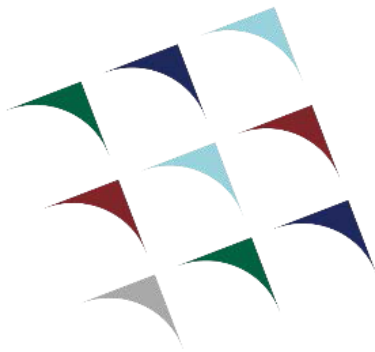




Newport Mesa Unified School District



Newport-Mesa Unified School District

REQUEST FOR INFORMATION

#104-21

INSTALL AND IMPLEMENTATION OF A DISTRICTWIDE INTEGRATED
SECURITY SYSTEM

Response from:

Milestone Systems Inc.

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April 1st, 2021

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Certification from an individual authorized to represent the Vendor

RE: Newport Mesa Unified School District RFI #104-21

Please find the Milestone Systems Response to the Newport Mesa Unified School District RFI #104-21. All statements made in this document are true and correct.

I will be responsible for supporting you and your chosen Systems Integrator in this exciting initiative and project. I will work to ensure the best Milestone team and partners are working with you towards a successful compliant solution, system design and delivery of this important project. Don't hesitate to contact me for any clarifications or questions regarding our response and next steps.

Best Regards,

Laurie Dickson
Channel Business Manager, Los Angeles/Orange County
West Sales Field US
Email: Laud@milestone.us
Mobile: +1 504 338 4468

Executive Summary

An innovative and customizable solution offering with an open platform VMS technology

Newport Mesa Unified School District goal is to identify and deploy a districtwide integrated security system.

Empowering the Newport Mesa Unified School District with the ability to improve and positively impact its community, operational processes and risk mitigation strategies is the objective of Milestone Systems.

An easy to use, enhanced situational awareness security and control infrastructure that scales to the Newport Mesa Unified School District needs

Milestone Systems' XProtect video surveillance management system is an open platform technology which uniquely enables the customization of a centralized video surveillance system capable of integrating with over 10,000 IP cameras, multiple access control, and infrastructure programs.

This means that the Newport Mesa Unified School District can benefit from leveraging several centralized or distributed video sharing applications, improved technology systems, and data analysis capabilities to enable real time, data-driven, problem-solving-based situational awareness methodologies.

Milestone's network video surveillance management system can be designed to suit the needs of the Newport Mesa Unified School District well-defined enhancement strategy which will reduce the number of crimes and misconducts within its facilities.

Additionally, Milestone System's top global position as a VMS vendor promotes a competitive hardware and software solutions environment which will help lower the Newport Mesa Unified School District's total cost of ownership both short and long term.

Compliance to the Newport Mesa Unified School District's requirements and expectations

With a compliance to the Newport Mesa Unified School District's VMS vendor requirements, Milestone delivers surveillance systems that directly address your demands. Highlights of our proposition include:

- **Serviceable** - Ease of use and service is as the heart of everything that we do. Milestone puts forth efforts to provide you with a solution that is easy to work with in every aspect from the initial installation and configuration through to the final everyday usage.

- **Access Control/Third Party Integrations** – Milestone's XProtect VMS software integrates with a wide range of third-party software applications including access control and video analytics systems such as Open Options and Honeywell. With over 3500 Milestone Technology Partners, the Newport Mesa Unified School District's can leverage cost-effective and best value solutions to increase its security operational productivity and situational awareness.
- **Multiple surveillance methods** - XProtect Smart Client, XProtect Web Client, Milestone Mobile and Smart Wall allow the ability to access video from various locations, as well as multiple computer types, smart phones, tablets, and mobile devices.
- **Lowest Total Cost of Ownership** – Gain key comparative total cost of ownership experience for current/future facilities and IT operations performance. As well as reduced maintenance cost with Milestone Care, hardware costs, number of incidents, and improved loss prevention processes.
- **On-site pre/post-sales support and training** - Including product review, demonstration, installation, set-up assistance, and training at no additional costs.

Build for the future, unite existing systems

Our solution is powered by the award-winning Milestone XProtect® video management software, MIPSDK and ONVIF bridge which has the flexibility designed to work with other systems, software and technologies. Thus, the Newport Mesa Unified School District's can take advantage of the entire industry's innovation in the future and add new technologies as they are developed.

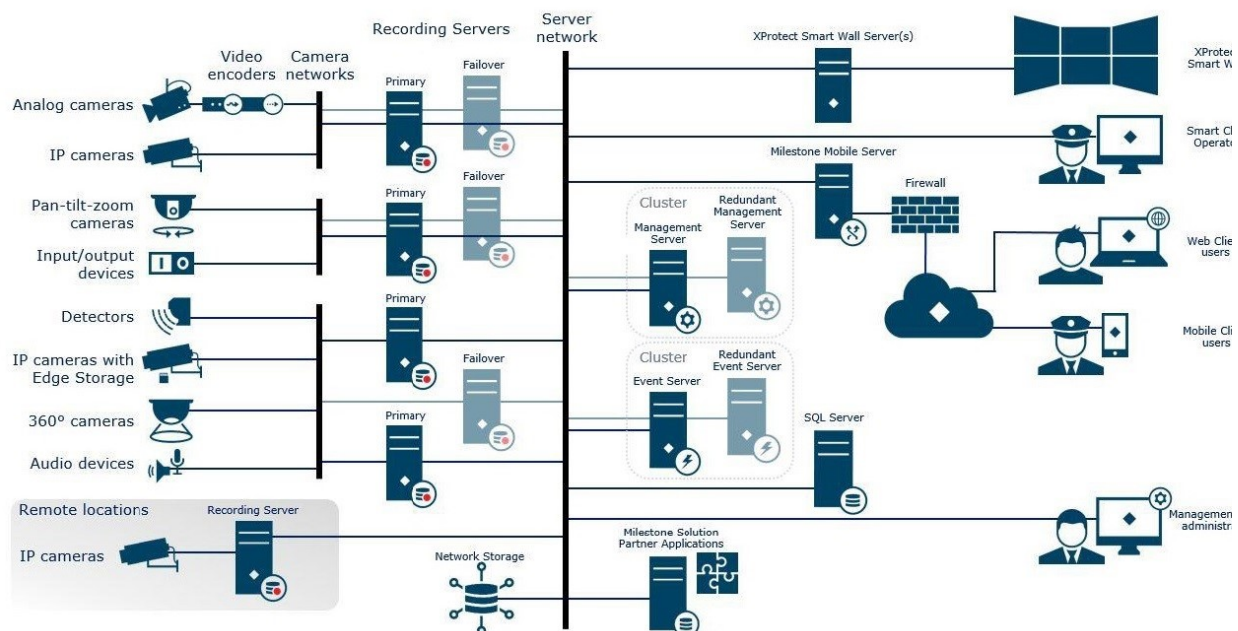
Project summary and next steps for the Newport Mesa Unified School District's and Milestone

Milestone Systems is excited about the opportunity to provide a Pilot of the hardware, software and engineering support to evidence compliance of this solution.

Solution Narrative consisting of diagrams illustrating basic functionality

Milestone XProtect Corporate 2020 R3 Software

Milestone XProtect VMS is designed for all deployment sizes and complexity levels. The management interface enables the efficient administration of the system, including all cameras and security devices, regardless of the system's size or if it is distributed across multiple sites. Milestone XProtect VMS includes integration with most known public map services, as well as support for private floor plans linked to alarms and Milestone XProtect Smart Wall for supreme situational awareness and easy incident management. Milestone XProtect VMS is designed to ensure end-to-end protection of video integrity and boost the overall performance of a system with hardware-accelerated video decoding. Support for failover recording servers, Edge-Storage, and redundant management servers make it the perfect choice for mission-critical installations that require continued access to live and uninterrupted video recordings.



Our end-customers have flexibility in designing the IT infrastructure for Milestone XProtect VMS. Having the freedom to choose hardware allows the mixing of brands and technologies into optimized solutions with a reduced total cost of acquisition and ownership.

Key benefits for the Newport-Mesa Unified School District are:

- **Situational awareness:** Maintain an overview of an entire surveillance system with access to all cameras and locations.
- **Scalability:** Scale the system to any size, from small systems to systems consisting of thousands of cameras.

- **Flexibility:** The open architecture of Milestone XProtect, together with the Milestone Integration Platform Software Development Kit (MIP SDK), allows for powerful integrations, extensive functionality and enables users to extend the scope of their systems.
- **Certainty:** Redundancy capabilities ensure uninterrupted video recording in the event of component failures or network outage.
- **Cost efficient storage:** Flexible storage options make it possible to set up cost-efficient archiving features that meet the organization's needs.
- **Ease of system management:** Security system managers receive alerts and notifications when potential issues arise, enabling them to proactively manage the system.
- **System optimization:** Users can optimize system performance while the system is operational without disrupting video surveillance and recording

XProtect VMS Features (Pros for NMUSD stakeholders)

- **Centralized single management interface:** Provides efficient system administration of all connected cameras and devices, regardless of system size or distribution.
- **Unlimited system scalability:** Supports an unlimited number of cameras, users, monitors and remote sites.
- **Milestone Federated Architecture™:** System concept that enables multiple individual XProtect Expert systems to be connected with a central XProtect Corporate system in a hierarchical architecture for infinite scalability and central management.
- **Multiple language support:** Shall let most operators use the system in their native language with support for 30 different languages, while the Management Client shall be available in 12 languages.
- **XProtect Smart Wall:** Advanced video wall solution included with the software. It enables control room operators to share a wide range of information, including live and recorded video, images, maps, alarms and text messages, to better coordinate response activities
- **Hot standby Recording Servers:** Maintain video viewing and recording capabilities with minimal interruption and video loss in the event of network problems, server failure, loss of power or any other system problem.
- **Edge Storage with flexible retrieval:** A redundancy option that ensures continuous recording of video. Recordings can be retrieved from camera storage based on time schedules and events.
- **Scalable Video Quality Recording:** SVQR is a technology that fully explores the synergies between edge and central server-based storage, resulting in more efficient and cheaper video storage. SVQR makes it possible to record high-quality video to edge storage, while a low-quality reference video stream can be recorded centrally in the recording servers. In the event of an incident or investigation, the initial assessment can be made using the

centrally stored low-quality reference video, while the high-quality video can be retrieved from the edge when and as needed.

- **Hardware accelerated video decoding on the Smart Client using multiple NVIDIA cards:** Video decoding is done to significantly reduce the CPU load and improve performance of the recording servers. Video decoding done in the GPU part of the Intel CPU (requires CPU with support for Intel Quick Sync Video) and in the GPU of additional external NVIDIA cards.
- **DLNA server:** DLNA allows users to display video directly onto any DLNA supported tv without needing to have a PC nor a Smart client. The function supports live and recorded video and camera selection can be manual, carousel or rule based.
- **Hardware accelerated Video Motion Detection:** Video motion detection decoding is done in the GPU part of the Intel CPU and shall significantly reduce the CPU load and improve performance of the recording servers. It shall require CPU with support for Intel Quick Sync Video.
- **Video storage monitoring:** Easily detect deviations from defined storage policies in situations where video data is overwritten prematurely due to insufficient physical storage.
- **Customizable user interface:** Optimize system management interface for different roles and level of administrative users.
- **Advanced rights management:** Supports inherited user rights and the ability to assign partial management rights.
- **Milestone Interconnect:** XProtect Corporate can interconnect with all XProtect VMS, Milestone Arcus and Milestone Husky products providing central operation and cost-effective management of geographically dispersed surveillance sites.
- **Multi-layered maps:** A comprehensive overview of cameras and layouts of the entire surveillance installation allows for quick detection of trouble areas.
- **Smart Maps:** Is a map function that supports seamless geo-navigation across different locations. It offers native support for GIS maps and CAD drawings, as well as support for online map services like Google maps, Bing maps and OpenStreetMap, which makes it easy to navigate large and distributed installations.
- **Alarm Manager:** Provides a consolidated overview of security and system alarms for immediate visual verification.
- **Bookmarking:** Flag video sequences of particular interest and add descriptive notes, enabling users to easily share information and increase efficiency in investigating incidents.
- **High-performance Recording Servers:** Multi-stage video storage including video grooming possibilities provide efficient long-term storage, while all video remains online.

- **Video database encryption and digital signing:** Confirms exported video has not been modified or tampered with when played back by law enforcements and public authorities. Export and print shall enable encryption and password protection of exported video material with a choice of following strong encryption algorithms: 56-bit DES 128, 192 and 256-bit AES.
- **Strict user rights:** Protect the integrity of live and recorded video by restricting permission to specific cameras, functions and time periods or controlling individual user access.
- **Metadata framework:** Features generic framework for handling and storing video-related metadata.
- **Hardware accelerated Video Motion Detection:** Video motion detection decoding is done in the GPU part of the Intel CPU and shall significantly reduce the CPU load and improve performance of the recording servers. It shall require CPU with support for Intel Quick Sync Video.
- **Video Processing:** The system facilitates simultaneous digital multi-channel MJPEG, MPEG4, MPEG-4 ASP, MxPEG, H.264 and H.265 video recording of IP cameras and IP video encoders without any software limitations on number of cameras per server.
- **Dual authentication:** Dual authentication offers an additional level of system security for customers operating highsecurity installations. The dual authentication only grants a user access to the system when a second user (for example a supervisor) has confirmed the login with a successful authorization by the second user.
- **Two-step verification:** Two-step verification prevents non-authorized people from accessing the system and shall protect against “man-in-the-middle” attacks.
- **Centralized Search:** The centralized search platform in XProtect Smart Client makes it possible to look for everything in one place. With the search tool, users can filter for motion, alarms, events, bookmarks, people, vehicles, locations and other types of data – all in one place. This means far more rapid and efficient video investigations.
- **Adaptive streaming:** The streaming feature enables users to receive lower resolution streams from the recording server when a high resolution one is not required. This gives a better user experience, improves use of network bandwidth and lowers TCO as less hardware is needed to decode unnecessary high-resolution video.
- **Milestone’s Driver Framework:** The Milestone Driver Framework within the Milestone Integration Platform Software Development Kit (MIP SDK) allows device manufacturers to develop their own drivers, providing faster compatibility and deeper integration with XProtect VMS.
The Driver Framework is a quick way for partners to keep their customers in touch with the latest technologies and to introduce other types of devices such as IoT, with capabilities that go beyond ONVIF and with shorter time-to-market.

