and Recovery Appliance,[24] the Dell PowerVault DL4000 Backup and Recovery Appliance,[25] the Dell DL4300 Backup and Recovery Appliance,[26] the Dell DR4100 Disk Backup Appliance, the Dell DR6000 Disk Backup Appliance,[27] the Dell DR2000v backup disk virtual appliance,[28] the Dell SonicWALL WAN Acceleration Virtual Appliance (WXA) 5000, and all versions and variations thereof since the issuance of the '728 patent ("Accused Instrumentality").

48. On information and belief, Dell has directly infringed and continues to infringe the '728 patent, for example, through its own use and testing of the Accused Instrumentality, which constitute systems for compressing data claimed by Claim 1 of the

[22] http://software.dell.com/landing/6178
[23] http://documents.software.dell.com/appassure/5.4.1/user-guide/introduction-to-appassure-5/about-appassure-5
[24] http://software.dell.com/products/appassure-dl1000-backup-and-recovery-appliance/
[25] https://partnerdirect.dell.com/sites/channel/Documents/Dell-PowerVault-DL4000-Spec-Sheet.pdf
[26] http://software.dell.com/products/dl4300-backup-and-recovery-appliance/
[27] http://software.dell.com/products/dr-series-disk-backup-appliances/
[28] http://software.dell.com/products/dr2000v-virtual-backup-appliance/

'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, Dell 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 Dell's customers.

49. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "A system for compressing data comprising; a processor; one or more content dependent data compression encoders". Even if the deduplication function in the Accused Instrumentality were found to not literally meet the "one or more content dependent data compression encoders" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, deduplication performs substantially the same function (for example, reducing the overall amount of bits to store) in substantially the same way (by, for example, applying a technique based on the specific content of the incoming data in order to present for storage fewer overall bits) to achieve substantially the same result (for example, storage of fewer bits of data overall). *See, e.g.*, http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf:



See also http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf ("The new Rapid Recovery Repository (R3) is powered by the same leading-edge technology as Dell DR series backup and deduplication appliances."); http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf:

> The Dell DR4000 uses sophisticated pattern-matching algorithms to scan the next section of the data stream. This process determines the optimum chunk size for the incoming data and assigns the chunk a unique value, called a fingerprint. The Dell DR4000 uses industry-standard techniques to guarantee that a given fingerprint is assigned to single, unique, set of bits. The Dell DR4000 then checks the fingerprint against its dictionary. If the fingerprint corresponds to data already in the dictionary, the Dell DR4000 creates a pointer and adds one to the reference count. If the fingerprint does not correspond to data in the dictionary, the data is stored and the fingerprint is added to the dictionary. Having processed the chunk, the Dell DR4000 then continues processing the data stream.

50. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "a single data compression encoder." *See, e.g.,* http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."); http://www.dell.com/downloads/global/products/pvaul/en/demystifying-

deduplication.pdf ("The Dell DR4000 has made further optimizations, and can actually dedupe and compress as part of the same inline process. This provides the benefits of compression without requiring that space be dedicated to staging uncompressed data.").

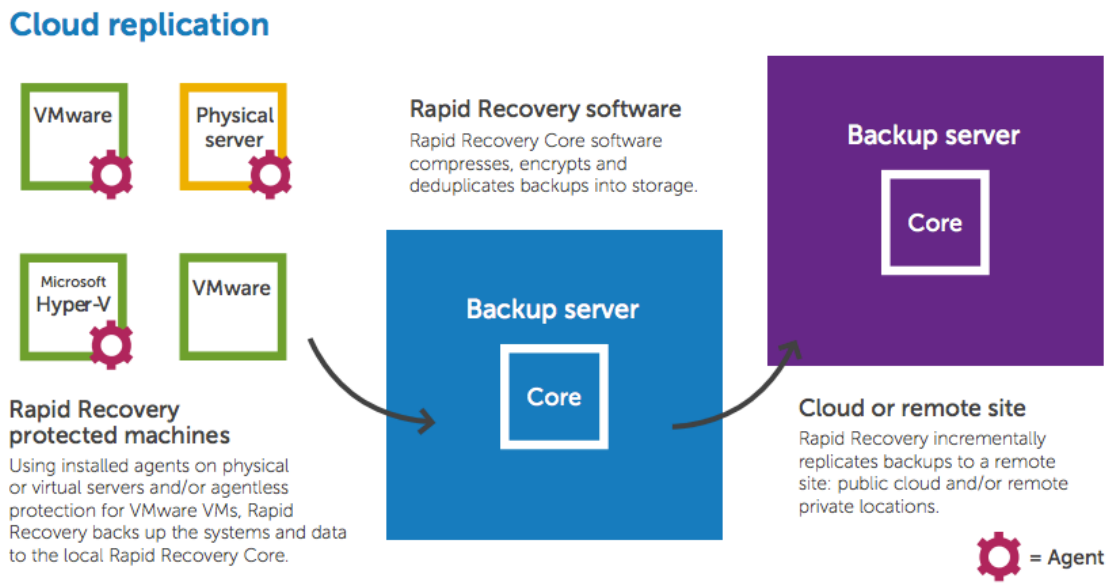
51. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "wherein the processor is configured: to analyze data within a data block to identify one or more parameters or attributes of the data wherein the analyzing of the data within the data block 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". *See, e.g.*, http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf ("The R3, powered by the best-of-breed data deduplication technology platform used in Dell DR series appliances, can reside on separate Windows or Linux servers … Client-side data deduplication (also called source-side deduplication) uses the agent to remove redundant backup data before transmitting data to the R3. Using client-side data deduplication in tandem with target deduplication greatly reduces the amount of data sent over a LAN."); http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("AppAssure becomes the Rapid Recovery product under a Dell Data Protection (DDP) brand. The product is block- and snapshot-based, only storing unique, changed blocks with a five-minute RPO."). See also http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf:

> The Dell DR4000 uses sophisticated pattern-matching algorithms to scan the next section of the data stream. This process determines the optimum chunk size for the incoming data and assigns the chunk a unique value, called a fingerprint. The Dell DR4000 uses industry-standard techniques to guarantee that a given fingerprint is assigned to single, unique, set of bits. The Dell DR4000 then checks the fingerprint against its dictionary. If the fingerprint corresponds to data already in the dictionary, the Dell DR4000 creates a pointer and adds one to the reference count. If the fingerprint does not correspond to data in the dictionary, the data is stored and the fingerprint is added to the dictionary. Having processed the chunk, the Dell DR4000 then continues processing the data stream.

52. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "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". Even if the deduplication function in the Accused Instrumentality were found to not literally meet the "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" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, deduplication performs substantially the same function (for example, reducing the overall amount of bits to store) in substantially the same way (by, for example, applying a technique based on the specific content of the incoming data in order to present for storage fewer overall bits) to achieve substantially the same result (for example, storage of fewer bits of data overall). *See, e.g.*, http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf ("The R3, powered by the best-of-breed data deduplication technology platform used in Dell DR series appliances, can reside on separate Windows or Linux servers … Client-side data deduplication (also called source-side deduplication) uses the agent to remove redundant backup data before transmitting data to the R3. Using client-side data deduplication in tandem with target deduplication greatly reduces the amount of data sent over a LAN."); http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("AppAssure becomes the Rapid Recovery product under a Dell Data Protection (DDP) brand. The product is block- and snapshot-based, only storing unique, changed blocks with a five-minute RPO."). *See also* http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf:

The Dell DR4000 uses sophisticated pattern-matching algorithms to scan the next section of the data stream. This process determines the optimum chunk size for the incoming data and assigns the chunk a unique value, called a fingerprint. The Dell DR4000 uses industry-standard techniques to guarantee that a given fingerprint is assigned to single, unique, set of bits. The Dell DR4000 then checks the fingerprint against its dictionary. If the fingerprint corresponds to data already in the dictionary, the Dell DR4000 creates a pointer and adds one to the reference count. If the fingerprint does not correspond to data in the dictionary, the data is stored and the fingerprint is added to the dictionary. Having processed the chunk, the Dell DR4000 then continues processing the data stream.

53. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "to perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified". *See, e.g.*, http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf



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54. On information and belief, Dell also directly infringes and continues to infringe other claims of the '728 patent, for similar reasons as explained above with respect to Claim 1 of the '728 patent.

55. On information and belief, all of the Accused Instrumentalities operate in substantially the same way. In particular, similar deduplication and compression technology used in Dell's DR backup appliances (e.g. DR4100, DR6000, and DR2000v)

is used in Dell's Rapid Recovery software, Dell's AppAssure software, and in Dell's appliances built using Dell's AppAssure software (e.g. the Dell DL1000 Backup and Recovery Appliance, the Dell PowerVault DL4000 Backup and Recovery Appliance, and the Dell DL4300 Backup and Recovery Appliance). See, e.g., http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."); http://software.dell.com/products/appassure-dl1000-backup-and-recovery-appliance/ ("Built by Dell and powered by AppAssure, the DL1000 provides fast backup and restores on virtual machines, physical servers and in the cloud to enable local, offsite or disaster recovery."); http://software.dell.com/documents/dell-appassure-replication-technicalbrief-29890.pdf ("Dell™ AppAssure™ delivers advanced, flexible replication options to protect any organization, along with compression, deduplication and encryption"); http://documents.software.dell.com/appassure/5.4.3/user-guide-revision-b-english/configuring-the-appassure-core/managing-a-repository/modifying-repository-settings ("Enable Deduplication: Clear this checkbox to turn off deduplication, or select this checkbox to enable deduplication; Enable Compression: Clear this checkbox to turn off compression, or select this checkbox to enable compression.").

56. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the systems claimed by the '728 patent.

57. On information and belief, Dell has had knowledge of the '728 patent since at least the filing of the original Complaint or shortly thereafter, and on information and belief, Dell knew of the '728 patent and knew of its infringement, including by way of this lawsuit.

58. Upon information and belief, Dell'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 the '728 patent by making or using a system 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, Dell instructs users of its Rapid Recovery software that "Rapid Recovery Core software compresses, encrypts and deduplicates backups into storage." See http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf. Dell also instructs customers about the benefits of using the deduplication / compression features of the Accused Instrumentalities and encourages its customers to use these infringing deduplication / compression features: "The Dell DR4000 has made further optimizations, and **can actually dedupe and compress as part of the same inline process**. This provides the benefits of compression without requiring that space be dedicated to staging uncompressed data."[29] Dell also explains to customers that the deduplication and compression engine in Rapid Recovery comes from the DR backup product line. *See,*

[29] http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf

e.g.,http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."). Thus, with knowledge of the '728 patent gained from at least the filing and service of the original Complaint in this action, Dell encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '728 patent, knowing that such use constituted infringement of the '728 patent.

59. For similar reasons, Dell also induces its customers to use the Accused Instrumentalities to infringe other claims of the '728 patent. Dell specifically intended and was aware that these normal and customary activities would infringe the '728 patent. Dell 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, Dell engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Dell has induced and continues to induce users of the accused products to use the Accused Instrumentalities in their ordinary and customary way to infringe the '728 patent, knowing that such use constitutes infringement of the '728 patent.

60. 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, Dell has injured Realtime and is liable to Realtime for infringement of the '728 patent pursuant to 35 U.S.C. § 271.

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

EMC Data Domain

62. On information and belief, EMC has used, offered for sale, sold and/or imported into the United States EMC products that infringe the '728 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, EMC's compression products and services, such as, *e.g.,* the EMC Data Domain product, the EMC VNX2 Series products (including the EMC VNX5200, VNX5400, VNX5600, VNX5800, VNX7600, & VNX8000 products), the EMC XtremIO Storage Array, and all versions and variations thereof since the issuance of the '728 patent ("Accused Instrumentality").

63. On information and belief, Dell has made, used, offered for sale, sold and/or imported into the United States combination products incorporating EMC products that infringe the '728 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Dell / EMC DD Series deduplication storage systems (including DD140, DD610, DD630, and DD670), which are appliances incorporating EMC's Data Domain Operating System,[30] including Global Compression™, and all versions and variations thereof since the issuance of the '728 patent ("Accused Instrumentality").

