

# MMI Surveillance Solution

This document introduces the all-in-one surveillance solution powered by Milestone Systems, MOBOTIX, and Infortrend.

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## Summary

Video surveillance has paramount importance to businesses and organizations worldwide. A reliable, high performance video surveillance solution can help the government fight crimes or an organization reduce property losses. With experts in different fields of video surveillance—Milestone Systems, MOBOTIX, and Infortrend—the technological alliance provides you with an all-in-one surveillance solution with high performance and minimum cost.

## Audience

This guide is intended for the Infortrend partners, customers, and employees who are proposing and configuring Infortrend EonServ models with Milestone and MOBOTIX.

## Terminology

- Milestone Systems: An industry-leading provider of open platform video management software
- MOBOTIX: An industry-leading IP camera provider
- Infortend: An industry-leading data storage provider
- EonServ: EonServ is an integrated storage server solution exclusively designed for enterprises, with EonServ 5000/5000ML and 7000 series.
- EonStor DS: Infortrend EonStor DS is a high availability SAN storage solution designed for enterprises.

## Introduction

### Milestone Systems



Milestone Systems is a world leading provider of open platform IP video management software. Milestone has provided easy-to-use, powerful video management software in more than 150,000 installations worldwide. Milestone XProtect products are designed with an open architecture and are compatible with more than 8,300 IP camera, encoder, and digital video recorder models. Being an open platform provider, Milestone can integrate with today's best business solutions to create technological innovations.

XProtect® is built with innovative technology designed to ensure end-to-end protection of video integrity and boost overall system performance with hardware-accelerated video decoding technology. In addition to centralized management of all servers, cameras, and users in a multi-site set-up, XProtect includes an integrated video wall for operators that demand supreme situational awareness of any event. The software supports failover recording servers, making it the perfect choice for mission-critical installations that require continued access to live and uninterrupted video recordings.

### MOBOTIX



MOBOTIX develops and produces intelligent IP video systems known for their high level of security and uncompromising reliability. All is based on German engineering and processing, which is appreciated as particularly innovative and high quality. Each product of MOBOTIX is carefully constructed with the most advanced assurance technologies. MOBOTIX uses only high-quality sensors and develops image processing software, enabling its IP-cameras to produce exceptionally sharp, clean images. MOBOTIX products are compliant with the ONVIF (Open network video interface forum) industry standards and are

able to work and integrate seamlessly within third-party video management systems.

MOBOTIX continually develops, tests, and improves its products in its Germany-based laboratories. As a video surveillance solution provider, MOBOTIX is the right choice for everyone who seeks intelligent cybersecurity systems to enhance daily business operations and security.

## **Infortrend**

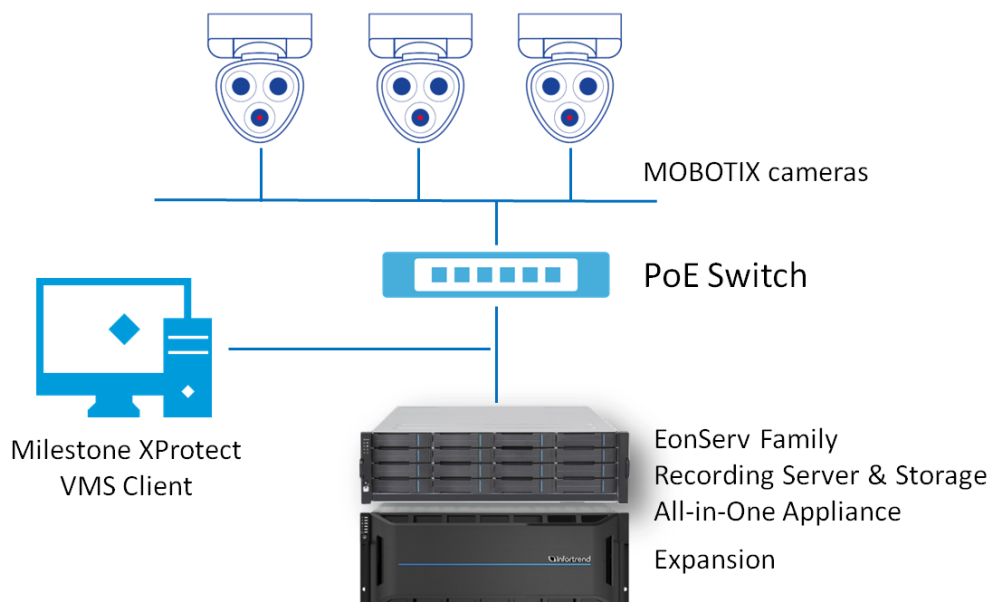
Infortrend Technology is a pure-play enterprise data storage solution provider with over 25 years of professional experience. To deliver products and services of the highest quality, Infortrend integrates product development, design, manufacturing, technical consulting/support to deliver a comprehensive solution to customers and has successfully deployed more than 600,000 redundant rack-mounted systems worldwide.

