



Control Room

Solutions Guide



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The background image shows a close-up of a computer keyboard with several keys illuminated in red, green, and blue. Above the keyboard, there are some blurred elements that look like a control panel or a screen with various buttons and indicators. A large, semi-transparent circular overlay is centered over the image, containing the title and two paragraphs of text. The overall color scheme is dark with vibrant, glowing colors from the keyboard lights.

Control Rooms

Control rooms are vital for various organizations to efficiently and effectively monitor multiple information streams and to make accurate mission-critical decisions. With an ever-increasing number of content sources and applications to manage, in addition to collaborative information integration needs, today's control rooms need to enable system management that is efficient and cost-effective while at the same time offer maximum operator comfort.

Control rooms are an essential component of many industries. Whether it's for monitoring, decision-making, responding, controlling, collaborating or communicating, ATEN control room solutions bring the future of control rooms closer – redefining control rooms for efficient work and better decision-making.



Considerations for Control Room Implementers

Accounting for technology developments in terms of control room infrastructure, such as the migration to digital video and advances in computing devices, can often involve great complexity in terms of combining all these requirements to provide flexible information display and user access. Implementing solutions in control rooms requires a sound knowledge of current – and future – developments in not only network connectivity and multiple IT system management, but also in how the integration of computer operations/control and A/V systems can account for the need for essential decision-related content being available in remote spaces.

So, as control rooms are a fast-paced, high-pressure environment with a myriad of technological challenges, meeting these challenges efficiently requires a certain level of technology expertise. System integrators are required to consider many different aspects – solution components need to be reliable, manufactured for quality, and secure – but, along with build quality, the solutions themselves should also ideally provide future-proof infrastructure and investment protection, in addition to guaranteeing network safety and improving operator workflows. What is needed are control room solutions that provide such a networked distributed collaboration system, ones that takes into account the complexities of signal distribution, the connectivity of both physical and virtual servers, data visualization and professional video walls, and intuitive workflows and operator controls.

ATEN's 37+ years of excellence and more than 500 patents in these related areas means that we are at the forefront of the seamless integration of A/V with IT. We understand the increasing complexity of control room requirements; we provide end-to-end design and manufacturing, and we strive to be as competitive as possible. And all that know-how translates into the right control room solution for you. Choose ATEN. Choose control.

Trends in Control Rooms

Leveraging IP Network Technology

Utilizing over IP technology in control rooms for video, audio, and control data distribution and extension offers more flexibility and scalability for centralized or distributed control room operation. In control room scenarios, the migration from direct-connected systems to those that make use of IP networks has had various advantages – mainly, that controllers can configure connectivity architecture and the overall size of the KVM installation based on specific requirements, and systems can be designed to accommodate large distances, high performance and varying levels of system redundancy and resiliency.

So, the major benefit of IP-based KVM in the control room is almost limitless scalability and flexibility. An IP-based KVM system also provides more extension options beyond traditional keyboard-monitor-mouse, including server sharing, video extension, and multicasting. For these reasons, IP-based control units mean you can upgrade your IP management efficiency by increasing productivity and reducing operational costs.

IP-based solutions that utilize TCP/IP for the communication protocol also allow control room operators to monitor, access and troubleshoot control room assets from any networked computer – and this also means that image data from secondary sites or anywhere else on the network can be displayed on the main control room video wall. This enables a faster response to mission-critical emergencies.





Visualization and Information Integration

Monitoring and sharing the ever-expanding amount of video and data streams is essential for control rooms. High quality video performance with the best resolution possible makes rapid analysis of evolving situations and real-time decision-making possible. Display solutions extend from desktop screens for operators to large-size video walls for better collaboration, while multiple displays at workstations help operators visualize more information and improve operation.

The importance of visualization and information integration for monitoring and decision-making in a control room environment has crucial implications for a system's video quality and content distribution capabilities. In scenarios where video walls must be operational 24/7, solutions must allow for high-performance processing that enables video signals to be converted and scaled to meet display requirements – single, dual display, or multi-screen display formats – at resolutions up to 4K. And with multiple video and data sources connected to the system, it should also be possible to create individually tailored video wall solutions that deliver high-quality resolution images to all displays in the control room in any configuration.