64. On information and belief, Dell and EMC have directly infringed and continue to infringe the '728 patent, for example, through their own use and testing of the Accused Instrumentality, which constitutes 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

[30] http://www.emc.com/data-protection/data-domain/data-domain-operating-system.htm

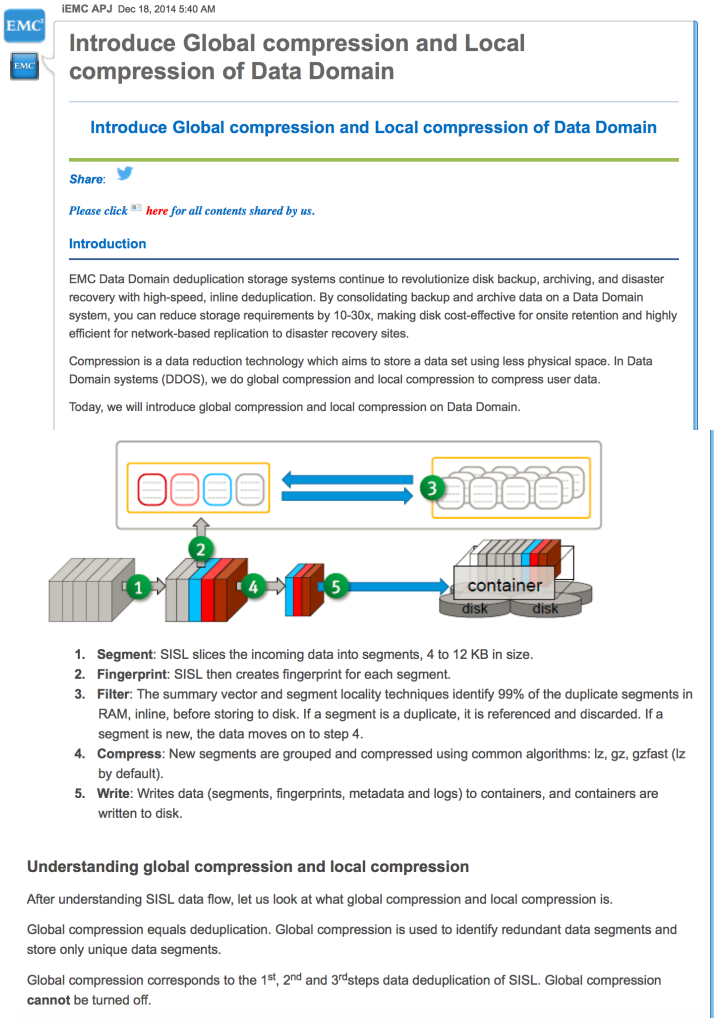
descriptor that is indicative of the one or more parameters or attributes of the data within the data block; to perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified; and to perform 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, Dell and EMC use the Accused Instrumentality, an infringing system, for their own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Dell's and EMC's customers.

65. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "A system for compressing data comprising; a processor; one or more content dependent data compression encoders". Even if the deduplication function in the Accused Instrumentality were found to not literally meet the "one or more content dependent data compression encoders" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, deduplication performs substantially the same function (for example, reducing the overall amount of bits to store) in substantially the same way (by, for example, applying a technique based on the specific content of the incoming data in order to present for storage fewer overall bits) to achieve substantially the same result (for example, storage of fewer bits of data overall). *See, e.g.*, https://community.emc.com/mobile/mobile-access.jspa#jive-document?content=%2Fapi%2Fcore%2Fv2%2Fposts%2F11050 (authored by "a Senior Consultant, Software Engineer at EMC Corporation"):

> **What is data deduplication and how is it implemented?**
>
> **Data deduplication** (sometimes referred to as "intelligent compression" or "single-instance storage") **is a specialized form of data compression** that's designed to eliminate redundant data. **Much like other forms of compression,**

deduplication works by inspecting data and identifying sections that have identical byte patterns. When such patterns are found, only one unique instance of the data is written to storage; **duplicate occurrences are replaced with a "data pointer" that references the previously stored instance.** Given that the same byte pattern may occur dozens, hundreds, or even thousands of times, **the amount of data that must be physically stored (and transported across a network) can be greatly reduced when deduplication is utilized.**

See also, e.g., https://community.emc.com/thread/203751



iEMC APJ Dec 18, 2014 5:40 AM

Introduce Global compression and Local compression of Data Domain

Introduce Global compression and Local compression of Data Domain

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Introduction

EMC Data Domain deduplication storage systems continue to revolutionize disk backup, archiving, and disaster recovery with high-speed, inline deduplication. By consolidating backup and archive data on a Data Domain system, you can reduce storage requirements by 10-30x, making disk cost-effective for onsite retention and highly efficient for network-based replication to disaster recovery sites.

Compression is a data reduction technology which aims to store a data set using less physical space. In Data Domain systems (DDOS), we do global compression and local compression to compress user data.

Today, we will introduce global compression and local compression on Data Domain.

1. **Segment**: SISL slices the incoming data into segments, 4 to 12 KB in size.
2. **Fingerprint**: SISL then creates fingerprint for each segment.
3. **Filter**: The summary vector and segment locality techniques identify 99% of the duplicate segments in RAM, inline, before storing to disk. If a segment is a duplicate, it is referenced and discarded. If a segment is new, the data moves on to step 4.
4. **Compress**: New segments are grouped and compressed using common algorithms: lz, gz, gzfast (lz by default).
5. **Write**: Writes data (segments, fingerprints, metadata and logs) to containers, and containers are written to disk.

Understanding global compression and local compression

After understanding SISL data flow, let us look at what global compression and local compression is.

Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments.

Global compression corresponds to the 1st, 2nd and 3rdsteps data deduplication of SISL. Global compression **cannot** be turned off.

66. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "a single data compression encoder.":[31]

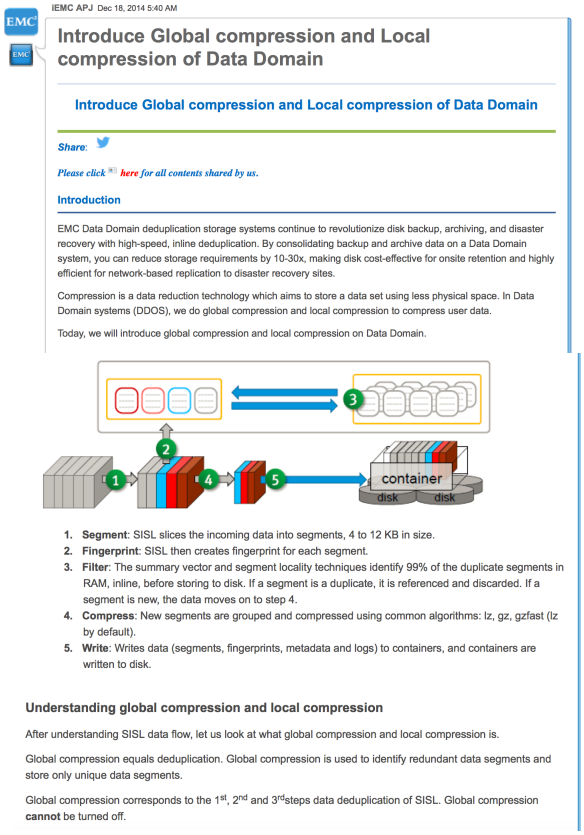
[31] https://community.emc.com/thread/203751

Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast).

