SFA7700™

The Hybrid Flash Storage Appliance with Application Acceleration to Maximize Big Data Insights

Big Data continues to grow exponentially. Organizations are looking for innovative ways to extract the maximum value from their data to accelerate workflows, gain valuable insight, shorten time to discovery and gain a competitive advantage. Storage is a critical IT component and selecting the right storage platform will make or break your Big Data initiatives. Today's storage requires a platform that delivers better performance, data protection and simplicity, while optimizing the most efficient mix of hybrid media – which will deliver the performance of flash at the price of SATA. In addition, organizations are seeking to leverage the cloud to enable collaboration, while keeping their environment simple, secure and within budget limitations.

The SFA7700 is a hybrid flash storage appliance, purpose-built for Big Data requirements that uniquely enable organizations resolve today's key storage challenges. It is designed to allow you to start small and extract maximum value from your Big Data. At the core, is the hyper-optimized SFA Operating System, running in two hybrid controllers that leverage Storage Fusion Xcelerator™ (SFX) technology to extract the maximum performance and value from hybrid (spinning disk & flash) media. SFX integrates application-centric intelligence with the power of flash media to deliver industry-leading performance, at the economy of hard disk drives. This drastically lowers the TCO for organizations deploying a mix of flash and rotating media while simultaneously accelerating application performance. Furthermore, the SFA7700 family instantly cloud enables your storage for global collaboration and cost-effective archive with file system hooks that migrate data seamlessly to the cloud.
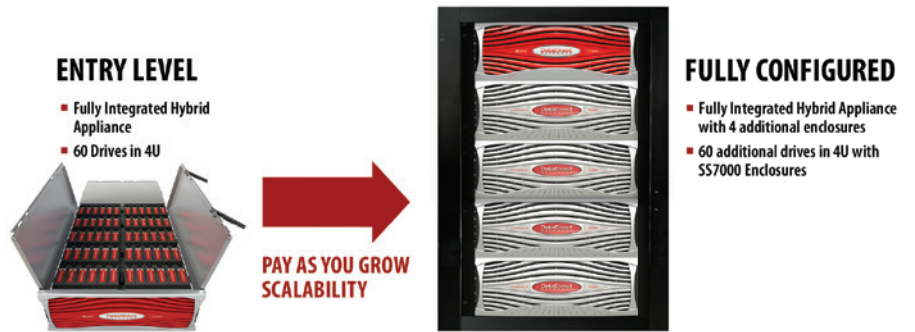
BENEFITS

▸ **Modular** - Fully integrated appliance that lets organizations start small with pay-as-you-grow scalability.

▸ **Hybrid** – SFX technology unleashes the power of Flash with application-centric intelligence to combine the performance of Flash with the economy of HDDs to truly lower TCO.

▸ **Big Data Workload Ready** – Analyzes data composition in real time, using ReACT™ to provide peak performance for any mix of highly transactional, high-bandwidth workloads.

▸ **Cloud Ready** – Instantly cloud enable your storage to facilitate geo-collaboration and cost-efficient archives with its file system hooks that migrate data seamlessly to the cloud.

▸ **Simplify Administration** – Lower administration costs with DirectMon™, a powerful, intuitive single pane of glass to monitor & manage 10s to 100s of systems.

▸ **High Scale File Systems Ready** – Modular platform for massively scalable parallel file system appliances, GRIDScaler™ and EXAScaler™ that enable lower entry points, rapid deployment and lower TCO.

▸ **Lowest TCO** – Minimize power, cooling & rack space with the ability to add 60 drives in the modular base enclosure and up to 84 drives per added 4U enclosure.

▸ **Data-At-Rest Encryption** - Transparently protect your data from unauthorized access and ensure that the potential exposure of sensitive data is eliminated in the event of stolen, misplaced or discarded drives.

DDN SFA7700 Modular Configurations

The SFA7700 is a 4U, modular, fully contained Big Data Appliance. High performance, dual controllers ensure redundancy to your applications and data. Delivering 10GB/s of bandwidth, SFA7700 is the midrange performance leader.

