



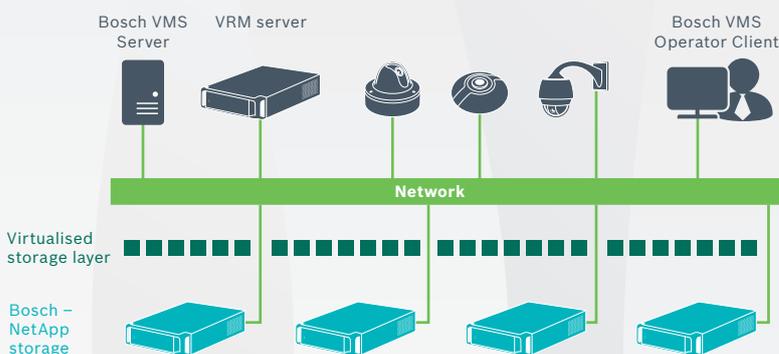
BOSCH

Invented for life

Integrated Security, Safety and Video Recording Solution

Storage solution

Bosch Security and Safety Systems and NetApp



- ▶ Bosch Security and Safety Systems and NetApp have partnered to deliver a powerful video recording solution combining Bosch VRM and NetApp E-Series.
- ▶ Highly customised storage from NetApp to support specific workloads and tight integration of cameras, recording application and storage infrastructure.
- ▶ Full integration into Bosch Video Management applications.
- ▶ Enables Bosch IP cameras to stream directly to NetApp network storage.
- ▶ The Bosch VRM immediately redirects camera traffic in case of array failure.



The Bosch unique Video Recording Manager (VRM) solution takes the traditional dedicated Network Video Recording (NVR) approach to the next level by using a revolutionary concept of storage virtualisation. It supports iSCSI-based storage systems as well as Bosch video-over-IP cameras and video encoders. Combination of Bosch VRM and the NetApp customised video surveillance storage supports specific workloads, tight integration of cameras and storage infrastructure. This provides a full integration into Bosch Video Management applications, such as the Bosch Video Management System and Bosch Video Client. The Bosch VRM introduces the concept of a storage virtualisation layer. This layer enables the Bosch VRM to manage all individual disk arrays in the entire system as a single virtual common pool storage which is intelligently allocated. This new technology makes installation, operation and maintenance easier, reducing the total cost of ownership. As the Bosch VRM software provides virtualisation and recording management services, it enables Bosch IP cameras to stream directly to NetApp network storage. This reduces the need for server hardware, operating systems, anti-virus software as well as the ongoing software patches and updates these systems require. The Bosch VRM pools all disk

arrays to allocate storage on demand and balances loading across the network fully utilising available storage and maximising return on investment. If an array fails, the Bosch VRM immediately redirects camera traffic. This concept combines and controls advanced Bosch video recording solution features in the application. By leveraging NetApp technology, the Bosch iSCSI recording solution is enhanced further, resulting in a high-performance, flexible, scalable and reliable storage management solution for IP network video recording.

Compatibility

NetApp	Bosch Security Systems
Bosch - NetApp E2800 Series 12-bay (single or dual controller) Bosch - NetApp E2800 Series 60-bay (dual controller) Bosch - NetApp E2800 expansion units (12-bay or 60-bay)	Bosch Video Recording Manager (Bosch VRM) Bosch Video Management System (Bosch VMS) Bosch Video Client Bosch IP cameras Bosch video encoders



Transportation
(airports, metro
systems, rail)



Industrial



Governmental



Defense



Energy



Commercial
buildings

Key features

Maximum resilience

The Bosch Video Recording Management concept ensures that the cameras keep recording and know where to send their data to, even when the server, VMS or storage goes down. Thanks to Dynamic Disk Pooling (DDP), high performance is delivered and maintained under all conditions – including while recovering from a drive failure.

The dual controller systems feature multi-pathing on an iSCSI protocol level, ensuring that data can still be accessed in the event of one path experiencing a failure. In the case of a controller outage, multi-pathing also ensures failover without losing video data.

High availability of data

Two camera streams with different recording qualities are recorded simultaneously and sent to physically separated locations.

Cost saving

Bosch IP cameras stream directly to the NetApp network storage, so the need for server hardware, operating systems, antivirus software, as well as the ongoing software patches and updates these systems require, is greatly reduced, as well as your investment.

Scalability

Add extra storage or cameras as per requirement with an automatic balance upgrade. BVMS allows you to scale your system according to your needs and to up to 2,000 cameras with a single Video Recording Manager.

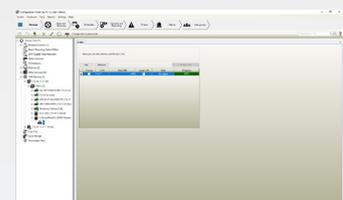
Bosch-NetApp storage hardware and UI



Bosch – NetApp 12-bay Single or Dual
Controller E2800 Unit
Bosch – NetApp 12-bay Expansion Unit



Bosch – NetApp 60-bay Dual Controller
E2800 Unit
Bosch – NetApp 60-bay Expansion Unit



User Interface of configuration layout
in Bosch Video Management System

The Bosch division Security and Safety Systems is a leading global supplier of security, safety, and communications products, solutions and services. Protecting lives, buildings and assets is our aim. The product portfolio includes video surveillance, intrusion detection, fire detection and voice evacuation systems as well as access control and management systems. Professional audio and conference systems for communication of voice, sound and music complete the range. Bosch Security and Safety Systems develops and manufactures in its own plants across the world. Additional information can be accessed at www.boschsecurity.com

Visit <https://ipp.boschsecurity.com> for details on the Bosch Integration Partner Program

Throughout the world, leading organizations count on **NetApp** for software, systems and services to store, manage, protect, and retain one of their most precious assets: their data. NetApp enables enterprises, service providers and partners to envision, deploy, and evolve their IT environments. Customers benefit from NetApp's open collaboration with other technology leaders to create the specific solutions they need. NetApp was incorporated in 1992 and created the world's first networked storage appliance. Today, NetApp offers a portfolio of products and services that satisfy a broad range of customer workloads across different data types and deployment models.

Visit www.netapp.com for further information.