NetApp Element software

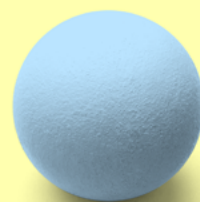**■ NetApp**

Key benefits

Automated simplicity

- Offer policy-based application self-service for users with 15 times faster deployment of DevOps services and virtual machines.

- Manage your storage without deep storage expertise and with up to 67% less operating cost, reducing the cost of application development.

- Reduce risk of human error associated with complex administrative tasks.

Predictable performance

- Guarantee performance for every workload.

- Manage performance in real time without impacting other volumes.

- Reduce cost and complexity by enabling hundreds of workloads to coexist on a single cluster.

- Eliminate 93% of performance-related storage problems.

- Enjoy guaranteed storage efficiency with no performance impact.

Flexible deployment

- Future proof your storage with an easy multi-node cluster approach to meet your storage and performance needs, today and tomorrow.

- Get the same NetApp SolidFire capabilities and feature set regardless of the SolidFire node selected.

Dynamic scale

- Adapt to changing business demands on the fly by scaling capacity up or down, on demand, without disruption or downtime.

- Allocate and manage independent pools of performance and capacity to prevent overprovisioning and stranded assets.

- Spend up to 92% less administrative time managing the growth of storage.

These days, it's not enough to simply provide a killer infrastructure for your applications and business stakeholders. As you seek to move quickly in a hypercompetitive global economy that is fueled by data, you have to be ready to innovate, pivot quickly, and differentiate yourself. Storage is such a crucial part of a private cloud that it's imperative to have innovative, scalable, high-performing storage solutions that can help deliver on-demand services with simplicity and ease. SolidFire outclasses its competition and delivers on this need by:

- Supporting the elastic needs of DevOps with advanced software lifecycle management automation and orchestration tools, as well as supporting mixed production workloads at scale while delivering guaranteed, predictable performance.

- Dramatically reducing the operational burden and cost for support teams with full automation, nondisruptive scaling, and fewer performance issues.

- Being fault-tolerant and purpose-built for multitenancy to support a high volume of users and varying needs.

NetApp Element software

As you move from a traditional storage infrastructure to a next-generation data center, you have more options for consuming storage than ever before. Even if one consumption model can accommodate IT's needs today, you should expect to have to deal with change over time. NetApp Element® software delivers the greatest flexibility for how you purchase and grow your storage infrastructure, so you can achieve your next-generation data center on your own terms. You can harness these abilities by deploying Element through the preintegrated SolidFire appliances. No matter which model you choose, you can select a purpose-built, all-flash, on-premises private cloud that enables you to easily deliver business-oriented data services on demand to your diverse set of applications.

This datasheet focuses on the specific features and benefits of the Element software.

NetApp Element software features and benefits

	Function	Benefit
Scale		
Scale-Out Platform	Shared-nothing, node-based, scale-out architecture that provides the ability to mix nodes while scaling capacity and performance independently.	Enables nondisruptive infrastructure growth on demand in line with your needs. Simplifies capacity planning and eliminates forklift upgrades.
Performance		
QoS	Fine-grained performance control with guaranteed storage QoS and user-defined minimum, maximum, and burst settings for every application.	Simplifies operations and offers predictable application performance within your prescribed IOPS boundaries. Essential to facilitate consolidation at scale.
Dynamic Node Rating	An automatic performance rating feature of SolidFire eSDS that projects performance of a range of supported CPU options.	Provides more CPU options for validated eSDS servers and greater choice of performance profiles for eSDS hosts.
Efficiency		
Multi-Layer Data Compression	Provides transparent inline and postprocess data compression for data reduction.	Reduces the amount of storage that you need to purchase and maintain.
Global Deduplication	Performs general-purpose deduplication redundant data, cluster wide.	Reduces the amount of storage that you need to purchase and maintain and increases system performance by minimizing system resources.
Thin Provisioning	Allocates data 4KB at a time to minimize the effect of granularity on provisioning and maintaining alignment with the native 4KB allocation format used by many operating systems, applications, and modern disk drives.	Increases efficiency and reduces overhead by using the smallest allocation possible.

