

## PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT2846277

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
LSI CORPORATION	05/05/2011
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	NETAPP, INC.
<b>Street Address:</b>	495 EAST JAVA DRIVE
<b>City:</b>	SUNNYVALE
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	94089
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	13930822
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	214-651-5000
<b>Email:</b>	ipdocketing@haynesboone.com
<b>Correspondent Name:</b>	HAYNES AND BOONE, LLP (47415)
<b>Address Line 1:</b>	ATTN: IPDOCKETING
<b>Address Line 2:</b>	2323 VICTORY AVENUE, SUITE 700
<b>Address Line 4:</b>	DALLAS, TEXAS 75219
<b>ATTORNEY DOCKET NUMBER:</b>	47415.429
<b>NAME OF SUBMITTER:</b>	BRIAN D. GRAHAM
<b>SIGNATURE:</b>	/Brian D. Graham/
<b>DATE SIGNED:</b>	05/07/2014
<b>Total Attachments: 21</b>	
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## PATENT ASSIGNMENT

THIS PATENT ASSIGNMENT is made as of May 6, 2011 by LSI CORPORATION, a Delaware corporation, hereinafter referred to as the ASSIGNOR, and NETAPP, INC., a Delaware corporation, hereinafter referred to as the ASSIGNEE.

ASSIGNOR is the owner of certain patents and patent applications identified on Schedule "A" attached hereto (the "ASSIGNED PATENTS").

ASSIGNEE desires to acquire the entire right, title and interest of ASSIGNOR in and to said ASSIGNED PATENTS.

For good and valuable consideration paid by the ASSIGNEE, the receipt of which is hereby acknowledged, ASSIGNOR does hereby sell, assign and transfer to the ASSIGNEE, at ASSIGNEE's sole expense, ASSIGNOR's entire right, title and interest in and to the ASSIGNED PATENTS, in the U.S. and every foreign country, and all patent rights, including extensions or derivations thereof, both foreign and domestic, that exist and may issue on the ASSIGNED PATENTS. ASSIGNEE hereby authorizes and requests the Commissioner of Patents that all U.S. patents that issue on the ASSIGNED PATENTS shall issue to ASSIGNEE. This assignment includes assignment to ASSIGNEE of the right to make application in its own behalf for protection of the ASSIGNED PATENTS and any patents issued on the ASSIGNED PATENTS, in the U.S. and countries foreign to the U.S., and to claim under the Patent Cooperation Treaty, the International Convention and/or other international arrangement for any such application the date of any earlier U.S. application (or any other application on the invention) to gain priority with respect to other applications. The ASSIGNED PATENTS and all patents that issue on the ASSIGNED PATENTS shall be held and enjoyed by the ASSIGNEE, its successors and assigns as fully and entirely as the same would have been held and enjoyed by the ASSIGNOR had this assignment not been made.

ASSIGNOR covenants and agrees to execute such further and confirmatory assignments in recordable form as the ASSIGNEE may require to vest record title of said respective ASSIGNED PATENTS in ASSIGNEE.

*[Signature Page Follows]*

IN WITNESS WHEREOF, Assignor has caused this Assignment to be executed by a duly authorized officer.

LSI CORPORATION

Bryon Look

Name: Bryon Look

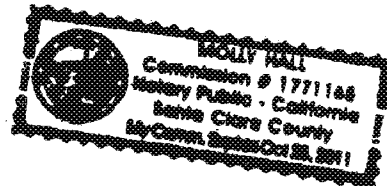
Title: Executive VP & CFO

STATE OF California )  
                                  ) SS:  
COUNTY OF Santa Clara

Before me this 5 day of May, 2011, personally appeared Bryon Look personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity therefor and that he signed the same of his own free will for the purpose therein expressed.

WITNESS my hand and official seal:


[Signature]  
Notary Public



[Signature Page to Patent Assignment]

IN WITNESS WHEREOF, the ASSIGNEE has caused this Assignment to be executed by a  
duly authorized officer.

NETAPP, INC.

By:   
Name: MATTHEW FAWCETT  
Title: SVP & SECRETARY

[Signature Page to Patent Assignment]

**SCHEDULE A  
ASSIGNED PATENTS**

TITLE	INVENTORS	COUNTRY	APPLICATION NUMBER	DATE FILED	PATENT NUMBER	ISSUE DATE
STORAGE SYSTEM FOR PERVASIVE AND MOBILE CONTENT	Manu Rehani	US	11280764	16-Nov-05		
Storage Virtualization in a SAN	Nelson Nahum	EP	19197417	4-Apr-01		
METHOD FOR REMOTE DATA BACK UP WITH DE-DUPLICATION AND RECOVERY FROM CLUSTERED SECONDARY STORAGE ARRAYS	Mahmoud K. Jibbe, Satish Subramanian, Selvaraj Rasappan, Senthil Kannan	US	12211838	17-Sep-08		
System and Method for Connecting SAS RAID Controller Device Channels Across Redundant Storage Subsystems	Mohamad El-Batal	CN	2007800340247	10-Oct-07		
Systems and methods for releaseably securing an article within a computer system	Gary L. Golobay, Robert T. Harvey	US	8885443	30-Jun-97	5963422	5-Oct-99
Standard high volume battery charger Method for handling interrupted writes using multiple cores	Laurel B. Davis	US	10137587	2-May-02	6630812	7-Oct-03
Drive Blade Construction	Mahmoud K. Jibbe, Selvaraj Rasappan, Senthil Kannan	US	12354126	15-Jan-09		
Systems And Methods For Recovering From Configuration Data Mismatches In A Clustered Environment	Robert T. Harvey, Ryan S. Signer	US	12100520	10-Apr-08		
Method and/or Apparatus for Certifying an In-Band Management Application of an External Storage Array	Jayant M. Daftardar	US	11559280	13-Nov-06		
Method for detecting failure in redundant controllers using a private LUN	Mahmoud K. Jibbe, Sriirang Heroor	US	12324224	26-Nov-08		
System for automatically configuring a storage array	Charles D. Binford, Gerald Fredin, Rodney A. DeKoning	US	8941894	30-Sep-97	5975738	2-Nov-99
UNIFIED ENTERPRISE LEVEL METHOD AND SYSTEM FOR ENHANCING APPLICATION AND STORAGE PERFORMANCE	Britto Rossario, Mahmoud K. Jibbe, Pavan P. S.	US	12143123	20-Jun-08		
Method and apparatus for terminating buses having different widths	Kenneth J. Fugate, Mark E. Pokorny, Richard D. Stehno, Sridhar Balasubramanian	US	12492147	26-Jun-09		
SERIAL ATA SWITCH	Brian E. Lamkin, Kenneth J. Thompson, Raymond S. Rowhuff	US	8995222	19-Dec-97	5983296	9-Nov-99
SERIAL ATA SWITCH	Sam Nemazie	DE	42530931	26-May-04	1486880	12-Jan-11
SERIAL ATA SWITCH	Sam Nemazie	GB	42530931	26-May-04	1486880	12-Jan-11