Intuitive Access and Control

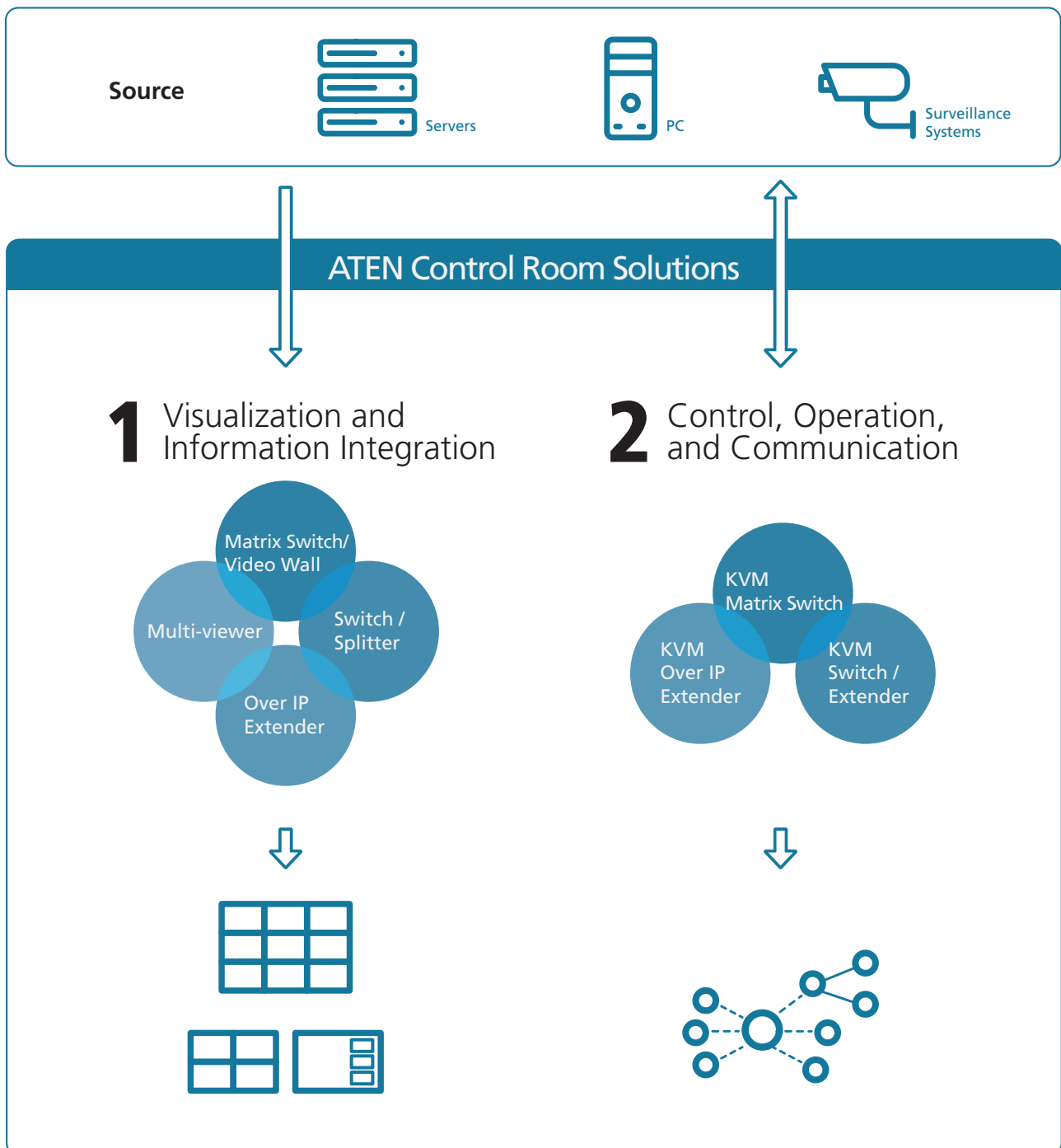
Control Room operators perform a demanding role in monitoring and controlling complex systems, where the consequence of error is potentially devastating. Ergonomics are therefore optimized to minimize the risk of human error and maximize performance and efficiency – a more ergonomic design results in a better workflow and device management.

So, in addition to extending hardware lifecycle and performance reliability by locating machinery away from operators in ideal environmental conditions, it is also imperative to consider the operators themselves. Control and peripheral equipment should be located optimally and displays should be angled for comfort and ease of viewing.

More importantly, access to controls should be intuitive in order to create an environment that enables operators to stay alert and in control so that when incidents do occur, responses can be instant and appropriate resources can be immediately deployed. For these reasons, operator workspace and control solutions that enable multiple computer desktop workflows are the way forward.

ATEN Control Room Solutions

ATEN specializes in the design and manufacture of high performance KVM solutions, helping its customers to increase security and improve operator efficiency within the control room. ATEN control room solutions can be leveraged in both the visualization and information integration and the operation, control and communication areas in any control room environment.



ATEN Control Room Solutions – Key Advantages



Seamless Integration of AV and IT

The convergence between IT and AV is already evident in control room solutions. We are experts in leveraging IT/IP technologies as a way of connecting A/V and server/device-room components, integrating information for collaboration, and facilitating responsive operations and crucial commands. Our solutions provide unlimited scalability, efficient space management, and are based around re-deployable architecture – this not only means that there are no limits to control center capabilities but also allows for advanced, interactive, single sign-on management of the whole system, as well as providing the tools to integrate disparate systems and leverage existing infrastructure / equipment.



Ergonomic Approach

With ergonomics in mind, ATEN control room solutions do not forget the human factor and are designed to merge into operator-focused environments that minimize the risk of human error and maximize performance and efficiency. Over IP solutions allow operators to be separated from devices, while safe, secure, remote access is made easy and desktops and servers are made clutter-free and centrally manageable. Easy-to-navigate GUIs for convenient, intuitive configuration and operation are standard.



Visual Excellence

Our solutions deliver high-performance image quality to multiple display video walls for collaboration-heavy deployments, as well to desk console stations for mission-critical operations. Integrated information and visual details in resolutions up to 4K allow for more accurate monitoring, contact collaboration, and proper responses for situations that have an ever-increasing number of sources, authentication mechanisms and applications to control.



