Milestone Solution Partner IT Infrastructure Components Certification Summary

HUAWEI OceanStor 9000 Storage

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About HUAWEI OceanStor:

The OceanStor 9000 is a big data storage system that can be deployed in a range of sectors such as broadcasting and TV, media assets, high-performance computing (HPC), data centers (DCs), Internet operation, and large-scale enterprises. The capacity and performance of a traditional NAS storage system are limited. Incapable of linear expansion and faced with problems of uneven system loads and raised costs during vertical expansion, they are unsuitable for meeting the capacity, speed, and expansion requirements of the massive data era.

To address the preceding challenges, Huawei introduced the OceanStor 9000, a next generation distributed NAS storage product. This product features seamless scale-out from 3 to 288 nodes and up to 40 PB capacity for a single file system. The OceanStor 9000 also supports Common Internet File System (CIFS), Network File System (NFS), and File Transfer Protocol (FTP).

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.

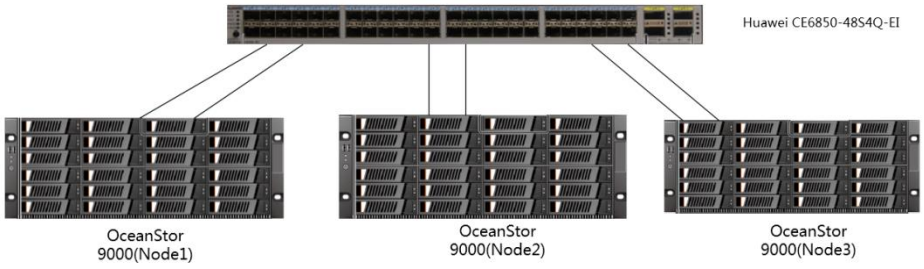
Introduction:

This report highlights the performance results of certification tests performed on Huawei OceanStor 9000 storage. This system was used as the storage location for a high capacity archive video database during this certification test. OceanStor 9000 storage, with 3 nodes, was integrated with a Milestone XProtect video management system to measure the performance in terms of total disk throughput and total camera stream support. The results of the performance tests were validated by the Milestone Technology Partner program.

Certification of Huawei Storage solutionss ensure that surveillance systems built using this product in combination with the Milestone XProtect components will be able to record and archive an amount of video consistent with the recommendations of the Milestone Server and Storage Calculator.

Certified Products:

- Huawei OceanStor 9000 (C3 nodes)
- Milestone XProtect Corporate 2014 (or the most recent version)
    - Listed products are certified for use with the entire XProtect product line.



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 A.

Solution Architecture:

The test surveillance system was assembled and installed at the IT OpenLab in Chengdu. The system topology included six servers running a Microsoft Windows x64 based Server 2008 operating system hosting the Milestone XProtect Corporate Management Server, Management Client and Smart Client.

1 – Management Server –390 camera configuration
4 – Recording Servers – up to 130 cameras per server
4 – View Clients – grid of 30 playbacks per server – 90 view streams

The OceanStor 9000 used 10 Gigabit Ethernet interfaces for recording servers. OceanStor 9000 is a three node NAS storage system, each nodes containing 35 data disks (4TB 7.2KM SATA hard disks).

One instance of the video feed simulator and video content files were placed on each Recording Server.

In this configuration video streams are sent across the IP network to be recorded first on each Recording Server and then archived to OceanStor 9000 for longer term storage. Placing the video stream sources within each recording server removes any potential network bottlenecks between cameras, encoders, or other video sources and the recording servers themselves. The specific configurations detailed above were chosen in order to conform to the recommended Milestone storage configuration; providing a live database and an archive database for each recording server.

Key Findings:

The OceanStor 9000 performs as a storage platform for the archive video databases within the Milestone XProtect VMS system. In this scenario the OceanStor 9000 is an aggregator of several Milestone XProtect Recording Servers hosting their own live video databases. For the benchmark test and maximum performance test workloads listed below, there were three recording servers installed in the system each which recorded video to a volume from Huawei SAN Storage, and then archived hourly to OceanStor 9000 storage via 10 Gbit Ethernet synchronous SMB connection to the archive video database.

Test Scenario	Storage Solution	Maximum Number of Cameras	Individual Video Stream Size (Mbps)	Throughput Disk (I/O) (MBps)
Benchmark	OceanStor 9000	300	4.16	500
Maximum	OceanStor 9000	390	4.16	512

Integrators and end users designing, installing and operating surveillance systems which incorporate these solution components can have confidence that the system will record and archive 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 9000 is a certified storage platform for use as an archive database location with the Milestone XProtect VMS. With the chosen hard disk configuration used in the test, the OceanStor 9000 easily supported the benchmark level of performance. The calculator indicates that the solution should support 300 cameras at the benchmark level, and it was able to support a maximum of 390 cameras. The performance testing determined that the OceanStor 9000 storage solution can support about 30% more total video than the level recommended by the calculator. These test results included the use of the 10Gbps iSCSI node. All of the other nodes 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 9000 storage solution. The calculator indicates that the solution should support 300 cameras at the benchmark level, and it was able to support a maximum of 390 cameras.Larger systems could be built using multiple storage solutions, alternative disk configurations, and multiple Recording Servers. The XProtect and OceanStor 9000 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.