- **Device Password Automation:** The Device Password Management, system administrators can manage all devices' passwords directly from the XProtect Management Client for selected device brands. The option is added to schedule future password changes according to the cadence in an organization and its password policy, making device password management fully automatic.
- **Audio:** Two-way audio support for playing and exporting live or recorded audio from device or camera-connected microphones. Use the camera's speaker to talk with a person in front of the camera, and at a later stage play back recorded audio. Broadcast audio support for mass communication to multiple camera-connected speakers at once.
- **Video Push now support Audio:** Option to record audio during Video Push. Two-way audio to play live or recorded audio from device or camera-connected microphones. Use the camera's speaker to talk with a person in front of the camera simply using the Push-To-Talk button. Push-to-talk communication is recorded and can be played back.
- **Kerberos authentication:** Kerberos (RFC 3244) is a security authentication protocol that offers a more secure way to authenticate users than NTLM. Kerberos builds on symmetric key cryptography and requires a trusted third party. Milestone supports Kerberos authentication as a complement to Microsoft NTLM authentication.
- **Integration options:**
 - **Milestone Integration Platform Software Development Kit (MIP SDK)** enables seamless integration of video analytics algorithms and other third-party applications in XProtect Smart Client and Management Client
 - **XProtect® Transact and XProtect® Retail:** Integrate video surveillance with ATMs, point-of-sale (POS) and enterprise resource planning (ERP) systems for managing loss prevention and fraud.
 - **XProtect® Access:** Video enabled physical security, which integrates with access control and intrusion systems.
 - **XProtect® LPR:** Automatic reading and tracking of vehicle license plates.
 - **Generic event integration:** Enables easy and fast integration of third-party applications and systems via a simple message-based socket communication interface
 - **Milestone ONVIF Bridge:** Enables full video interoperability in multivendor installations using a standardized ONVIF compliant video-out interface
 - **System configuration API:** Enables external applications to make changes to the system's configuration

Serviceable: Ease of use and service is at the heart of everything that we do. Milestone puts forth efforts to provide you with a solution that is easy to work with in every aspect from the initial installation and configuration through to the final everyday usage.

- **Software Manager** - The Software Manager is a tool that from a central point can be used to remotely install and upgrade recording servers, recording server device packs and XProtect Smart Clients on servers or PCs in the network. For larger installations the tool makes it easy and fast to upgrade the components that are installed remotely and, in many places, namely the recording servers and their device packs as well as all the client PCs.
- **Operator Usability** - With XProtect Smart Client, Web Client, Smart Maps and Mobile products, users can view live and recorded video; easily search events with motion from different locations and camera streams, easily identify and be notified of camera outages and easily export evidence and reports with complete control of the chain of custody.

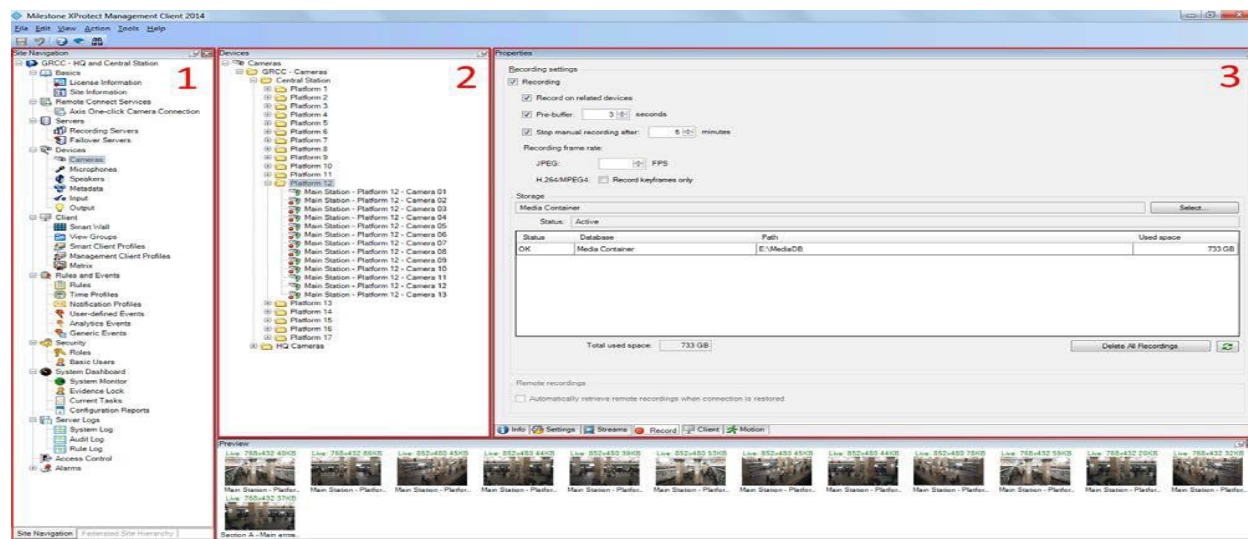
The Powerful Suite of Clients



XProtect Smart Client, XProtect Web Client, & Milestone Mobile



- **Centralized Management** - The Management Client is the administration interface for all parts of the VMS. The VMS is designed for large-scale operation and the Management Client is thus designed to be run remotely from, for example, the administrator's computer.



The Management Client has a “Site Navigation” tab (1), where nodes for various parts or functions of the system can be selected, for instance cameras, as shown on the above screenshot.

Selecting a node will show the settings for this node, typically in a second tree structure because there often are more sub items that can be managed (2). When an item is selected the settings are displayed in the properties dialog shown in the right side of the client (3). Items can have many settings, and if so the different settings are grouped on different tabs.

- **Milestone Care** - Milestone Care is a complete service and support program that takes care of a Milestone product throughout its entire lifetime. It helps ensure partners and end-customers can take full advantage of the product and get the most out of the investment. Designed for all Milestone customers as an effective way to learn, operate and maintain the solution and take full advantage of its capabilities, it provides:
 - Access to extensive self-help resources in an easy-to-navigate eCare support portal
 - **Free** online eLearning courses
 - Live chat assistance
 - New Device Pack every second month
 - Unique 30% trade-in credit on software products when upgrading

Milestone Care Plus - Milestone Care Plus is a sub-package belonging to the overall Milestone Care service and support program. Milestone Care Plus is designed to ensure that the installation is ready for the future. Whether the future brings new technological innovations or responses to security challenges, this package helps

keep the system up to date and ready to react quickly to changes and opportunities.

- o **Three annual product updates** - With instant access to new software updates three times annually, NMUSD users are given access to all of the releases' new capabilities, all intended to make the product better, safer and more powerful. With three releases a year, users get the ultimate peace of mind because potential threats or challenges in the IT landscape are instantly addressed via frequent product updates.
- o **System health monitoring** - Ensure a continuously functioning system by giving resellers access to the Milestone Customer Dashboard. It provides a complete overview of the health and performance of a system. Customer Dashboard is an online system health monitoring service for your system integrator or system administrator that monitors a system and notifies the reseller of potential technical incidents that need attention.
- o **Full return on the investment** - The present security installation might meet current needs, but in time, users may wish to expand the installation or upgrade it to a more advanced Milestone solution. With Care Plus, users receive the full trade-in value (100% credit of original purchase) when upgrading to a more advanced product – providing a cost-effective way to adapt the system to changing needs and providing full return on the investment.

Maturity Level: Founded in 1998, Milestone is a leading provider of open platform video management software; technology that helps the world see how to ensure safety, protect assets and increase business efficiency. Milestone enables an open platform community that drives collaboration and innovation in the development and use of network video technology, with reliable and scalable solutions that are proven in more than **500,000 sites worldwide**.

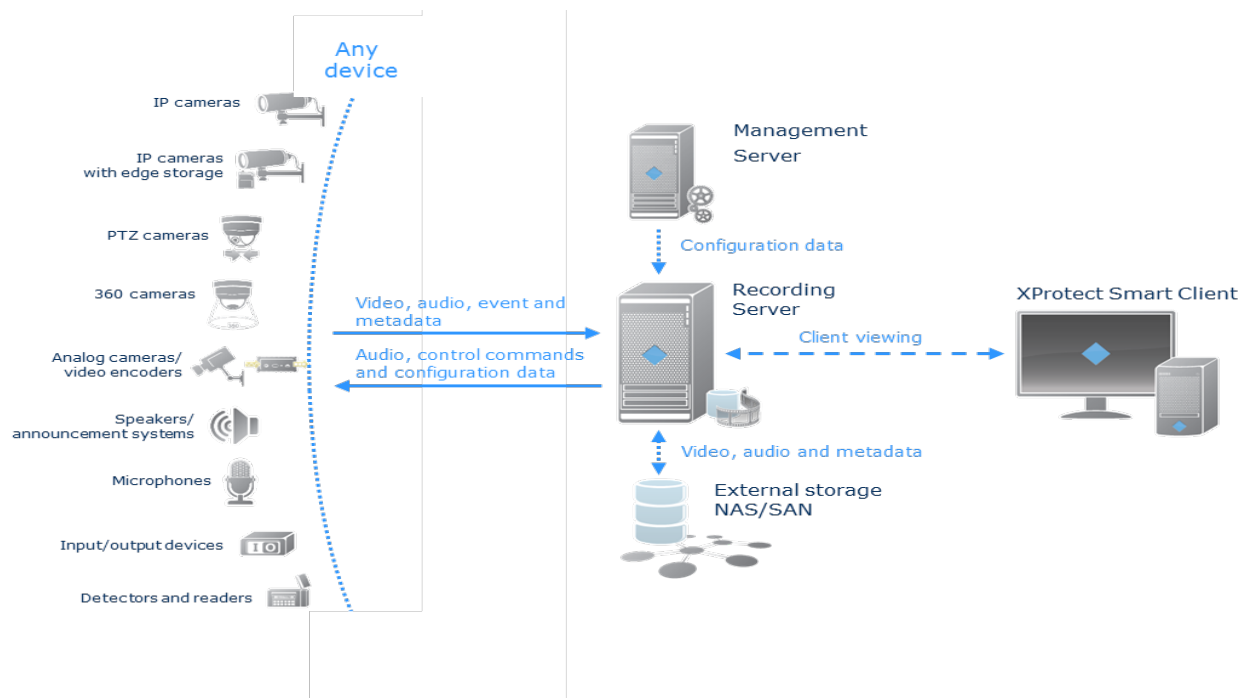
Milestone's approach to work and its sustained growth during its 23 years in business has been based on our unique openness in terms of our business model, our open company culture and our open platform approach to the security industry.

Milestone's XProtect Expert VMS is designed as an Open Platform that allows for multiple opportunities for the NMUSD to integrate with the widest choice of network video and computer hardware including devices, **access control, Intercom, intrusion and innovative analytics software**. Milestone's Open Platform has had a radical effect on the security industry and has become the foundation for a thriving business ecosystem.

Scalability: XProtect Corporate supports an unrestricted number of users, hardware devices, servers and sites. It allows the expansion of any installation as it is required by NMUSD.

The recording server provides full scalability in terms of the number of devices connected to one recording server and the number of recording servers used in one system. Only limited by available system resources such as CPU, RAM and disk performance, the recording server can be scaled seamlessly based on the number of cameras connected to a single recording server. When the capacity of a single recording server is reached, additional recording servers can be added to the system. Devices, storage, user rights and other system settings can be centrally managed across multiple recording servers. This simplifies daily operations for NMUSD users.

Running on the industry's best performing recording engine with a recording rate of minimum 3.1 Gbit/s, XProtect Corporate is ideal for installations with 24/7 operation requirements.



Cyber-Security Support: The Milestone cybersecurity policy is a document describing the objectives, procedures and controls that ensure that Milestone and its customers have a clear understanding of the risks and measures in place regarding cybersecurity in the development, deployment and integration with the Milestone XProtect® portfolio of products.

For additional information, see the following website,

<https://www.milestonesys.com/support/resources/cyber-security/>

The Milestone XProtect security framework includes the following procedures:

- [Network separation](#) - Separating the camera network and the core server/client network with the recording server as a gateway between the camera and the system networks prevents direct routing between the two network segments, making it difficult to penetrate beyond that point.
- [HTTPS secure camera connection](#) - HTTPS communication between the recording servers and the connected cameras and other security devices provides bidirectional encryption of communication and prevents eavesdropping and tampering with the content of the communication.
- [Secure video storage](#) - Milestone XProtect Corporate offers the ability to encrypt, password-protect and digitally sign the media data. This means that recorded data is protected even if someone gains access to the data files on the storage system, a network share or in conjunction with an actual system hacker attack.
- [Strict server-side authorization](#) - Authentication and authorization across all clients and integration interfaces are enforced on the server side for all services accessing the XProtect VMS system via the Milestone Integration Platform (MIP) SDK or Milestone ONVIF Bridge.
- [Recording Server-server/client communication encryption](#) - Certificate-based encryption on all clients and servers communicating with the Recording Server to guarantee their identification.
- [Build on Windows security infrastructure](#) - Milestone XProtect supports Windows Active Directory (AD), where both native Windows NTLM and Kerberos authentication may be used.
- [Secure remote user access](#) - A dedicated mobile server acts as a gateway to the system and protects its integrity when used by remote users. Also, the communication between the mobile server and the two clients supports HTTPS, which provides secure authentication and bidirectional encryption of all information exchanges, including user credentials, configuration, and media data.
- [Secure system integration via MIP SDK](#) - The same certificate-based encryption procedure and strict authentication and authorization policies are forced on all integrated third-party applications.
- [External video access using Milestone ONVIF Bridge](#) - External systems must run under a registered account to apply the same strict authentication and authorization policies on integrated applications and users.
- [Protection of evidence material](#) - When exporting forensic material, the video material can be password-protected, encrypted and digitally signed.

- **System hardening** - Our continuously updated System Hardening Guide outlines best practices for system design, operating system configurations, servers and workstations. It also provides input for cybersecurity policies, risk evaluation and mitigation.
- **Federal Information Processing Standards (FIPS 140-2) Compliance** - XProtect 2020 R3 uses the latest encryption technology provided by Microsoft, making sure user information such as usernames, passwords, and devices are encrypted end-to-end, so you can rest assure that your personal information is always secure and projected. These developments include using only FIPS approved cryptography modules such as Microsoft's Cryptography New Generation (CNG).

This next level of encryption of encryption also allows federal customers in US and Canada to run XProtect in a FIPS compliant mode. Such developments allow users to operate XProtect 2020 R3 in a FIPS 140-2 compliant mode in Windows.

Video analytics: Milestone Xprotect video management software integrates with a wide range of third-party software applications.



