



Datasheet

NetApp E5700 Storage System for Video Surveillance

Delivers density, flexibility, and high performance for large-scale video surveillance solutions

Key Features

Support for High-Bandwidth Video Surveillance Environments

Dependable high-performance bandwidth supports high-definition and megapixel environments.

High Efficiency Through World-Class Density and Scalability

High-density modular block design allows support for large-scale capacity and seamless expandability.

Extreme Flexibility with Modular Architecture

Standard 4U enclosures allow precise scaling and growth over time.

Ease of Use and Configuration

The powerful NetApp® SANtricity® Storage Manager software and SANtricity System Manager software provide intuitive interfaces for administering E-Series storage systems. No storage expertise is required. Installation is easy with the help of the storage wizard.

Why Does Storage in Video Surveillance Matter?

From on-body police cameras to 24/7 monitoring of major transportation hubs, video has become a strategic source of information, insights, and intelligence. Major cities throughout the world are mounting video surveillance cameras to watch over streets, subways, mass transit, parks, and other public places. These new intelligent video surveillance cameras and analytical applications are capturing more evidence than ever, causing an increase in bandwidth requirements, write speeds, and storage capacities. The volume and size of media content are greatly expanding as resolution and retention requirements increase.

As a result, governments, retail enterprises, and other public entities are faced with serious challenges with respect to media storage. Traditional storage architectures are not designed for massive amounts of big video content. Due to the increased number of cameras, retention periods, and camera bitrates, purchasing traditional standalone network video recorder (NVR) solutions has become inefficient and costly.

The NetApp video surveillance solution, combined with leading video management software, provides superior benefits to meet the new security surveillance challenges of data retrieval, retention, capture, and analysis.

NetApp E5700 Video Storage Solution

The NetApp video storage solution provides a complete line of external storage systems designed to meet today's security challenges by delivering unprecedented capacity, speed, and durability. The E-Series storage system uses a modular architecture that offers a true pay-as-you-grow solution to address the new big video data storage requirements. The NetApp E5700 is specifically targeted for large video surveillance installations wherein the number of cameras, the type of cameras, and the retention periods require a high-performance, large capacity storage subsystem.

Leading intelligent video security applications combined with E-Series storage handle the heavy computational workloads and bandwidth-sensitive streaming environments of video surveillance infrastructures now and in the future. With them you get:

- Consistent high-performance bandwidth for media-intensive video streaming environments
- Performance-tuned solutions that deliver high-availability access for media content needs

- Superior performance compared to NVR for greater camera support and reduced NVR instances
- The capability to leverage your investment in video cameras and networks and maintain productivity with high-availability storage. The NetApp Video Storage solution offers superior storage to meet the advances of the next generation of video and analytics surveillance technology.

Support for High-Bandwidth Surveillance Environments

Validated and tested designs with video surveillance management application leaders

The NetApp video storage solution combines high-performance storage with leading video security management companies' solutions, allowing customers to develop optimized video infrastructures. IP video security management leaders such as Milestone, Genetec, and OnSSI have teamed with NetApp to offer increased file system optimization for large datasets. With NetApp E-Series storage, users get high-performance access to video content, including HD resolutions, and support for digital and analog video surveillance installations:

- Big bandwidth support. Receive performance optimized to support any number of video streams simultaneously.
- Each E5700 system can deliver 21GBps reads and 9GBps writes.
- Each E5700 system can support over 5,000 cameras recording at 2Mbps/camera and for a retention period of 30 days.*

High Efficiency Through World-Class Density and Scalability

Manage petabytes of big video content

The NetApp video storage solution delivers the highest-density scale-out storage solution to support the unique requirements of large government and commercial video surveillance infrastructures. Using an industry-standard rack configuration, the solution can scale up to dozens of nodes with multiple gigabytes per second of throughput and petabytes of storage. The modular architecture allows nondisruptive scaling of performance and capacity so that applications and data are available when and where they are needed:

- **Modular design.** Allows growth with minimal additional components, eliminating the need to over configure.
- **Scalability of external storage system.** Pay-as-you-grow scalability starting at 96TB enables NVR consolidation and global data access.

Modular Flexibility

The E5700 system offers multiple form-factors and drive technology options to best meet requirements. The ultra-dense 60-drive system shelf supports up to 960TB in just 4U. It is perfect for environments with vast amounts of data and limited floor space. Each E5700 modular block can scale up seamlessly without any downtime to 480 disks or 7.68PB in just 32U, which allows customers to deploy large video surveillance installations very efficiently. Single or multiple standalone shelves and even full E5700 blocks can be added granularly

to align with dynamically changing video surveillance requirements such as increased number of cameras, more retention days, higher definition of cameras, dramatically changing recording conditions, and so on.

The E5700 system provides industry-leading performance and space efficiency that reduce rack space by up to 60%. Its high-efficiency power supplies and intelligent design can lower power use up to 40% and cooling requirements by up to 39%.

Flexible Interface Options

The E5700 system supports a complete set of host or network interfaces designed for either direct server attach or network environments. With multiple ports per interface, the rich connectivity provides ample options and bandwidth for high throughput. The interfaces include quad-lane SAS, iSCSI, FC, InfiniBand, and NVMe-OF to connect with and protect investments in storage networking.