Infortrend EonServ family integrates an NVR server and SAN storage in one box, providing easy deployment and a highly cost-effective video surveillance solution. EonServ comes with high performance and high reliability, important for 24/7 non-stop surveillance recording. EonServ is also a proven solution compatible with various video management system providers, such as Milestone.

## Solution Architecture

### EonServ—A Unified Server & Storage Surveillance Solution

Reliability, performance, and cost are three major considerations of a video surveillance solution. With seamless collaboration of Milestone, MOBOTIX, and Infortrend (MMI), the MMI integrated surveillance solution comes with ultra-high performance, excellent reliability, high cost-performance. The MMI solution is powered with Infortrend's EonServ storage device in particular—a storage server and data storage in one box—streamlining deployment of the surveillance infrastructure while reducing total cost.



### ***MMI solution powered with Infortrend EonServ***

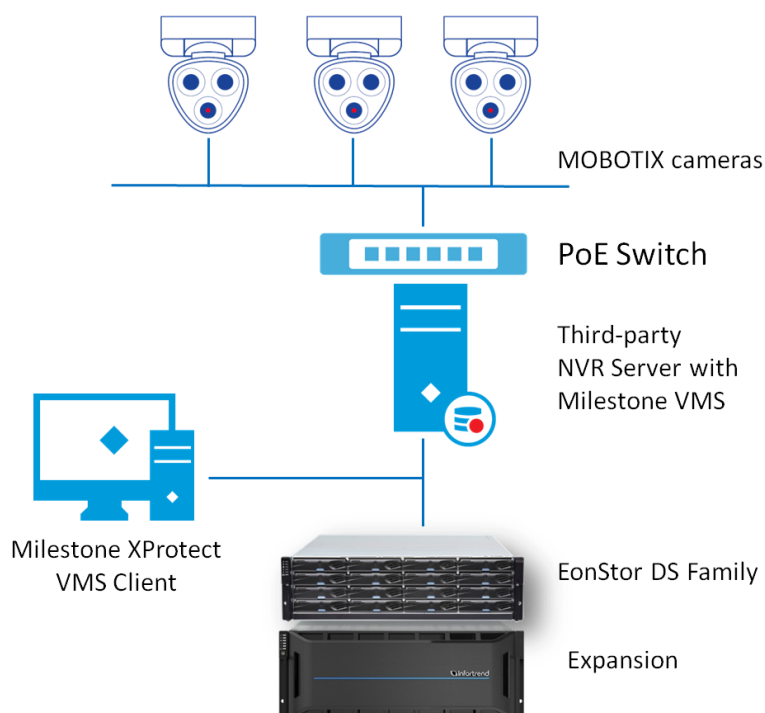
For a medium-to-large scale surveillance project, hundreds of IP cameras are normally deployed to establish a video surveillance system. In the MMI solution, Milestone Systems XProtect Corporate VMS functions as a centralized management system that allows you to easily access and manage all the video streams and the IP cameras. Infortrend's EonServ models—a storage server and data storage in one box—eliminate the system's need for additional storage servers, helping minimizing the budget while providing excellent storage for surveillance video data. In addition, Infortrend's EonServ comes with excellent scalability. When

combined with expansion enclosures, an EV 5000 model can accommodate up to over 300 hard drives while an EV 7000 model can accommodate up to over 400 hard drives, providing mega-size storage for recorded videos. MOBOTIX cameras, on the other hand, capture videos at ultra-high resolution and compress the video files to allow efficient data transfer and bandwidth usage. MOBOTIX cameras come with powerful low-light image-capturing technology that promises maximum image clarity even in a dark environment.