Optimized Operation

For any command and control scenario, we can help you build an intelligent, collaborative control room environment with real-time and accurate access to mission-critical systems from any console; handle any mission-critical emergency from any location; get secure access to mission critical systems and real-time management over the net; distribute multi-view options.



Flexible Deployment and Management

Our extensive control room product line provides flexible solutions that are future-proof, scalable, and implementable across industries, so you can easily find the solution that's just right for you in terms of both operation and device management. Easily manage and control, remotely or locally, any device/information source/your whole IT infrastructure; take advantage of limitless flexibility and scalability while enjoying other benefits that include flexible authentication, secure access, and instant response.



Security and Reliability

ATEN solutions provide secure, reliable access to any system across multiple security domains for 24/7 operation; adjustable authority levels, encrypted communication and log ins; virtual media data encryption; also provides vital rapid failover/backup support for systems and operation, from local and offsite.

ATEN Control Room Solutions in Action

Utilities & Process Control Centers

In Utilities & Process Control Centers, operators continuously monitor and control constant flows of manufacturing, industrial control process, infrastructure/equipment status, and the dynamic change on demand to guarantee production and distribution in the best possible way. The challenges include providing an integrated real-time overview of process flow and equipment status for better situational awareness and decision making, along with a flexible and ergonomic system deployment for efficient yet managed access to devices. Information integration and visualization are especially important in these scenarios – from detailed network distribution information to topological overviews of the service area – in addition to redundancy/backup support to ensure continuous operations.

Power Distribution Company, China

A state-owned power distribution company in China was looking to relocate and upgrade their large-scale dispatch control center to centrally monitor and manage dual-display and single-display workstations while incorporating an additional KVM solution for 96 communication control servers.

Challenges:

- Desktop extension of multiple single and dual-view workstations distributed across different areas of the power distribution system.
- Providing local and remote data center access from the communication control department to the dispatch center.
- Desktop monitor to video wall switching for 2D visualization of the power grid and geographic information.

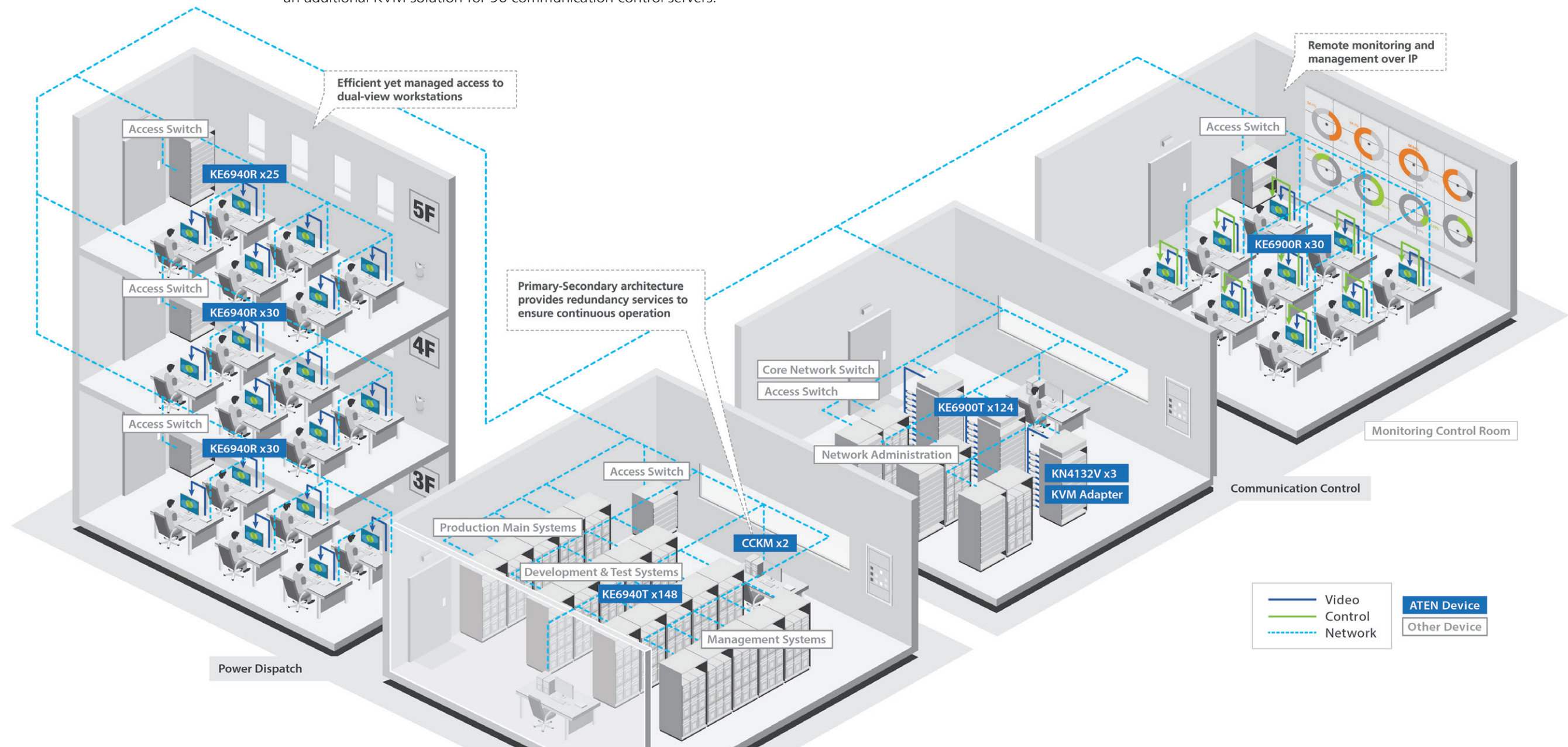
ATEN Solution

Utilized their existing, robust network infrastructure to provide remote access and extended control of both single and dual-view workstations and remote monitoring and management over IP.