System and Method for Connecting SAS RAID Controller Device Channels Across Redundant Storage Subsystems	Mohamad El-Batal	US	11545872	10-Oct-06			
Context-based failover architecture for redundant servers	Andrew J Spry, Gerald Fredin, William P Delaney	US	8949678	14-Oct-97	5996086		30-Nov-99
Virtualized Data Storage in a Virtualized Server Environment	Ilay Szekeley, Nelson Nahum, Shyam Kaushik, Vladimir Popovski	US	12429519	24-Apr-09			
Compact Ventilation Unit With Exhaust Ports For Electronic Apparatus	Robert T Harvey, Tina M Reintjes	FR	989261615	3-Jun-98	986941		31-Mar-04
Compact Ventilation Unit With Exhaust Ports For Electronic Apparatus	Robert T Harvey, Tina M Reintjes	GB	989261615	3-Jun-98	986941		31-Mar-04
SCHEDULING PROPORTIONAL STORAGE SHARE FOR STORAGE SYSTEMS	Sridhar Balasubramanian	US	12221515	4-Aug-08			
SERIAL ATA SWITCH	Sam Nemazie	CN	2004100493109	10-Jun-04	ZL200410049310.9		12-Nov-08
SYSTEM FOR AUTOMATING STORAGE DEVICE SWAPS AND/OR REPLACEMENTS	Jeremy D Stover, Luke H Hodges, Paul A Eby, Steven G Hagerott	US	12080217	1-Apr-08			
Method for controlling and emulating functional and logical behaviors of an array of storage devices for different protocols	Chin K Kher, Mahmoud K Jibbe	US	10610154	30-Jun-03	7308397		11-Dec-07
Flash SSD assisted snapshot	Bret S Weber, Brian McKean, Jeffrey S Werning, John M Dieterich, Mohamad El-Batal, Timothy E Hoelund	WO	PCTUS0902008	30-Mar-09			
Methods and structure for supporting persistent reservations in a multiple-path storage environment	Yanling Qi	US	10868554	15-Jun-04	7313636		25-Dec-07
Storage Of Multiple Host Storage Management Information	Juan C Gatica	DE	989329461	29-Jun-98	69801874		26-Sep-01
Storage Of Multiple Host Storage Management Information	Juan C Gatica	FR	989329461	29-Jun-98	993632		26-Sep-01
Storage Of Multiple Host Storage Management Information	Juan C Gatica	GB	989329461	29-Jun-98	993632		26-Sep-01
Storage Of Multiple Host Storage Management Information	Juan C Gatica	IT	989329461	29-Jun-98	993632		26-Sep-01

Method and system for determining and displaying the topology of a storage array network having multiple hosts and computer readable medium for generating the topology	Rodney A. DeKoning	US	9490383	24-Jan-00	6671776	30-Dec-03
Drive Box	Alan T Pfeifer, John M Durham, Ryan S Sjogren	CN	2009801224026	7-Jan-09		
Method and apparatus for handling transfers of data volumes between controllers in a storage environment having multiple paths to the data volumes	Charles D Binford, Michael J Gallagher, Ray M Jantz, Rodney A. DeKoning	US	9735086	11-Dec-00	6675266	6-Jan-04
Route Aware Serial Advanced Technology Attachment (SATA) Switch	Hyonil Chong, Sam Nermazie	US	12406029	17-Mar-09		
Embedded Scale Out Aggregator for LSI Storage System controllers	Sridhar Balasubramanian, William A Hetrick, William P Delaney	EP	92517754	9-Jul-09		
System to Connect a Serial SCSI Array Controller to a Storage Area Network	Dhishankar Sengupta, Mahmoud K Jibbe	CN	2008801303220	21-Aug-08		
Method and apparatus for recreating fiber channel traffic	Mahmoud K. Jibbe	US	10033125	23-Oct-01	6687856	3-Feb-04
Data storage with host-initiated synchronization and fail-over of remote mirror	Rodney A. DeKoning	US	9685498	10-Oct-00	6691245	10-Feb-04
System to Connect a Serial SCSI Array Controller to a Storage Area Network	Dhishankar Sengupta, Mahmoud K Jibbe	EP	87954855	21-Aug-08		
System to Connect a Serial SCSI Array Controller to a Storage Area Network	Dhishankar Sengupta, Mahmoud K Jibbe	JP		21-Aug-08		
Customer Replaceable Unit Drive Isolator	Ethan W Weber, Tanja A Scherf-Smith	CN	2008600128099	2-Sep-08		
Customer Replaceable Unit Drive Isolator	Ethan W Weber, Tanja A Scherf-Smith	JP		2-Sep-08		
Method and apparatus for providing SCSI target stealth operation	Andrew J Spry, William G Deitz	US	10729115	5-Dec-03	7343621	11-Mar-08
Compact ventilation unit with exhaust ports for electronic apparatus	Robert T Harvey, Tina M Reintjes	US	8869267	4-Jun-97	6092474	28-Mar-00
Redundant Controller Diagnosis Using A Private Lun	Charles D Binford, Gerald Fredin, Rodney A DeKoning	DE	989485693	29-Sep-98	69802833.3	5-Dec-01
Redundant Controller Diagnosis Using A Private Lun	Charles D Binford, Gerald Fredin, Rodney A. DeKoning	FR	989485693	29-Sep-98	1019823	5-Dec-01
Redundant Controller Diagnosis Using A Private Lun	Charles D Binford, Gerald Fredin, Rodney A. DeKoning	GB	989485693	29-Sep-98	1019823	5-Dec-01
Switching Serial Advanced Technology Attachment (SATA)	Hyonil Chong, Sam Nermazie	US	12405128	16-Mar-09		



