Object Storage Solution for Milestone XProtect® VMS
Advanced Technology Briefing
Spectra Logic, certified Milestone solution partner, integrates its storage archive solutions within Milestone’s XProtect® VMS. As opposed to deploying block based storage, Spectra provides file and object based storage, which reduces cost and provides unlimited options to manage the long-term retention of IP video assets. Spectra’s Verde and BlackPearl technologies provide object storage via a cloud gateway within the Milestone XProtect® VMS operating environment.

Industries with unique requirements for IP video storage need long-term retention, a method for distribution, and preservation of digital IP video assets. Furthermore, as the video surveillance market transitions toward an evidentiary asset based management model, it requires solutions that use private and public cloud storage.

Key Features
- Object based storage management
- Multiple digital storage technologies
- Tiering of digital storage technologies for digital preservation of IP video assets
- IP video distribution from one location to another, including offsite for disaster recovery management
- Web based management for searching, retrieval and viewing IP video within the XProtect® VMS environment
- No requirement for tape backup pre-fetch plug-in

Spectra's Surveillance Storage Ecosystem

![Diagram showing the integration of Spectra's Verde and BlackPearl technologies with Milestone’s XProtect® VMS. The diagram illustrates the flow of information from the Video Management System, through object-based storage gateway, and into cloud archive and archive tape libraries.](image-url)
**New Use Cases, New Retention Solutions**

As the video surveillance market continues to expand, new use cases are being deployed that require the need for IT, informational lifecycle. Retaining a single copy of IP camera video no longer meets the needs of organizations that mandate digital content asset management. In parallel, the digital capacity for IP video retention continues to grow at record rates. Spectra’s hybrid ecosystem provides solutions for the management and retention of IP video, allows the implementation of file and object (cloud) storage technologies for the distribution and preservation of Milestone’s XProtect® video management software (VMS) recorded IP video.

**Spectra / Milestone XProtect® VMS IP Video Lifecycle Management**

**Spectra Ecosystem Components**

**Verde Enterprise NAS:** This Milestone certified solution is the target device for XProtect® Corporate, archive database. Under XProtect® Corporate management, it defines storage policies for the number of days to retain IP video. Within the architecture, a network file interface (NFI) feature is deployed and copies the Milestone Corporate archive database from the Verde Enterprise NAS Solution to object based storage protocol. The object based storage protocol, Spectra S3, is modeled after Amazon’s S3 cloud interface. NFI includes a policy / scheduler that performs S3 functions, bucket naming, copy methods, schedules and capacity limits.

**BlackPearl Object Storage Gateway:** The S3 interface allows Verde NFI to write objects to BlackPearl. Buckets, which hold objects, are created as needed for the specific needs of the XProtect® Corporate user and can be defined by time (weekly, monthly, annually), or location (site, vessel, location). With BlackPearl’s Advanced Bucket Management feature, policies can be configured for multiple digital storage technologies, meeting corporate and/or government regulations.

**Digital Tape Libraries:** When specifying retention needs there are two basic requirements: capacity and retention term. Digital tape spans to achieve both requirements, providing the lowest acquisition and operational costs compared to disk or cloud based storage solutions. Digital tape is the ideal storage technology for years of long term retention of IP video assets. As IP video assets approach or exceed petabytes of retention that typically implies that case management for investigation and or preventing false claims “litigation”.

**Cloud:** Deploying a cloud strategy offers benefits for most organizations. With a variety of cloud offerings many organizations consider the cloud for disaster recovery, or as a distribution access point for sharing evidence, documents, etc.

**Spectra S3 Interface Introduction**

Spectra S3 is a standards-based RESTful interface. It is important understand key concepts such as objects, buckets, PUT commands and GET commands. Objects consist of digital data (i.e. files, video, audio, etc.), as well as metadata to identify the objects. A bucket, which is comprised of objects, defines a container for objects that are stored in the Spectra S3 interface. A PUT command writes objects in a bucket, while a GET command downloads objects from a bucket. Finally, permissions are used to grant or deny access to Spectra S3 buckets.
Spectra S3 Object Storage Workflow: Retention

XProtect® Corporate manages the transfer from multiple recording servers’ live database to Verde Enterprise NAS Solutions’ archive database, as well as the number of days of retention for the archive database. Verde NFI copies the archive database using S3 object protocol to BlackPearl. BlackPearl’s Advanced Bucket Management replication policy manager then transfers copies of the archive database in object format to one or more digital storage technologies. With Spectra’s Web Client Manager recording policy implementation is made simple.

Spectra S3 Object Storage Workflow: Retrieval and Playback

Spectra’s Web Client Manager allows users to search the archive database within BlackPearl. By specifying the date, time and named cameras, the Web Client Manager copies the archive database to a shared volume/directory on Verde NAS.

When notified, the user launches the Open Database Tool within the XProtect® Smart Client to discover and synchronize the archive database elements. Once completed, the user can view the video within the XProtect® Smart Client.

Spectra S3 Object Storage Workflow: IP Video Distribution

A key feature within the BlackPearl product is the Advanced Bucket Management. Replication of object data can be configured, such as having two bucket with the same objects written to each bucket. In this case, we’ll use digital tape technology. When the buckets are filled, one or both buckets may be removed from the digital tape library. Digital tapes are bar coded and uniquely assigned to each exported bucket.

Once removed, the exported bucket can be safely transported to a different location. Making the object data portable. When received at the new location, using the BlackPearl import feature, the digital tapes are downloaded and bucket objects are ready for use.

BlackPearl’s Advanced Bucket Management allows for the distribution of large amounts of object data, multiple terabytes, when a WAN or wireless network is not feasible.

Key Benefits

- BlackPearl allows organizations to implement a private / public cloud IP video storage management system.
- IP video is regarded as a true asset to organizations, implementing a true lifecycle management system, allowing for at least three copies on various digital storage technologies ensures digital preservation to meet future corporate mandates.
- Distributing IP video from one location to another is typically done via a wide area network “WAN”. When IP video files reach terabytes in size, a WAN can be challenged to accommodate this transfer. The distribution of digital tapes to and from locations such as oil platforms, maritime vessels, etc. create unique operational efficiencies which Spectra’s Verde / BlackPearl solution addresses.
- Spectra products comply with chain of custody by using the industry accepted SHA-256 hashing algorithm providing digital preservation across multiple digital storage technologies.

About Spectra Logic Corporation

Spectra Logic develops deep storage solutions that solve the problem of long term storage for business and technology professionals dealing with exponential data growth. Dedicated solely to storage innovation for more than 35 years, Spectra Logic’s uncompromising product and customer focus is proven by the largest information users in multiple vertical markets globally. Spectra enables affordable, multi-decade data storage and access by creating new methods of managing information in all forms of deep storage — including archive, backup, cold storage, cloud and private cloud.

BlackPearl, BlueScale, CC, Spectra, SpectraGuard, Spectra Logic, TeraPack, TFinity, TranScale, and Verde are registered trademarks of Spectra Logic Corporation. ArchiveGrade, ArcticBlue, and Verde DPE are trademarks of Spectra Logic Corporation. All rights reserved worldwide. All other trademarks and registered trademarks are the property of their respective owners. Specifications subject to change without notice.

© 2016 Spectra Logic. All rights reserved worldwide.

303-449-6400 • 800-833-1132 • (Fax) 303-939-8844 • 6285 Lookout Road • Boulder, CO 80301 USA