Local compression corresponds to the 4th and 5th steps data deduplication of SISL. Local compression **can**be turned off.

The overall user data compression is the joint effort of global compression and local compression. This is the final result of deduplication. DDOS uses "compression ratio" to measure the effectiveness of its data compression.

67. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "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": [32]



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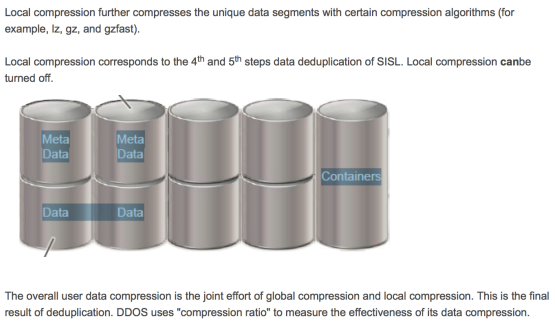
[32] https://community.emc.com/thread/203751

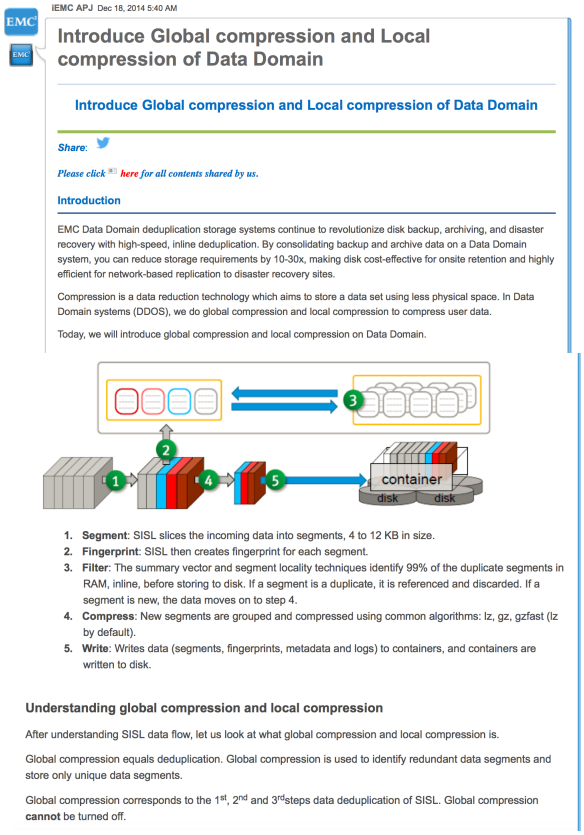


68. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "to perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified". Even if the deduplication function in the Accused Instrumentality were found to not literally meet the "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" limitation, this limitation is met under the doctrine of equivalents because it is insubstantially different from what the limitation literally requires. Moreover, deduplication performs substantially the same function (for example, reducing the overall amount of bits to store) in substantially the same way (by, for example, applying a technique based on the specific content of the incoming data in order to present for storage fewer overall bits) to achieve substantially the same result (for example, storage of fewer bits of data overall). *See, e.g.*, https://community.emc.com/mobile/mobile-access.jspa#jive-document?content=%2Fapi%2Fcore%2Fv2%2Fposts%2F11050 (authored by "a Senior Consultant, Software Engineer at EMC Corporation"):

> **What is data deduplication and how is it implemented?**
>
> **Data deduplication** (sometimes referred to as "intelligent compression" or "single-instance storage") **is a specialized form of data compression** that's designed to eliminate redundant data. **Much like other forms of compression, deduplication works by inspecting data and identifying sections that have identical byte patterns.** When such patterns are found, only one unique instance of the data is written to storage; **duplicate occurrences are replaced with a**

"data pointer" that references the previously stored instance. Given that the same byte pattern may occur dozens, hundreds, or even thousands of times, **the amount of data that must be physically stored (and transported across a network) can be greatly reduced when deduplication is utilized.**

See also, e.g., https://community.emc.com/thread/203751:



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EMC Data Domain deduplication storage systems continue to revolutionize disk backup, archiving, and disaster recovery with high-speed, inline deduplication. By consolidating backup and archive data on a Data Domain system, you can reduce storage requirements by 10-30x, making disk cost-effective for onsite retention and highly efficient for network-based replication to disaster recovery sites.

Compression is a data reduction technology which aims to store a data set using less physical space. In Data Domain systems (DDOS), we do global compression and local compression to compress user data.

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Understanding global compression and local compression

After understanding SISL data flow, let us look at what global compression and local compression is.

Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments.

Global compression corresponds to the 1st, 2nd and 3rdsteps data deduplication of SISL. Global compression **cannot** be turned off.

69. The Accused Instrumentality satisfies literally and/or under the doctrine of equivalents the claim requirement "to perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified": [33]

[33] https://community.emc.com/thread/203751

Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast).

Local compression corresponds to the 4th and 5th steps data deduplication of SISL. Local compression canbe turned off.

The overall user data compression is the joint effort of global compression and local compression. This is the final result of deduplication. DDOS uses "compression ratio" to measure the effectiveness of its data compression.

70. On information and belief, Dell and EMC also directly infringe and continue to infringe other claims of the '728 patent, for similar reasons as explained above with respect to Claim 1 of the '728 patent.

71. On information and belief, all of the Accused Instrumentalities infringe the '728 patent in substantially the same way. In particular, similar deduplication and compression technology used in EMC's Data Domain product is also used in Dell / EMC DD Series deduplication storage systems (including DD140, DD610, DD630, and DD670), which are appliances incorporating EMC's Data Domain Operating System,[34] including Global Compression™.

72. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the '728 patent.

73. On information and belief, Dell has had knowledge of the '728 patent since at least the filing of the original Complaint or shortly thereafter, and on information and belief, Dell knew of the '728 patent and knew of its infringement, including by way of this lawsuit.

74. Upon information and belief, Dell'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 the '728 patent by making or using systems for compressing data

[34] http://www.emc.com/data-protection/data-domain/data-domain-operating-system.htm

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, Dell instructs customers of the Dell / EMC DD Series deduplication storage systems of the benefits of implementing deduplication and compression and encourages its customers to use the infringing deduplication and compression features of the Dell/EMC DD series products: "The Dell / EMC DD Series are mature backup to disk solutions with integrated deduplication. The solutions are designed to be easily incorporated into enterprise environments for customers who want to implement deduplication without changing their backup software. Data Domain technology has been built from the ground up to optimize Global Compression™ together with Stream Informed Segment Layout (SISL™) Scaling Architecture so that customers reap the benefits of both CPU performance scalability and reductions in backup media requirements."[35] Thus, with knowledge of the '728 patent gained from at least the filing and service of the original Complaint in this action, Dell encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '728 patent, knowing that such use constituted infringement of the '728 patent.

75. For similar reasons, Dell also induces its customers to use the Accused

[35] http://www.dell.com/downloads/global/products/pvaul/en/dell-emc-dd-series-brochure.pdf

Instrumentalities to infringe other claims of the '728 patent. Dell specifically intended and was aware that these normal and customary activities would infringe the '728 patent. Dell 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, Dell engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Dell has induced and continue to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '728 patent, knowing that such use constitutes infringement of the '728 patent.

76. On information and belief, EMC has had knowledge of the '728 patent since at least the filing of the original Complaint or shortly thereafter, and on information and belief, EMC knew of the '728 patent and knew of its infringement, including by way of this lawsuit.

77. Upon information and belief, EMC'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 the '728 patent by making or using 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, EMC instructs users of EMC Data Domain about the benefits of using the deduplication / compression features of the EMC Data Domain and encourages its customers to use these infringing deduplication / compression features: "EMC Data Domain deduplication storage systems continue to revolutionize disk backup, archiving, and disaster recovery with high-speed, inline deduplication. … Compression is a data reduction technology which aims to store a data set using less physical space. In Data Domain systems (DDOS), we do global compression and local compression to compress user data. … Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments. … Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast)." [36] *See also* https://community.emc.com/mobile/mobile-access.jspa#jive-document?content=%2Fapi%2Fcore%2Fv2%2Fposts%2F11050 (authored by "a Senior Consultant, Software Engineer at EMC Corporation") ("Data deduplication (sometimes referred to as "intelligent compression" or "single-instance storage") is a specialized form of data compression that's designed to eliminate redundant data. Much like other forms of compression, deduplication works by inspecting data and identifying sections that have identical byte patterns. … [T]he amount of data that must be physically stored (and transported across a network) can be greatly reduced when deduplication is utilized."). Thus, with knowledge of the '728 patent gained from at least the filing and service of the original Complaint in this action, EMC encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '728 patent, knowing that such use constituted infringement of the '728 patent.

[36] See https://community.emc.com/thread/203751

78. For similar reasons, EMC also induces its customers to use the Accused Instrumentalities to infringe other claims of the '728 patent. EMC specifically intended and was aware that these normal and customary activities would infringe the '728 patent. EMC 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, EMC engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, EMC has induced and continue to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '728 patent, knowing that such use constitutes infringement of the '728 patent.

79. 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, Dell and EMC have injured Realtime and are liable to Realtime for infringement of the '728 patent pursuant to 35 U.S.C. § 271.

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

COUNT III

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

81. Plaintiff realleges and incorporates by reference the foregoing paragraphs 1-80, as if fully set forth herein.

82. Plaintiff Realtime is the owner by assignment of United States Patent No. 7,415,530 ("the '530 patent") entitled "Systems 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,

including its reexamination certificates, is included as Exhibit C.

Dell

83. On information and belief, Dell has, or will soon have, made, used, offered for sale, sold and/or imported into the United States Dell products that infringe the '530 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Dell's compression products and services, such as, *e.g.,* the Rapid Recovery software product (v6.0.1),[37] the AppAssure v5.4 software product,[38] the Dell DL1000 Backup and Recovery Appliance,[39] the Dell PowerVault DL4000 Backup and Recovery Appliance,[40] the Dell DL4300 Backup and Recovery Appliance,[41] the Dell DR4100 Disk Backup Appliance, the Dell DR6000 Disk Backup Appliance,[42] the Dell DR2000v backup disk virtual appliance,[43] the Dell SonicWALL WAN Acceleration Virtual Appliance (WXA) 5000,[44] DD Series Appliances (*e.g.,* DD140, DD610, DD630, and DD670), and all versions and variations thereof since the issuance of the '530 patent ("Accused Instrumentality").

84. On information and belief, Dell has directly infringed and continues to infringe the '530 patent. Plaintiff incorporates by reference its infringement contentions chart for the '530 patent, which is attached as Exhibit C-1.

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

[37] http://software.dell.com/landing/6178
[38] http://documents.software.dell.com/appassure/5.4.1/user-guide/introduction-to-appassure-5/about-appassure-5
[39] http://software.dell.com/products/appassure-dl1000-backup-and-recovery-appliance/
[40] https://partnerdirect.dell.com/sites/channel/Documents/Dell-PowerVault-DL4000-Spec-Sheet.pdf
[41] http://software.dell.com/products/dl4300-backup-and-recovery-appliance/
[42] http://software.dell.com/products/dr-series-disk-backup-appliances/
[43] http://software.dell.com/products/dr2000v-virtual-backup-appliance/
[44] http://accessories.dell.com/sna/PopupProductDetail.aspx?c=us&l=en&cs=04&sku=A7004425&price=4,495.00&client=config

'530 patent.

86. On information and belief, Dell has had knowledge of the '530 patent since at least the filing of the original Complaint in E.D. Tex. Case No. 6:15-cv-468 or shortly thereafter, and on information and belief, Dell knew of the '530 patent and knew of its infringement, including by way of this lawsuit.