Business Intelligence: People counting, incoming and outgoing

A few of our third-party analytic partners include

1. Briefcam <https://www.milestonesys.com/marketplace/briefcam-usa/>
2. SNAP <https://www.milestonesys.com/marketplace/snap-network-surveillance/>

3. IPSOTEK <https://www.milestonesys.com/marketplace/ipsotek/>
4. Agent VI <https://www.milestonesys.com/marketplace/agent-video-intelligence-agent-vi4/>
5. Flir <https://www.milestonesys.com/marketplace/flir-networked-systems/>
6. Digital Barriers <https://www.milestonesys.com/marketplace/digital-barriers-plc/>
7. All Go Vision <https://www.milestonesys.com/marketplace/allgovision-technologies-pvt-ltd/>
8. Herta Facial Recognition <https://www.milestonesys.com/marketplace/herta-security-s.l/herta-milestone-integration/>
9. NEC Neo Fac <https://www.milestonesys.com/marketplace/nec/>
10. Any Vision <https://www.milestonesys.com/marketplace/anyvision/>
11. All Go Vision <https://www.milestonesys.com/marketplace/allgovision-technologies-pvt-ltd/>

Training and Support

Learning & Performance The Learning & Performance team aims to encourage and support people in the Milestone community as they progress on their journey from novice to expert - wherever they are, whenever they need it, and whatever their role entails:

- End-user operators, investigators, and managers
- Solution designers
- Sales professionals
- Deployment and service engineers
- Integration developers

We offer both instructor-led training classes and free online eLearning courses to help learners build the knowledge and skills needed to perform on the job.

eLearning and Video Tutorials Our collection of eLearning courses provides convenient and immediate access to free, online training. We offer an ever-increasing number of eLearning courses for integrators and reseller partners as well as end-users. These courses are free and available 24/7 on a computer or tablet.

Popular eLearning courses include:

- Milestone Fundamentals of IP Surveillance Systems
- Getting Started with Milestone XProtect VMS
- Getting Started with Milestone XProtect Smart Client
- Designing Small to Medium Milestone XProtect VMS Systems
- Using the Deployment Best Practice Checklist

Many of our courses are also available in video tutorial format on the **Milestone Systems YouTube channel** Closed captioning options are available in multiple languages.

Instructor-led Training - Milestone's expert trainers teach classes around the world in a number of different languages. Our instructor-led training workshops use a combination of real-world scenarios and hands-on exercises to build the knowledge and skills necessary to successfully design, install, and configure Milestone XProtect VMS products. Those looking to dive deeper into Milestone products can attend our instructor-led training workshops.

Milestone Technical Support - At Milestone, we understand the importance of providing excellent support for all our users. We deliver this by providing support through a global network of Authorized and Certified Milestone Partners who have trained in our products and solutions. As a Milestone user, your first contact for support should be your local Milestone Partner. If needed, your local Partner can engage the Milestone Technical Support engineers, giving you an additional level of support. If you are not able to contact your local Partner, Milestone Technical Support is also available to help you directly and can be contacted during the support times listed below.

- ❖ North America is supported from Lake Oswego, Oregon, USA.
- ❖ North America's Support e-mail support@milestone.us or phone 503-350-1100 select '2' for support.
- ❖ Support hours are 6:00am - 5:00pm PST Monday-Friday.

Additional Support Tools Provided by Milestone Includes:

User Forum - Find and share solutions with Milestone users around the world.

Download software - Get the latest software updates for your product (in English or 27 other languages).

Manuals and guides - Learn how to set up, use and troubleshoot Milestone products.

Knowledge Base articles - Milestone solutions for common support questions and issues.

Video tutorials - Watch videos on how to install and use XProtect

Online Assistance - is available through online support over a wide range of hours.

FAQ Listings - Milestone Systems offers e-mail support Monday through Friday during the hours of 6:00 am to 5:00 pm PST and 8:00 am to 5:00 pm CET. Web Support including FAQ's and Knowledge base solutions are available 24 x 7 at <http://www.milestonesys.com/support>

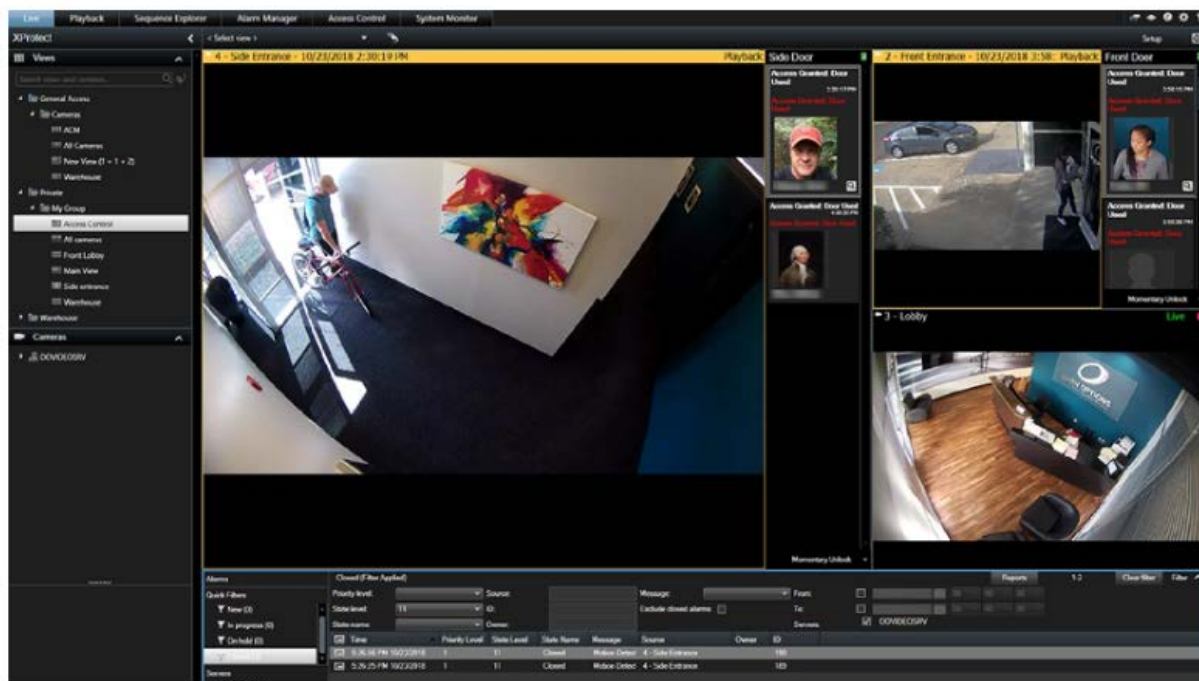
Milestone and Open Options (DNA Fusion) Access Control Integration

DNA Fusion and XProtect Access - DNA Fusion access control platform connects with XProtect Access for a complete security solution.

DNA Fusion seamlessly integrates with Milestone Systems' XProtect Access, giving customers a wider choice in security management.

This integration allows users to view and manage their DNA Fusion access control system directly through the Milestone Smart Client interface.

Customers can surface key components of the access control system such as cardholder information and photos at entry door to compare and verify entry, access control events and alarms that can be associated to cameras within the XProtect system, and control of access control doors all through the Smart Client interface.



For additional information, see the following website
<https://www.milestonesys.com/marketplace/open-options/>

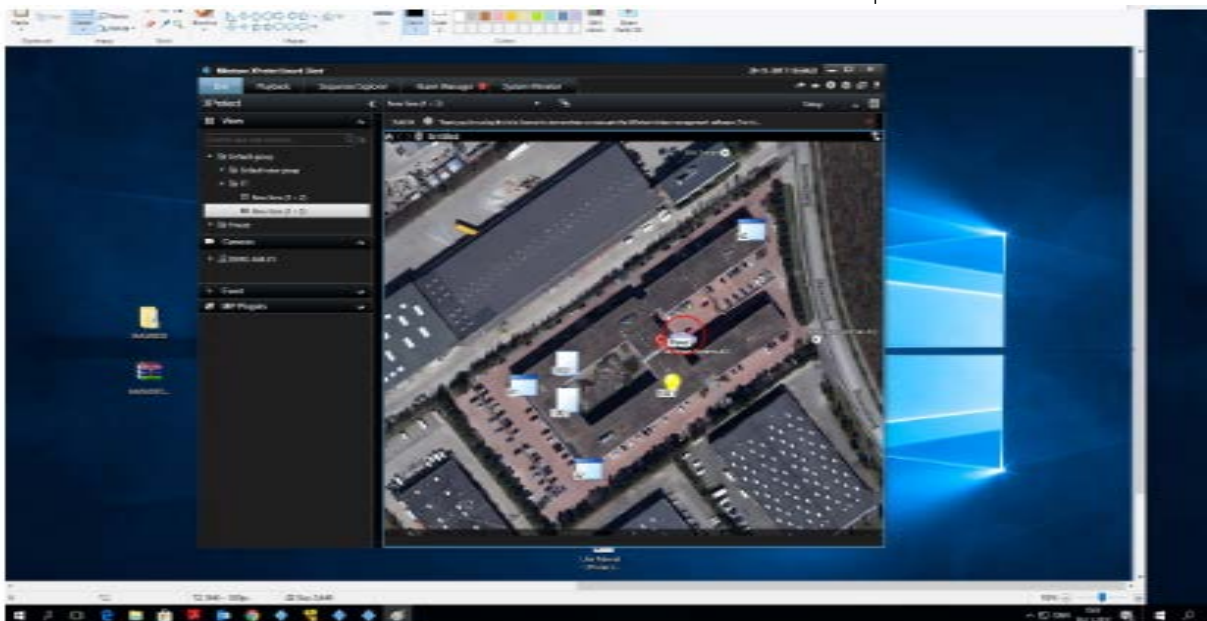
Intrusion – Milestone -Honeywell Integration

Event Link for Honeywell Galaxy developed by Milestone Systems is a much more feature rich alternative to the input/output (I/O) device driver included in the official device packs. It enables the XProtect® operator to not only monitor alarms coming from the Dimension panels, but also trigger outputs and enable/disable zones or groups from the map function in the XProtect® Smart Client.

The entire range of the Galaxy alarm types are available for detailed configuration and automated reaction in XProtect® and can be configured based on zone, group and panel levels. The integration supports all four Dimension models: GD-48, GD-96, GD-264 and GD-520.

Key features that the Newport-Mesa School Unified School District can find value in:

- Alarm handling based not only on different alarm types, but also on different source levels (panel, group and zone).
- Enabling/disabling of zones and groups from the map function in XProtect, as well as enabling/disabling of alarms from panels.
- Triggering of panel outputs from the map in XProtect.
- Role-based definition with sources and actions available to each operator.



For additional information, see the following website

<https://www.milestonesys.com/marketplace/milestone-systems/event-link-for-honeywell-galaxy-dimension/>

A complete and detailed copy of the RFI, including all information, questionnaire and binding signatures as indicated

ID		Conformity	Responsible
	To the extent clarifications to this RFI are issued by NMUSD (typically via email), printed copies of each and every such clarification shall also be included within this section.	Acknowledged	System Integrator

Additional RFI Response Requirements as described below:

Anchorage School District

As a way to address rising vandalism such as broken windows and recurring playground fires at elementary schools, the Anchorage School District began installing and experimenting with video security and surveillance systems.

The Milestone VMS was selected based on a range of included features, ease of use, devices supported, technical support, performance and cost evaluation. Once Milestone was officially chosen as the VMS, the district requested bids from the local authorized Milestone integrators.

For additional information, see the appendix for the **Anchorage School District Customer Story**.

Topeka School District

United School District (USD) 501 in Topeka, Kansas, faced school safety issues that were impacting enrollment and performance at some district schools. They were relying on a limited, stand-alone analog security system that covered only a few of its 40 school campuses and facilities. The school district desperately needed a system that could connect multiple sites while producing excellent quality images.

Milestone's IP VMS provided a significant upgrade to the district's analog system and greatly enhanced its ability to centrally monitor and efficiently respond to incidents on and around school campuses. The added functionality of the Milestone software allows the district to easily access video locally at individual school locations or off site on computers or mobile devices.

For additional information, see the appendix for the **Topeka District Customer Story**.

New Haven Public Schools

Connecticut's declining crime rates could be on the verge of dropping even further — the state was recently awarded over half a million dollars from the U.S. Department of Justice to tackle school violence.

This technology includes a recently installed security-camera system which uses the same "Milestone" video surveillance program as the NHPD 911 platform.

For additional information, see the appendix for the **New Haven Public Schools Customer Story**.

XProtect Corporate Budgetary MSRP

XProtect Corporate is IP video management software (VMS) designed for large-scale and high-security installations. It is built with innovative technology designed to ensure end-to-end protection of video integrity and boost the overall performance of your hardware. In addition to central management of all servers, cameras and users in a multi-site set-up, XProtect Corporate includes an integrated video wall for operators demanding 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 in the event of a server failure. Running on the industry's best performing recording engine with a recording rate of minimum 3.1 Gbit/s, XProtect Corporate is ideal for installations with 24/7 operation requirements, such as airports and casinos.

LICENSES		MSRP
SKU ID	Name	USD
XPCOBT	XProtect Corporate Base License	3.183,00
XPCODL	XProtect Corporate Device License	329,00
YXPCOBT	One year Care Plus for XProtect Corporate Base License	575,00
YXPCODL	One year Care Plus for XProtect Corporate Device License	60,00

LICENSES		MSRP	
SKU ID	Name	USD	Note
XPCOBT	XProtect Corporate Base License	3.183,00	
XPCODL	XProtect Corporate Device License	329,00	
XPCOMIDL	XProtect Corporate Milestone Interconnect Camera License	69,00	
XPAACL-50	AAC licenses for 50 concurrent XProtect Smart Clients	179,00	

MILESTONE CARE PLUS OPTIONS - Mandatory first year		MSRP	
SKU ID	Name	USD	Note
DXPCOBT	One day Care Plus for XProtect Corporate Base License	1,58	
DXPCODL	One day Care Plus for XProtect Corporate Device License	0,17	
DXPCOMIDL	One day Care Plus for XProtect Corporate Milestone Interconnect Camera License	0,04	
YXPCOBT	One-year Care Plus for XProtect Corporate Base License	575,00	
Y2XPCOBT	Two years Care Plus for XProtect Corporate Base License	955,00	
Y3XPCOBT	Three years Care Plus for XProtect Corporate Base License	1.245,00	
Y5XPCOBT	Five years Care Plus for XProtect Corporate Base License	1.910,00	
Y3OIXPCOBT	Three years opt-in Care Plus for XProtect Corporate Base License	1.719,00	
YXPCODL	One-year Care Plus for XProtect Corporate Device License	60,00	
Y2XPCODL	Two years Care Plus for XProtect Corporate Device License	100,00	
Y3XPCODL	Three years Care Plus for XProtect Corporate Device License	130,00	
Y5XPCODL	Five years Care Plus for XProtect Corporate Device License	200,00	
Y3OIXPCODL	Three years opt-in Care Plus for XProtect Corporate Device License	178,00	
YXPCOMIDL	One-year Care Plus for XProtect Corporate Milestone Interconnect Camera License	13,00	
Y2XPCOMIDL	Two years Care Plus for XProtect Corporate Milestone Interconnect Camera License	21,00	
Y3XPCOMIDL	Three years Care Plus for XProtect Corporate Milestone Interconnect Camera License	27,00	
Y5XPCOMIDL	Five years Care Plus for XProtect Corporate Milestone Interconnect Camera License	42,00	
Y3OIXPCOMIDL	Three years opt-in Care Plus for XProtect Corporate Milestone Interconnect Camera License	38,00	

Milestone XProtect Corporate 2020 R3 Licensing Structure Overview

Milestone XProtect VMS solution has a transparent and simple license structure.