SERIAL ATA SWITCH	Hyonil Chong, Sam Nemazie	US	17404257	13-Mar-09		
System and Method for Connecting SAS RAID Controller Device Channels Across Redundant Storage Subsystems	Mohamad El-Batal	DE	1120070022116	10-Oct-07		
System and Method for Connecting SAS RAID Controller Device Channels Across Redundant Storage Subsystems	Mohamad El-Batal	GB	9049974	10-Oct-07		
Adaptive clamping of an electrochemical cell within a replaceable container tray	Terrill L. Woolsey	US	8884836	30-Jun-97	6048642	11-Apr-00
Method and apparatus for fibre channel identification and retrieval	Elizabeth G. Rodriguez, Louis Odenwald, Timothy E. Hoglund	US	9216400	18-Dec-98	6721320	13-Apr-04
Embedded Scale Out Aggregator for Storage Array Controllers	Sridhar Balasubramanian, William A Hetrick, William P. Delaney	CN	2009101692649	25-Aug-09		
Uniform routing of storage access requests through redundant array controllers	Bret S. Weber, Rodney A. DeKoning	US	9874515	6-Jun-01	6732104	4-May-04
Self-extraction panel hinge	Terrill L. Woolsey	US	10025245	19-Dec-01	6730842	4-May-04
Embedded Private Scale Out Network	Charles E. Nichols, Keith W. Holt, Mohamad El-Batal, Rodney A. DeKoning, William P. Delaney	EP	91752550	6-Nov-09		
Customer Replaceable Unit Drive	Ethan W. Weber, Tanja A. Scherf-Smith	EP	88210935	2-Sep-08		
Storage Virtualization in a SAN	Nelson Nahum	CA	2405405	4-Apr-01		
Methods and systems for load balancing of virtual machines in clustered processors using storage related load information	Stephen B. Johnson	EP	78149606	21-Sep-07		
Electrical cable	Barry E. Caldwell	US	9617160	17-Jul-00	6340795	22-Jan-02
Electrical connector and cable	Barry E. Caldwell	US	9641736	18-Aug-00	6422893	23-Jul-02
Data storage controller providing multiple hosts with access to multiple storage subsystems	James R. Bergsten	US	8828888	31-Mar-97	6073709	6-Jun-00
Relocation of suspended data to a remote site in a distributed storage system	James R. Bergsten	US	9231236	15-Jan-99	6360306	19-Mar-02
Fault-tolerant access to storage arrays using active and quiescent storage controllers	James R. Bergsten	US	9231245	15-Jan-99	6345368	5-Feb-02
Storage controller providing automatic retention and deletion of synchronous back-up data	James R. Bergsten	US	9231233	15-Jan-99	6363462	26-Mar-02

Storage controller providing store-and-forward mechanism in distributed data storage system	James R Bergsten	US	9231244	15-Jan-99	6282610	28-Aug-01
Alternating shadow directories in pairs of storage spaces for data storage	Donald R Humlicek	US	9755458	5-Jan-01	6629203	30-Sep-03
Managing a snapshot volume or one or more checkpoint volumes with multiple point-in-time images in a single repository	Donald R Humlicek, Rodney A. DeKoning, William P Delaney	US	9735175	11-Dec-00	6594744	15-Jul-03
Testing components of a computerized storage network system having a storage unit with multiple controllers	Charles D Birford, Rodney A. DeKoning	US	9731991	7-Dec-00	6754853	22-Jun-04
Method for nondisruptive testing of device and host attachment to storage subsystems	James R Bergsten	US	9728415	1-Dec-00	6738937	18-May-04
Method of verifying data consistency between local and remote mirrored data storage systems	Rodney A. DeKoning, Thomas L Langford II	US	9876713	7-Jun-01	6480970	12-Nov-02
Instantaneous data updating using snapshot volumes	Donald R Humlicek, Robin Huber	US	9834823	13-Apr-01	6820099	16-Nov-04
Uniform routing of storage access requests through redundant array controllers	Bret S Weber, Rodney A. DeKoning	US	9875475	6-Jun-01	6757753	29-Jun-04
System for efficiently channeling high frequency data signals through sheet metal containment	Norman W Hobson, Terrill L Woolsey	US	9734998	12-Dec-00	7042737	9-May-06
System and method for isolating fibre channel failures in a SAN environment	Mahmoud K Jibbe	US	9855666	15-May-01	6766466	20-Jul-04
Paradigm for inter-networked storage	Christopher L Hamlin	US	9842335	25-Apr-01	6795849	21-Sep-04
Method for changing fibre channel speed of a drive loop with ESM-controlled drive boxes using redundant drive channels	Daniel A Riedl, James A Lynn, Jason M Stuhlsatz, Jeremy D Stover, Timothy M Flynn	US	9998734	31-Oct-01	7177942	13-Feb-07
High speed network protocol stack in silicon	Clinton P Seeman, Danny C Vogel	US	9888902	25-Jun-01	6959007	25-Oct-05
Connector cable for connecting between an optical cable and multiple devices	Michael D Kimmrau	US	9897578	2-Jul-01	6498890	24-Dec-02
Host interface bypass on a fabric based array controller	Bret S Weber, Russell J Henry	US	9916773	27-Jul-01	6813676	2-Nov-04
Method and apparatus for providing highly-transparent, host-based multi-pathing support	Jon D Beadles, Michael J Gallagher, Ray M Jantz	US	9960827	21-Sep-01	7093265	15-Aug-06

Power ground short circuit, with adjustable activation delay and activation time period	Barry E Caldwell	US	9975337	11-Oct-01	6573767	3-Jun-03
Virtual shared volume via proxy data transfer	Charles E Nichols, Keith W Holt	US	10029759	29-Oct-01	6889294	3-May-05
Apparatus and method for providing transparent sharing of channel resources by multiple host machines	Bret S Weber	US	10158477	30-May-02	7080190	18-Jul-06
System and method for providing graph structuring for layered virtual volumes	Joseph G Moore, William P Delaney	US	10127870	23-Apr-02	6836821	28-Dec-04
Integrated CRU Latch	George E Hanson	US	10143649	10-May-02	7796396	14-Sep-10
Magnetic proximity interface control	George E Hanson	US	10161478	31-May-02	6969928	29-Nov-05
Methods and systems for enhanced automated system testing	John M Lara, Robin Huber	US	10178135	24-Jun-02	6745145	1-Jun-04
Methods and structure for maintaining state information to resume automated test processing after reset	John M Lara	US	10166513	10-Jun-02	6757634	29-Jun-04
Selectable keying device	Terrill L Woolsey, Tina M Reintjes	US	10191219	9-Jul-02	7204371	17-Apr-07
Method for determining skew margins in parallel interface receivers	David S So, Mark A Slutz, William J Schmitz	US	10214801	6-Aug-02	6892334	10-May-05
EMI sealed removable latching cover	John Lessard	US	10210574	30-Jul-02	6852924	8-Feb-05
Method and apparatus for mapping storage partitions of storage elements to host systems	Bret S Weber, Russell J Henry	US	10230735	29-Aug-02	6961836	1-Nov-05
Methods and systems for enhanced automated system testing	John M Lara, Steven G Hagerott	US	10246168	18-Sep-02	6876942	5-Apr-05
Apparatus For Providing Transparent Sharing of Channel Resources By Multiple Host Machines, for use with Mixed Mode Block and File Protocols	Bret S Weber	US	10198664	18-Jul-02	7493404	17-Feb-09
Method and Apparatus for Debugging Protocol Traffic Between Devices	Jeremy D Stover, Matt Tiemeyer, William A Hetrick	US	10218726	14-Aug-02	7616631	10-Nov-09
Integrated Subsystems	James A Lynn, Pramodh K Miereddy	US	10230824	29-Aug-02	7260113	21-Aug-07
Method and apparatus for balancing a request load of communication channels	Anthony D Gitchell, Daniel A Riehl, James A Lynn	US	10226553	23-Aug-02	7007191	28-Feb-06
Method and apparatus for identifying one or more devices having faults in a communication loop	Alan T Pfeifer, Darrin S Frazier	US	10271027	15-Oct-02	7007204	28-Feb-06
Method for providing cable isolation in a fibre channel test environment						