Milestone Systems, MOBOTIX, and Infortrend together have formed a strong alliance in delivering an excellent, cost-effective video management solution integrated with scalable data storage. This MMI solution has been extensively tested to ensure interoperability in various IT environments.

## EonStor DS—A Large-Scale Surveillance Storage Solution

In large-scale surveillance deployment, over a thousand cameras are deployed in the environment and impose tremendous performance requirement on the surveillance system. To meet the performance requirement, adopting a third-party server and SAN storage is an excellent choice since they can provide high and stable performance.



### ***MMI Solution with EonStor DS***

An excellent solution for large-scale surveillance deployment is connecting third-party servers running Milestone XProtect Corporate as recording servers to Infortrend EonStor DS models. EonStor DS comes in various series designed to satisfy different performance requirements: The read performance ranges from 6,000 MBps to 11,000 MBps while the write performance ranges from 2,000 MBps to 5,500 MBps, sufficient to empower a large-scale surveillance system in most scenarios. EonStor DS is highly scalable because it is able to accommodate over 400 hard drives when integrated with expansion enclosures, providing mega-size storage for surveillance videos. It can be integrated with high-density expansion enclosures (4U 60 bays) to

provide large storage without occupying much IT space. EonStor DS also features a redundant and modular design of hardware components that facilitates easy maintenance.

## Test Report

### The MMI Solution with Infortrend EonServ 5000

All simulated video streams in this test were in H.264 video codec, displayed at 30 FPS and two image resolutions respectively:

- 1920x1080 (resolution: 2.1 megapixels; data rate: 4.4 Mbit/s)
- 2048x1536 (resolution: 3.2 megapixels; data rate: 6.6 Mbit/s)



***EV 5000 Test Environment***

## Scenario 1 –Real-Time Recording with Client Playback

Below are the characteristics of the data used in the benchmark test scenario:

- In H.264 video codec
- Displayed at 30 FPS
- Real-time surveillance videos
- Live database: 16x 7200 RPM 10 TB SATA drives (16 drives/RAID 5)

Model	Image Resolution	Number of Cameras	CPU %	Avg. Disk I/O (MBps)	Number of Playback	Read Latency (ms)	Motion Detection
EonServ	1080P	210	56%	151	25	2.5	Disable
5016	3MP	150	54%	167	25	3.3	Disable

## Scenario 2 –Real-Time Recording with Motion Detection and Client Playback

Below are the characteristics of the data used in the benchmark test scenario:

