Milestone Solution Partner IT Infrastructure Components Certification Summary

HUAWEI OceanStor 2800 V3

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About HUAWEI Storage:

Huawei new-generation virtualization storage systems meet IT convergence needs for computing and storage in video surveillance scenarios. Huawei new-generation virtualization storage systems adopt flexible and scalable design philosophies, offering industry-leading hardware specifications and RAID 2.0+ underlying virtualized architecture that meet needs of various services and applications. In addition to providing outstanding storage performance that guarantees smooth and secure operation of data services, Huawei new-generation virtualization storage systems also provide easy-to-use management and convenient local/remote maintenance, greatly lowering management and maintenance costs. Visit: www.huawei.com

About Milestone Systems:

Milestone Systems is the world's leading provider of open platform IP video surveillance software. Milestone has provided easy-to-use, powerful video management software in more than 100,000 installations worldwide. Milestone XProtect® products are designed with open architecture and are compatible with more IP cameras, encoders and digital video recorders than any other manufacturer. Because Milestone provides an open platform, you can integrate today's best business solutions and expand what's possible with future innovations. Visit www.milestonesys.com for more.

Introduction:

This report highlights the performance results of certification tests performed on HUAWEI OceanStor 2800 V3 storage and expansion chassis. OceanStor 2800 V3 storage can provide two scenarios: Virtualization and IP SAN. During this certificate, IP SAN and Virtualization are both executed. In virtualization scenario, OceanStor 2800 V3 storage was used as recording server and storage location for high performance live database during this certification test. In IP SAN scenario, OceanStor 2800 V3 storage was used as storage location for high performance live database during this certification test, the recording servers were deployed in individual servers. A full scale test system was created to measure performance, with test results validated by the Milestone Technology Partner program. Certification of HUAWEI Storage solutions ensure that surveillance systems built using this product in combination with the Milestone XProtect components will be able to record an amount of video consistent with the recommendations of the Milestone Server and Storage Calculator.

Certified Products:

- HUAWEI OceanStor 2800 V3 and expansion chassis
- Milestone XProtect Corporate 2014
  - o Listed products are certified for use with the entire XProtect product line.

OceanStor 2800 V3 System

OceanStor 2800 V3

Expansion Chassis

Expansion Chassis

Performance of the solution may vary if different XProtect products and/or system components not listed in the tests details are included. For a complete list of all equipment used in the certification check Appendix B.

Topology:

Scenario 1 - (Virtualization):

The system topology included one high performance server RH5885, one Gigabit Ethernet switch, and an OceanStor 2800 V3 system. Virtualization platform was installed in RH5885 and 5 virtual machines are deployed, running Microsoft Windows x64 based Server 2008 operating system hosting the Milestone XProtect Corporate Management Server, Management Client and Smart Client.

Server allocation：
4 – Recording Servers – up to 150 cameras per server
1 – Management Server – up to 600 camera configuration
4 – View Clients – grid of 25 playback per server – 100 view streams

OceanStor 2800 V3 system provides SmartContainer platform where virtual servers could be deployed for specific utilization. In this certification test 4 virtual servers were deployed with Microsoft Windows x64 based Server 2008 operating system hosting the Milestone XProtect Corporate Recording Server. The back-end storage were configured into 4 RAID 6 arrays and logical volumes mapped to each recording server.

Scenario 2 - (IP SAN):

The system topology included five high performance RH5885 servers, one 10 Gigabit Ethernet switch, and an OceanStor 2800 V3 system. 4 recording servers were installed in four RH5885 server and, 4 virtual machines are deployed in the remaining RH5885 server, running Microsoft Windows x64 based Server 2008 operating systems hosting the Milestone XProtect Smart Client.

Server allocation：
4 – Recording Servers – up to 150 cameras per server
1 – Management Server – up to 600 camera configuration
4 – Smart Clients – grid of 25 playbacks per server – 100 view streams

In this certification test, OceanStor 2800 V3 system provides the storage locations for all the live video databases for each of the Milestone XProtect Corporate Recording Servers. The OceanStor 2800 V3 storage was configured into four RAID6 arrays, and the resulting logical volumes were mapped to each recording server through 10G network.