Method for providing cable isolation in a fibre channel test environment using a software driven FCL device.	Alan T Pfeifer, Darin S Frazier	US	10271281	15-Oct-02	7047449	16-May-06
Apparatus and method for enhancing data availability by implementing inter-storage-unit communication.	Kurt A Durcan	US	10289710	7-Nov-02	7039829	2-May-06
Apparatus and method for enhancing data availability by leveraging primary/backup data storage volumes	Kurt A Durcan, Robert R Stankey	US	10295519	15-Nov-02	7107483	12-Sep-06
Convolved EMC seal for subsystem CRU's in advanced controller based subsystems	George E Hanson	US	10301390	21-Nov-02	6775131	10-Aug-04
Method and structure for read prefetch in a storage complex architecture	Bret S Weber, Dennis E Gates, John R Kloepfner, Keith W Holt, Russell J Henry	US	10328672	23-Dec-02	6917990	12-Jul-05
Method and apparatus for handling storage requests	Bret S Weber, Dennis E Gates, John R Kloepfner, Keith W Holt, Russell J Henry	US	10329184	23-Dec-02	7043622	9-May-06
Method and apparatus for mapping storage partitions of storage elements for host systems.	Bret S Weber, Russell J Henry	US	10315326	10-Dec-02	6944712	13-Sep-05
Method and Apparatus for Automatically Tracking and Communicating Data	James D Pate	US	10620778	15-Jul-03	7478758	20-Jan-09
Storage Device Information using RF Tags: Operating Condition, Configuration and Location	James D Pate	US	12317226	19-Dec-08	7766220	3-Aug-10
Method and Apparatus for Automatically Tracking and Communicating Data	Carey W Lewis, Joseph G Moore, Scott F Hubbard, Stanley E Krehbiel Jr, William A Hetrick, William P Delaney	US	10395558	24-Mar-03	7010646	7-Mar-06
Storage Device Information using RF Tags: Operating Condition, Configuration and Location	Carey W Lewis, Joseph G Moore, Scott F Hubbard, Stanley E Krehbiel Jr, William A Hetrick, William P Delaney	US	10395512	24-Mar-03	7146481	5-Dec-06
Method and system for automating data storage array components testing with integrated work order dispatching	James D Pate, Justin B Mortensen, Steven G Hagerott	US	10414126	15-Apr-03	6754605	22-Jun-04

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Systems and Methods for Allocating An Asset To Interconnected Devices	David M Weber	US	10424408	28-Apr-03	7818461	19-Oct-10
Methods and structure for testing responses from SAS device controllers or expanders	David Uddenberg, Mark A Slutz, William W Voorhees	US	10798680	11-Mar-04	7210065	24-Apr-07
High speed serial interface test expanders	Kevin T Campbell, Steven A Schauer	US	10457850	9-Jun-03	7082557	25-Jul-06
Methods and structure for SCSI2 to SCSI3 reservation protocol mapping	Yanling Qi	US	10635887	6-Aug-03	7085867	1-Aug-06
Data storage system with a removable backplane having a array of disk drives	Bret S Weber, Mark R Nossokoff, Mohamad EI-Batal	US	10660889	12-Sep-03	7042717	9-May-06
Disk storage system with removable arrays of disk drives	Bret S Weber, Mark R Nossokoff, Mohamad EI-Batal	US	10660887	12-Sep-03	6987674	17-Jan-06
Methods for Defining and Naming iSCSI Targets using Volume Access and Security Policy	Andrew J Spry, James A Lynn, Kevin F Lindgren	US	10741559	19-Dec-03	7568216	28-Jul-09
Method and apparatus for supporting legacy mode fail-over driver with iSCSI network entity including multiple redundant controllers	Andrew J Spry	US	10741756	19-Dec-03	7257730	14-Aug-07
Method and apparatus for identifying IPsec security policy in iSCSI	Andrew J Spry, James A Lynn	US	10741563	19-Dec-03	7461140	2-Dec-08
Transmit Prioritizer Context Prioritization Scheme	Curtis A Ridgeway, Divya Vijayaraghavan	US	10671353	25-Sep-03	7573870	11-Aug-09
Failed drive locator for removable disk array modules	Mohamad EI-Batal	US	10817344	2-Apr-04	7395460	1-Jul-08
Method to provide external observability when embedded firmware detects predefined conditions	Alan T Pfeifer, Bonnie C Kissinger, Roger T Clegg	US	10730523	8-Dec-03	6990424	24-Jan-06
Onboard indicator	Brian McKean, Mohamad EI-Batal	US	10731191	8-Dec-03	7194578	20-Mar-07
Enclosure Slot Identification By Modules	Mohamad EI-Batal, Thomas E Richardson	US	10783785	20-Feb-04	7783792	24-Aug-10
Method and system for capturing data to create Serial ATA eye diagram	Moby J Abraham	US	10844686	13-May-04	6973407	6-Dec-05
Systems and methods for non-intrusive testing of signals between circuits	Andrew A Cottrell, Jeremy D Stover, Keith W Holt	US	10766085	27-Jan-04	7024328	4-Apr-06
Electromagnetic Interference Shield for Data Storage Systems	Justin B Mortensen, Marc C Mayfield, Robert T Harvey	US	11130618	17-May-05	7497608	17-Feb-09
User configurable ultra320 SCSI target device simulator and error injector	Mike W Bieker, Scott W Dominguez	US	10984287	8-Nov-04	7376546	20-May-08

