



## Datasheet

# NetApp E-Series SANtricity Software

Software building blocks to enable 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.
- Get best-in-class reliability with automated features, online configuration options, state-of-the-art RAID, and proactive monitoring.

#### **SANtricity System Manager: Web Based and Easy to Use**

- Manage your NetApp® E2800, EF280, E5700, EF570, or EF600 storage 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 Unified Manager: Web-Based Scalable Enterprise Management**

- Discover, organize, and manage as many as 500 NetApp E2800, EF280, E5700, EF570, or EF600 systems with a simple web-based interface.

### The Challenge

Your enterprise relies on core applications that are crucial to your success. To achieve organizational 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, are 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 storage arrays with SANtricity® software offer industry-leading performance, reliability, and ease of use.

### SANtricity Operating System

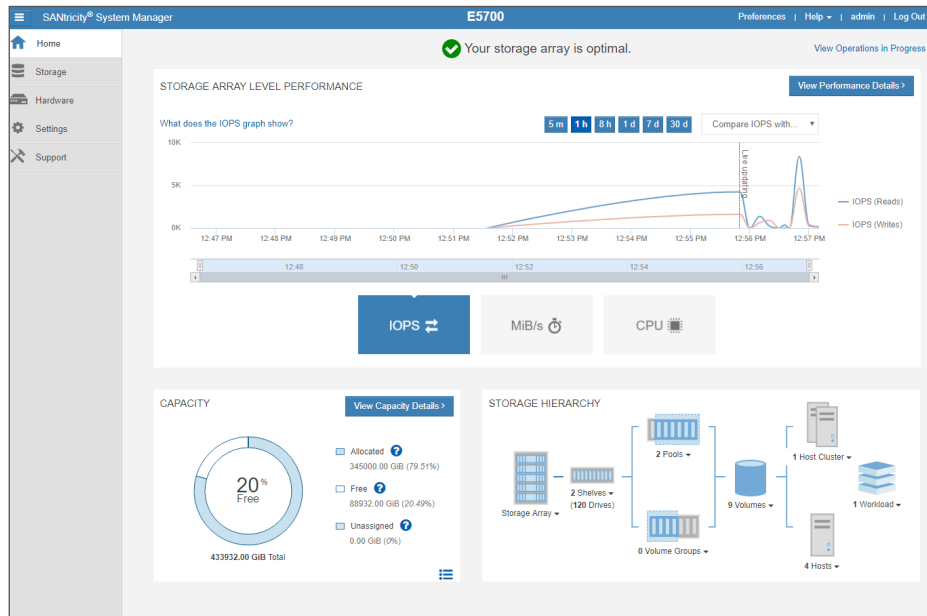
#### **Online administration (no scheduled downtime)**

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

These online capabilities include:

- Nondisruptive controller firmware and drive firmware upgrades mean no scheduled downtime.
- NetApp Dynamic Disk Pools (DDP) technology greatly simplifies traditional storage management with no idle spares to manage or reconfigure when drives are added or when they fail. This capability enables automatic configuration, expansion, and scaling of storage.
- Dynamic capacity expansion and reduction of DDP pools enable administrators to add or remove as many as 60 drives at a time for a pool. The pool dynamically rebalances to adjust for these drive count changes, with no requirement for parity recalculation.

Figure 1) SANtricity System Manager dashboard.



- Dynamic physical and logical expansion enable 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 in 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, 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 two 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 is crucial to your organization's future. SANtricity OS and E-Series hardware exceed 99.999% availability, going beyond basic high-availability features to significantly improve data access and data integrity. 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 value.

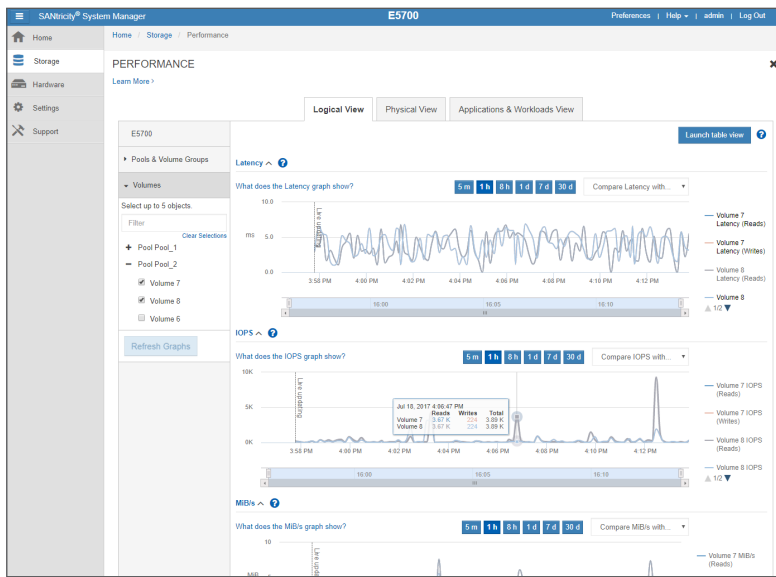
### Data Protection

SANtricity drive encryption services offer 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. You can also use a KMIP-compliant external key manager for centralized administration.

NetApp SANtricity Snapshot™ copies are 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 and 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 ability 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 Fibre Channel (FC) or IP-based asynchronous mirroring or FC-based synchronous mirroring enables data protection for almost any environment.

The SANtricity Cloud Connector software solution offers 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 the SANtricity OS Configuration flexibility

Every environment is different, with varying priorities for performance, data availability, and capacity utilization. Whether you're 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 the 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 in 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 Straightforward, on-box management

SANtricity System Manager gives you the flexibility to log in to an individual E2800, EF280, E5700, EF570, or EF600 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 to export the performance data for further analysis. Tuning activities such as managing the 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

NetApp Active IQ® enhances customer service, speeds problem resolution, and helps prevent issues before they affect your business. Fueled by telemetry data from E-Series systems around the globe, Active IQ uses machine learning and predictive analytics to identify security risks and offer corrective actions to ensure that your E-Series system is protected. You can access its data-driven insights and recommendations via a web UI, mobile app, and API.