CCKM – KE Matrix Management Software

KE6940T/R – DVI Dual Display KVM over IP Extender

KN4132V – 32-Port Cat 5 KVM over IP Switch with Virtual Media



Retail Surveillance Centers

Control centers in a retail surveillance environment need to be able to integrate, access, and display high-resolution video streams from multiple video recorders and cameras and require flexible deployment and operation for both local and remote operations. For security reasons, installations also need to account for multiple system users with different access credentials. Operators in retail surveillance centers monitor multiple sites at all times to ensure a secure environment for their customers and employees. High-quality live overview of the entire multi-site installation helps deter and detect crime, instantly respond to incidents, prevent shoplifting and to settle disputes with customers.



Shopping Mall in Japan

A department store chain in Japan was looking to reduce retail shrinkage, maximize store profits, and decrease the number of store theft cases by managing their high-definition surveillance system. This needed to include both transactions monitoring and building/customer activity monitoring.

Challenges:

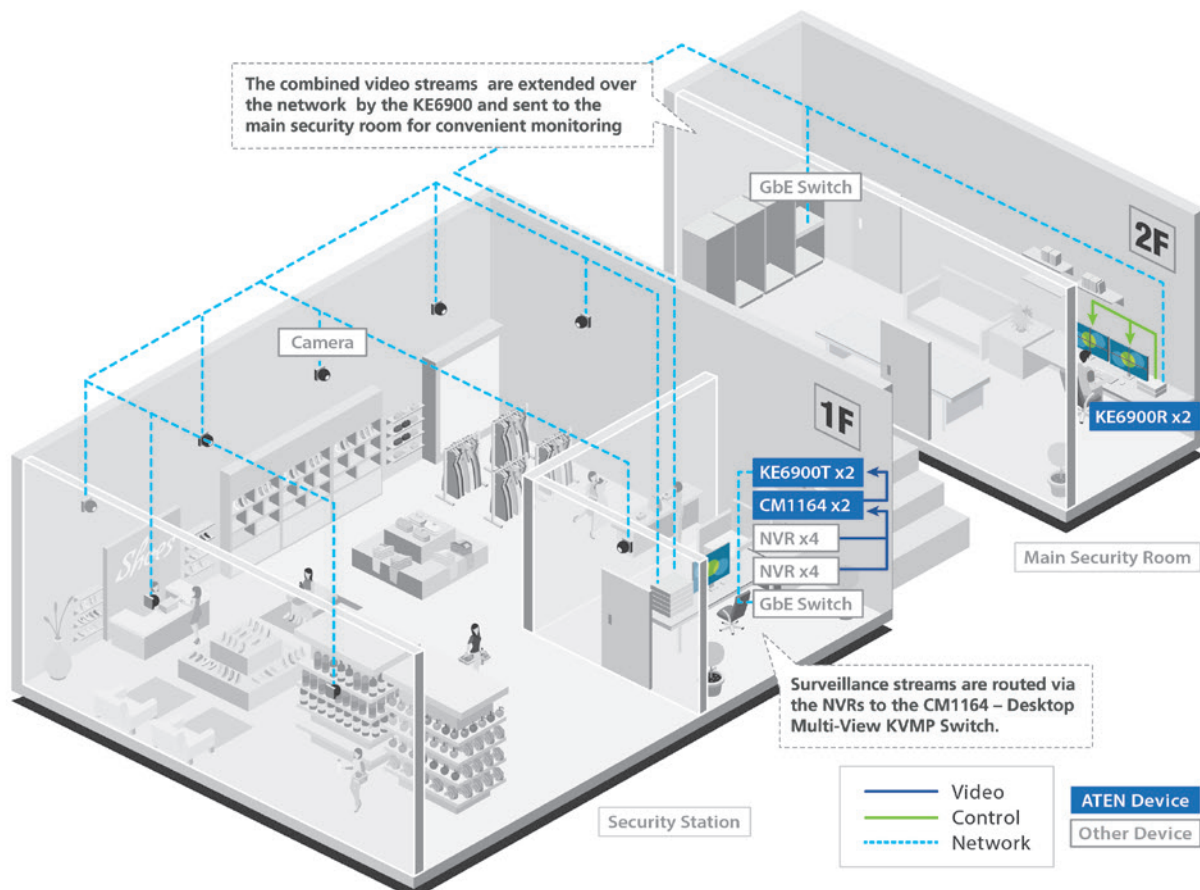
- Utilizing the existing network infrastructure to manage multiple surveillance installations across different floors locally and from a centralized location.
- Providing different access rights to NVRs depending on differing security clearances.
- Supporting real-time, high-quality video transmissions and instant NVR access.