Wireless storage device connectivity	Mohamad El-Batal, Thomas E Richardson, Zahirudeen Premji	US	10838726	4-May-04	7260423	21-Aug-07
Wireless storage enterprise connectivity	Mohamad El-Batal, Thomas E Richardson, Zahirudeen Premji, Andrew J Spry	US	10838725	4-May-04	7260417	21-Aug-07
Method And Apparatus For Fully Automated SCSI Target Configuration	Kenneth A Hass, Mahmoud K Jibbe	US	10968495	19-Oct-04	7584272	1-Sep-09
Method For Detecting Changes In A Storage Area Network Without External Tools And Hardware	Coralyn S Gauvin, Gabriel L Romero	US	10972809	25-Oct-04	7769849	3-Aug-10
Self verifying communications testing	Terrill L Woolsey	US	10959619	6-Oct-04	7409618	5-Aug-08
Self-sealing EMC door for removable units requiring a continuous grounding barrier	Benny Lima, Dennis J Craton, Stephen S Piper	US	11120840	2-May-05	7081587	25-Jul-06
Intelligent transportable memory apparatus and method for charging a battery for a memory in an intelligent transactable memory apparatus	Robert R Stankey, Yanling Qi	US	10961323	8-Oct-04	7114658	3-Oct-06
Identifying a Modification to a Storage Array	Antoine Y Habashy, Kenneth A Hass	US	11136741	24-May-05	7840755	23-Nov-10
Method of validating manufacturing configurations during hardware assembly	John Labanca, Winston A Austria	US	10966861	15-Oct-04	7441320	28-Oct-08
Online Testing Unification System With Remote Test Automation Technology	Bret S Weber	US	11052434	7-Feb-05	7673179	2-Mar-10
Remote Status And Control Of Storage Devices	Calvin G Titus	US	11070361	2-Mar-05	7689586	30-Mar-10
Removable cage for a computer chassis	Joseph E Mayes, Manfred F Vonleiner	US	11041679	24-Jan-05	7193845	20-Mar-07
Fibre Selective Control Switch System	Gerald Fredin, Russell J Henry	US	11057548	14-Feb-05	7620320	17-Nov-09
System and Method for Fabric Storage Utilizing Multicast with Distributed Intelligence	Rasavaraj G Hallyal, Paresh Chatterjee, Senthil M Thangaraj	US	11167379	27-Jun-05	7760727	20-Jul-10
Methods and Systems for Locking in Storage Controllers	Lai-Ying I Stepan, Ramya Subramanian	US	11253368	19-Oct-05	7529902	5-May-09
Methods and structure for detection and handling of catastrophic SCSI errors	Lai-Ying I Stepan, Ramya Subramanian	US	10986751	12-Nov-04	7428665	23-Sep-08
Methods and Structure for Detection and Handling of Catastrophic SCSI Errors	Basavaraj G Hallyal, Parag R Maharana	US	11924813	26-Oct-07	7853831	14-Dec-10
System for Providing an Alternative Communication Path in a SAS Cluster	Basavaraj G Hallyal, Parag R Maharana	US	11064684	24-Feb-05	7552355	23-Jun-09

System for Providing an Alternative Communication Path in a SAS Cluster	Basavaraj G Hallyal, Parag R Maharana	US	12387043	27-Apr-09	7836351	16-Nov-10
Application Programming Interface for Fusion Message Passing Technology	Bradley J Davis, Brett J Henning, Scott W Dominguez	US	11148395	7-Jun-05	7761630	20-Jul-10
System and method to synchronize and coordinate parallel, automated fault injection processes against storage area network arrays	Christina Chao, Feng Chen, John M Lara, Steven G Hagerott	US	11248544	12-Oct-05	7444267	28-Oct-08
Method Of Partitioning Storage in Systems with Both Single and Virtual Target Interfaces	James A Lynn, Kevin F Lindgren	US	11283232	18-Nov-05	7765365	27-Jul-10
Method for Creating a Large-Scale Storage Array System out of Multiple Mid-Range Storage Arrays	Gary W Steffens, Juan C Gatica, Ray M Jantz, Scott Kirvan	US	11192636	29-Jul-05	7568069	28-Jul-09
Peer-to-Peer License Tracking And Control	Kenneth A Hass, Sridhar Balasubramanian	US	11328700	10-Jan-06	7650642	19-Jan-10
Methods and structure for verifying domain functionality	Brian J Varney, David Uddenberg, Mark A Slutz	US	11224850	13-Sep-05	7412631	12-Aug-08
Self-aligning electromagnetic interference gaskets for customer removable modules	Robert T Harvey, Terrill L Woolsey	US	11493260	25-Jul-06	7390975	24-Jun-08
Write Journaling Using Battery Backed Cache	Anant Baderdinni, Gerald E Smith	US	11220936	7-Sep-05	7533298	12-May-09
Devices and Methods for Matching Link Speeds Between Controllers and Controlled Devices	Jeremy D Svover, Keith W Holt, Pamela A Delaney, Steven J Ralston	US	11286633	23-Nov-05	7599392	6-Oct-09
Dynamic Peer Application Discovery	Anirban Bhattacharyya, Sumanesh Sarmanta	US	11272920	14-Nov-05	7623472	24-Nov-09
Thermal Control Through a Channel Structure	Gregory P Shogan, John M Dunham	US	11413853	27-Apr-06	7826212	2-Nov-10
CRU INTERLOCKING EMI SHIELD	Calvin G Titus	US	11821617	25-Jun-07	7684213	23-Mar-10
Method for Reporting Redundant Controllers as Independent Storage Entities	Yanling Qi	US	11540468	29-Sep-06	7847801	7-Dec-10
Methods and systems for load balancing of virtual machines in clustered processors using storage related load information	Stephen B Johnson	US	11609408	12-Dec-06	7444459	28-Oct-08
Adjustable EMI Baffling Apparatus for Data Storage Systems	Justin B Mortensen, Robert T Harvey	US	11634064	5-Dec-06	7667984	23-Feb-10
Multi-Fan Airflow Regulation For Fan Fail Conditions	Tanja A Scherf-Smith, Terrill L Woolsey	US	11673466	9-Feb-07	7515411	7-Apr-09
Storage virtualization in a storage area network	Nelson Nahum	US	10257426	10-Oct-02	6898670	24-May-05