The Base License unlocks all software functionality and can be used on multiple sites when owned by the same legal entity.

A Hardware Device License is required per connected hardware device such as a camera or encoder (one hardware license per IP/MAC).

Milestone Care Plus (software assurance) is only required for the XProtect VMS installation for the first year and gives access to new product versions for free.

Milestone does not have hidden fees and does not charge for a wide variety of activities typically found amongst manufacturers.

- ✓ **No additional license cost** on storage devices or number of storage/devices used.
- ✓ **No additional license cost** for unlimited clients or client connections including: Smart Clients, Web Clients, Android or iOS Clients, SDK-derived clients.
- ✓ **No additional license cost** for SDK utilization, or connections made by 3rd party applications.
- ✓ **No additional license cost** for Active Directory integration.
- ✓ **No additional license cost** for multiple servers, or server changes.
- ✓ **No additional license cost** for Federation of Corporate.
- ✓ **No additional license cost** for Failover capabilities.

Server base license

- A XProtect Corporate server base license is mandatory for installing the product
- The base server license permits the following deployments within the legal entity purchasing the base server license:

- Unrestricted number of Management Servers
- Unrestricted number of Recording Servers
- Unrestricted number of XProtect Smart Clients, XProtect Web Clients and XProtect Mobile applications

Hardware device license

- To connect cameras, audio devices, video encoders and other devices to XProtect Expert/Corporate, one license per physical hardware device required. In total, for all copies of the product installed under this license, the product may only be used with hardware devices as you have purchased hardware device licenses for

- An unlimited number of hardware device licenses can be purchased. To extend an installation with additional hardware device licenses, the base server license number (SLC) is required when ordering.

Licensing of Milestone Interconnect

- One Milestone Interconnect device license is required per device (camera) in an interconnected site that is enabled in the central XProtect Corporate system

Licensing of Milestone Federated Architecture

- The use of Milestone Federated Architecture is free and not subject to licensing. This implies that an unrestricted number of sites and cameras can be included in the federated hierarchy, without the need for additional or special licenses.

XProtect Smart Wall application license

- XProtect Smart Wall is an add-on product that is included in the base license of XProtect Corporate 2020 R1 which permits connection of an unrestricted numbers of XProtect Smart Walls (including physical displays) and camera feeds

Advanced Audio Codec (AAC) license

- The use of AAC audio decoding within the XProtect Smart Client is licensed and requires a license per concurrent XProtect Smart Client. All XProtect VMS Base licenses (SLC's) for products supporting AAC audio include AAC licenses for 2 concurrent XProtect Smart Clients. Additional licenses can be purchased in packs of 50 if needed.

Supplemental Data as desired by Respondent

ID		Conformity	Responsible
	• Descriptive Marketing Documents and other material as available describing the proposed components.	Acknowledged	System Integrator

- XProtect Corporate CSI A&E Specification Sheet 2020 R3
- Milestone XProtect VMS Products System Architecture Document 2020 R3
- Milestone Cyber Security Development Policy
- Learning and Performance Catalog
- Milestone Care
- Event Link-for-Honeywell-Galaxy-User-Manual _ Milestone
- Anchorage School District Customer Story
- New Haven Schools Customer Story
- Topeka School District Customer Story

Appendix

XProtect Corporate System Architecture

To enable scaling of thousands of cameras across multiple sites, the XProtect system consists of several components that handle specific tasks. You can install all components on a single server if the server can handle the load, or you can install the components on separate, dedicated servers to scale and distribute the load.

Depending on hardware and configuration, smaller systems with between 50~100 cameras can run on a single server.

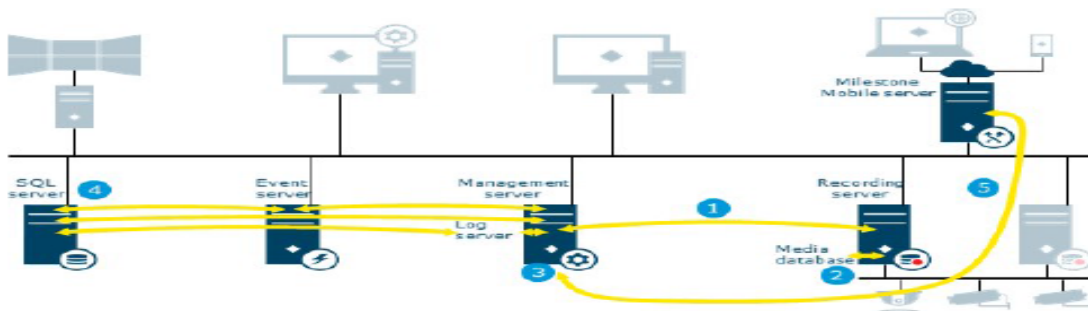
For systems with more than 100 cameras, Milestone recommends that you use dedicated servers for all or some of the components.

You do not need all components in all installations. However, you can add them if the functionality they offer is needed at a later time, for example, failover recording servers or mobile servers for hosting and providing access to both XProtect Web Client and XProtect Mobile.

The diagram below shows an overview of the system components.

System communication and data flow

Server communication



Component	Port	Protocol	Bandwidth
1 Management server - Recording server	9993	TCP	1 kbit/call
2 Recording server - Media database	-	-	-
3 Management server - Internal	8080	UDP	1 kbit/call
4 SQL database communication	1433	TCP	1 kbit/call
5 Management server - Mobile server	80	HTTP	1 kbit/call

Server Components

Management Server

The management server is the central VMS component. It handles the system configuration, distributes the configuration to other system components, such as the recording servers, and facilitates user authentication.

The configuration is stored on a standard Microsoft SQL server installed on either the management server itself or on a separate dedicated server.

Failover management server

You can get failover support on the management server by installing the management server in a Microsoft windows cluster. The cluster ensures that another server takes over the management server function in case the first server fails.

Recording Server

The recording server is responsible for all communication, recording, and event handling related to devices such as cameras, video and audio encoders, I/O modules, and metadata sources. Examples of actions the recording server handles:

- Retrieve video, audio, metadata and I/O event streams from the devices.
- Record video, audio and metadata from devices.
- Provide operators with access to live and recorded video, audio and metadata.
- Provide operators with access to device status.
- Trigger system and video events on device failures or events.
- Perform motion detection and generate smart search metadata.

The recording server is also responsible for communicating with other Milestone products when using the Milestone Interconnect technology.

Failover Recording Server

The failover recording server is responsible for taking over the recording task in case a recording server fails.

The failover recording server operates in two modes:

1. Standard failover, for monitoring multiple recording servers.
2. Hot standby, for monitoring a single recording server.

Media database

The system stores the retrieved video, audio and metadata in the customized high-performance Milestone media database which is optimized for recording and storing audio and video data.

The media database supports various unique features including multistage archiving, video grooming, encryption and adding a digital signature to the recordings.

Event Server

The event server handles the tasks related to events, alarms, maps and third-party integrations via the Milestone Integration Platform.

Events:

All system events are consolidated in the event server so there is a single place and interface for partners to make integrations that use system events.

The event server offers third-party access for sending events to the system via the Generic events or Analytics events interface.

Alarms:

The event server hosts the alarm feature, alarm logic, alarm state and handling of the alarm database. The alarm database is stored in the same SQL server as the management server uses.

Maps:

The event server also hosts maps. You configure and use maps in the XProtect Smart Client.

Milestone Integration Platform:

You can install third-party developed plug-ins on the event server and utilize access to system events.

You can get failover support on the event server by installing the event server in a Microsoft Windows Cluster. The cluster ensures that another server takes over the event server function in case the first server fails.

Log Server

The log server is responsible for storing all log messages for the entire system. The log server uses the same SQL server as the management server and is typically installed on the same server as the management server. If you want to, you can install it on a separate server if you need to increase the management or log server performance.

The system can create three types of logs:

- a. System log: the system administrator can choose to log errors, warnings and information or a combination of these. The default is to log errors only.
- b. Audit log: the system administrator can choose to log user activity in clients in addition to login and administration logs.
- c. Rule log: the system administrator can use the rule log to create logs on specific events.

Service Channel

The service channel is responsible for communicating service and configuration messages to XProtect Smart Client, the Milestone Mobile server, and third-party components listening to the service channel. This includes communicating updates to an XProtect Smart Wall monitor layout or communicating that a specific failover server is active.

Mobile Server

The Mobile server is responsible for giving Milestone Mobile client and XProtect Web Client users access to the system.

In addition to acting as a system gateway for the two clients, the Mobile server also can also transcode video as the original camera video stream in many cases are too large to fit the bandwidth available for the client users.

Milestone recommends that you install the Mobile server on a dedicated server.

SQL Server

The management server, event server and log server use an SQL server to store, for example, configuration, alarms, events and log messages.

The XProtect Corporate installer includes Microsoft SQL Server 2012 Express which you can use freely for systems up to 300 cameras.

For larger systems over 300 cameras, Milestone recommends that you use the latest SQL Server 2014 Standard or Enterprise on a dedicated server as these editions can handle larger databases and offer backup functionality.

Additional products and components

In addition to Milestone XProtect Corporate VMS, Milestone has a set of add-on products and utilities, of which the most important ones are highlighted below.

MIP SDK

The MIP SDK is a comprehensive tool that facilitates the integration of applications for Milestone VMS. The MIP SDK provides flexible access to video, events, metadata and configuration data as well as optimized functions for access control integration. The MIP SDK extends the software's functionality by allowing developers to create new and powerful surveillance solutions optimized for a specific system and purpose.

To support the integration of different third-party applications and systems, the MIP SDK has different integration methods, including protocol integration, component integration and a unique plug-in abstraction layer. Using the plug-in integration, solutions become a fully integrated part of the XProtect VMS user interface.

Software Manager

The Software Manager is a tool that from a central point can be used to remotely install and upgrade recording servers, recording server device packs and XProtect Smart Clients on servers or PCs in the network.

For larger installations the tool makes it easy and fast to upgrade the components that are installed remotely and in many places; namely the recording servers and their device packs as well as all the client PCs.

Integration with standard IT technology

Milestone XProtect Corporate integrates seamlessly with commonly used IT technology and tools, and use terms and technologies commonly known by the IT administrator. This makes it easy for IT administrators to choose, deploy and administrate the VMS because the learning curve is low for people with IT knowledge. The Milestone XProtect VMS looks like and is managed like an IT system, the data being video streams instead of files, transactions, business data, etc.

The below list are examples of how Milestone XProtect Corporate integrates with and uses standard IT technology:

Microsoft Active Directory (AD)

Users and groups from the AD can be used in the security roles in the VMS. This makes it easy via the AD groups to administrate who can access the VMS and what they can access. New users to the system are simply added to the right AD group(s) and they have access.

Per default the system is installed using LOCAL SYSTEM as account for services. It can be advantageous to use Active Directory accounts for these instead.

Further, Active Directory provides time synchronization between servers, which is important for proper system operation. Using Milestone Federated Architecture is depending on Active Directory. Deployment across different Active Directory domains is possible provided domain trust is established.

SQL server

For installations with less than 300 cameras, the included free SQL Server Express edition can be used, but in general it is recommended to use a full version of Microsoft SQL Server as it offers better performance and most importantly, it offers scheduled backup of the database. The whole system configuration is stored in the SQL server, so it is important to configure a regular backup of the VMS configuration database and not just make a manual one-time backup through the Management Client, because this backup will quickly become outdated due to configuration changes, such as replacing cameras, adding/deleting users, changing camera settings, etc.

It is recommended to implement a transaction log backup and shrink schedule or change the SQL database backup type to Simple, to avoid continuous buildup of transaction logs.

Virtualization

Virtualization technologies like Microsoft Hyper-V and VMware can be used for all Milestone XProtect software and their individual components, and they are used widely within R&D in Milestone Systems A/S during development, test, support, etc.

For the majority of installations, it is commonplace to run the management server and event server in a virtual environment and there are many benefits to doing so as the resource consumption is minimal and the benefits of high availability and zero downtime maintenance for these components are very desirable.

For the recording server or failover recording server the benefits of running them in a virtual environment is typically negligible as the recording server take full advantage of server processing resources.

There are though some installations where virtualization of the recording servers may be desirable:

- If the physical recording servers require zero down time maintenance then features such as VMotion (for VMware) or Live Migration (for Hyper-V) would be beneficial. VMotion and Live Migration have both been successfully tested with a Milestone Recording Server
- For use with a failover recording server to provide failover capability to multiple recording servers at the same time. As a single failover recording server only can provide failover capabilities to a single recording server at a time virtualization can be used to accommodate multiple failover recording server instances on a single hardware platform
- When using a virtual environment, each virtual server should be allocated at least the same resources as would be for a physical server.

VLAN

It is possible to use VLAN with Milestone XProtect software to segment and separate the network and its traffic. If using VLAN to segment and share network equipment between standard network traffic and video surveillance traffic, it is important to take into account that, depending on the number of cameras and their stream configuration, the video surveillance traffic can place a very high and permanent load on the network because video from all cameras is streamed permanently to the recording servers.

A quick example: 100 cameras on a recording server running at HD resolution at 25 or 30 frames per second using 2 Mbit/s per camera amounts to a constant 200 Mbit/s load on the network to the recording server.

In addition to the constant traffic from the cameras to the recording server, the traffic from the recording server to the clients must also be taken into account.

Firewall

The video streams from the Milestone XProtect software can be streamed through firewalls by permitting/forwarding the used ports and protocols. This allows for cameras or clients to be located outside the local network, for instance on public Internet.

VPN

Standard VPN can be used to further protect and encrypt the video streams and video surveillance system communication, if the clients or cameras are connected via public Internet. As an alternative to pure port forwarding in a router or firewall, VPN can also be used to provide access to the VMS from the Internet.

IPv4 and IPv6

Milestone XProtect Corporate supports both IPv4 and IPv6, including multicast.

VMS, server and network monitoring

Milestone XProtect software runs on standard IT equipment, such as servers, storage, network switches, etc., standard IT monitoring products, and software already known by the IT administrators can also be used to monitor the health and status of the equipment running the VMS. This makes it easy to integrate Milestone XProtect software in the existing IT infrastructure and work processes.

In extension to external system monitoring tools, Milestone XProtect Corporate supports a built-in function with dedicated user interface called **System Monitor**, which gives an overview of the load and use of the servers and their storage as well as the network in general. In addition to this, System Monitor also provides an overview of VMS- specific parameters like storage and network use per camera.

Email

In addition to the technical monitoring mentioned above, Milestone XProtect Corporate VMS can use email to send notifications of technical issues, security events or events from third-party integrations. It is also possible to include still images and AVIs of the event in the email notification.