ATEN Solution

Eliminated the compatibility limitations of surveillance systems while offering versatile and customizable viewing layouts, and allowing multiple operators to have instant local and remote secure access.

CM1164 – 4-Port DVI Multi-View KVMP™ Switch

KE6900T/R – DVI KVM over IP Extender



Facility Situation Rooms

Control rooms in the Facility Situation Room environment require integration of high-quality real-time video and various information streams for a complete overview and better situational awareness, along with a flexible and ergonomic system deployment for quick and efficient control. Flexible authentication and authorization for backup support and shift rotation are also a consideration, as well as monitoring, analyzing and distributing information from surveillance cams and sensors to deter trespassers and unauthorized individuals. Whether for a large-scale complex or a single building, monitoring, analyzing and distributing information from video surveillance, access control systems, and sensors are critical for the safety of facilities.

Facility Situation Room, UK

The client was a medium-sized office security & maintenance firm based in the UK with 500 employees throughout the country. They engaged ATEN to provide a major upgrade to their existing facility control room.

Challenges:

- Transitioning from analog to digital video.
- Centralized management of computers.
- Flexible control access to computers.
- Additional Quad-view real-time video projected onto the wall.
- Smart-looking, neat and tidy work environment.

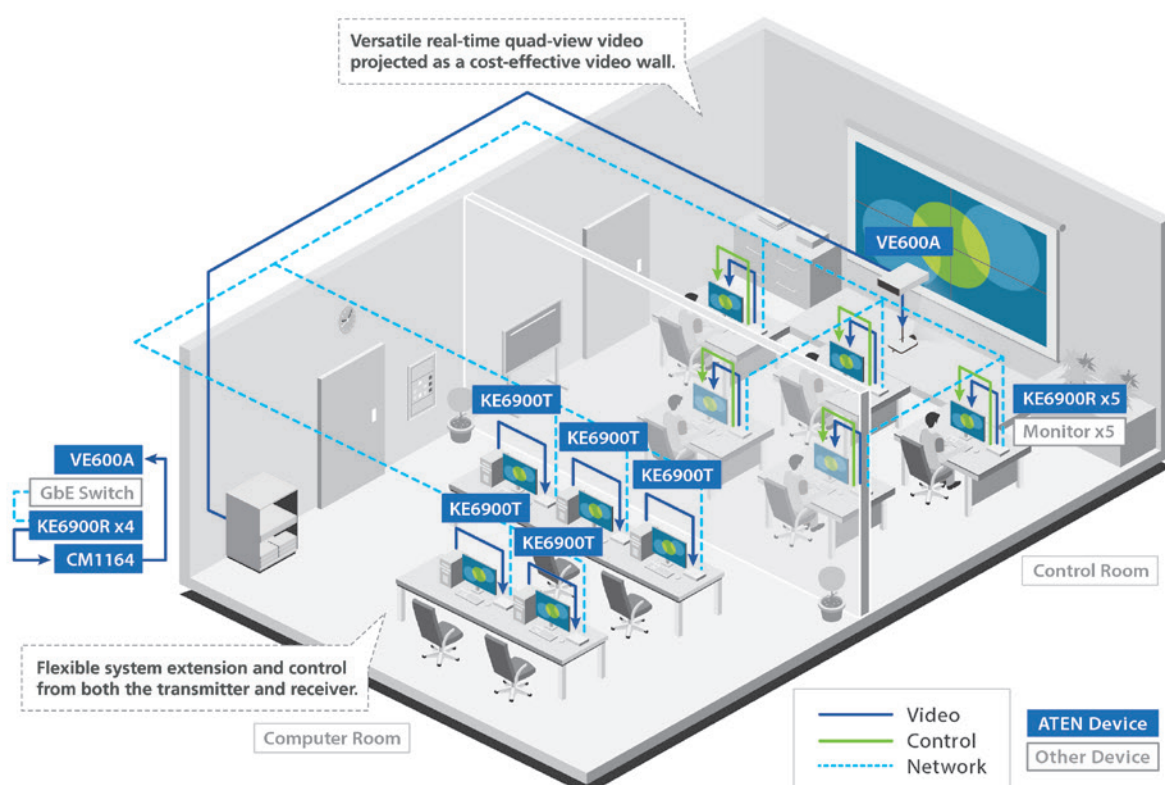
ATEN Solution

Provided versatile viewing modes for controlling multiple computers on one digital or analog DVI screen. The flexible centralized device management system allowed multiple operators to have instant access to multiple computers.

CM1164 – 4-Port DVI Multi-View KVMP™ Switch

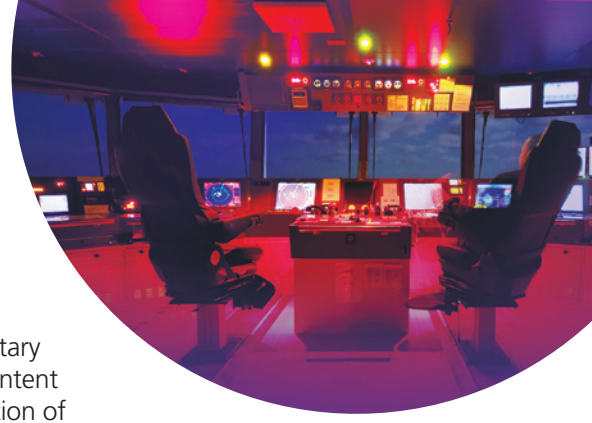
KE6900T/R – DVI KVM over IP Extender

VE600A – DVI/Audio Extender



Command Control Centers

Command control centers, associated most often with government and military agencies, rely on highly responsive, resilient yet secure operations for rich content integration, real-time interagency collaboration, and seamless mass-distribution of critical instructions, notifications, and alerts to facilitate effective collaboration and decision-making. Military command control centers also require multi-classification levels for system operation and data access, as well as system authentication and secure data distribution.