87. Upon information and belief, Dell'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. For example, Dell instructs users of its Rapid Recovery software that "Rapid Recovery Core software compresses, encrypts and deduplicates backups into storage." See http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf. Dell also instructs customers about the benefits of using the deduplication / compression features of the Accused Instrumentalities and encourages its customers to use these infringing deduplication / compression features: "The Dell DR4000 has made further

optimizations, and **can actually dedupe and compress as part of the same inline process**. This provides the benefits of compression without requiring that space be dedicated to staging uncompressed data."[45] Dell also explains to customers that the deduplication and compression engine in Rapid Recovery comes from the DR backup product line. *See, e.g.,* http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_becomes_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."). As another example, Dell instructs customers of the Dell / EMC DD Series deduplication storage systems of the benefits of implementing deduplication and compression and encourages its customers to use the infringing deduplication and compression features of the Dell/EMC DD series products: "The Dell / EMC DD Series are mature backup to disk solutions with integrated deduplication. The solutions are designed to be easily incorporated into enterprise environments for customers who want to implement deduplication without changing their backup software. Data Domain technology has been built from the ground up to optimize Global Compression™ together with Stream Informed Segment Layout (SISL™) Scaling Architecture so that customers reap the benefits of both CPU performance scalability and reductions in backup media requirements."[46] Thus, with knowledge of the '530 patent gained from at least the filing and service of the original Complaint in this action, Dell encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '530 patent, knowing that such use constituted infringement of the '530 patent.

88. For similar reasons, Dell also induces its customers to use the Accused

[45] http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf

[46] http://www.dell.com/downloads/global/products/pvaul/en/dell-emc-dd-series-brochure.pdf

Instrumentalities to infringe other claims of the '530 patent. Dell specifically intended and was aware that these normal and customary activities would infringe the '530 patent. Dell 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, Dell engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Dell has induced and continue 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.

89. 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, Dell has injured Realtime and is liable to Realtime for infringement of the '530 patent pursuant to 35 U.S.C. § 271.

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

EMC

91. On information and belief, EMC has, or will soon have, made, used, offered for sale, sold and/or imported into the United States EMC products that infringe the '530 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, EMC's compression products and services, such as, *e.g.,* the EMC Data Domain product, the EMC XtremIO Storage Array,[47] and all versions and variations thereof since the issuance of the '530 patent ("Accused Instrumentality").

[47] https://www.emc.com/collateral/white-papers/h11752-intro-to-XtremIO-array-wp.pdf

92. On information and belief, EMC has directly infringed and continues to infringe the '530 patent. Plaintiff incorporates by reference its infringement contentions chart for the '530 patent, which is attached as Exhibit C-2.

93. 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.

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

95. Upon information and belief, EMC'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. For example, EMC instructs users of EMC Data Domain about the benefits of using the

deduplication / compression features of the EMC Data Domain and encourages its customers to use these infringing deduplication / compression features: "EMC Data Domain deduplication storage systems continue to revolutionize disk backup, archiving, and disaster recovery with high-speed, inline deduplication. … Compression is a data reduction technology which aims to store a data set using less physical space. In Data Domain systems (DDOS), we do global compression and local compression to compress user data. … Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments. … Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast)." [48] *See also* https://community.emc.com/mobile/mobile-access.jspa#jive-document?content=%2Fapi%2Fcore%2Fv2%2Fposts%2F11050 (authored by "a Senior Consultant, Software Engineer at EMC Corporation") ("Data deduplication (sometimes referred to as "intelligent compression" or "single-instance storage") is a specialized form of data compression that's designed to eliminate redundant data. Much like other forms of compression, deduplication works by inspecting data and identifying sections that have identical byte patterns. … [T]he amount of data that must be physically stored (and transported across a network) can be greatly reduced when deduplication is utilized."). Thus, with knowledge of the '530 patent gained from at least the filing and service of the original Complaint in this action, EMC encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '530 patent, knowing that such use constituted infringement of the '530 patent.

96. For similar reasons, EMC also induces its customers to use the Accused Instrumentalities to infringe other claims of the '530 patent. EMC specifically intended and was aware that these normal and customary activities would infringe the '530 patent.

[48] See https://community.emc.com/thread/203751

EMC 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, EMC engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, EMC has induced and continue 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.

97. 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, EMC has injured Realtime and is liable to Realtime for infringement of the '530 patent pursuant to 35 U.S.C. § 271.

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

COUNT IV

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

99. Plaintiff realleges and incorporates by reference the foregoing paragraphs 1-98, as if fully set forth herein.

100. Plaintiff Realtime is the owner by assignment of United States Patent No. 9,116,908 ("the '908 patent") entitled "Systems 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 26, 2015. A true and correct copy of the '908 patent is included as Exhibit D.

Dell

101. On information and belief, Dell has, or will soon have, made, used,

offered for sale, sold and/or imported into the United States Dell products that infringe the '908 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Dell's compression products and services, such as, *e.g.,* the Rapid Recovery software product (v6.0.1),[49] the AppAssure v5.4 software product,[50] the Dell DL1000 Backup and Recovery Appliance,[51] the Dell PowerVault DL4000 Backup and Recovery Appliance,[52] the Dell DL4300 Backup and Recovery Appliance,[53] the Dell DR4100 Disk Backup Appliance, the Dell DR6000 Disk Backup Appliance,[54] the Dell DR2000v backup disk virtual appliance,[55] the Dell SonicWALL WAN Acceleration Virtual Appliance (WXA) 5000,[56] DD Series Appliances (*e.g.,* DD140, DD610, DD630, and DD670), and all versions and variations thereof since the issuance of the '908 patent ("Accused Instrumentality").

102. On information and belief, Dell has directly infringed and continues to infringe the '908 patent. Plaintiff incorporates by reference its infringement contentions chart for the '908 patent, which is attached as Exhibit D-1.

103. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '908 patent.