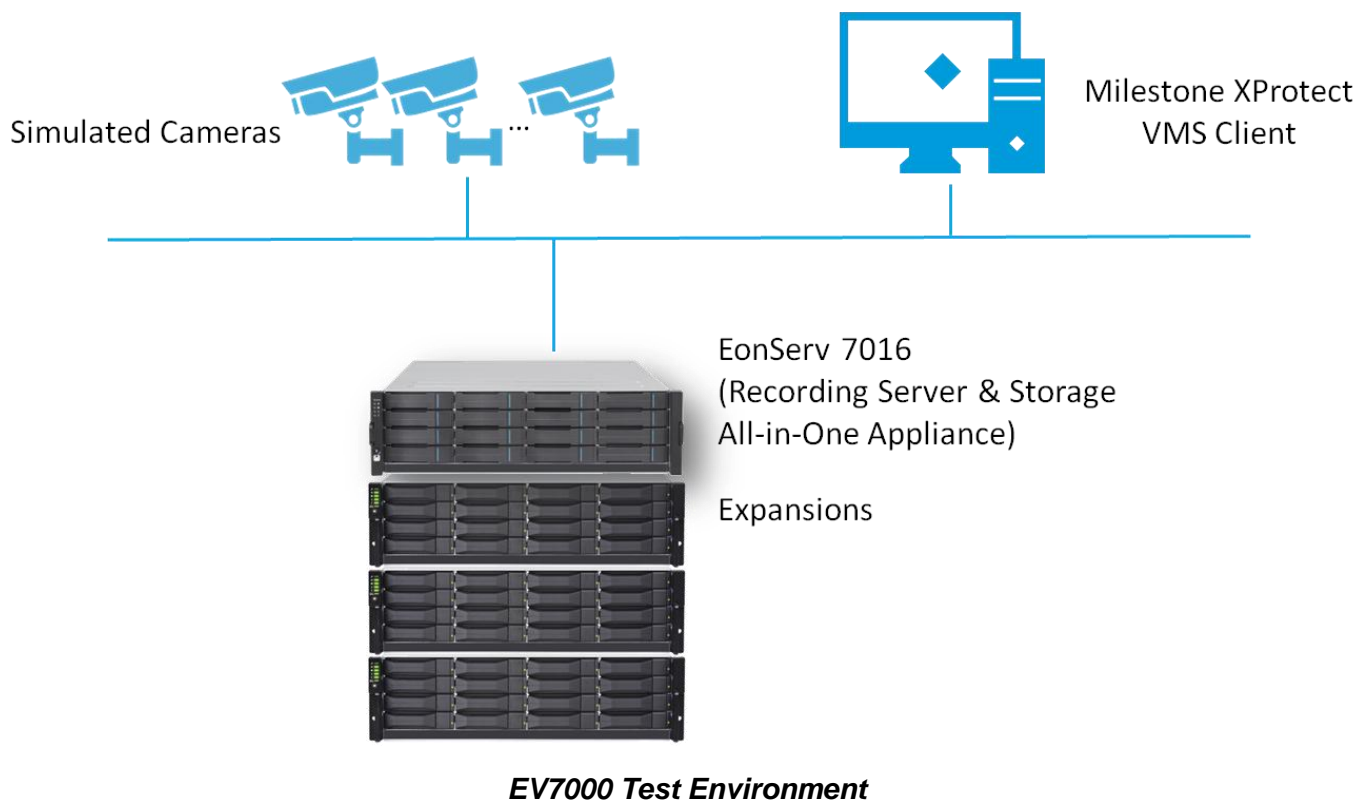
- H.264 video codec
- 30 FPS
- Real-time surveillance videos
- Motion detection configurations:
  - ✓ Sensitivity – default (33)
  - ✓ Threshold – default (2000)
  - ✓ Resolution – default (12%)
- Live database: 16x 7200 RPM 10 TB SATA drives (16 drives/RAID 5)

Model	Image Resolution	Number of Cameras	CPU %	Avg. Disk I/O (MBps)	Number of Playback	Read Latency (ms)	Motion Detection
EonServ	1080P	180	58%	132	25	3.3	Enable
5016	3MP	150	65%	167	25	2.5	Enable

## The MMI Solution with Infortrend EonServ 7000

All simulated video streams in this test were in H.264 video codec, displayed at 30 FPS and three image resolutions respectively:

- 1920x1080 (resolution: 2.1 megapixels; speed: 4.4 Mbit/s)
- 2048x1536 (resolution: 3.2 megapixels; speed: 6.6 Mbit/s)
- 2592x1944 (resolution: 5 megapixels; speed: 10.6Mbit/s)



## Scenario 1 – Real-Time Recording with Client Playback

Below are the characteristics of the data used in the benchmark test scenario:

- In H.264 video codec
- Displayed 30 FPS
- Real-time surveillance videos
- Live database: 64 x 7200 RPM 10 TB NL-SAS drives (16 drives/RAID 6)