Military Command Center

A military command center was looking for a solution to access their server room with two different connections, one for confidential server racks and the other for non-confidential server racks. For the confidential servers, the solution had to utilize the internal network and provide a high level of security and a restricted user access easily controlled by an administrator.

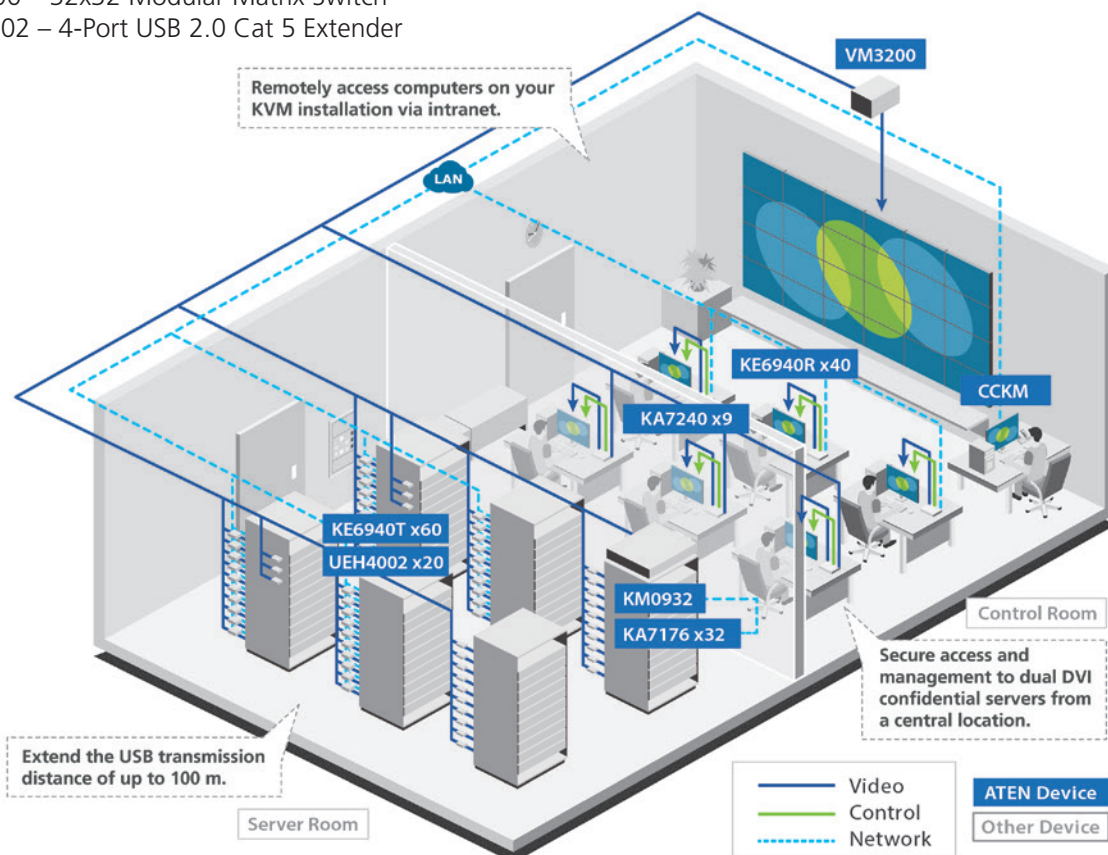
Challenges:

- Providing a secure connection for the dual DVI confidential servers and managing them from a central location.
- Requested a KVM switch solution that provides control of non-confidential servers to 9 consoles.
- USB long range extension for dedicated authentication devices.
- Integrating rich content in a 6x4 video wall.

ATEN Solution

Allowed users with the corresponding security level to remotely access confidential servers on the intranet via the DVI Dual Display KVM over IP Extenders. ATEN's KM0932 allowed consoles to independently and simultaneously control the non-confidential servers.

KE6940T/R – DVI Dual Display KVM over IP Extender
KM0932 – 9-Console 32-Port Cat 5 Matrix KVM Switch
KA7240 – VGA Virtual Media Console Module
KA7176 – VGA/Audio Virtual Media KVM Adapter
VM3200 – 32x32 Modular Matrix Switch
UEH4002 – 4-Port USB 2.0 Cat 5 Extender



Traffic Management Centers

Traffic management control rooms, the nerve centers of traffic monitoring and operations, need to access and manage 24/7 video surveillance to ensure quick incident detection and optimal response as well as proactively controlling signals to avoid congestion. Other vital tasks include real-time traffic video management for various purposes, including the provision of video support for law enforcement activities. In addition, the use of data from different sources in real-time and processing information to take immediate decisions is the key to successful traffic management in smart cities.