Key Findings:

Scenario 1 - (Virtualization):

HUAWEI OceanStor 2800 V3 performs as a host for Recording Servers and as the live database video storage platform within the Milestone XProtect VMS system at a rate that is 50% higher than the level indicated by the Server and Storage Calculator. 4 recording servers were deployed in OceanStor 2800 V3, and the storage volume mapped to recording server through the inner channel. During performance tests, cameras listed in the following table were connected to recording server and recorded to local live video database.

Test Scenario	Storage	Number of	Live Database	Individual	Maximum Disk I/O

(Virtualization)	Solution	Cameras	Read Latency (milliseconds)	Video Stream Size (Mbps)	(MBps)
Benchmark (Video motion detection on):	OceanStor 2800 V3	160 (40 per server)	3	5.5	144 (36 MBps per server)
Maximum (Video motion detection on):	OceanStor 2800 V3	240 (60 per server)	4	5.5	208 (52 per server)
Maximum (Video motion detection off):	OceanStor 2800 V3	400 (100 per server)	15	4.2	248 (62 per server)

Scenario 2 - (IP SAN):

In this scenario, four recording servers were deployed on individual servers, and the storage volumes were mapped to the recording servers through 10G Ethernet. During performance tests, cameras listed in the following table were connected to the recording servers and recorded to local live video database. HUAWEI OceanStor 2800 V3 performs as a host for the live video database in an IP SAN configuration at a rate that is 200% higher than the level indicated by the Server and Storage Calculator.

Test Scenario (IP SAN)	Storage Solution	Number of Cameras	Live Database Read Latency (milliseconds)	Individual Video Stream Size (Mbps)	Maximum Disk I/O (MBps)
Benchmark	OceanStor 2800 V3	180 (60 per server)	6.79	5.9	212 (74 MBps per server)
Maximum	OceanStor 2800 V3	400 (100 per server)	7.81	5.9	370 (92.5 per server)

Integrators and end users designing, installing and operating surveillance systems which incorporate these solution components can have confidence that the system will record video reliably. Customers who wish to gain the maximum value and performance out of their surveillance system can also refer to the best practices and performance limitations outlined in this document to help design a system that exceeds the benchmark limitations for video recording which are followed by the Milestone Server and Storage Calculator.

Conclusion:

OceanStor 2800 V3 is a certified storage platform for use with the Milestone XProtect VMS. With the chosen hard disk configuration used in the test, the OceanStor 2800 V3 easily supported the benchmark levels of performance. In virtualization scenario, the calculator indicates that the solution should support 160 cameras with Video-Motion-Dection on, at the benchmark level, and it was able to support a maximum of 240 cameras with Video-Motion-Dection on, and 400 cameras with Video-Motion-Detection off. The performance testing determined that the OceanStor 2800 V3 storage solution can support at least 50% more total video as recommended by the calculator. These test results included the use of the 1Gbps iSCSI storage controller. All of the other storage controllers available for the product should provide the same, or higher, levels of performance.

In the IP SAN scenario, the calculator indicates that the solution should support 180 cameras at the benchmark level, and it was able to support a maximum of 400 cameras. The performance testing determined that the OceanStor 2800 V3 storage solution can support twice as much total video as recommended by the calculator. These test results included the use of the 10Gbps iSCSI storage controller. All of the other storage controllers available for the product should provide the same, or higher, levels of performance.

Integrators and end users should have confidence when building video security and surveillance systems which include the XProtect VMS and the OceanStor 2800 V3 storage solution. In virtualization scenario, these solutions are certified, and can be used to support XProtect Recording Servers which are recording between 1 and 240 cameras at megapixel resolution when video motion detection is turned on and between 1 and 400 cameras when video motion detection is turned off. In IP SAN scenario, the calculator indicates that the solution should support 180 cameras at the benchmark level, and it was able to support a maximum of 400 cameras.Larger systems could be built using multiple storage solutions, alternative disk configurations, and multiple Recording Servers. The XProtect and OceanStor 2800 V3 integrated system is highly scalable with several excellent storage controller interface options, and multiple available redundancy methods to create reliable high performance surveillance and security solutions for mission critical applications.