

Dell EMC Surveillance for Axon Commander

Functional Validation Guide

H14723

REV 1.1



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Published December 2015

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CHAPTER 1

Introduction

This functional verification guide provides compatibility guidelines for Dell EMC storage arrays and storage clusters.

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- [Scope](#).....6

Solution overview

Law Enforcement agencies use digital evidence from a variety of sources, including video from body-worn and surveillance cameras, still camera photos, audio files, and additional evidence from the public sector. Axon Commander is a digital evidence management addition to the Taser line of products. Commander can accommodate not only Taser camera but cameras of multiple vendors providing a single body worn solution.

To effectively manage digital evidence and the cumulative impact on IT infrastructures, law enforcement agencies seek validated solutions that address the underlying system requirements. Dell EMC's approach to addressing body-camera system requirements provides an open and flexible architecture for several storage strategies relevant to the data flow and workload from body-worn cameras.

This solution meets the system requirements related to traditional on-premises storage (VNX, VNX-VSS, Isilon), on-premises object stores (Isilon Swift). Customers can deploy each type of storage independently or in combination to meet a broad scope of storage requirements and ultimately deliver an infrastructure strategy that meets their immediate needs and can scale to accommodate future requirements.

Scope

This guide provides results from a functional test that was conducted to ensure the compatibility of Axon Commander with Dell EMC storage. The test does not establish sizing guidelines.

This guide is intended for use by internal Dell EMC sales and pre-sales personnel, and qualified Dell EMC and Axon partners.

This guide provides functional information regarding body-worn devices using Dell EMC storage solutions, such as:

- Dell EMC Isilon™
- EMC VNX™ and VNX-VSS™

CHAPTER 2

Solution components

This chapter provides information about the components configured in this solution.

- [Axon Commander](#)8
- [EMC VNX and EMC VNX-VSS storage platforms](#) 8
- [Dell EMC Isilon clustered storage system](#)8

Axon Commander

Axon Commander is an onsite video management system for body-worn cameras. Commander includes several layers of security to keep your data secure and grant or restrict access to any designated parties on your network.

Digital files can be automatically routed, copied, or deleted files while retaining a complete chain of custody. Commander is fully network capable and can support deployments of all sizes. The video from the body-worn camera is categorized and stored to a Dell EMC storage solution using Commander.

EMC VNX and EMC VNX-VSS storage platforms

The VNX-VSS series is a purpose-built block storage system solution for the video surveillance workload that brings storage reliability, simplicity, and affordability to the distributed environments on your video surveillance network.

The VNX and VNX-VSS series can be used to address both distributed and large-scale centralized surveillance needs where block-only (iSCSI, Fibre Channel) connectivity is required. For applications that support block-only connectivity, the VNX series of storage arrays can scale to multiple petabytes for large-scale centralized deployments.

The VNX series is ideal for surveillance data that requires enhanced storage capabilities and is designed for a wide range of environments from mid-tier through enterprise. The VNX series includes offerings with file-only, block-only, and unified (block and file) implementations.

Both the VNX and VNX-VSS series systems are managed through Unisphere™, which is a simple and intuitive user interface that integrates information from varied sources across multiple applications and environments into a single display.

Dell EMC Isilon clustered storage system

Isilon scale-out network-attached storage (NAS) was designed and developed specifically to address the needs of storing, managing, and accessing digital content and unstructured data such as surveillance video. An Isilon cluster provides simple dynamic scaling to increase or decrease the total capacity of the Isilon cluster.

An Isilon clustered storage system is composed of multiple nodes. These nodes are integrated with the Isilon OneFS™ operating system, which is a distributed network file system that unifies a cluster of nodes into a single shared resource.

The single namespace across the multinode cluster enables equal access to video files no matter which node is currently connected. Isilon SmartConnect™ provides load balancing across the cluster nodes to ensure the even distribution of video files.

CHAPTER 3

Solution configuration

This chapter provides information about the components configured in this solution.

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- [Body camera connectivity options](#)..... 10

Body-worn camera storage architecture

Surveillance data can consume vast amounts of storage while still requiring access to both live and archived video. The demand for surveillance storage is increasing due to higher camera resolutions, increased numbers of deployed cameras, and extended retention times for the video. These factors are forcing the need for greater storage performance and scale.