	Function	Benefit
Resiliency		
Protection Domains	A node or a set of nodes grouped together such that any part or even all of it can fail while still maintaining data availability. Enable a storage cluster to heal automatically from the loss of a chassis (chassis affinity) or an entire domain (group of chassis).	Designs HA into the cluster for availability and reliability and can be deployed and managed easily through the Element UI.
NetApp SolidFire Helix®	A "RAID-less" replication method that spreads at least two redundant copies of data across all drives within a system.	Enables a system to absorb multiple, concurrent failures across all levels of the storage system and repair quickly.
NetApp Active IQ®	AI-powered digital advisor that provides actionable intelligence to improve system availability, security, and performance.	Simplifies the proactive care and optimization of your NetApp environment, leading to reduced risks and higher availability.
Automation		
Native REST-Based APIs	Creates 100% programmable storage and offers deep integration with management and orchestration platforms.	Reduces risk of human error associated with complex administrative tasks.
Key Platform Integration	Standard tools, integrations, and plug-ins into VMware vStorage APIs (VAAI, VASA, vVols, vRealize), OpenStack, CloudStack, Flexiant, and OnApp.	Helps minimize development time and overhead, enables more complete and agile solutions, and makes management seamless.
Ansible Playbooks	Full Ansible automation for installation, configuration, and upgrades for SolidFire eSDS.	Enables rapid deployment of applications and services.
Security		
Inline Data-at-Rest Encryption	Hardware-and software-level data security.	Protects against data theft.
Local and LDAP Authentication Control and Audit Administrator Access	User authentication.	Provides centralized user management.
CHAP Mutual Authentication	Storage client access management.	Manages and enforces storage client access to volumes.
VLAN	Network traffic isolation.	Isolates tenant data in flight to ensure that tenants have visibility only to their own data over the network.
Logging	Identify and maintain record of user activity.	Enables quick identification of potential security threats by connecting users to their activities.
Secure Erase	Cryptographically wipe data at rest.	Enhances security through provable data erasure for the entire drive.
FIPS 140-2	Third-party-certified encryption standards.	Offers external validation of encryption practices for customers who require certain levels of security compliance.
External Key Management	Third-party key manager for centralized and replicated encryption key management.	Ensures control and high availability by never losing keys.
Multifactor Authentication	SAML-based user authentication.	Provides centralized multifactor user authentication.

	Function	Benefit
Security (Cont.)		
TLS	TLS 1.2 used for secure UI and API communication.	Ensures that all management traffic is protected by strong cryptography.
Onboard Key Manager	Self-contained encryption key manager for data at rest.	Allows drive encryption to be managed through Element software without a third-party service.
Login and Message of the Day	Login banners are printed in the output before authentication.	Enable organizations and administrators to communicate with system users.
Role-Based Access Control	User-level authorization.	Defines different types of access based on different categories of users.
Secure Volume Access	Client access and network isolation.	Isolates client data access via preferred virtual networks.
Data protection		
Asynchronous Replication	Serialized throttling of snapshot replication that replaces schedule-based RPO. Snapshots are replicated as quickly as the system can keep up. First-in-first-out (FIFO) queue manages retention and keeps source and target synced.	Works for group snapshots to allow consistency groups to be replicated asynchronously. Avoids latency concerns with synchronous replication.
NetApp Snapshot™	Makes incremental data-in-place, point-in-time copies of a LUN or a volume with minimal performance impact.	Enables you to create frequent space-efficient backups with no disruption to data traffic.
NetApp SnapMirror Integration	Provides native NetApp SnapMirror® replication for remote backup/recovery and DR with incremental asynchronous data replication between platforms. Managed via NetApp Element UI.	Replicate from SolidFire to NetApp FAS and restore from NetApp FAS to SolidFire to support remote backup/recovery, disaster recovery, and data distribution.
Integrated Cloud Backup and Restore	Provides integrated remote backup/recovery and disaster recovery to secondary object stores compatible with Amazon S3 and OpenStack Swift cloud resources and NetApp StorageGrid®.	Provides flexibility and efficiency when replicating data to a cloud object store in a public or private cloud to support remote backup/recovery, disaster recovery, and data distribution.
ISV Compatibility	Integration with Veeam, Commvault, and NetBackup for third-party backup solutions.	Enables you to use your choice of third-party data protection solutions.

About NetApp
In a world full of generalists, NetApp is a specialist. We're focused on one thing, helping your business get the most out of your data. NetApp brings the enterprise-grade data services you rely on into the cloud, and the simple flexibility of cloud into the data center. Our industry-leading solutions work across diverse customer environments and the world's biggest public clouds.

As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services, and applications to the right people—anytime, anywhere

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