Datasheet

NetApp E-Series SANtricity Software

Software building blocks for enabling a fast, simple, reliable storage infrastructure

KEY BENEFITS

SANtricity Operating System: Optimized for Performance and Reliability

- Accelerate performance for high-IOPS and low-latency applications and for high-bandwidth and high-throughput applications, all out of the same enterprise-grade storage building block.
- Get best-in-class reliability with automated features, online configuration options, state-of-the-art RAID, proactive monitoring, connection to the hybrid cloud, and the NetApp® AutoSupport® tool, all part of the NetApp SANtricity® operating system.

SANtricity System Manager: Web-Based and Easy to Use

- Manage your NetApp E2800 or E5700 system anytime, anywhere with an easy-to-use, on-box, web-based interface.
- Leverage the intuitive interface to simplify storage management and to gain flexibility for advanced tuning.

SANtricity Storage Manager: Enterprise Management

- Discover and manage all your E-Series storage systems from a single console.

The Challenge

Your enterprise relies on core applications that are critical to your business success. To achieve business goals, you need consistent application performance and continuous availability. To deliver value and reduce complexity, you must have proven storage systems that can be quickly deployed, easily managed, and work flawlessly with your application software. Because your operations depend on these applications, they must have greater than 99.999% availability. To meet these requirements, you need proven enterprise-grade storage and software.

The Solution

For application environments, including backup and recovery, technical computing, video surveillance, and big data analytics, NetApp E-Series and EF-Series storage arrays with SANtricity software offer industry-leading performance, reliability, and ease of use.

SANtricity Operating System

Online administration (no scheduled downtime)

With the SANtricity operating system (SANtricity OS), you can perform all your management tasks while the storage remains online, with complete read and write data access. This capability enables your storage administrators to make configuration changes, perform maintenance, or expand storage capacity without disrupting I/O to attached hosts.

These online capabilities include the following:

- Nondisruptive controller firmware and drive firmware upgrades mean no scheduled downtime.
- Dynamic Disk Pools (DDP) technology greatly simplifies traditional storage management with no idle spares to manage or reconfigure when drives are added or fail. This capability enables automatic configuration, expansion, and scaling of storage.
- Dynamic capacity expansion and reduction of DDP pools enable you to add or remove many drives at a time for a pool. The pool dynamically rebalances to adjust for these drive count changes, with no requirement for parity recalculation.

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Figure 1) SANtricity System Manager dashboard.

- Dynamic physical and logical expansion enables administrators to add new drive modules and create new pools, volume groups, and volumes, without disrupting access to existing data.
- Dynamic volume expansion (DVE) enables administrators to expand the capacity of an existing volume by using the free capacity within the volume group or DDP pool. DVE redistributes or rebalances for maximum performance and utilization.
- Dynamic RAID-level migration changes the RAID level of a volume group on the existing drives without requiring the relocation of data. The migration operation supports RAID levels 0, 1, 3, 5, 6, and 10. Additionally, dynamic segment size migration can be supported on RAID volumes.
- Dynamic capacity expansion for volume groups allows the addition of up to 2 drives at a time to an existing volume group. This capability introduces free capacity for volume creation or expansion and improves the performance of the volumes that reside on that volume group.

High Availability

When data is trusted to a storage system, accessing and protecting that information 24/7 are crucial to your organization's future. SANtricity OS and E-Series hardware exceeds five nines of availability, going beyond basic high-availability features to significantly improve data access and data integrity. Its I/O path management and automatic load balancing of the workload on the controllers, paired with proactive background monitoring, mean that data is available when you need it. Data assurance verifies data integrity from the controller to the drive. By conforming to the T10-PI standard, E-Series provides this additional data confidence. DDP technology significantly lowers data exposure during drive failure by reconstructing data much faster, while protecting performance.

With no scheduled downtime, SANtricity is designed for operations in the real world, where applications must continue to deliver business value.

Data Protection

SANtricity drive encryption services provide comprehensive security for data at rest on the drive without affecting storage system performance or ease of use. Drive-based AES-256 encryption that complies with FIPS 140-2 level 2 by using validated drives provides data security in cases such as drive theft, routine defective drive servicing, or repurposing of drives. You can choose to manage the drive authentication keys natively for a simple lowest-cost solution or on the E5700 and E2800 use a KMIP-compliant external key manager for centralized administration.

SANtricity Snapshot™ copies create point-in-time images, or logical copies, of a storage volume. This functionality enables secondary servers to access a writable suspended version of the data for various applications, including backup, file restoration, application testing or development, information analysis, and data mining. Remote mirroring protects information by replicating local data volumes to a remote storage system. This robust functionality includes suspend and resume with delta resynchronization, mirror groups for multivolume consistency, and the capability to create a Snapshot copy of the remote data while the mirror remains active. Also, support for cross-mirroring enables two separate systems to function as remote disaster recovery sites. The flexibility of FC- or IP-based asynchronous mirroring or FC-based synchronous mirroring enables data protection for almost any environment.

The SANtricity Cloud Connector software solution provides a cost-effective basic backup approach with backup and recovery to the cloud from E-Series systems.