Traffic Control Center, Thailand

Chiang Mai is the largest city in Northern Thailand and has an increasing number of tourists each year. The growth of crime and traffic accidents in the city has affected the economy and society as a whole. The Chiang Mai Municipality is planning to install a digital surveillance system on the main streets of the city by 2020 to monitor the public areas and ensure the safety of the public and its property.

Challenges:

- Centralized and real-time monitoring of the video captured from cameras in various locations that are transmitted to the traffic control center in the municipal office.
- Displaying clear images with fine detail captured by 5-Megapixel cameras to be shown on a large video wall for analyzing events
- Providing a cost-effective solution that allows video wall monitoring of their digital surveillance system.

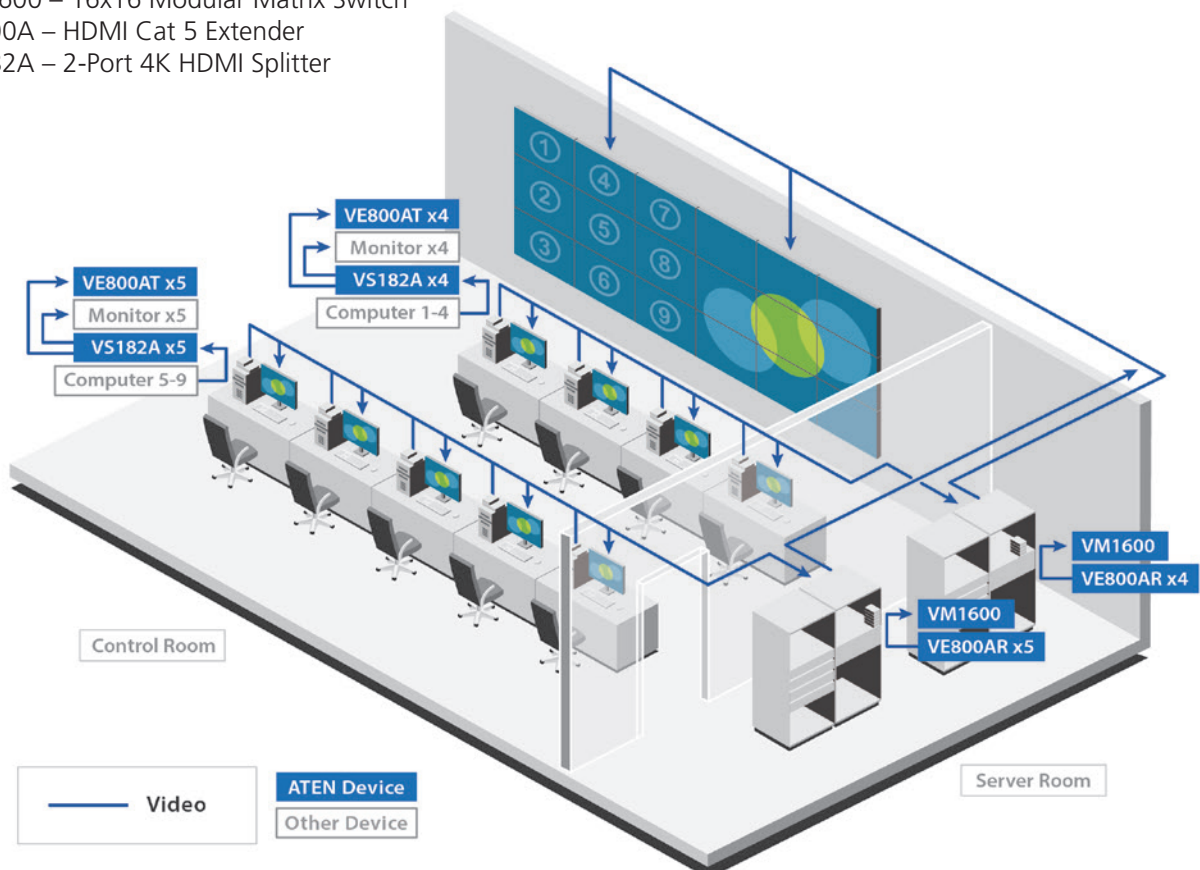
ATEN Solution

The ATEN modular matrix switch integrated seamlessly with the surveillance system to provide centralized management of video from multiple cameras in different locations to help officers take action when events occur.

VM1600 – 16x16 Modular Matrix Switch

VE800A – HDMI Cat 5 Extender

VS182A – 2-Port 4K HDMI Splitter



Broadcasting Distribution Monitoring Systems



All operations in broadcasting distribution monitoring control rooms are based on high quality video with multiple displays or video walls. Flexible and scalable device deployment is also important, along with an ergonomic device deployment and management. Most control rooms in broadcasting and media operate on content creation, content storage, post production and playout transmission. Stability in 24/7 operations, permanent yet instant access to servers and workstations, system reliability, and redundancy/backup support must be guaranteed.