SNMP

It is possible to use SNMP traps to send notifications to a standard network monitoring product, for instance SolarWinds Kiwi Syslog.

NTP

When timestamps are enabled to be overlaid on the video from the cameras or when Edge Storage is used in the cameras, it is necessary to set up a Network Time Protocol server (NTP) and configure the cameras to synchronize its time with the NTP server. The NTP server must be synchronized with the VMS servers' time source, typically a domain controller, so all parts of the VMS use the same time. If this is not done, the video overlaid timestamps will, over time, drift and deviate from the VMS time stamps because the camera clocks are not very precise, and for Edge Storage the solution will stop working once the camera and VMS time stamps are too far apart.

Windows reliability and performance monitor (Perfmon)

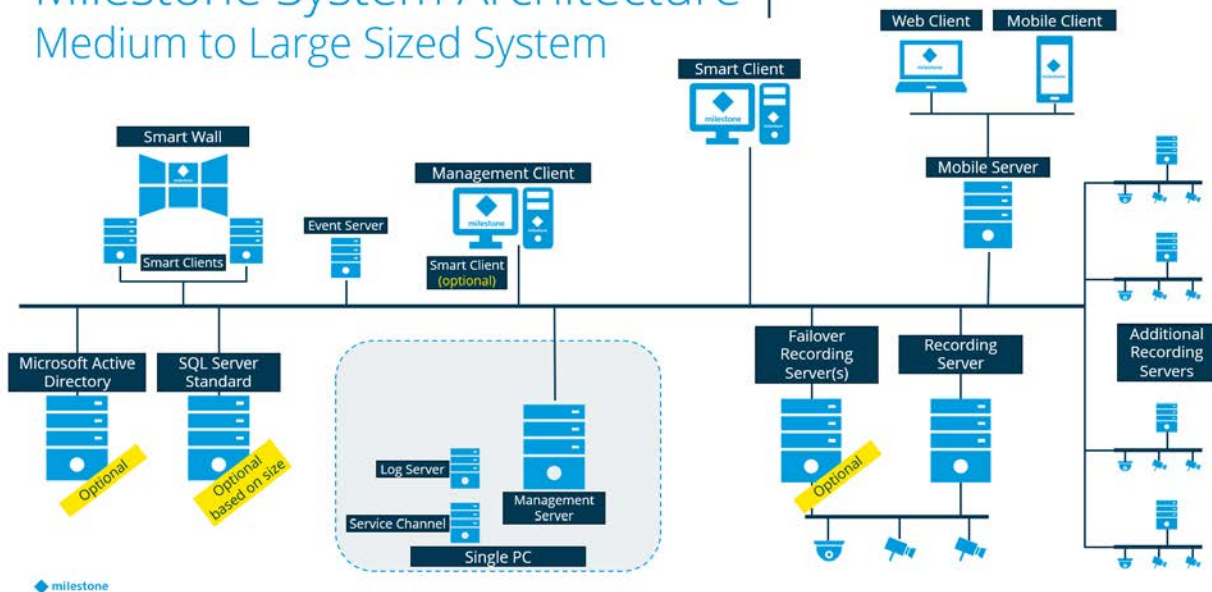
Windows Perfmon is a powerful performance monitoring tool that is built into Windows. Perfmon can be used to track various windows counters like CPU, network, disk load and I/O, etc., over time. In addition to the standard Windows counters, it can also monitor counters from other software services if they offer service-specific counters.

Milestone XProtect Corporate supports a wide range of VMS- specific Perfmon counters that can be used to monitor the VMS' performance and pinpoint issues or bottlenecks within the VMS or its use of the server hardware.

Milestone Federated Architecture:

When you need to connect several, larger sites: Choose Federated Architecture if all of your sites require an advanced video management solution or you need to scale a large installation with several thousand cameras spread over several sites.

Milestone System Architecture | Medium to Large Sized System

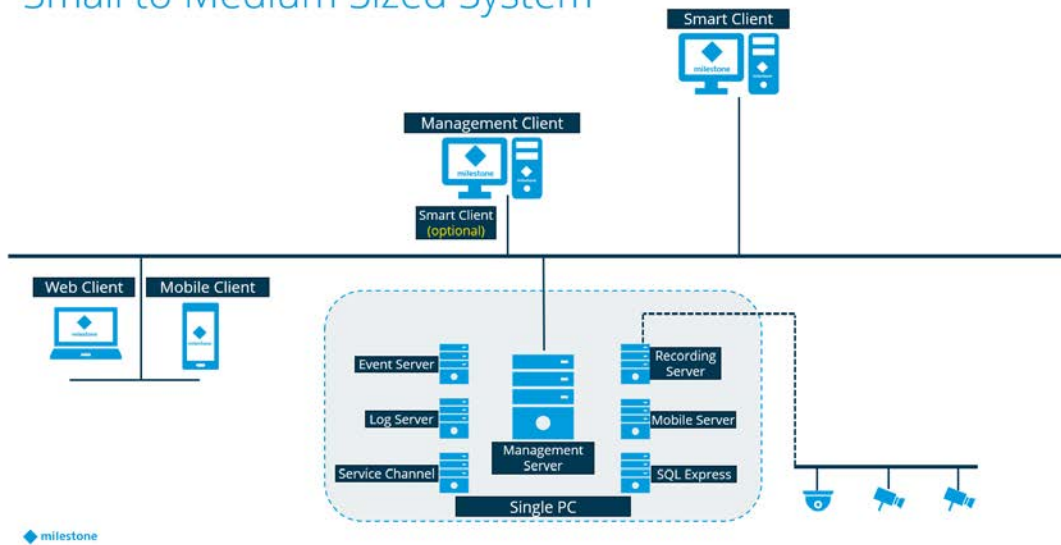


- XProtect Corporate is deployed at the principal site
- Sub-sites use either XProtect Corporate or XProtect Expert
- Video can only be stored locally

Milestone Interconnect Architecture:

When you need to manage many small sites: Choose Milestone Interconnect when surveillance operations need to be coordinated across many smaller sites and handled from a central operation center.

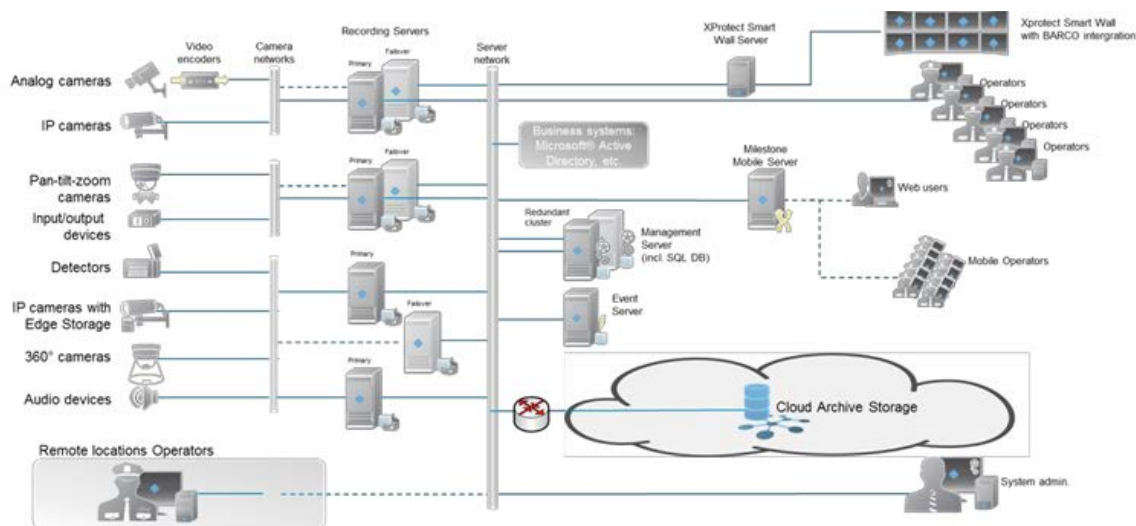
Server Architecture | Small to Medium Sized System



- XProtect® Corporate is deployed at the main site
- Remote sites can use any XProtect VMS or Milestone Husky™ NVR
- Video can be stored centrally, locally or a combination of the two
- Ideal for limited or intermittent connections between the local and central sites

Cloud Options:

Milestone currently approaches cloud by enabling partners to utilize XProtect in several cloud-based solutions (VaaS, MVaaS Basic Video and Alarm response).



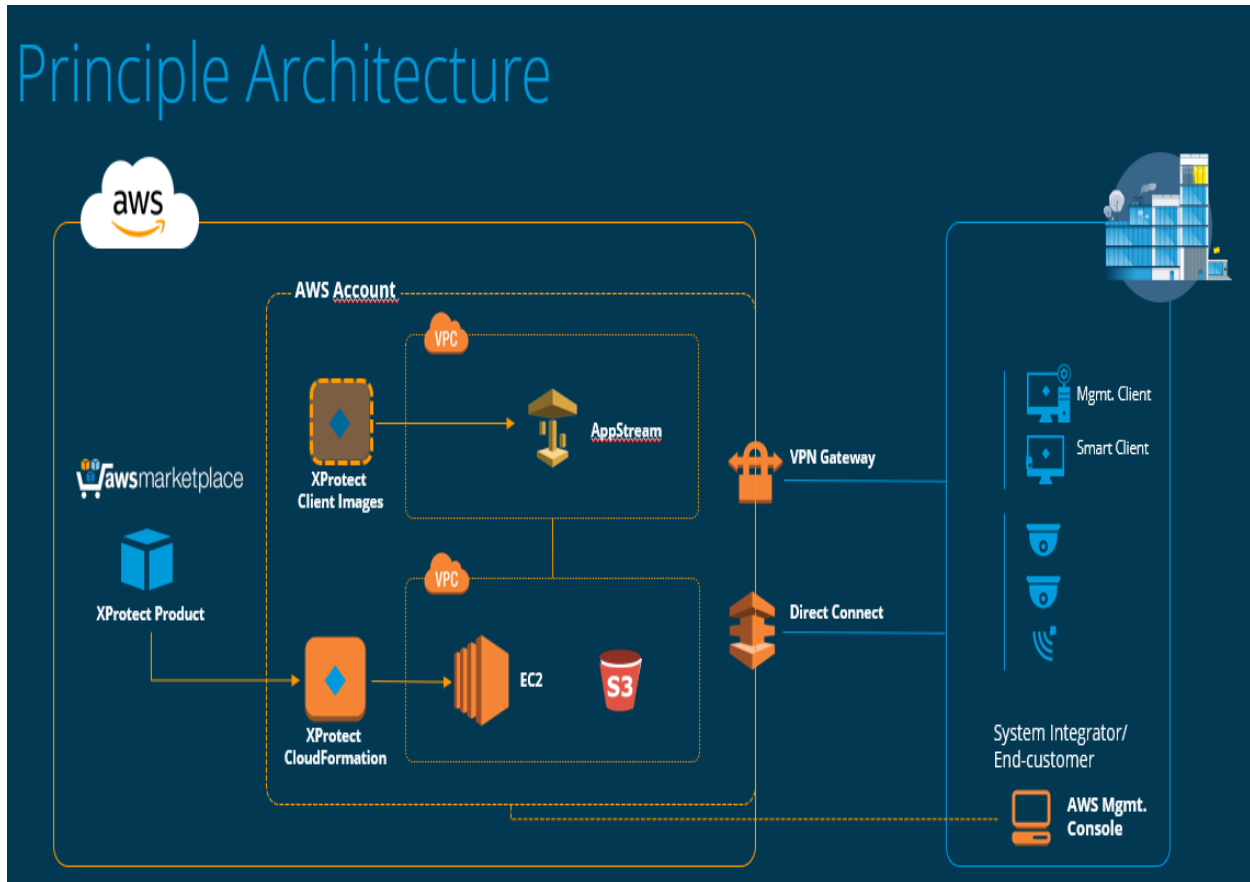
Milestone has been installed successfully on numerous private, public, hybrid cloud applications and is in the process of certifying those cloud solutions providers.

Milestone believes strongly in the [open community \(platform\)](#) that allows end customers like the NMUSD to make the decision on the cloud provider based on pricing, performance and geographic region.

Milestone XProtect product allows the end user to select what services and deployment criteria that they need, that can be recording, management, or archiving on the ground or in the cloud and based on demand be able to move any of those functions in a different direction.

Cloud storage is provided by third party partners. Azure, AWS, Google and are supported.

XProtect on AWS – Platform as a Service



The XProtect VMS can be activated to run any version. It utilizes native AWS services for optimized storage and transmission. Single EC2 installation can be extended and customized thru licensed through BYOL.

Milestone Xprotect VMS software runs on standard IT equipment

- Standard servers of your choice.
- Standard storage and configuration of your choice, like SATA, SAS, SSD, DAS, SAN, NAS, iSCSI, etc.
- Standard network equipment and any configuration and layout of your choice including support for VLAN, VPN, etc.
- Integrates with the standard Active Directory already present in most installations.
- Use standard Microsoft SQL Server for storing the VMS configuration.
- Support for port customization and port forwarding to support routed networks and firewalls.

For additional information, see the attached **Milestone XProtect VMS Products System Architecture Document**

Client – User Interface

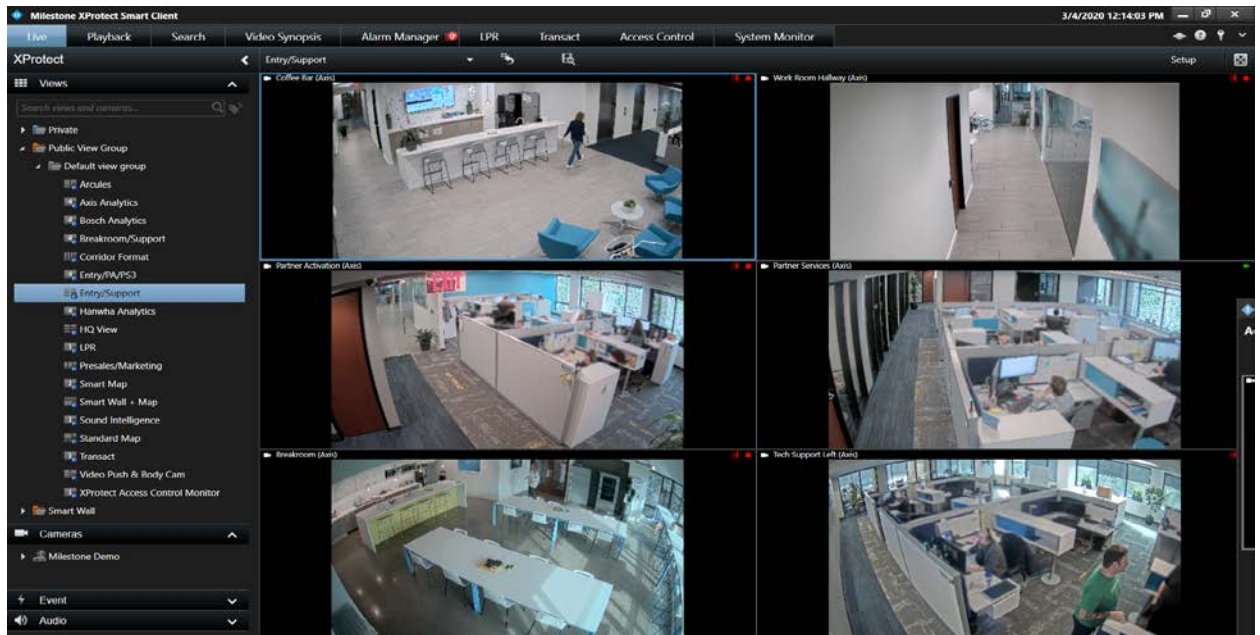
XProtect Smart Client

XProtect Smart Client is the main client for the VMS, offering a full set of advanced features and designed for a day-to-day use by dedicated operators.