Model	Image Resolution	Number of Cameras	CPU %	Avg. Disk I/O (MBps)	Number of Playback	Read Latency (ms)	Motion Detection
EonServ 7016GT1	1080P	480	21%	326	25	2.1	Disable
	3MP	360	40%	376	25	2.5	Disable
	5MP	270	31%	440	12	9.0	Disable
EonServ 7016GT2	1080P	680	65%	454	25	1.1	Disable
	3MP	570	63%	580	25	2.2	Disable
	5MP	360	56%	581	12	1.0	Disable

## Scenario 2 – Real-Time Recording with Motion Detection and Client Playback,

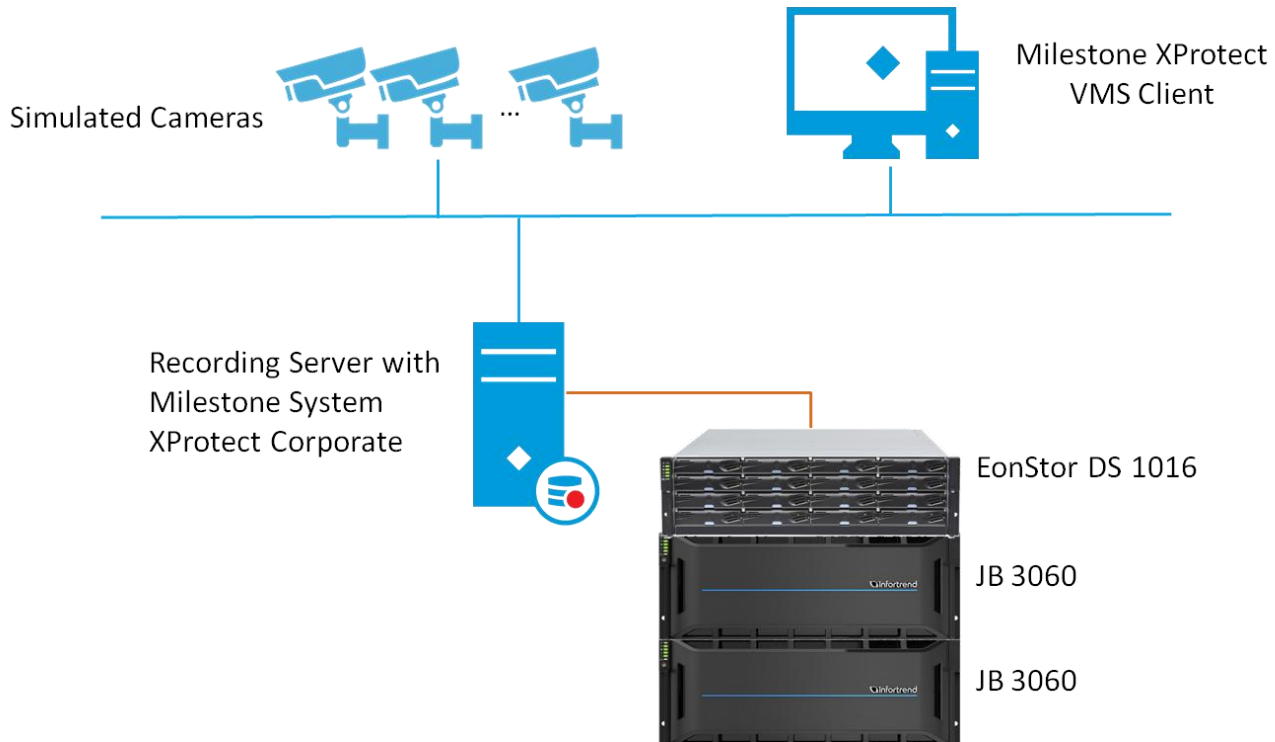
Below are the characteristics of the data used in the benchmark test scenario:

- In H.264 video codec
- Displayed at 30 FPS
- Real-time surveillance videos
- Motion detection configurations:
  - ✓ Sensitivity – default (33)
  - ✓ Threshold – default (2000)
  - ✓ Resolution – default (12%)
- Live database: 64 x 7200 RPM 10 TB NL-SAS drives (16 drives/RAID 6)