ENTRY LEVEL
- Fully Integrated Hybrid Appliance
- 60 Drives in 4U

PAY AS YOU GROW SCALABILITY

FULLY CONFIGURED
- Fully Integrated Hybrid Appliance with 4 additional enclosures
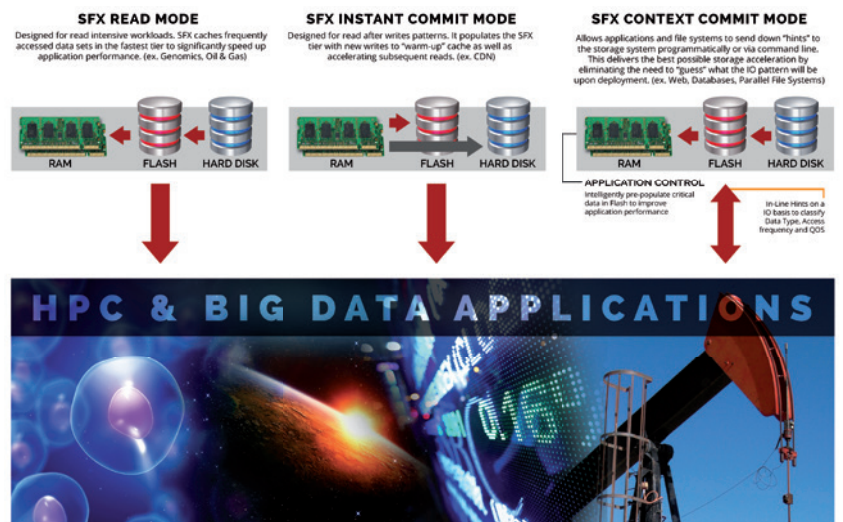- 60 additional drives in 4U with SS7000 Enclosures

Storage Fusion Xcelerator (SFX)

SFX technology harnesses the power of flash media with application-centric intelligence to marry the performance of flash with the economy of HDDs. This drastically lowers the TCO for organizations deploying mixed flash and rotating media while simultaneously accelerating application performance. SFX technology consists of 4 modes – SFX Read, SFX Instant Commit and SFX Context Commit.

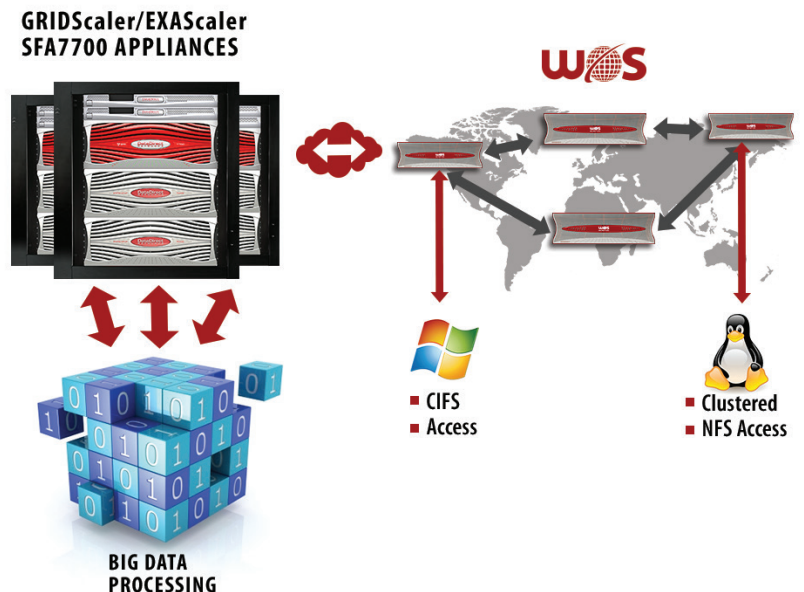SFX enables customers to get Higher Application Performance at:
- 70% Lower Cost
- 85% Lower Power Requirement
- 95% Better Response Time

SFX READ MODE
Designed for read intensive workloads. SFX caches frequently accessed data sets in the fastest tier to significantly speed up application performance. (ex. Genomics, Oil & Gas)

SFX INSTANT COMMIT MODE
Designed for read after writes patterns. It populates the SFX tier with new writes to "warm-up" cache as well as accelerating subsequent reads. (ex. CDN)

SFX CONTEXT COMMIT MODE
Allows applications and file systems to send down "hints" to the storage system programmatically or via command line. This delivers the best possible storage acceleration by eliminating the need to "guess" what the IO pattern will be upon deployment. (ex. Web, Databases, Parallel File Systems)

RAM   FLASH   HARD DISK

APPLICATION CONTROL
Intelligently pre-populate critical data in Flash to improve application performance

In-Line Hints on a IO basis to classify Data Type, Access frequency and QOS

HPC & BIG DATA APPLICATIONS

Instantly Cloud Enable Your Storage

For Global Collaboration and Cost-Effective Archive

- **Cloud Ready** - Tiering ready with file system hooks to tier data to a public or private WOS cloud to share and disseminate information globally
- **Collaboration Ready** - Eliminate organizational storage silos while optimizing collaboration
- **Archive Ready** - Back up files safely to a public or private WOS cloud for disaster recovery

GRIDScaler/EXAScaler SFA7700 APPLIANCES

WOS

CIFS Access

Clustered NFS Access

BIG DATA PROCESSING

Scaler Family of Parallel File System Appliances

SFA7700 EXAScaler & GRIDScaler Appliances provide a modular foundation where you can start small and scale massively, as your performance and capacity requirements grow. Each appliance is factory integrated with either Lustre™ or GPFS™, networking and storage that is performance tuned and optimized to ease integration and speed deployment. These appliances are cloud ready, allowing you to utilize the Scaler's leading mixed workload performance to perform heavy I/O and then share your results to enable worldwide collaboration or content distribution – seamlessly and securely behind your firewall. These appliances are completely integrated with SFX Technology to optimize mixed media and deliver flash performance at the cost of spinning disk. The end result is lower TCO and application acceleration.