Storage area network (SAN) security	Nelson Nahum	US	10469777	28-Aug-03	7437753	14-Oct-08
Storage Area Network (SAN) Security	Nelson Nahum	GB	27005560	27-Feb-02	1374056	21-Jun-06
Storage Area Network (SAN) Security	Nelson Nahum	IE	27005560	27-Feb-02	1374056	21-Jun-06
Horizontal Drive System and Method	Benny Lima, John M Dunham, Robert T Harvey, Ryan S Signer	US	12082481	11-Apr-08	7864539	4-Jan-11
Multiple drive plugin cable	John M Dunham	US	11879602	17-Jul-07	7719843	18-May-10
Shoulder Screw and Handle drive mounting system	John M Dunham, Robert T Harvey, Ryan S Signer	US	11903640	24-Sep-07	7576977	18-Aug-09
Improved Method of Securing and Protecting Expansion Cards in Mating Slots	Kenneth A Hass	US	12072145	25-Feb-08	7713066	11-May-10
Switching Serial Advanced Technology Attachment (SATA)	Hyonil Chong, Sam Nemazie	US	10775521	9-Feb-04	7523236	21-Apr-09
Route Aware Serial Advanced Technology Attachment (SATA) Switch	Hyonil Chong, Sam Nemazie	US	10775523	9-Feb-04	7539797	26-May-09
SERIAL ATA SWITCH	Hyonil Chong, Sam Nemazie	US	10775498	9-Feb-04	7523235	21-Apr-09
SERIAL ATA SWITCH	Sam Nemazie	JP	2004174862	11-Jun-04		
SERIAL ATA SWITCH	Sam Nemazie	TW	93113828	17-May-04	1318738	21-Dec-09
Drive Box	Alan T Pfeifer, John M Dunham, Ryan S Signer	US	12167472	3-Jul-08	7715182	11-May-10
Drive Box	Alan T Pfeifer, John M Dunham, Ryan S Signer	JP		7-Jan-09		
Drive Box	Alan T Pfeifer, John M Dunham, Ryan S Signer	KR	1020117002292	7-Jan-09		
System to Connect a Serial SCSI Array Controller to a Storage Area Network	Dhishankar Sengupta, Mahmoud K Jilbe	KR	20117001394	21-Aug-08		
Articulating Cable Chain Assembly	Alan T Pfeifer, Benjamin D Karsak, John M Dunham, Ryan S Signer	US	12208182	10-Sep-08	7552581	30-Jun-09
Flash SSD assisted snapshot	Bret S Weber, Brian McKean, Jeffrey S Werning, John M Dietterich, Mohamed El-Batal, Timothy E Hazelund	TW	98110790	1-Apr-09		
Customer Replaceable Unit Drive Isolator	Ethan W Weber, Tanja A Scherf-Smith	KR	1020107006822	2-Sep-08		
Embedded Private Scale Out Network	Charles E Nichols, Keith W Holt, Mohamed El-Batal, Rodney A Dekonine, William P Delaney	CN	2009101706675	1-Sep-09		
Embedded Private Scale Out Network	Charles E Nichols, Keith W Holt, Mohamed El-Batal, Rodney A Dekonine, William P Delaney	JP	20107804	18-Jan-10		
Embedded Private Scale Out Network	Charles E Nichols, Keith W Holt, Mohamed El-Batal, Rodney A Dekonine, William P Delaney	KR	20090096172	9-Oct-09		



Embedded Private Scale Out Network	Charles E Nichols, Keith W Holt, Mohamad El-Batal, Rodney A DeKoning, William P Delaney	TW	98125374	28-Jul-09		
Storage Array Assist Architecture	Bret S Weber, Kenneth F Day, Rodney A DeKoning, William P Delaney	CN	200910170668X	1-Sep-09		
Storage Array Assist Architecture	Bret S Weber, Kenneth F Day, Rodney A DeKoning, William P Delaney	JP	201017803	18-Jan-10		
Storage Array Assist Architecture	Bret S Weber, Kenneth F Day, Rodney A DeKoning, William P Delaney	KR	1020090096167	9-Oct-09		
Storage Array Assist Architecture	Bret S Weber, Kenneth F Day, Rodney A DeKoning, William P Delaney	TW	98125377	28-Jul-09		
CONFIGURABLE STORAGE ARRAY CONTROLLER	Dennis E Gates, Jason M Stuhlsatz, John R Kloeppner, Mohamad El-Batal, Robert E Stubbs	US	12419840	7-Apr-09	7913027	22-Mar-11
Technique for Sharing Hot Spare Drives Among Multiple Subsystems	Gerald Fredin, Rodney A. DeKoning	DE	963092200	17-Dec-96	69629444	15-Apr-04
Technique for Sharing Hot Spare Drives Among Multiple Subsystems	Gerald Fredin, Rodney A. DeKoning	FR	963092200	17-Dec-96	780765	13-Aug-03
Technique for Sharing Hot Spare Drives Among Multiple Subsystems	Gerald Fredin, Rodney A. DeKoning	GB	963092200	17-Dec-96	780765	13-Aug-03
Methods and apparatus for balancing loads on a storage subsystem among a plurality of controllers	Charles D Binford, Gerald Fredin, Rodney A. DeKoning	US	8772618	23-Dec-96	6108684	22-Aug-00
Methods and apparatus for coordinating shared multiple RAID controller access to common storage devices	Gerald Fredin, Rodney A. DeKoning	US	8772614	23-Dec-96	6073218	6-Jun-00
Methods and apparatus for coordinating shared multiple RAID controller access to common storage devices	Gerald Fredin, Rodney A. DeKoning	US	9499926	8-Feb-00	6457098	24-Sep-02
Method and apparatus for providing centralized intelligent cache between multiple data controlling elements	Bret S Weber, Rodney A. DeKoning	US	8941770	30-Sep-97	6381674	30-Apr-02
Apparatus and method to provide virtual solid state disk in cache memory in a storage controller	Donald R Humlicek, Gerald Fredin, Rodney A. DeKoning	US	8994250	29-Dec-97	6567889	20-May-03
Maintaining identifier information in a memory using unique identifiers as a linked list	Jieming Zhu	US	8822625	21-Mar-97	5956723	21-Sep-99

Method of maintaining login service parameters	Jieming Zhu	US	9197112	20-Nov-98	6119121	12-Sep-00
Media drive canister vibration dampner and method of dampening	Robert T Harvey, Timothy M Flynn	US	8990930	15-Dec-97	6166900	26-Dec-00
System controller with plurality of memory queues for prioritized scheduling of I/O requests from priority assigned clients	Gerald Fredin, William P Delaney, William V. Courtright	US	9047252	24-Mar-98	6157963	5-Dec-00
Hot plugging system which precharging data signal pins to the reference voltage that was generated from voltage detected on the operating mode signal conductor in the bus	Frantisek Gaspanik	US	8996841	23-Dec-97	6157974	5-Dec-00
User interface to provide a physical view of movable physical entities	Rodney A. DeKoning, William P Delaney	US	9311220	13-May-99	6384842	7-May-02
Method and apparatus for caching objects in a disparate management environment	Rodney A. DeKoning, William P Delaney	US	9286554	5-Apr-99	6591337	8-Jul-03
Data transfer method and apparatus that allocate storage based upon a received relative offset	Louis Odenwald	US	9082996	21-May-98	6310884	30-Oct-01
Programmable computerize enclosure module for accommodating SCSI devices and associated method of configuring operation features thereof	Joseph M Maloy, Michael D Kimmisau, Paul E Soulier	US	9385124	27-Aug-99	6557049	29-Apr-03
Methods and apparatus for performing mass operations on a plurality of managed devices on a network	Matthew A. Markus, Ray M. Jantz, Rodney A. DeKoning, William V. Courtright	US	9350800	9-Jul-99	6584499	24-Jun-03
Methods and Apparatus for issuing Updates to Multiple Management Entities	Matthew A. Markus, Ray M. Jantz, Rodney A. DeKoning, William V. Courtright	US	9350742	9-Jul-99	7640325	29-Dec-09
System for updating an identity of a device in response to determining that a neighbor device has an identity different from one stored therein	Charles D Bimford, Jeremy D Stover	US	9223877	31-Dec-98	6366965	2-Apr-02
Methods and structures for an extensible RAID storage architecture	Bret S Weber, Rodney A. DeKoning	US	9607300	30-Jun-00	6820171	16-Nov-04
Methods and apparatus for managing heterogeneous storage devices	Bret S Weber, Ray M Jantz, Rodney A. DeKoning, William P Delaney, William V. Courtright	US	9350739	9-Jul-99	6769022	27-Jul-04
Alterable scripting tool and method	Mahmoud K Jibbe	US	9206535	7-Dec-98	6311320	30-Oct-01
Method and apparatus for recreating fiber channel traffic	Mahmoud K Jibbe	US	9210171	11-Dec-98	6367033	2-Apr-02