Model	Image Resolution	Number of Cameras	CPU%	Avg. Disk I/O (MBps)	Number of Playback	Read Latency (ms)	Motion Detection
EonServ 7016GT1	1080P	300	40%	209	25	1.4	Enable
	3MP	210	43%	229	25	1.5	Enable
	5MP	180	49%	300	12	6.0	Enable
EonServ 7016GT2	1080P	520	39%	351	25	6.6	Enable
	3MP	420	56%	434	25	8.2	Enable
	5MP	300	49%	468	12	1.1	Enable

## The MMI Solution with Infortrend EonStor DS 1000

All simulated video streams in this test were in H.264 video codec and displayed at 30 FPS.



Below are the characteristics of the data used in the benchmark test scenario:

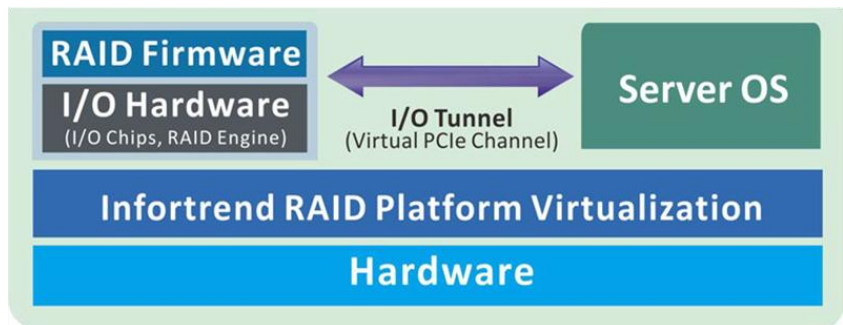
- In H.264 video codec
- Displayed at 30 FPS
- Real-time surveillance videos
- Live database: 120 x 7,200 RPM 6 TB NL-SAS drives in RAID 5 configuration

Model	Resolution	Maximum Number of Cameras	Individual Video Stream Size (MBps)	Processor Time (CPU %)	Read Latency (ms)	Write Latency (ms)	Maximum Disk I/O (MBps)
EonStor DS 1016R Gen2	1080P	1,440	4.4	9.12	9.25	46.37	929
	3MP	1,080	6.64	10.96	12.99	67.11	1,109
	5MP	540	10.56	9.24	27.15	74.5	1,166

# Infortrend EonServ and EonStor DS Features

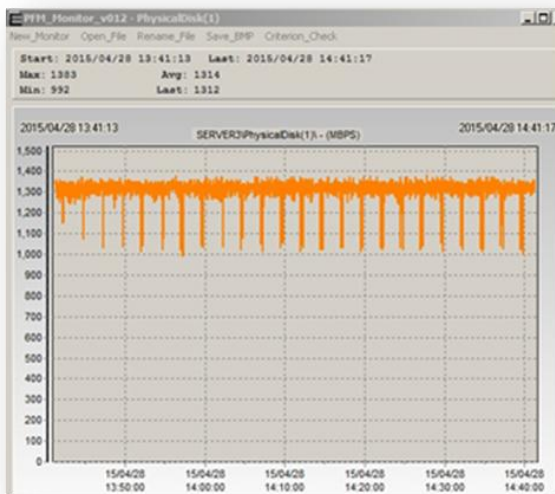
## Infortrend RAID Platform Virtualization (IRPV)

IRPV is a powerful feature unique to Infortrend EonServ models that seamlessly integrates the RAID storage and the server inside EonServ into one system. With IRPV, the RAID storage and the server operate together by an I/O tunnel constructed from a virtual PCIe channel. IRPV automatically allocates hardware resources (e.g. CPU, memory, and HBA) to the operating system and the storage firmware so that they can work in sync. This virtualization technology optimizes the RAID storage and the server to achieve maximum efficiency.