104. On information and belief, Dell has had knowledge of the '908 patent since at least the filing of the Amended Complaint in E.D. Tex. Case No. 6:15-cv-468 on

[49] http://software.dell.com/landing/6178
[50] http://documents.software.dell.com/appassure/5.4.1/user-guide/introduction-to-appassure-5/about-appassure-5
[51] http://software.dell.com/products/appassure-dl1000-backup-and-recovery-appliance/
[52] https://partnerdirect.dell.com/sites/channel/Documents/Dell-PowerVault-DL4000-Spec-Sheet.pdf
[53] http://software.dell.com/products/dl4300-backup-and-recovery-appliance/
[54] http://software.dell.com/products/dr-series-disk-backup-appliances/
[55] http://software.dell.com/products/dr2000v-virtual-backup-appliance/
[56] http://accessories.dell.com/sna/PopupProductDetail.aspx?c=us&l=en&cs=04&sku=A7004425&price=4,495.00&client=config

September 14, 2015 or shortly thereafter, and on information and belief, Dell knew of the '908 patent and knew of its infringement, including by way of this lawsuit.

105. Upon information and belief, Dell'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, Dell instructs users of its Rapid Recovery software that "Rapid Recovery Core software compresses, encrypts and deduplicates backups into storage." See http://software.dell.com/docs/get-your-apps-back-in-business-technical-brief-102869.pdf. Dell also instructs customers about the benefits of using the deduplication / compression features of the Accused Instrumentalities and encourages its customers to use these infringing deduplication / compression features: "The Dell DR4000 has made further optimizations, and **can actually dedupe and compress as part of the same inline process**. This provides the benefits of compression without requiring that space be dedicated to staging uncompressed data."[57] Dell also explains to customers that the deduplication and compression engine in Rapid Recovery comes from the DR backup product line. *See, e.g.,* http://www.theregister.co.uk/2015/10/26/dell_begins_rebranding_appassure_become

[57] http://www.dell.com/downloads/global/products/pvaul/en/demystifying-deduplication.pdf

s_rapid_recovery/ ("Rapid Recovery feature list: … There is a new deduplication and compression engine from the DR target-based product set, meaning Dell now has a single dedupe engine across its portfolio."). As another example, Dell instructs customers of the Dell / EMC DD Series deduplication storage systems of the benefits of implementing deduplication and compression and encourages its customers to use the infringing deduplication and compression features of the Dell/EMC DD series products: "The Dell / EMC DD Series are mature backup to disk solutions with integrated deduplication. The solutions are designed to be easily incorporated into enterprise environments for customers who want to implement deduplication without changing their backup software. Data Domain technology has been built from the ground up to optimize Global Compression™ together with Stream Informed Segment Layout (SISL™) Scaling Architecture so that customers reap the benefits of both CPU performance scalability and reductions in backup media requirements."[58] Thus, with knowledge of the '908 patent gained from at least the filing and service of the original Complaint in this action, Dell encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '908 patent, knowing that such use constituted infringement of the '908 patent.

106. For similar reasons, Dell also induces its customers to use the Accused Instrumentalities to infringe other claims of the '908 patent. Dell specifically intended and was aware that these normal and customary activities would infringe the '908 patent. Dell 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, Dell engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, Dell has induced and continue to induce users

[58] http://www.dell.com/downloads/global/products/pvaul/en/dell-emc-dd-series-brochure.pdf

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.

107. 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, Dell has injured Realtime and is liable to Realtime for infringement of the '908 patent pursuant to 35 U.S.C. § 271.

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

EMC

109. On information and belief, EMC has, or will soon have, made, used, offered for sale, sold and/or imported into the United States EMC products that infringe the '908 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, EMC's compression products and services, such as, *e.g.,* the EMC Data Domain product, the EMC XtremIO Storage Array,[59] and all versions and variations thereof since the issuance of the '908 patent ("Accused Instrumentality").

110. On information and belief, EMC has directly infringed and continues to infringe the '908 patent. Plaintiff incorporates by reference its infringement contentions chart for the '908 patent, which is attached as Exhibit D-2.

111. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '908 patent.

112. On information and belief, EMC has had knowledge of the '908 patent

[59] https://www.emc.com/collateral/white-papers/h11752-intro-to-XtremIO-array-wp.pdf

since at least the filing of the original Complaint or shortly thereafter, and on information and belief, EMC knew of the '908 patent and knew of its infringement, including by way of this lawsuit.

113. Upon information and belief, EMC'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, EMC instructs users of EMC Data Domain about the benefits of using the deduplication / compression features of the EMC Data Domain and encourages its customers to use these infringing deduplication / compression features: "EMC Data Domain deduplication storage systems continue to revolutionize disk backup, archiving, and disaster recovery with high-speed, inline deduplication. … Compression is a data reduction technology which aims to store a data set using less physical space. In Data Domain systems (DDOS), we do global compression and local compression to compress user data. … Global compression equals deduplication. Global compression is used to identify redundant data segments and store only unique data segments. … Local compression further compresses the unique data segments with certain compression algorithms (for example, lz, gz, and gzfast)." [60] *See also*

[60] See https://community.emc.com/thread/203751

https://community.emc.com/mobile/mobile-access.jspa#jive-document?content=%2Fapi%2Fcore%2Fv2%2Fposts%2F11050 (authored by "a Senior Consultant, Software Engineer at EMC Corporation") ("Data deduplication (sometimes referred to as "intelligent compression" or "single-instance storage") is a specialized form of data compression that's designed to eliminate redundant data. Much like other forms of compression, deduplication works by inspecting data and identifying sections that have identical byte patterns. … [T]he amount of data that must be physically stored (and transported across a network) can be greatly reduced when deduplication is utilized."). Thus, with knowledge of the '908 patent gained from at least the filing and service of the original Complaint in this action, EMC encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '908 patent, knowing that such use constituted infringement of the '908 patent.

114. For similar reasons, EMC also induces its customers to use the Accused Instrumentalities to infringe other claims of the '908 patent. EMC specifically intended and was aware that these normal and customary activities would infringe the '908 patent. EMC 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, EMC engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, EMC has induced and continue 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.

115. 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, EMC has injured Realtime and is liable to Realtime for infringement of the '908 patent pursuant to 35 U.S.C. § 271.

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

COUNT V

INFRINGEMENT OF U.S. PATENT NO. 8,643,513

117. Plaintiff realleges and incorporates by reference paragraphs 1-116 above, as if fully set forth herein.

118. Plaintiff Realtime is the owner by assignment of United States Patent No. 8,643,513 ("the '513 patent") entitled "Data compression systems and methods." The '513 patent was duly and legally issued by the United States Patent and Trademark Office on February 4, 2014. A true and correct copy of the '513 patent is included as Exhibit E.