System for monitoring and managing devices on a network from a management station via a proxy server that provides protocol converter	Bret S Weber, Ray M Jantz, Rodney A. DeKoning, William P Delaney, William V. Courtright	US	9350515	9-Jul-99	6480901	12-Nov-02
Methods and apparatus for committing configuration changes to managed devices prior to completion of the communication change	Ray M. Jantz, Rodney A. DeKoning, William V. Courtright	US	9350735	9-Jul-99	6480955	12-Nov-02
Method and apparatus for transmitting data	David M Weber, John M. Adams, Mark A. Reber, Stephen M Johnson, Timothy E. Hoelund	US	9216401	18-Dec-98	6747984	8-Jun-04
Method and apparatus for transmitting data to a node in a distributed data processing system	David M Weber, John M. Adams, Mark A. Reber, Stephen M Johnson, Timothy E. Hoelund	US	9679506	4-Oct-00	6570853	27-May-03
Method and apparatus for generating a fibre channel compliant frame	Timothy E. Hoelund	US	9363130	28-Jul-99	6397360	28-May-02
Methods and apparatus for dynamic version transition of management applications and attached subsystems	Ray M. Jantz, Stanley E Krehbiel Jr, William P Delaney	US	9607691	30-Jun-00	6622302	16-Sep-03
Mass storage data integrity-assuring technique utilizing sequence and revision number metadata	Rodney A. DeKoning, Scott E. Greenfield, Thomas I Langford II	US	9573056	17-May-00	6553511	22-Apr-03
Configuring and monitoring data volumes in a consolidated storage array using one storage array to configure the other storage arrays	Charles D Binford, Rodney A. DeKoning	US	9732003	7-Dec-00	6895485	17-May-05
Data structures containing sequence and revision number metadata used in mass storage data integrity-assuring technique	Rodney A. DeKoning, Scott E. Greenfield, Thomas I Langford II	US	9573135	17-May-00	6606629	12-Aug-03
Data storage access through switched fabric	Thomas F Heil	US	9643210	22-Aug-00	6944152	13-Sep-05
Electrical cable	Barry E Caldwell	US	9546818	11-Apr-00	6346676	12-Feb-02
Piercing pin structure and attachment for higher density ribbon cable	Barry E Caldwell	US	9595109	16-Jun-00	6386901	14-May-02
System and method for efficient initialization of a ring network	Mark Lin	US	9031797	27-Feb-98	6081847	27-Jun-00
Fuel Cell Based Battery Backup Apparatus for Storage Subsystems	George E Hanson, Sean G Winter	US	11863688	28-Sep-07		
Method and Apparatus for Debugging Protocol Traffic Between Devices in Integrated Subsystems	Jeremy D Stover, Matt Tiemeier, William A Hetrick	US	12573238	5-Oct-09		

Methods And Structures For A Caching To Router In iSCSI Storage Systems	Walter A Hubis	US	10714031	14-Nov-03	
Dynamic Command Capacity Allocation Across Multiple Sessions and Transports	Andrew J Spry	US	11002610	2-Dec-04	
Method And System for Efficient Write Journal Entry Management For A Distributed File System	Brad D Besmer, Paul E Soulier	US	10973478	25-Oct-04	
Systems And Method For Simple Scale-Out Storage Clusters	Bret S Weber, Mohamad El-Batal, William P Delaney	US	11289140	29-Nov-05	
System and Method for Connecting SAS RAID Controller Device Channels Across Redundant Storage Subsystems	Mohamad El-Batal	JP	2009532384	10-Oct-07	
System and Method for Connecting SAS RAID Controller Device Channels Across Redundant Storage Subsystems	Mohamad El-Batal	KR	1020097009479	10-Oct-07	
Devices and Methods for Matching Link Speeds Between Controllers and Controlled Devices	Jeremy D Stover, Keith W Holt, Pamela A Delaney, Steven J Raiston	US	12559915	15-Sep-09	
Configuration Verification, Recommendation, and Animation Method for a Disk Array in a Storage Area Network (SAN)	Mahmoud K Jibbe	US	11416537	3-May-06	
Security-enabled storage controller	Dany C Vogel	US	11516232	5-Sep-06	
Methods and systems for load balancing of virtual machines in clustered processors using storage related load information	Stephen B Johnson	CN	2007800364504	21-Sep-07	
Methods and Systems for Load Balancing of Virtual Machines in Clustered Processors Using Storage Related Load Information	Stephen B Johnson	JP	2009541433	21-Sep-07	
MULTIPLE INSTANCES OF MAPPING OR STORAGE APPLIANCE	Jason A Sherman, Yanling Qi	US	11633780	5-Dec-06	
ADJUSTABLE EMI BAFFLING APPARATUS FOR DATA STORAGE SYSTEMS	Justin B Mortensen, Robert T Harvey	US	12605056	23-Oct-09	
SERIAL ATA SWITCH	Sam Memazie	EP	42530931	26-May-04	1486880
Sending Voluminous data over the internet	Moshe Melnikov, Nelson Nahum	US	12077804	20-Mar-08	12-Jan-11