DDN | EXAScaler™
Massively Scalable, High Performance, Open Source File Storage Appliance

HPC applications that require massive throughput and highly parallel access are challenging traditional SAN and NAS storage technologies. Storage systems designed to serve the needs of the last 10 years are no longer able to deliver the scalable bandwidth and file system locking capabilities required by today's HPC environments. To satisfy these requirements, an extremely high performance approach that integrates file system and storage media into one extremely high performance file storage appliance is needed. This solves both today's requirements and will scale to accommodate the unpredictable growth of Big Data.

EXAScaler, is a next generation parallel file storage system appliance that combines DDN award-winning HPC storage technology with the open-source Lustre file system. DDN has leveraged its leadership in supporting the world's largest file storage systems for over a decade and combines these best of breed storage technologies into a tightly integrated, easy to use appliance that delivers scalable, clustered storage performance. Built by the HPC experts, and supported by the world's most skilled parallel I/O team, the EXAScaler blueprint is known worldwide as the gold standard in HPC storage clustering and powers the largest number of Top500® Supercomputer Sites, worldwide.

DDN | GRIDScaler™
Massively Scalable Parallel File System and NAS Solution

The rapid increase in data creation, driven by the proliferation of digital content and machine-generated data has resulted in significant challenges for organizations. When utilizing traditional storage architectures, growing capacity or performance means selecting either scale-up or scale-out approaches. This usually results in over provisioning, unnecessary costs and is inefficient at scale; creating multiple islands of storage, inefficient budgetary spend and lower returns on investment.

Leveraging over a decade of leadership in the highest end of Big Data, GRIDScaler is designed to handle the diverse and dynamic demands of today's massive unstructured data generators. It is an extremely versatile solution that can be configured as a parallel file system as well as a Network Attached Storage solutions based on the customer's requirements. With scalable data and metadata technology, the GRIDScaler platform eliminates all bottlenecks to achieve true parallelism and maximum application performance. Providing multiples of I/O and bandwidth performance and leading capacity density, GRIDScaler creates a cost efficient pool of storage that scales into petabytes simply and cost effectively.

Technical Specifications

System Features	Active/Active Storage Controllers
	Raid 6 8+2, 4+2
	Raid 5 8+1, 4+1
	Raid 1 1+1
	Large block sequential read performance up to 12.4GB/s sustained.
	Large block sequential write performance up to 10.75GB/s sustained.
	Small block I/O up to 405,000 IOPS per appliance, 300,000 IOPS sustained with SSD
Active/Active Controller Storage Host Ports:	4 x 56Gb/s FDR InfiniBand Ports
	8 x 8Gb/s Fibre Channel Ports
	4 x 16Gb/s Fibre Channel Ports
Cache	Up to 32GB, mirrored power-fail safe
Client Support	Windows, Linux and Mac OSX
Drive Support	Enterprise Class 2.5" SSD up to 1.6TB, Performance SAS 2.5" up to 1.2TB, and Capacity SAS/SATA 3.5" drives up to 6TB
	60 in base unit, up to 396 total with expansion enclosures
Supported Expansion Drive Enclosures:	SS7000 Enclosure -4U, 60 drives x2
	SS8460 Enclosure -4U, 84 drives x2
Standard Software Features	LUN Mapping and Masking, Intelligent Write Striping, Read QoS, Port Zoning Detection, DirectProtect™ Data Integrity Check/Correction, SFA Scriptable API, Web XML API, CLUI and Web GUI, Pager and E-Mail Fault Console with SNMP Notification, DirectMon API, Storage Fusion Xceleration, Data-At-Rest Encryption
Appliance Attributes	**Dimensions:**
	Height: 4RU Rack Mount 19" EiA0310 6.97" (177 mm)
	Width: 16.56" (420.6 mm)
	Depth without bezel and cable management arm 34": (863.6 mm)
	Depth with bezel and cable management arm: 38" (965.2 mm)
	Weight: Approximately 135 lbs (61.3KG) without drives installed
	Approx.235 lbs (106.6 KG) with 60 drives .
	Input Voltage: 200 to 240 VAC, 50/60 Hz - 1865W Power supply redundant
	Average Power: 300W w/o drives, 1050W with 60 x 4TB 7.2K rpm SAS drives
	Environment:
	Operating temperature 5°C to 35°C (41°F to 95°F)
	Relative Humidity 20% to 80% non-condensing
	Altitude -200 ft to 10,000 ft (-61m to 3048m)
Safety	Agency Certifications Ul, cUl, CE, FCC

Learn more at http://www.ddn.com/products/sfa7700

DataDirect™
N E T W O R K S

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