Broadcasting Distribution Monitoring in Estonia

Headquartered in Tallinn, Estonia, Levira is one of the largest TV playout service providers in northern Europe and the main TV and radio broadcast transmission provider in Estonia. The company also operates one of the biggest data centers in the Baltic countries. Levira is developing a state-of-the-art Network Operations Center to manage its key media services, playout and transmission of TV channels to cable TV, data center and cloud services. Once complete, the new NOC will monitor outgoing video signals, environment, equipment health, and the network traffic status of all Levira operations.

Challenges:

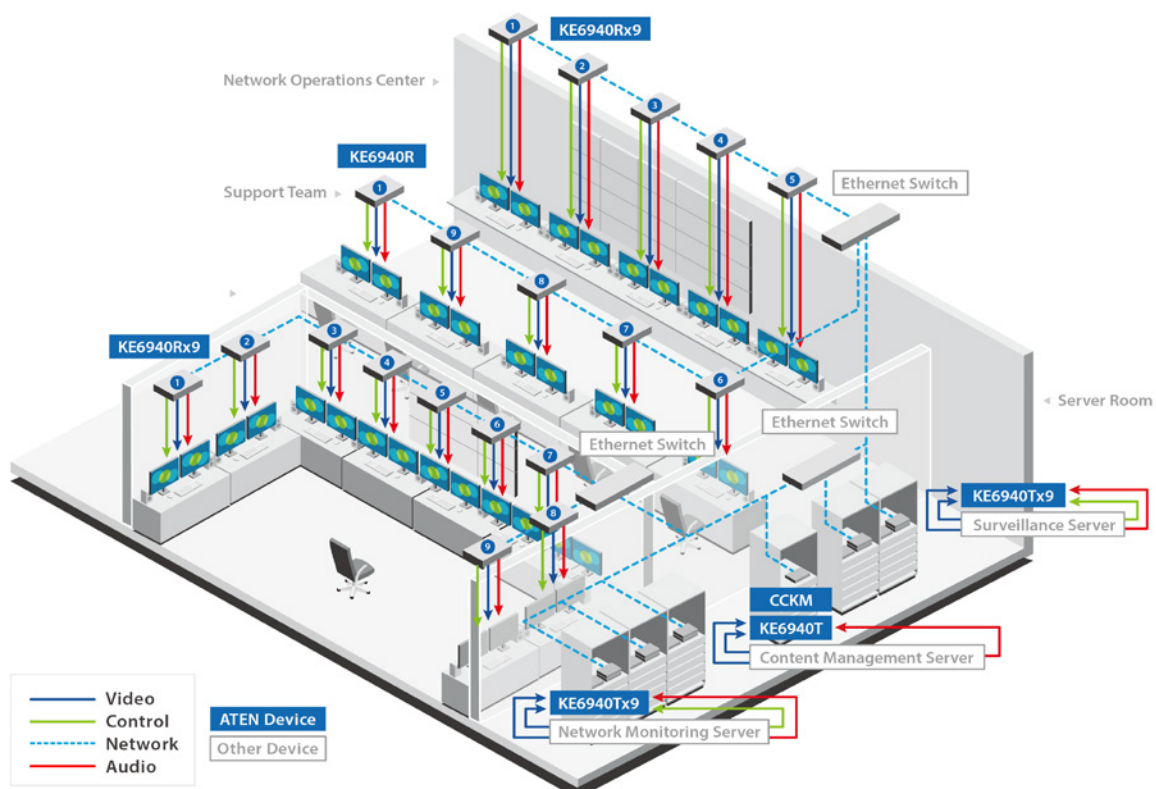
- Required a solution which, in addition to monitoring, allowed them to control servers when necessary.
- The solution had to ensure an advanced level of security and efficiency that includes remote, yet secure management.
- An expandable solution that allows them to install equipment in a separate room away from the workstations utilizing the existing Ethernet infrastructure.
- Technicians and security personnel need reliable access to dual head DVI microservers, workstations, and NVRs with FullHD 1080p video quality.

ATEN Solution

Allowed simple, centralized access control of dual-display DVI servers in Full HD resolution. Provided secure, long distance data transmission and remote access of computers on the KVM installation via intranet.

CCKM – KE Matrix Management Software

KE6940T/R – DVI Dual Display KVM over IP Extender



ATEN Featured Products

ATEN Control and Operation Solution

KVM over IP Matrix System

KE6900 / KE6940
KE8950 / KE8952
CCKM



Desktop Multi-View KVMP™ Switch

CM1164



ATEN Video Wall Solution

Modular Matrix Switches with Video Wall Processor

VM1600 / VM3200



ATEN Video Distribution Solution

Video Splitters

VS182A / VS184A / VS0108HA
VS0102 / VS0104 / VS0108
VS172 / VS174
VS162 / VS164
VS146



Wall Plates

VE806 / VE606 / VE156



Video Extenders

• HDBaseT

VE812 / VE813 / VE814 / VE801 /
VE802 / VE601 / VE901



• Fiber

VE882 / VE892





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About ATEN

ATEN International Co., Ltd., established in 1979, is the leading provider of IT connectivity and management solutions. Offering integrated KVM, Professional Audiovisual, and Intelligent Power solutions, ATEN products connect, manage, and optimize electronics in corporate, government, industrial, educational, and retail environments. ATEN has 500+ issued international patents and a global R&D team that produces a constant stream of innovative solutions, resulting in a comprehensive portfolio of products available worldwide.