Intuitive Management

NetApp SANtricity System Manager software offers extensive configuration flexibility, which allows optimal performance tuning and complete control over data placement. With its dynamic capabilities, SANtricity software supports on-the-fly expansion, reconfigurations, and maintenance without interrupting storage system I/O.

Optimized for Increased Productivity: No Scheduled Downtime

Deploy with confidence

The NetApp Video Storage solution is architected to provide the highest reliability and availability. Using eighth generation controller technology, NetApp delivers field-proven technology in a tested and validated solution, with over 20 years of firmware development behind it for rapid deployment. Because of NetApp's teaming with leading video security management software companies, the Video Storage solution is optimized for managing tens of petabytes of video data, enabling rapid access to and retrieval of content:

- **Maximum serviceability and reliability.** System hardware delivers 99.999% availability.
- **High availability with best-in-class redundancy.** Dual redundant controllers, multipathing failover, and dynamic features provide high-availability access to video surveillance recordings.

Dynamic Disk Pools Technology

Dynamic Disk Pools (DDP) simplify the management of traditional RAID groups by distributing data parity information and spare capacity across a pool of drives. DDP enhances data protection by enabling faster rebuilds after a drive failure, protecting against potential data loss if additional drive failures occur. DDP also generally provides better system performance under failure during a drive rebuild than traditional RAID. Dynamic Disk Pools eliminate complex RAID management, with no idle spares

* The maximum number of camera recordings supported by each E-Series system is highly dependent on several factors such as number of cameras, camera stream bitrate, and retention period.

to manage, no reconfiguring of RAID when expanding, and a significantly reduced performance impact following failure of a drive or drives when compared to traditional RAID.

Video Surveillance Application Integration

NetApp E-Series products have been deployed and used with today's most popular video surveillance management applications such as Milestone, Genetec, OnSSI, and other leading VMS providers. The system mainly integrates into any video surveillance environment that requires external storage with its configurable options. It also meets the reliability and sustained performance demands of IP video surveillance workloads, in which sustaining performance is critical.

ENERGY STAR Certification

All E-Series systems utilize "85% PLUS" power supplies exceeding the EPA ENERGY STAR requirements of 80% efficiency.

The modular E-Series can be configured in tens of thousands of different energy-efficient configurations. The following configurations are EPA ENERGY STAR certified:

- E5724 up to 48 drives
- E5760 up to 120 drives

For the latest EPA ENERGY STAR-certified E-Series configurations, see either of the following:

- <http://www.netapp.com/us/company/ourstory/sustainability/energy-star.aspx>
- https://www.energystar.gov/products/office_equipment/data_center_storage

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

E5700 TECHNICAL SPECIFICATIONS

All data in this table applies to dual-controller configurations.

NETAPP E5700 STORAGE SYSTEM FOR VIDEO SURVEILLANCE

Maximum raw capacity	960TB system shelf in 4U Maximum 7.68PB with expansion shelves (Using 16TB drives)
Maximum drives	Maximum 480 SAS or NL-SAS; maximum 120 SSDs with mixed shelves
Drives supported	4/8/10/12/16TB NL-SAS 6/8TB NL-SAS FIPS 900GB, 1.2/1.8/4TB 10K SAS 1.8TB 10K SAS FIPS 800GB, 1.6/3.2/7.68/15.3TB SSD 1.6TB SSD FIPS 15.3TB SSD FDE
System Memory	32GB or 128GB
Host I/O ports	Base I/O ports: 4 ports 16Gb FC or 4 ports 10Gb iSCSI (optical) Optional add-on I/O ports: 8 ports 32Gb FC 8 ports 10Gb iSCSI (copper) 8 ports 25Gb iSCSI (optical) 8 ports 12Gb SAS 4 ports 100Gb InfiniBand (iSER or SRP) 4 ports 100Gb NVMe over InfiniBand
High-availability features	Dual active controller with automated I/O path failover Automatic load balancing and path connectivity monitoring Dynamic Disk Pools technology and traditional RAID levels 0, 1, 5, 6, and 10 Redundant, hot-swappable storage controllers, disk drives, power supplies, and fans Automatic rebuild after a drive failure Mirrored data cache with battery-backed de-stage to flash Proactive drive health monitoring that identifies problems before they create issues Up to six nines availability (with appropriate configuration and service plans)
Host operating systems	Microsoft Windows Server, Red Hat Enterprise Linux, Novell SUSE Linux Enterprise Server, Apple Mac OS, CentOS Linux, Oracle Enterprise Linux, VMware ESX, Linux Ubuntu
Included software features	SANtricity Synchronous and Asynchronous Mirroring SANtricity Volume Copy SANtricity Cloud Connector SANtricity Snapshot™ SANtricity SSD cache SANtricity Thin Provisioning with UNAP SANtricity Drive Encryption Dynamic Disk Pools Technology Data Assurance (T10 PI ANSI standard) Role-based access control and audit log LDAP support Native drive encryption key management External (KMIP-compliant) key management
System capabilities	Data assurance (T10-PI) Dynamic Volume Expansion Dynamic Capacity Expansion and Contraction Dynamic RAID-level Migration Dynamic Segment Size Migration System Event Monitor Proactive drive health monitoring NetApp AutoSupport® System Online SANtricity OS upgrades and drive firmware upgrades VMware vSphere Storage APIs – Array Integration (VAAI) Microsoft Offloaded Data Transfer (ODX)