EMC XtremIO

119. On information and belief, EMC has made, used, offered for sale, sold and/or imported into the United States products that infringe the '513 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, EMC compression products and services, such as, *e.g.,* XtremIO, and all versions and variations thereof since the issuance of the '513 patent ("Accused Instrumentality").

120. On information and belief, EMC has directly infringed and continues to infringe the '513 patent, for example, through its own use and testing of the Accused Instrumentality to practice compression methods claimed by Claim 1 of the '513 patent, namely, a method of compressing a plurality of data blocks, comprising: analyzing the plurality of data blocks to recognize when an appropriate content independent compression algorithm is to be applied to the plurality of data blocks; applying the appropriate content independent data compression algorithm to a portion of the plurality of data blocks to provide a compressed data portion; analyzing a data block from another

portion of the plurality of data blocks for recognition of any characteristic, attribute, or parameter that is indicative of an appropriate content dependent algorithm to apply to the data block; and applying the appropriate content dependent data compression algorithm to the data block to provide a compressed data block when the characteristic, attribute, or parameter is identified, wherein the analyzing the plurality of data blocks to recognize when the appropriate content independent compression algorithm is to be applied excludes analyzing based only on a descriptor indicative of the any characteristic, attribute, or parameter, and wherein the analyzing the data block to recognize the any characteristic, attribute, or parameter excludes analyzing based only on the descriptor. Upon information and belief, EMC uses the Accused Instrumentality to practice infringing methods 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 EMC's customers. Plaintiff incorporates by reference its infringement contentions chart for the '513 patent, which is attached as Exhibit E-1.

121. On information and belief, use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '513 patent.

122. On information and belief, EMC has had knowledge of the '513 patent since at least the filing of the original Complaint or shortly thereafter, and on information and belief, EMC knew of the '513 patent and knew of its infringement, including by way of this lawsuit.

123. Upon information and belief, EMC'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 '513 patent by practicing a method of compressing a plurality of data blocks, comprising: analyzing the plurality of data blocks to recognize

when an appropriate content independent compression algorithm is to be applied to the plurality of data blocks; applying the appropriate content independent data compression algorithm to a portion of the plurality of data blocks to provide a compressed data portion; analyzing a data block from another portion of the plurality of data blocks for recognition of any characteristic, attribute, or parameter that is indicative of an appropriate content dependent algorithm to apply to the data block; and applying the appropriate content dependent data compression algorithm to the data block to provide a compressed data block when the characteristic, attribute, or parameter is identified, wherein the analyzing the plurality of data blocks to recognize when the appropriate content independent compression algorithm is to be applied excludes analyzing based only on a descriptor indicative of the any characteristic, attribute, or parameter, and wherein the analyzing the data block to recognize the any characteristic, attribute, or parameter excludes analyzing based only on the descriptor. For example, EMC instructs users of XtremIO about the benefits of using the deduplication / compression features of XtremIO and encourages its customers to use these infringing deduplication / compression features:

Unstoppable Data Reduction

ALWAYS-ON, IN-LINE, ZERO-PENALTY, ENTERPRISE-CLASS, FREE

XtremIO Data Reduction is a highly integrated, always-on in-line data optimization architecture that multiplies your overall investment in Flash across a broad and deep landscape of business applications and use cases. Through comprehensive methods including thin provisioning, always on and always inline global deduplication and compression, and 100% metadata space-efficient writeable snapshots, XtremIO makes petabyte-scale flash a viable economic reality. You now have the power to do with flash what you could never even dream of being possible before.

WHY IS DATA REDUCTION CRITICAL FOR ALL-FLASH-ARRAYS?

Data reduction has a multiplying affect across many aspects of the array, which ultimately translates in a number of key benefits.

Multiplying the effective capacity of your investment in All-Flash

Multiply the performance of applications by minimizing writes

Multiply the endurance of your flash media, extending its usable lifespan

See http://www.emc.com/collateral/data-sheet/h12453-real-time-data-reduction-ds.pdf.

Thus, with knowledge of the '513 patent gained from at least the filing and service of this Second Amended Complaint in this action, EMC encouraged users of the Accused Instrumentalities to use their deduplication/compression functionality to infringe the '908 patent, knowing that such use constituted infringement of the '908 patent

124. For similar reasons, EMC also induces its customers to use the Accused Instrumentalities to infringe other claims of the '513 patent. EMC specifically intended and was aware that these normal and customary activities would infringe the '513 patent. EMC performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the '513 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On

information and belief, EMC engaged in such inducement to promote the sales of the Accused Instrumentalities. Accordingly, EMC has induced and continue to induce users of the accused products to use the accused products in their ordinary and customary way to infringe the '513 patent, knowing that such use constitutes infringement of the '513 patent.

125. 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, EMC has injured Realtime and is liable to Realtime for infringement of the '513 patent pursuant to 35 U.S.C. § 271.

126. As a result of EMC's infringement of the '513 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for EMC's infringement, but in no event less than a reasonable royalty for the use made of the invention by EMC, 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 Dell and EMC have infringed, either literally and/or under the doctrine of equivalents, the '506 patent, the '728 patent, the '530 patent, and the '908 patent, and that EMC has infringed, either literally and/or under the doctrine of equivalents, the '513 patent;

b. A judgment and order requiring Dell and EMC to pay Plaintiff its damages, costs, expenses, and prejudgment and post-judgment interest for their infringement of the '506 patent, the '728 patent, the '530 patent, and the '908 patent, as provided under 35 U.S.C. § 284; and a judgment and order requiring EMC to pay Plaintiff its damages, costs, expenses, and prejudgment and post-judgment interest for its infringement of the '513 patent;

c. A judgment and order requiring Dell and EMC to provide an accounting and to pay supplemental damages to Realtime, including without limitation, prejudgment and post-judgment interest;

d. 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 Dell and EMC; and

e. 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 15, 2016

Respectfully submitted,

/s/ Marc A. Fenster
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Attorneys for Plaintiff
Realtime Data LLC d/b/a IXO

CERTIFICATE OF SERVICE

I hereby certify that the counsel of record who are deemed to have consented to electronic service are being served on August 15, 2016, with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3). Any other counsel of record will be served by electronic mail, facsimile transmission and/or first class mail on this same date.

/s/ *Marc A. Fenster*