XProtect Smart Client is designed to run remotely from the operators' computer and supports multiscreen usage in full screen mode as shown below or in floating windows mode where the user can resize the windows and move them around freely.

NMUSD system users can easily gain intuitive control and unparalleled situational awareness via:

- **Interactive Smart Map:** A comprehensive overview of camera locations and layouts of the entire surveillance installation allows for quick detection of trouble areas which help to mitigate against terrorist actions by notifying first responders very quickly. The system includes a Smart Map feature that supports GIS and CAD drawings, online maps services like Google and Bing and online and offline versions of OpenStreetMap.
- **Overlay buttons:** Streamline workflows and improve operator efficiency by allowing operators to control cameras, camera-integrated devices and other connected systems directly from the camera view.
- **Virtual joystick control:** Easily control pan-tilt-zoom (PTZ) cameras from an integrated on-screen window.
- **Advanced multi-screen handling:** Offers a general overview and enables users to efficiently work with many cameras across multiple screens.
- **Seamless integration of XProtect add-on products:** Operators can access and manage all XProtect add-on products directly from the Smart Client, optimizing their workflow when responding to incidents and alarms.
- **Hardware accelerated video decoding on the Smart Client using multiple NVIDIA cards:** Video decoding is done to significantly reduce the CPU load and improve performance of the recording servers. Video decoding done in the GPU part of the Intel CPU (requires CPU with support for Intel Quick Sync Video) and in the GPU of additional external NVIDIA cards.



Effective incident response capabilities for the system users include:

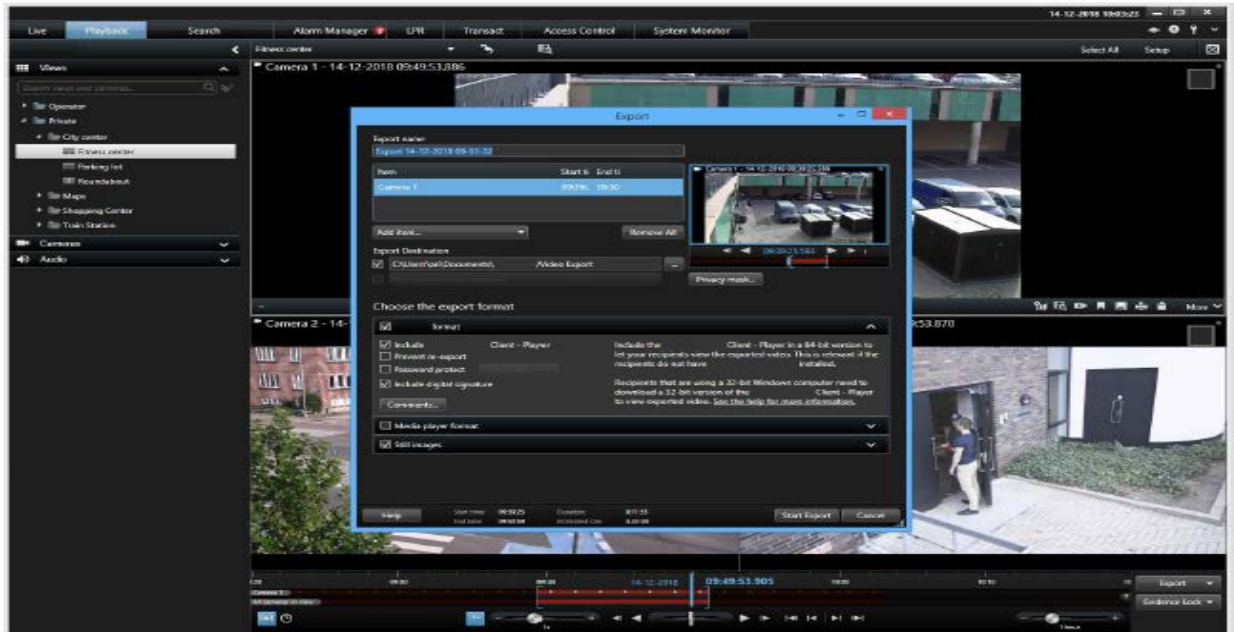
- **Alarm Manager:** Single-point alarm function provides a clear and consolidated overview of security and system-related alarms and gives instant access to cameras for immediate detection of terrorist or other type security incidents.
- **Bookmarking:** Flag video sequences of particular interest and add descriptive notes to easily share information and increase efficiency in investigating incidents.
- **Independent playback function:** Replay events on one camera while simultaneously viewing live video from other cameras in the same view.
- **Integrated support for XProtect® Smart Wall:** Operators can use the Smart Wall as a collaborative canvas to share video, alarms, maps and text information with other operators.

Easy evidence handling for NMUSD system users with:

- **Integrated video timeline:** Easy-to-use timeline with navigation, playback and export controls to simplify the evidence collection process.
- **Enhanced Centralized Search:** Uses motion metadata to quickly and accurately identify sequences with motion in specific operator-defined areas of a camera view.
- **Storyboard function:** A vital tool that turns video into evidence by documenting a sequence of events from multiple cameras in a cohesive flow that allows for easy,

objective and straightforward revision. The technology helps to solve criminal or terrorist activity.

- **XProtect® Smart Client – Player:** A video viewer for evidence that has strong password protection and digital signing to prevent unauthorized access to exported video.



XProtect Web Client

XProtect Web Client is an intuitive, web-based interface to view, play back and share video. It provides instant access to the most commonly used functions, and it is quick to learn and simple to operate for users of all levels. Available in 30 languages, XProtect Web Client provides remote access to the surveillance system from all common browsers and computer operating systems.



XProtect Web Client runs on any Internet-enabled computer or device without installation, including optional browser plug-ins. It offers system scalability and an optimized user experience in systems with many users.

Simple to use features that NMUSD system users can find value in includes:

- **Essential surveillance functions:** Instantly view live video from one or multiple cameras, play back video recordings and control pan-tilt-zoom cameras. Counter terrorism mitigating work by operators can be performed from any location globally.
- **Wide compatibility:** Works with all of the most common operating systems and web browsers including Microsoft® Windows®, Linux, OS X®, Microsoft Internet Explorer®, Safari®, Google Chrome™ and Mozilla® Firefox®.
- **Easy evidence sharing:** Send video (AVI) or still images (JPEG) with other online users, eliminating the need to burn evidence to a DVD or put it on a USB flash drive.
- **HTTPS support:** Provides secure communication between XProtect Web Client and Milestone Mobile server.
- **Output control:** Even when off-site, users can trigger outputs, such as opening/closing doors and switching lights on/off.

Milestone Mobile highlights



XProtect Mobile Client

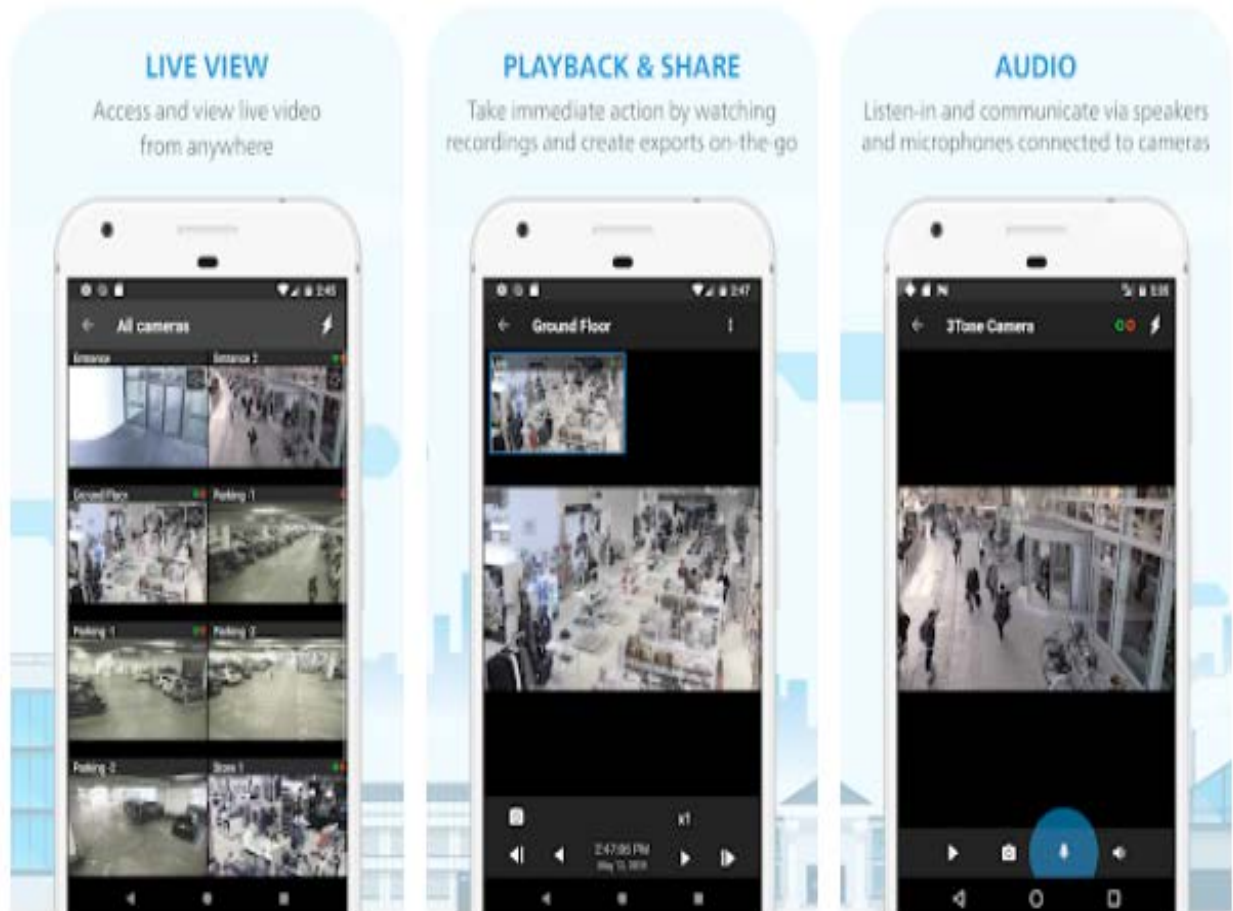
The XProtect Mobile client is a client designed for the user on the go. It offers easy access to live monitoring, playback and export of video, as well as access to activating system events and outputs.

You can use the XProtect Mobile client as a remote recording device by using the device's built-in camera and the Milestone Video Push feature. With Video Push activated, video from the device's camera is streamed back to the VMS and recorded as if it is a standard camera.

With XProtect Mobile, system users can access the system from anywhere:

- **Instant access anywhere:** View and play back incidents and manage access requests on smartphones and tablets for uninterrupted security operations.
- **Stay informed:** Milestone Mobile includes push notifications, which notify you when alarms are triggered and when access is requested to your premises.
- **Secure connectivity:** All communication between the Milestone Mobile app and server is encrypted, ensuring superior security
- **Easily share video:** Take immediate action by creating and watching exports on-the-go.
- **View video across distributed surveillance sites:** Users can access cameras from all sub-sites in large, multi-site installations.
- **Respond to incidents when they happen:** Users can push live video from the device's camera directly into the XProtect system allowing you to document terrorist or other security incidents as they happen.
- **Know exactly where to send first responders:** Users can document the location of pushed video by associating a GPS position with the live video they capture.

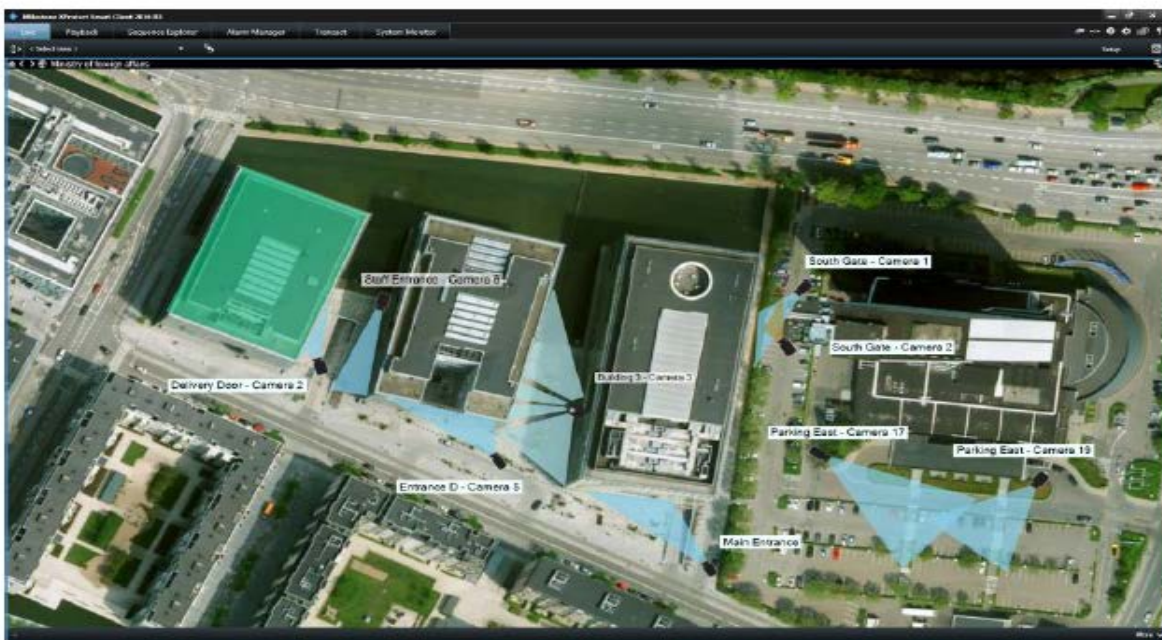
- **Address security situations promptly:** When an alarm is triggered, push notifications are sent to designated users, so they can respond immediately when a situation arises.
- **Control outputs remotely:** Whether or not they are physically on-site, users can control outputs, granting or denying access, and switching lights on/off.



