Dell and SolidFire: Scale-out All-flash Storage System
Built Specifically for Large Scale Infrastructure

SolidFire provides a scale-out all-flash storage platform designed to deliver guaranteed storage performance to thousands of application workloads side-by-side, allowing consolidation under a single storage platform.

SolidFire storage is delivered via self-contained storage nodes that are combined via a distributed cluster over 10Gb Ethernet. A single system scales to 100 nodes, 3.4PB of effective capacity, over 7.5 million IOPS and can host more than 100,000 tenant volumes. Because the resources of all SolidFire nodes are aggregated, capacity and performance scale with the addition of each node to the system. The result is a single, high-performance storage solution that enables large-scale infrastructures to scale efficiently, on demand and without downtime or impact to application performance.

**KEY SOLIDFIRE VALUES**

**QoS as a System Architecture**
Adding Quality of Service (QoS) features to an existing storage platform may solve one performance bottleneck for individual performance conditions, but this approach fails to solve the more significant challenges that occur at scale. Today’s multi-tenant infrastructures require a purpose-built storage architecture that solves performance problems comprehensively – not individually. Rather than implementing individual features to solve for predictable performance, SolidFire delivers the only storage QoS architecture designed to completely eliminate noisy neighbors in a multi-tenant environment.

**High Availability and Data Protection with SolidFire Helix**
One of the radical improvements driven by the SolidFire storage system is the removal of RAID algorithms for data protection. Traditional Redundant Array of Independent Disks (RAID) controllers are too slow to keep up with solid-state disks (SSDs) and are unable to deliver guaranteed performance in the event of a drive or system failure. All data within a SolidFire system is protected via SolidFire Helix data protection. This patented self-healing technology maintains data redundancy levels, regardless of the type of failure within the system. This enables providers to manage failures through their maintenance cycle and entirely removes the “fire drill” that traditional storage subsystem failures can cause.

**API Automation**
SolidFire’s management technology is built upon a REST-based API and is designed for deployment in a multi-tenant environment. The system allows for the complete automation of all tasks associated with storage deployment, monitoring and reporting. Our robust API management layer also makes it very easy to integrate SolidFire storage into cloud management suites such as Rackspace OpenStack, VMware vCloud Director or other homegrown systems.

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Accelerate application performance while driving greater consolidation, automation and scale across your entire storage infrastructure — with guaranteed Quality of Service (QoS).

- Consolidate
- Automate
- Scale
- Guaranteed Performance

Features include:

- SolidFire Helix self-healing data protection
- Always on, inline, real-time deduplication
- Always on, inline, real-time compression
- Always on, inline, reservation-less thin provisioning
- Guaranteed volume-level QoS
- Minimum IOPS
- Maximum IOPS
- IOPS burst control
- 128-bit Advanced Encryption Standard (AES) drive-level encryption
- Volume access groups
- Online volume growth
- Instant, reservation-less, deduplicated cloning and snapshots
- Native multi-tenant management
- Proactive remote monitoring
- Complete REST-based API management
  - Granular management access / Role-based Access Control (RBAC)
  - Tenant management and reporting
  - Automated cloud backup
  - Volume and system level performance and data usage reporting

- VMware vSphere API for Array Integration (VAI) / vSphere API for Storage Awareness (VASA) certified
All-SSD Efficiency
At the core of the SolidFire storage solution is the patented ability to optimize solid-state-disk (SSD) capacity—ensuring high utilization while guaranteeing volume performance. The system employs three key technologies that operate in concert across the entire storage system: deduplication, compression and thin provisioning. Leveraged in real time, these technologies can dramatically reduce the amount of storage space required up to 70 percent without any performance impact. SolidFire’s real-time deduplication is executed across the entire data store and is effective, regardless of how many volumes or tenants store the same information. Real-time compression and a 4K block size ensure that data is compressed system wide, further enhancing performance through reduced disk I/O and by increasing cacheable data size.

Thin provisioning is automatic within the system and does not use space for data that has been preallocated and initialized by applications or operating systems. Together, these tools dramatically reduce effective price per gigabyte, making SolidFire’s all-SSD storage solution far more economical and efficient than performance spinning disk.

More companies than ever before expect their shared storage infrastructure to be able to handle performance-sensitive and mission-critical applications. System architects face significant pressure to deliver scalable and predictable performance block storage services. In shared multi-tenant environments, the lack of predictable performance of traditional storage presents one of the biggest barriers to delivering business-critical applications from a shared infrastructure.

To meet growing performance needs, administrators are forced to use large cache layers, tiered disk systems and massive amounts of disks in large arrays. The common result is marginal performance gain with a sprawling network of underutilized capacity that is impossible to manage and costly to operate at scale. It’s time for a radical innovation. Welcome to SolidFire’s all-solid-state-disk (SSD) storage system, designed specifically to deliver guaranteed storage performance for large-scale public and private cloud infrastructures.

Guaranteed Storage Performance at Massive Scale
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