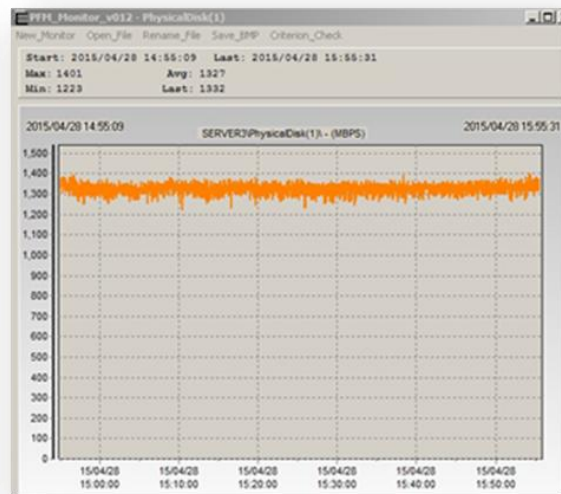


## Intelligent Performance Stabilizing Technology

Infotrend EonServ has one patented technology that guarantees read/write performance during drive IO delay. With this technology, the system is able to isolate malfunctioning hard drives to keep system performance high and stable at all times.



Servers with RAID card  
(Without RAID card memory)



Infotrend EonServ

## Intelligent Drive Recovery (IDR) Technology

EonServ and EonStor DS are equipped with IDR to prevent data loss, based on its two prevention mechanisms against data corruption and RAID rebuilding. In the prevention mechanism against data corruption, the system scans for bad data blocks of disk block(s) and repairs them. If a damaged block is beyond repair, IDR isolates the disk and copy data in the problematic block to a spare drive, which replaces the malfunctioning drive when it fails. This prevents complete failure of the RAID drive and avoids going through the rebuild process that causes enormous impact on system performance.



### RAID 6 Protection

RAID 6 systems store two parity and error correction information sets which provide more powerful data protection



Detect and repair damaged disk blocks



**S.M.A.R.T function**



Copy and clone data before a disk fails

## Conclusion

Infortrend EonServ, integrated with Milestone Systems XProtect Corporate and MOBOTIX cameras, makes an optimized, well-tested surveillance solution with high performance and stability. To build a large surveillance network, EonStor DS is an ideal alternative choice since it can provide mega-size SAN storage to archive enormous video data. Extensive test results are available to ensure customers that they can fully leverage the powerful performance of the solution while minimizing deployment and management costs. The MMI solution is certified to be resilient, affordable and scalable for systems of any size.

## Legal Information

All Infortrend products, including the product/s that customers have purchased from Infortrend, are subject to the latest Standard Warranty Policy available on the Infortrend website:

<https://www.infortrend.com/global/Support/terms-conditions>

Infortrend may from time to time modify, update or upgrade the software, firmware or any accompanying user documentation without any prior notice. Infortrend will provide access to these new software, firmware, or documentation releases from certain download sections of our website or through our service partners. Customer will be responsible for maintaining updated version of the software, firmware, or other documentation by downloading or obtaining from Infortrend, and installing designated updated code, including but not limited to firmware, microcode, basic input/out system code, utility programs, device drivers, and diagnostics delivered with Infortrend product.

Before installing any software, applications or components provided by a third party, customer should ensure that they are compatible and interoperable with Infortrend product by checking in advance with Infortrend. Customer is solely responsible for ensuring the compatibility and interoperability of the third party's products with Infortrend product.

Customer is further solely responsible for ensuring its systems, software, and data are adequately backed up as a precaution against possible failures, alternation, or loss. For any questions of hardware/ software compatibility, and the update/ upgrade code, customer should contact Infortrend sales representative or technical support for assistance.

To the extent permitted by applicable laws, Infortrend will NOT be responsible for any interoperability or compatibility issues that may arise when (1) products, software, or options not certified and supported by Infortrend are used; (2) configurations not certified and supported by Infortrend are used; (3) parts intended for one system are installed in another system of different make or model.

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## Contact Information

### Website

For more information of Infortrend's products and services, visit:

<https://www.infortrend.com/global/Home>

### Customer Support

Contact your system vendor or visit the following support site.

<http://www.infortrend.com/global/Support/Support>