## SANtricity System Manager manageability features

Launchable directly from browser, SANtricity Unified Manager or SANtricity Storage Manager features include:

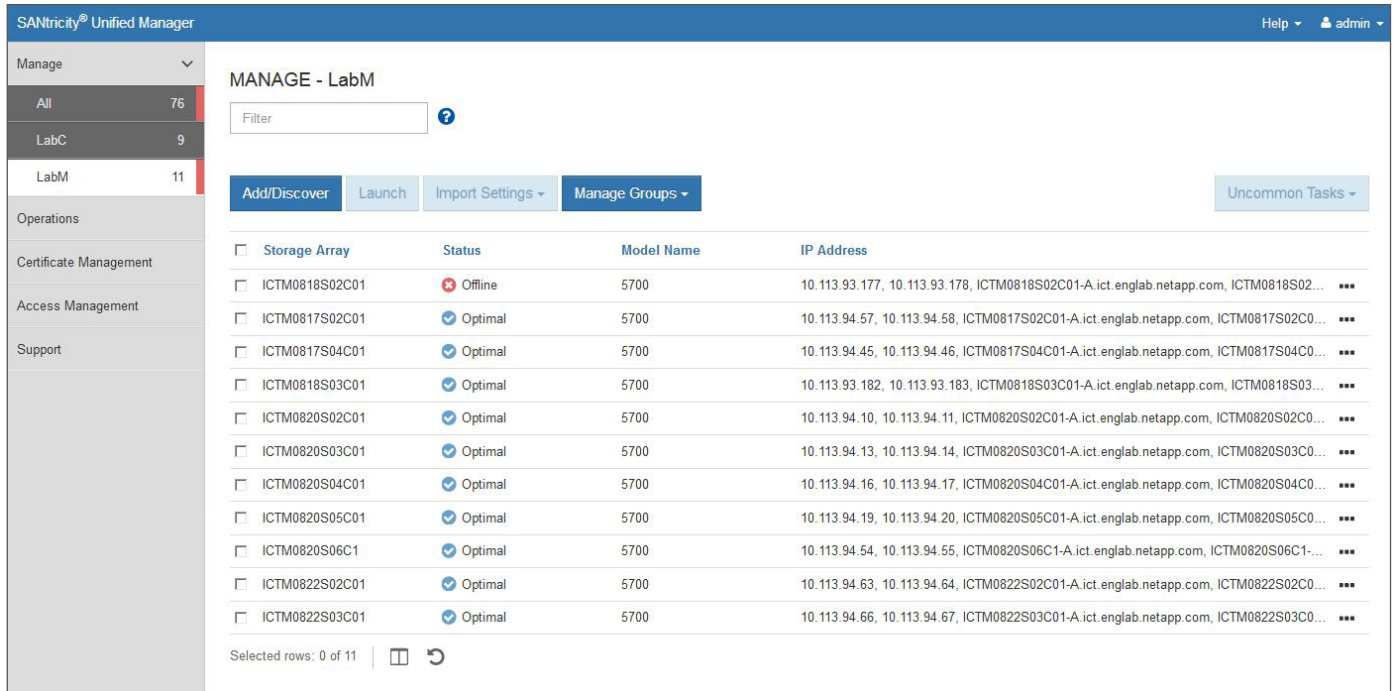
- Automated workflows and intelligent provisioning defaults
- Application tagging to enable filtered views of volumes and performance information
- Enhanced performance monitoring and access to 30 days of performance data
- Performance-tuning actions
- Graphical view of thin volume usage
- Support for no-downtime reconfiguration, maintenance, and software and firmware upgrades
- Recovery Guru with step-by-step instructions

## SANtricity System Manager security features

System Manager security features include:

- Administer access with role-based access control and audit log
- Manage digital certificates (import, export, CSR)
- Set up LDAP/LDAPS server for user authentication
- Manage data-at-rest encryption with FDE or FIPS drives, including Secure Erase
- Configure external key management server (KMIP compliant)
- Support multifactor authentication via SAML 2.0
- Common Criteria certified

Figure 3) SANtricity Unified Manager: scalable, web-based management.



**SANtricity Unified Manager**  
**Scalable, web-based management for newer E-Series storage systems**

SANtricity Unified Manager offers a highly scalable enterprise view for up to 500 E2800, EF280, E5700, EF570, and EF600 systems. From a single window, you can view status, organize arrays into groups, update SANtricity OS, and launch the on-box SANtricity System Manager for each array. With SANtricity Unified Manager, you can quickly set up alerts and other settings to multiple arrays with a single operation. SANtricity Unified Manager is installed on a Linux or Windows management server and runs under a browser.

**SANtricity Storage Manager**  
**Enterprise management for legacy and newer E-Series storage systems**

If you have a mix of E-Series systems, SANtricity Storage Manager is the way to see an enterprise view, discovering legacy E-Series storage systems as well as the E2800, EF280, E5700, EF570, and EF600. From a single console you can view status and launch the appropriate management application per storage system. SANtricity Storage Manager is installed on a Linux or Windows management server.

**About NetApp Services**  
**Gain greater business value from your investment**

Whether you're planning your new storage system, need specialized know-how for a major storage deployment, or want to optimize the operational efficiency of your existing infrastructure, NetApp Services and NetApp certified partners can help. [Learn more about NetApp Services.](#)

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 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](http://www.netapp.com). #DataDriven