Interactive Multi-Layered Map and Smart Map functions

Milestone XProtect Corporate VMS includes an interactive map function that provides NMUSD operators with real-time situational overview, and the [ability to instantly access](#) any [camera](#) or control [any security peripheral](#) connected to the VMS surveillance system.

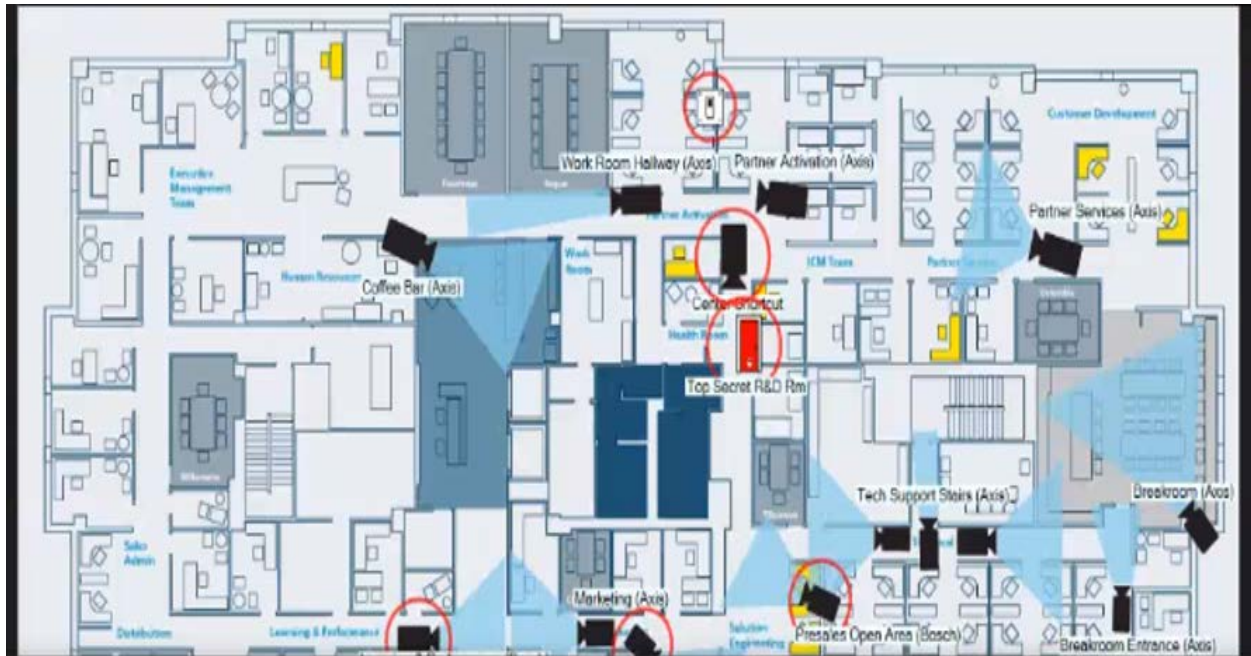
Large security installations like the NMUSD project may contain [several thousand cameras, detectors, audio devices, doors and other access points](#). It is not only the sheer number of cameras and other security peripherals in the system that makes it difficult to efficiently manage larger installations. The physical distribution across different building floors, buildings and across different premises, can make it challenging for operators to get a complete overview.



The map function is an interactive operational security hub providing operators situational overview and instant access to cameras and other security peripherals

The operational hub

Providing the NMUSD control room operators with an easy-to-navigate system overview of [all cameras and other security devices](#), and a wealth of control functions, the map is a true operational hub. This makes the operation of even large installations easy and efficient as well as supports [counter terrorism action plans](#).



Instant access to live video and audio

NMUSD operators have instant access to live video from any camera on a map through a simple no-click mouseover or multi camera selection. In the event of a terrorist or other security incident, all cameras on the map (maximum 25) can open with a single mouse click. Operators can likewise listen to audio from any microphone object placed on the map.

Full control at the operators' fingertips

As the true operational hub, the map function enables operators to control any security device connected to the system. This means that the operator can control everything from lights to doors and gates directly from the map. It is also possible to make announcements via speakers and PA systems directly via the map.

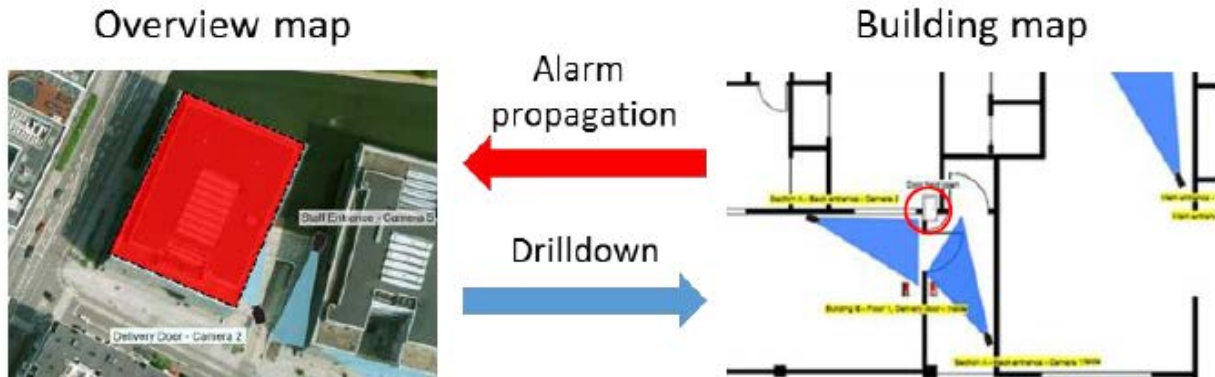
Multi-layered maps – easy navigation

The map function operates with a hierarchy of static maps, each including a set of cameras and other security devices. The individual maps are linked together through hot zones. The primary purpose of hot zones is to facilitate navigation and drilldown to the next level in the map hierarchy. This would, for example, be used when navigating from an overview map to a specific building. An unlimited number of maps may be used in an installation.

Alarm and status propagation

The map also plays an important role in improving efficiency when handling alarms and incidents. In the event of an alarm, operators are notified instantly, where flashing indications in the map guide the operator to locate the device triggering the alarm. Alarms may be picked

and acknowledged directly from the map without using the alarm list. It is also possible to suppress alarm notifications for a given interval, or until a predefined date/time.



Example of alarm propagation: a door is held open too long in a building, which causes an alarm. The alarm is propagated to the overview map via the hot zone that is blinking to notify the operator. Drilling down to the building map, the individual door is easily located by the alarm circle.

A tool for system administrators

In the same way as the map function is an efficient operational tool for security operators, system administrators also benefit from using the map for monitoring operational system status. When activated, the status notification indicates when cameras, recording servers and interconnected systems require attention, or are not operational. Different status level indications (alarm, warning and errors) clearly indicate the severity of a system issue, allowing the administrator to take prompt action on critical matters.

Recording Server				Camera			
DKTS-PM-06-V7				Building 3 - Camera 3			
Name	Value	Unit		Name	Value	Unit	
CPU Peak %	12	%		Resolution	720x576		
CPU Usage %	7	%		FPS	25.00		
Memory Free	1.413	GB		Configured FPS	25.00		
Memory Used	4.446	GB		Image Size	58	KB	
Virtual Memory Free	3.013	GB		Video Format	JPEG		
Virtual Memory Used	5.846	GB		Network bit rate	12	Mbit/s	
Network usage per second - isatap	0	B/s		Offline Times	27-09-2016 06:36:25		
Network utilization % - isatap/miles	0.00	%		Offline Times	27-09-2016 06:36:23		
Network usage per second - Micros	6	Mbit/s		Offline Times	27-09-2016 06:07:50		
Network utilization % - Microsoft H	0.00	%					
Recording server disk free - Local D	1.892	GB					
Recording server disk free - Test	5.001	GB					

Status details for recording servers and cameras available via the map

In addition to the warning and status notifications in the map, it is possible to view performance details for a system object (recording server and cameras) through a simple mouse click.

Spanning federated and interconnected systems

In large or distributed installations using either Milestone Federated Architecture or Milestone Interconnect, the map function provides a consolidated view of the entire system.

When using [Milestone Federated Architecture](#), it is possible to use a high-level map for easy navigation across different sites, where hot zones are defined for drilldown into the individual federated systems.

Operators with distributed systems based on [Milestone Interconnect](#) can use the map function in the central XProtect Corporate system to access all enabled devices in the local edge system (subject to access rights in the remote edge system).

Creating and configuring maps

The map function is based on static background images to provide the widest possible [flexibility](#). Any standard graphic file formats including JPG, GIF, PNG and TIF may be used. Thanks to an [easy drag-and-drop](#) and [point-and-click](#) definition of cameras, access points, audio devices and other security peripherals, the map function is easy to set up and configure. The ability to edit maps is subject to user rights.

Content subject to user rights

The devices and functions available to individual operators via the map are controlled via the normal rights definitions for the users' respective roles.

Key benefits for the NMUSD

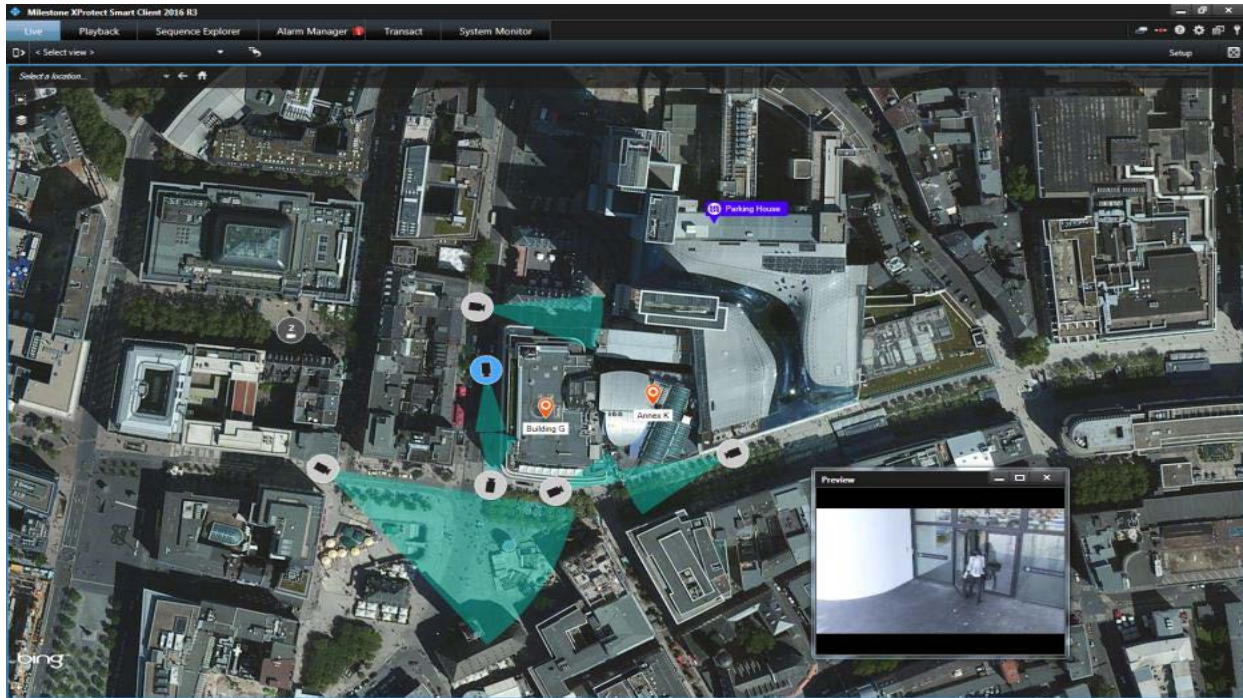
- Provides operational overview of large and complex systems
- Operational hub enabling status reporting from, and control of all connected devices
- Increased efficiency and faster response to terrorist incidents

Smart Map

Smart Maps increase situation awareness by supporting geo-navigation across different locations. It offers native support for GIS maps and CAD drawings, as well as support for online map services such as Google maps, Bing maps and OpenStreetMap, which makes it easy to get an overview and navigate large and distributed installations.

Situational Awareness

Navigating and maintaining situational context in video surveillance installations covering multiple geographical locations and buildings can be difficult. Smart Maps provide security operators with a situational overview and enable quick navigation across different premises.



Smart Map provides seamless geographical navigation and instant access to any camera in the system

Smart Maps provide operators with [instant access to any camera](#) in a XProtect Corporate or XProtect Expert VMS system, or any interconnected camera in a remote edge system.

Smart Maps complement the existing map functionality and operators can seamlessly drilldown into detailed CAD drawings, geo-referenced GIS maps or the existing classic XProtect Smart Client maps using quick links.

To [help operators](#) get [a situational understanding](#) of a premise, camera icons can be orientated in the cameras' actual direction. To further support the operators' understanding of a specific location, a field of view overlay depicts the approximate view coverage of the cameras.

Operators have instant access to camera previews for individual, or a group of, cameras. The preview option gives access to the live feed from the selected camera(s) and the possibility to instantly play back recorded video. This shortens the time required to assess a situation.

Control room collaboration

To facilitate [efficient collaboration and information exchange](#) in command-and-control centers, the Smart Map can be shared on Milestone's video wall solution, the XProtect Smart Wall.

Operators may likewise send individual, or groups of, cameras on the Smart Map to the XProtect Smart Wall, through a few simple clicks.

Map layers

Smart Map recognizes map layers in the used map/drawings material, which allows users to turn different information layers on and off. These map layers contain custom data and can include information such as street names, building structures, security devices, etc. Operators can also toggle the display of system information, such as links, camera names, field of view zones, etc.

Key features that NMUSD operators can take advantage of includes:

- Enables seamless geo-navigation
- Increases system overview and situational awareness
- Easy drag-and-drop and point-and-click definition of cameras, camera field of view, location links and quick links
- Supports Google, Bing and OpenStreetMap online map services
- Supports offline OpenStreetMap via dedicated map server
- Supports geo-referenced GIS maps (Shapefiles)
- Supports CAD drawings (dwg and dxf files)
- Ability for users to toggle different map layers on and off
- Location links for quick navigation across different sites and locations
- Map links enable drilldown to existing classic XProtect Smart Client maps
- Selection of 10 different camera icons
- Instant multi-camera selection with Camera Preview

Smart Wall

XProtect Smart Wall is a video wall solution that provides visual coordination and decision support to operators working in response centers and control rooms. The tight integration with the XProtect Smart Client makes XProtect Smart Wall an efficient collaborative canvas for gaining situational awareness, assessing incidents and coordinating response activities. It supports any number or combination of monitors and runs on standard servers and displays, enabling flexible and cost-efficient installations.