Utilizing Removable Virtual Volumes for Sharing Data on a Storage Area Network	Moshe Melnikov	US	12070443	19-Feb-08	
Methods and Systems for Integrated Storage and Data Management using a Hypervisor	Bret S Weber	US	12200497	28-Aug-08	
INTEGRATE STORAGE VIRTUALIZATION IN A STORAGE CONTROLLER Drive Box	Bret S Weber	US	12200643	28-Aug-08	
Drive Box	Alan T Pfeifer, John M Dunham, Ryan S Signer	EP	97739346	7-Jan-09	
Control IO Offload in a Split Path-Storage Virtualization System	Alan T Pfeifer, John M Dunham, Ryan S Signer	TW	98102345	21-Jan-09	
Storage array boot and configuration	John G Logan	US	12262248	31-Oct-08	
System to Connect a Serial SCSI Array Controller to a Storage Area Network	Mahmoud K libbe, Padmanabhan P, Senthil Kannan	US	12201104	29-Aug-08	
System to Connect a Serial SCSI Array Controller to a Storage Area Network	Dhishankar Sengupta, Mahmoud K libbe	TW	97138858	9-Oct-08	
LOW POWER CONSUMPTION STORAGE ARRAY	Dhishankar Sengupta, Mahmoud K libbe	US	12969892	21-Aug-08	
OPTIMIZED CACHE COHERENCY IN A DUAL CONTROLLER STORAGE ARRAY	Ganesh Sivaperuman, Hariharan Kamalavannan, Satish Subramanian, Senthil Kannan	US	12182325	30-Jul-08	
Virtualized Data Storage in a Virtualized Server Environment	Gregory A Yarnell	US	12165181	30-Jun-08	
Virtualized Data Storage in a Virtualized Server Environment	Itay Szekeley, Nelson Nahum, Shyam Kaushik, Vladimir Popovski	WO	PCTUS200942311	30-Apr-09	
Active-Active Support Of Virtual Storage Management In A Storage Area Network ("SaaS")	Itay Szekeley, Nelson Nahum, Shyam Kaushik, Vladimir Popovski	TW	98116944	21-May-09	
Active Active presentation of volumes from Data Path Modules	Ishai Nadler, Nelson Nahum, Vladimir Popovski	US	12428703	23-Apr-09	
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System And Method For Providing Performance-Enhanced Rebuild Of A Solid-State Drive (SSD) in A Solid-State Drive Hard Disk Drive (SSD HDD) Redundant Array Of Inexpensive Disks 1 (RAID 1) Pair	Brian McKean	TW	98118506	5-Jun-09	
		US	12286591	30-Sep-08	

METHODS AND SYSTEMS FOR RECOVERING A COMPUTER SYSTEM USING A STORAGE AREA NETWORK	Jeffrey Odell	US	12260324	29-Oct-08	
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Storage System Snapshot Assisted by SSD Technology	Bret S Weber, Brian McKean, Jeffrey S Werning, John M Dietterich, Mohamad El-Batal, Timothy E Hoelund	US	12316902	17-Dec-08	
Customer Replaceable Unit Drive Isolator	Ethan W Weber, Tanja A Scherf-Smith	WO	PCTUS2008075045	2-Sep-08	
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PRIORITY COMMAND QUEUES FOR LOW LATENCY SOLID STATE DRIVES	Brian McKean, Jeremy M Pinson, Kevin Kidney	US	12238438	26-Sep-08	
Small Computer System Interface Input Output (SCSI IO) Referral	Andrew J Spry, Gerald Fredin, Kenneth J Gibson, Ross E Zwisler	US	12316713	15-Dec-08	
VIRTUALIZED DATA STORAGE IN A NETWORK COMPUTING ENVIRONMENT	Mukul G Kotwani, Vladimir Popovski, Wayland K Jeong	US	12506143	20-Jul-09	
Multi-pathing with SCSI I/O referrals	Andrew J Spry, Gerald Fredin, Kenneth J Gibson, Ross E Zwisler	US	12316778	15-Dec-08	
Embedded Scale-Out Aggregator for Storage Array Controllers	Sridhar Balasubramanian, William A Hetrick, William P Delaney	JP	2009237920	15-Oct-09	
Embedded Scale Out Aggregator for LSI Storage System controllers	Sridhar Balasubramanian, William A Hetrick, William P Delaney	KR	20090067089	23-Jul-09	
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ACCELERATING INTERNET SMALL COMPUTER SYSTEM INTERFACE (iSCSI) PROXY INPUT/OUTPUT (I/O)	Andrew J Spry	US	12317151	19-Dec-08	

METHODS AND APPARATUS FOR MANAGING ASYNCHRONOUS DEPENDENT I/O FOR A VIRTUAL FIBRE CHANNEL LABEL	Howard O Young, Srinivasa Nagaraja Rao	US	12761452	16-Apr-10	
METHODS AND APPARATUS FOR CUT-THROUGH CACHE MANAGEMENT FOR A MIRRORED VIRTUAL VOLUME OF A VIRTUALIZED STORAGE SYSTEM	Howard O Young	US	12761270	15-Apr-10	
Method And System For Providing A Customized Storage Container	Jason M Stuhlsatz, Mohamad El-Batal	US	12577500	12-Oct-09	
Application independent storage array performance optimizer	Bernard H Chan	US	12402675	12-Mar-09	
A Method to Handle IOs between Two Arrays with Different Performance Capabilities	Bernard H Chan, Mahmoud K Jibbe	US	12395786	2-Mar-09	
Non-Disruptive Methods For Updating A Controller of a Storage Subsystem	Kenneth F Day, William P Delaney	US	12507700	22-Jul-09	
POLICY-BASED APPLICATION AWARE STORAGE ARRAY SNAPSHOT BACKUP AND RESTORE TECHNIQUE	Kenneth J Fugate, Russell J Henry, Sridhar Balasubramanian	US	12474280	29-May-09	
Cable Chain Return System and Associated Methods	Alan T Pfeifer, John M Dunham, Ryan S Siener	US	12417510	2-Apr-09	
Embedded Private Scale Out Network Storage Array Assist Architecture	Charles E Nichols, Keith W Holt, Mohamad El-Batal, Rodney A Dekoning, William P Delaney, Bret S Weber, Kenneth F Day, Rodney A Dekoning, William P Delaney	US	12481389	9-Jun-09	
Storage Array Assist Architecture	Bret S Weber, Kenneth F Day, Rodney A Dekoning, William P Delaney	US	101563351	12-Mar-10	
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Modular and Redundant Data-Storage Controller And a Method for Providing a Hot-Swappable and Field-Serviceable Data Storage Controller	Jason M Stuhlsatz, Jeremy D Stover, Maicen K Shinsato, Mohamad El-Batal, Robert E Stubbs	US	12695241	28-Jan-10	
Enterprise Level Green Storage System Disk Drive Technique	Sridhar Balasubramanian	US	12407795	20-Mar-09	
System And Method For Construction, Fault Isolation, And Recovery Of Cabling Topology In A Storage Area Network	Britto Rosario, Mahmoud K Jibbe	US	12973953	21-Dec-10	
System and Method for Providing Implicit Unmaps in Thinly Provisioned Virtual Tape Library Systems	Ross E Zwisler, Brian McKean, Kevin Kidney	US	12851641	6-Aug-10	