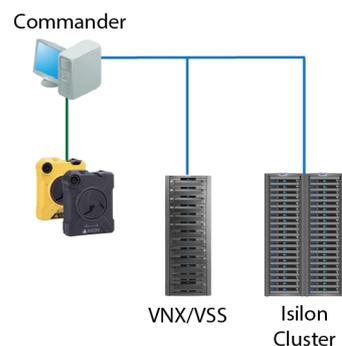
VNX and VNX-VSS provide high-performance and fault-tolerant storage options for video storage data. Isilon provides file or local object stores in highly expandable storage options that meet the current and future needs for surveillance data. Both Isilon and VNX/VNX-VSS options provide partners and customers the benefit of locally secured video storage.

In the case of body-worn cameras, public safety organizations and the public safety quadrants within corporate environments have unexpected exponential requirements for storage that is dedicated to body-worn camera video. This expansion can be due to a number of factors including:

- New deployment of body-worn cameras
- Expansion of existing body-worn camera deployment
- Higher body-worn camera resolution and/or frame rate
- Increased retention period to meet compliance related to legal proceedings and governmental retention policies

The following figure shows connectivity options.

Figure 1 Overview of connectivity options



Body camera connectivity options

Body-worn devices can be configured using different Dell EMC storage systems, such as VNX/VSS, Isilon, and CloudArray.

VNX and VSS (iSCSI)

A video server is attached to VNX or VSS storage using an iSCSI initiator. The video server ingests video files from the body camera client that is stored on VNX/VSS storage.

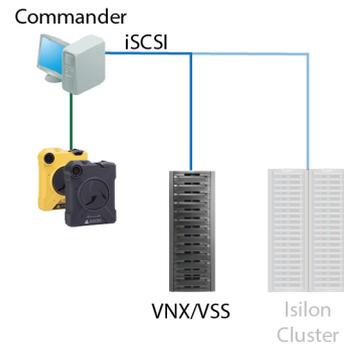
Isilon share (CIFS)

The video server mounted shares are created on the Isilon scale-out storage cluster. The video server ingests video files from the body camera client that is stored on the Isilon cluster. Depending on the capabilities of the body camera

application, the Isilon shares can be mounted via the Server Message Block (SMB) Protocol or NFS.

The following figure shows a body camera configuration where a video server stores the video to the VNX or VSS array via an iSCSI connection.

Figure 2 VNX/VSS body camera architecture



VNX/VNX-VSS architecture

Dell EMC Surveillance Labs continually test video management systems (VMS) from multiple body camera vendors to ensure compatibility with Dell EMC local storage systems.

The data flow from the camera to either a VNX or VNX-VSS starts when the body camera transfers its video to a workstation running a video server.

The Dell EMC Surveillance Labs also functionally validated that body camera video files can be stored to an iSCSI-attached VNX or VNX-VSS storage array. After the video is copied to the array, a video server can be used to review video and manage archived video based on preset retention policies.

Isilon architecture

The data flow from the camera to an Isilon server starts when the body-worn camera transfers its video to the workstation that is running Commander.

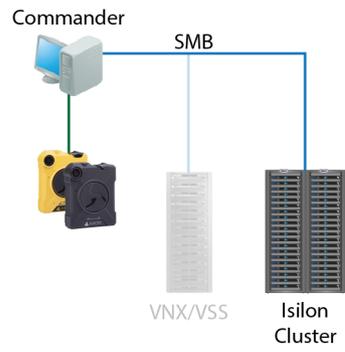
The Dell EMC Surveillance Lab also functionally validated that the Axon video files can be stored to an SMB attached Isilon scale-out storage device. After the video is copied to the cluster, Commander can be used to review and manage archived video based on preset retention policies.

An Isilon cluster provides simple dynamic scaling to increase or decrease the total capacity of the cluster, which can determine the amount of storage available to Commander.

The Isilon OneFS operating system provides a single namespace across the multi-node cluster. This single namespace design enables equal access to the files no matter which node Commander is connected to. Isilon SmartConnect provides the ability to load balance across the nodes of the cluster.

The following image shows a body camera configuration in which Commander stores the video to Isilon through a SMB or iSCSI connection.

Figure 3 Isilon body camera architecture



CHAPTER 4

Testing and validation

This chapter describes the testing used to validate this solution.

- [Test summary](#) 14

Test summary

The functional test determined that Commander was used to successfully review the video using Dell EMC storage solutions. For more information about server sizing guidelines, refer to Axon Commander system specifications.

The following Dell EMC storage solutions were tested:

- Dell EMC Isilon
- EMC VNX and EMC VNX-VSS

The Axon Commander retention time feature was successfully tested on all storage options and testing scenarios including local storage.

NOTICE

The information in this guide should be used only as a compatibility guide and not as a performance baseline for sizing purposes.