Operating large and high-security installations not only put high demands on individual operators' ability to focus on important matters, it also requires efficient collaboration between staff when assessing and responding to incidents. XProtect Smart Wall is a flexible video wall solution that helps optimize surveillance operations among staff within an operation center and across different security organizations at different physical locations.



XProtect Smart Wall enables operators with different functional roles to quickly detect potential incidents, accurately assess the situation, and coordinate responses efficiently

Providing situational Awareness

XProtect Smart Wall provides important support to control room operators in their daily surveillance operation. Supporting a wide range of different content, the Smart Wall canvas can be optimized for the specific operational condition.

Content like live feeds from cameras, camera carousels and maps gives operators a complete overview and situational awareness in the daily real-time monitoring activities. The Smart Wall can also display HTML content, as a complementary information and decision support. The

support for HTML content can be used for a broad variety of applications, including news feeds, status information or instructions. Predefined text messages can also be displayed on the Smart Wall based on specific events and time schedules. These messages can be used for announcements and to bring operators' attention to critical matters or instructions.

Handling incidents efficiently

In the event of truly critical incidents operators only have limited time to assess the nature and extent of the incident and determine the appropriate response. When every second counts, it is of utmost importance that decision tools and information systems are easy to use and enable efficient collaboration.

XProtect Smart Wall is the perfect decision support tool for fast assessment and response coordination. To support the assessment of a given situation, video recordings of individual incidents can be played back repeatedly until it has been fully analyzed. Likewise, can maps showing the incident location, enlarged video snapshots and still images of persons of interest be sent to the Smart Wall for detailed collective analysis.

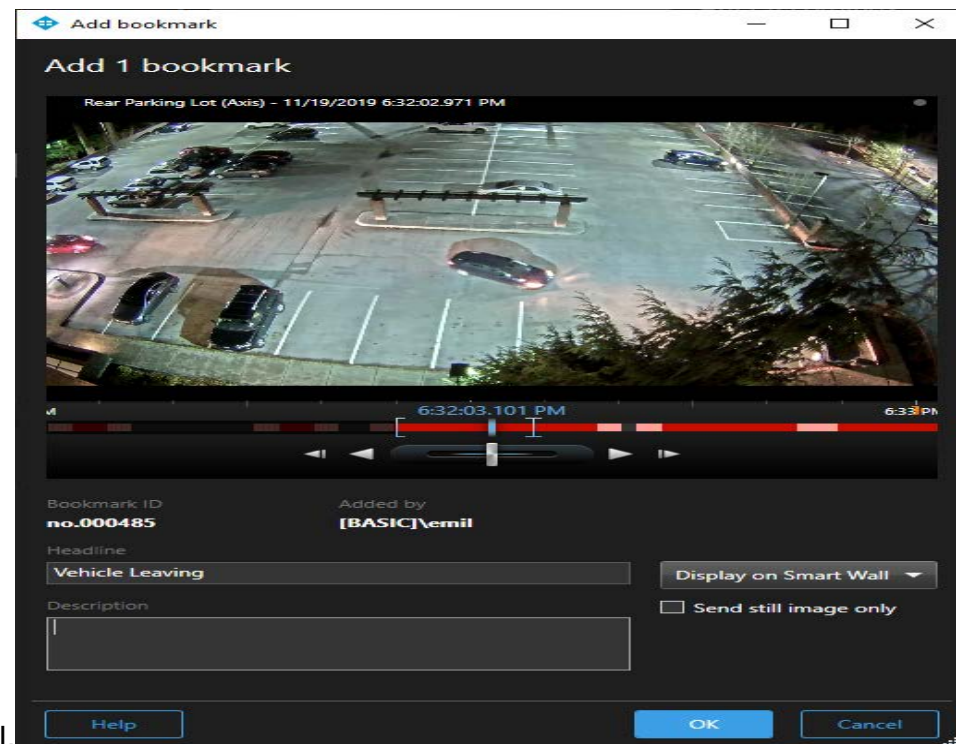
Key features that the NMUSD can find value in:

- Supports a wide set of different content, incl. including cameras, maps, still images and alarms
- Supports unlimited number of video walls and monitors
- Virtual monitor definitions enable easy sharing and mirroring of content across different video walls
- Preset definitions offer dynamic and adaptable control of content / layout
- Black-screen monitoring
- Control subject to user rights
- Intuitive manual sharing of content via simple drag- and-drop operations
- Playback mode for collaborative investigation
- Automatic flexible control of content via the rule engine
- Runs on standard off-the- shelf computers & displays
- Supports GPU-based hardware accelerated video decoding

Sharing of Video

Video sharing is easily handled with the XProtect Corporate VMS to different departments and various Police authorities.

- The XProtect Bookmarking functionality allows users to mark video sections of interest and add descriptive notes for later analysis or sharing with other users.



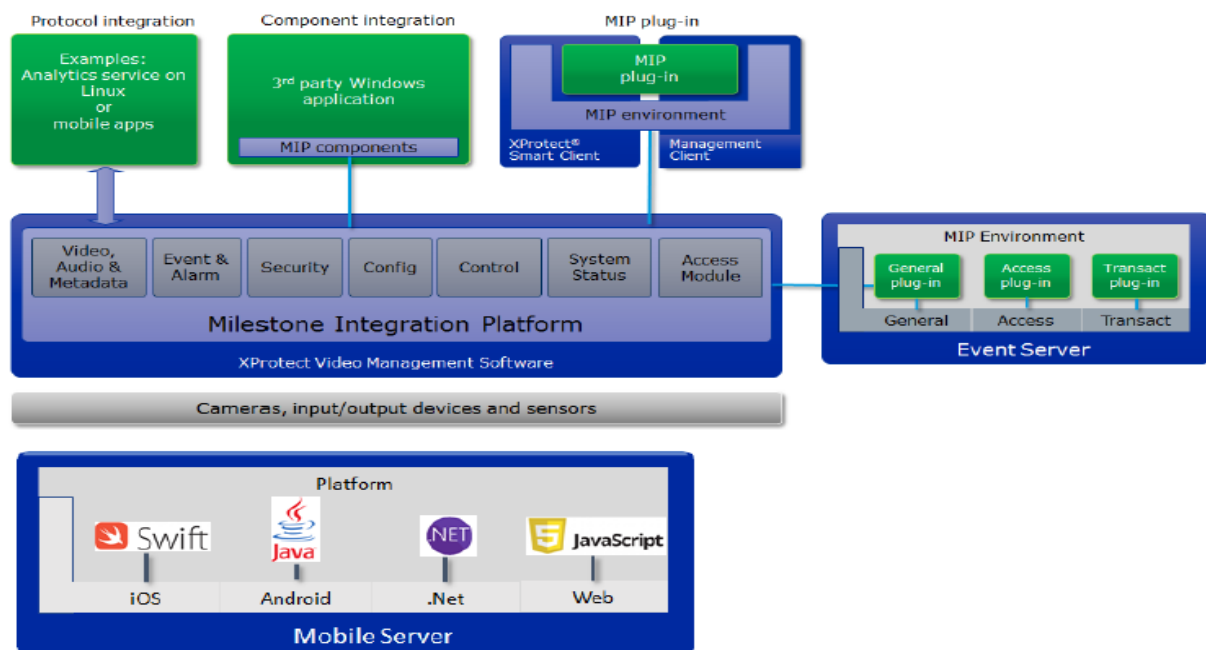
- The XProtect Smart Client supports centralized storage of shared and private camera views, enables coherent access to views across the system.
- The XProtect Web Client supports shared views that can be managed centrally via the server with administrator/user rights and user groups.
- The XProtect Mobile client automatically obtains the user's private and shared views from the system to be used as camera lists.
- To facilitate efficient collaboration and information exchange in command and control centers, the Smart Map can be shared on Milestone's video wall solution, the XProtect Smart Wall. Operators may likewise send individual, or groups of, cameras on the Smart Map to the XProtect Smart Wall, through a few simple clicks.

Third Party Integrations

The Milestone XProtect Corporate VMS provides endless integration possibilities for the Newport Mesa Unified School District.

With access to more than [3500 Milestone Technical Partners](#) you can find applications to meet your needs or even [create your own solution](#) with the MIP Software Development Kit.

Newport Mesa Unified School District stakeholders can integrate applications and business systems, directly into XProtect VMS software through the Milestone Integration Platform (MIP).



Configurable third-party options include:

- Access control
- Audio
- Biometric
- Business Intelligence
- Cameras
- Event Handling
- Facial Recognition
- Fire Detection/Suppression
- HVAC
- Intercom
- Intrusion Panel
- License Plate Recognition

- Network
- Perimeter Protection
- Privacy Protection
- PSIM
- Server
- Storage
- Time Attendance
- Transactional Analysis
- Video Analytic
- Video Wall

For additional information, see the following website.

<https://www.milestonesys.com/community/marketplace/start-exploring/>

Camera Integrations

Milestone's XProtect Corporate VMS provides the ability to integrate with the newest cameras on the market as products are released. The Milestone open platform enables IRS Service Center users to select best-in-class security solutions to its surveillance system as Milestone integrates with over 10,000 camera types.

As the open platform company Milestone is dedicated to ensuring that our XProtect® software works with the widest choice of devices. XProtect software supports IP cameras, encoders and digital video recorders from over 150 manufacturers, and we are continually adding new products. With XProtect, Newport Mesa Unified School District has the freedom to choose the best hardware according to its specific budget and needs.



Find Supported Devices for:

XProtect Corporate
XProtect Expert
XProtect Professional+
XProtect Express+
XProtect Essential+



XProtect Enterprise
XProtect Professional
XProtect Express
XProtect Essential



Elite Camera Partners Include:

- Axis Communication
- Bosch
- Hanwha Techwin
- Panasonic
- Sony

For additional information, see the following website

<https://www.milestonesys.com/community/business-partner-tools/supported-devices/xprotect-corporate-and-xprotect-expert/>

System Requirements (XProtect Corporate 2020 R3)

Computers running XProtect Corporate software	
Name	Description
Operating System	Microsoft® Windows® 8.1 Pro (64 bit)
	Microsoft® Windows® 8.1 Enterprise (64 bit)
	Microsoft® Windows® 10 Pro (64 bit)
	Microsoft® Windows® 10 Enterprise (64 bit)
	Microsoft® Windows® 10 Enterprise LTSB (Long-Term Servicing Branch) 2016 (version 1607 or later)
	Microsoft® Windows® 10 IoT Enterprise, version 1803 or later (64 bit), IoT Core
	Microsoft® Windows® Server 2012 (64 bit): Standard and Datacenter
	Microsoft® Windows® Server 2012 R2 (64 bit): Standard and Datacenter
	Microsoft® Windows® Server 2016 (64 bit): Essentials, Standard and Datacenter
	Microsoft® Windows® Server 2019 (64 bit): Essentials, Standard and Datacenter
	To run clustering/failover management servers, you need a Microsoft® Windows® Server 2012/2012 R2 Standard or Datacenter edition, Microsoft® Windows® Server 2016 Standard or Datacenter edition, or a Microsoft® Windows® Server 2019 Standard or Datacenter edition
File system	For the Recording Storage Location, NTFS file system is recommended
SQL Versions	Microsoft SQL Server® 2012 SP1
	Microsoft SQL Server® 2014
	Microsoft SQL Server® 2016
	Microsoft SQL Server® 2017

Computers running XProtect Corporate software	
	Microsoft SQL Server® 2019 (Only supported on Microsoft® Windows® 10 or greater and Microsoft® Windows® Server 2016 or greater)
Software	Microsoft® .NET 4.7.2 Framework
	Microsoft® .NET Core 2.1.21 Framework
	DirectX 11 or newer
Hardware acceleration	Hardware acceleration with Intel® Quick Sync requires an Intel® CPU 4th generation or newer, supporting Intel Quick Sync and Intel® GPU enabled in BIOS.
	Decoding with NVIDIA graphics card is supported with GPU capability version 6.x (Pascal) or newer.
System Requirements for running 120 cameras (720P, @25 FPS, 2 Mbit/s)	
Name	Description
CPU	Intel® Core™ i3-6100 3.7 GHz
RAM	16 GB
Network	2 x 1 Gigabit Ethernet
Graphics Adapter	Intel® HD Graphics 530 (If Hardware Acceleration is required add graphics card fitting the requirements)
Hard Disk Space	256GB SSD for OS/VMS storage (Add additional storage depending on the number of days you want to save data)
System Requirements for running 700 cameras (720P, @25 FPS, 2 Mbit/s)	
Name	Description
CPU	Intel® Xeon® E3-1515M V5 2.8 GHz
RAM	32 GB
Network	10 Gigabit Ethernet

Computers running XProtect Corporate software	
Graphics Adapter	Intel® Iris™ Pro Graphics P580 (If Hardware Acceleration is required add graphics card fitting the requirements)
Hard Disk Space	2 x 256 GB SSD RAID 1 for OS/VMS storage (Add additional storage depending on the number of days you want to save data)

See the following website, <https://www.milestonesys.com/support/tools-and-references/system-requirements/>

Professional Services

Milestone Professional Services is a portfolio of system deployment and optimization services designed to unlock the full potential of Milestone installations while optimizing the system performance for a problem-free and stable operation.

System Start-Up Service - The System Start-Up service is an onsite installation and configuration services for new Milestone installations. Drawing on Milestones broad system experience, the service ensures that the implementation is executed according to best practices and that the system is tuned for optimal performance for the specific application. During the on-site service execution, the Milestone Engineer works together with the Milestone Partner and the end-customer. This ensures that initial system is installed and configured properly, and also that installation competence is transferred.

Upgrade Assistance Service - The Upgrade Assistance service is designed to assist when a user wants to upgrade existing Milestone XProtect software to the newest version, gaining access to the latest functions and capabilities. The service is relevant for end-customers that subscribe to the Milestone Care Plus service. During Upgrade Assistance, the Milestone Support team will assist the reseller and Solution Engineer by giving any encountered challenges highest priority.

System Health Check Service - The System Health Check service is an audit of installed Milestone XProtect software and hardware configurations. A thorough interview is conducted to understand the solution's design constraints. An analysis of the installation is then compared with best practice and a list of recommendations are generated. The service confirms if the configuration of the installation is aligned with Milestone's best practices and

provides recommendations towards optimal performance. Observed deficiencies and system optimization recommendations will be documented in a service report and delivered upon completion of the service.

System Design Service - The System Design Service is an onsite workshop where relevant IT stakeholders explain about requirements for a surveillance solution. A Milestone Solution Engineer will interview and collect information and create a system design based on the gathered knowledge. The scope of the System Design is the Milestone XProtect solution that is documented with enough information for the IT system owner to start implementing the surveillance solution.

Milestone can also assist in a proof of concept installation. The implementation is executed with test licenses and fully replicates the network, CPU and storage load for the camera count and video feeds specified for the proof of concept.