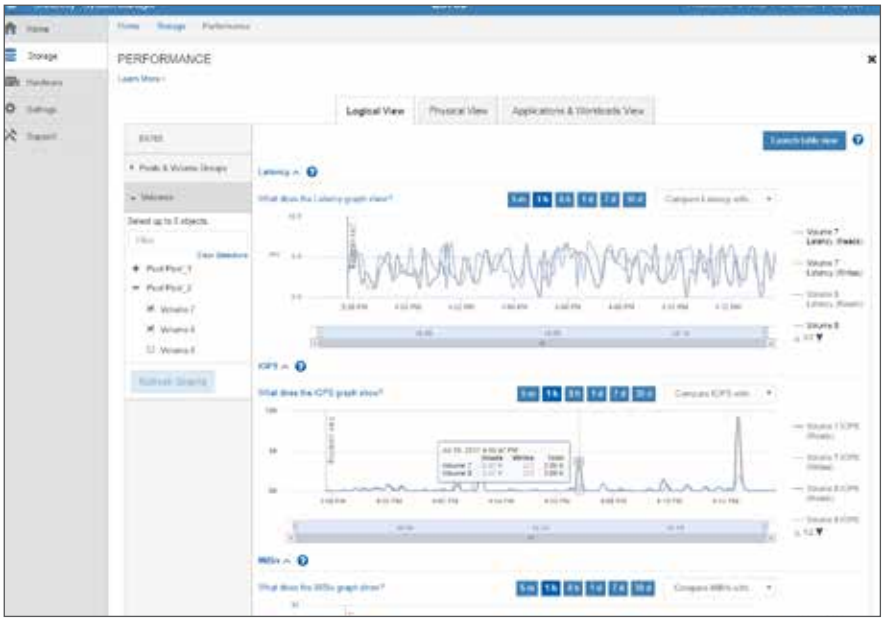

Figure 2) SANtricity System Manager performance monitor, logical view.

SANtricity Management Software Unlocks the Power of SANtricity OS

Configuration flexibility

Every environment is different, with varying priorities for performance, data availability, and capacity utilization. Whether you are managing a hybrid system, all spinning media, or all flash, the SANtricity OS is flexible to match your application needs, resulting in optimal performance, more efficient use, and lower storage costs.

With SANtricity OS and System Manager, you can create up to 512 heterogeneous hosts or clusters of hosts from a single E-Series storage system, each with different characteristics to meet the exact storage needs of the server. Further, Dynamic Disk Pools and RAID volume groups can coexist within the storage system. This flexibility allows a range of hosts with different capacity, performance, and data protection demands to effectively share a single E-Series storage system. Additional flexibility for your management approach is available through the SANtricity CLI and on-box SANtricity web services REST API.

SANtricity System Manager

Simplified, on-box management

SANtricity System Manager gives you the flexibility to log in to an individual E2800, E5700, or EF570 system from various web browsers and manage your storage through an easy-to-use, on-box web interface. Intuitive workflow wizards and context-sensitive online help streamline configuration tasks. Sophisticated performance monitoring lets you view information from the system level down to individual drives or export the performance data for further analysis. Tuning activities such as managing SSD cache or data cache are all online. When a repair becomes necessary, step-by-step Recovery Guru instructions provide guidance.

AutoSupport and event monitoring

AutoSupport enhances customer service, speeds problem resolution, and helps prevent issues. To provide faster and better customer service, AutoSupport automatically sends alerts and support information that are triggered by either event-based or time-based (weekly, daily, other) criteria, keeping your systems up and running longer. Additionally, event notification options for e-mail and SNMP traps can be configured.

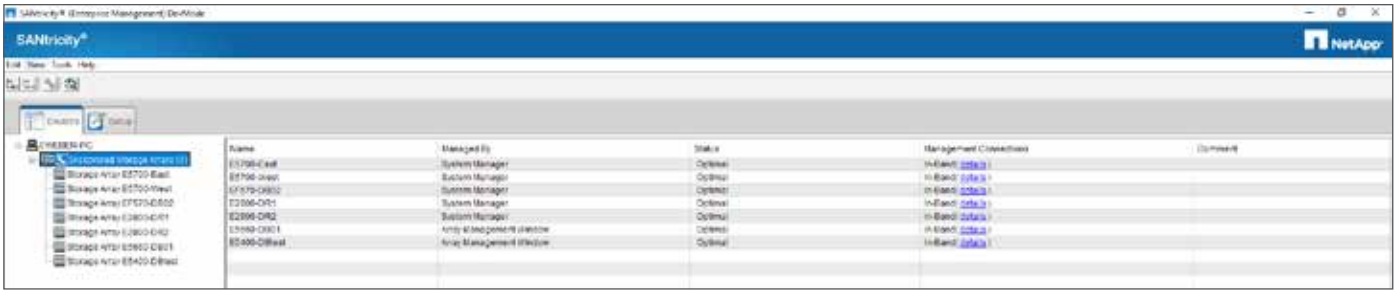

Figure 3) SANtricity Storage Manager, enterprise view.

SANtricity System Manager key features

- Launchable directly from browser or from SANtricity Storage Manager
- Automated workflows and intelligent provisioning defaults
- Application tagging to enable filtered view of volumes and performance information
- Enhanced performance monitoring and access to 30 days of performance data
- Performance tuning actions
- Graphical view of thin volume usage
- Support for no-downtime maintenance and software/firmware upgrades
- Recovery Guru with step-by-step instructions
- Manage role-based access control, audit log, and security certificates
- Set up LDAP server for user authentication
- Manage data-at-rest encryption with FDE or FIPS drives, including Secure Erase
- Configure external key management server (KMIP compliant)

SANtricity Storage Manager

Enterprise management for all your E-Series storage

SANtricity Storage Manager discovers the E2800, E5700, EF570, and all other older E-Series storage systems. From a single console you can view status and launch the appropriate management application per storage system, along with enterprise-level tasks such as capturing the CLI commands required to recreate a configuration or setting up remote mirroring. SANtricity Storage Manager is installed on a management server.

About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit **www.netapp.com**. #DataDriven