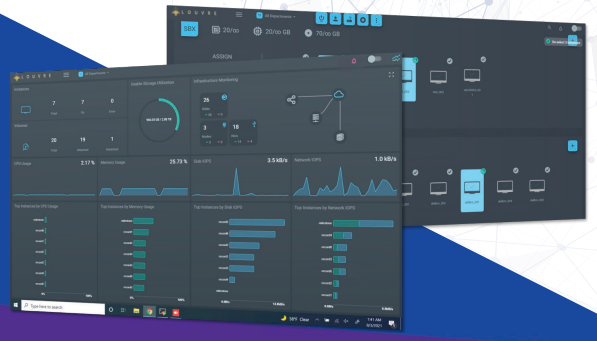
Quantum

UNIFIED SURVEILLANCE PLATFORM

Unified Compute and Storage Optimized for Video Surveillance



DATASHEET

FEATURES & BENEFITS

Reduce Data Center Footprint by up to 80%
Consolidate racks of NVRs and other servers onto a unified compute and storage platform to reduce data center space and costs. Our clients have reduced their data center footprint by up to 80%.

Eliminate Complexity and Reduce Costs
Managing hundreds of individual servers is incredibly complex and takes time and resources. USP eliminates that complexity by replacing hundreds of servers with a single, unified platform.

Reduce Risk of Frame Loss and Data Unavailability
Recording to many NVRs puts your data at risk of being unavailable if a server fails, and if the performance is not sufficient you can drop frames. USP is designed to provide the performance and resilience to ensure your data is available and eliminate frame loss.

Works with Any Video Management System (VMS)
USP is certified with leading VMS providers, so you can run your existing VMS management and recording servers plus additional applications for video analytics, access control, and more.

Simplify and Modernize Physical Security with a More Resilient, Flexible, and Secure Infrastructure

In many organizations video is mission critical, whether it's being used for physical security or other applications such as regulatory compliance, traffic analysis, facility utilization, or improving business operations. Unfortunately, many companies and organizations rely on outdated infrastructure that can't keep pace with the need for zero downtime, 24x7 access to video, protecting video data from cyber threats, easily scaling as needs change and reducing total cost of ownership (TCO).

For organizations who want to simplify their physical security environment while lowering costs, reducing security risks, and ensuring flexibility for future growth, the Quantum Unified Surveillance Platform (USP) delivers a unified compute and storage infrastructure optimized for video surveillance, uses your choice of hardware, reduces risk, and lowers total cost of ownership.

A more resilient, flexible, and secure platform for capturing and storing mission-critical video.

Software-defined infrastructures now dominate IT data centers. However, the Quantum Unified Surveillance Platform is designed for the surveillance world which consists of a constant stream of recording and storing data in a continuous operation.

THE FOCUS ON VIDEO SURVEILLANCE

A video surveillance infrastructure needs to fulfill three key criteria:

HIGH WRITE THROUGHPUT

Video data just keeps on coming and the back-end infrastructure has to keep pace to ensure no frames are dropped. USP has a special write online – distribute offline algorithm for this.

24 x 7 OPERATIONS

In simple terms, the recording never stops. USP introduces configurable erasure coding, which provides very high resiliency that can withstand up to 5 simultaneous disk or 1 server plus 2 disk failures.

SECURE YET SCALABLE

The foundation of video surveillance is security, but it also needs to be flexible for changes in camera count, technology, retention time, and applications. Quantum USP brings data center cybersecurity practices into video surveillance and a flexible hardware-agnostic approach to growth.

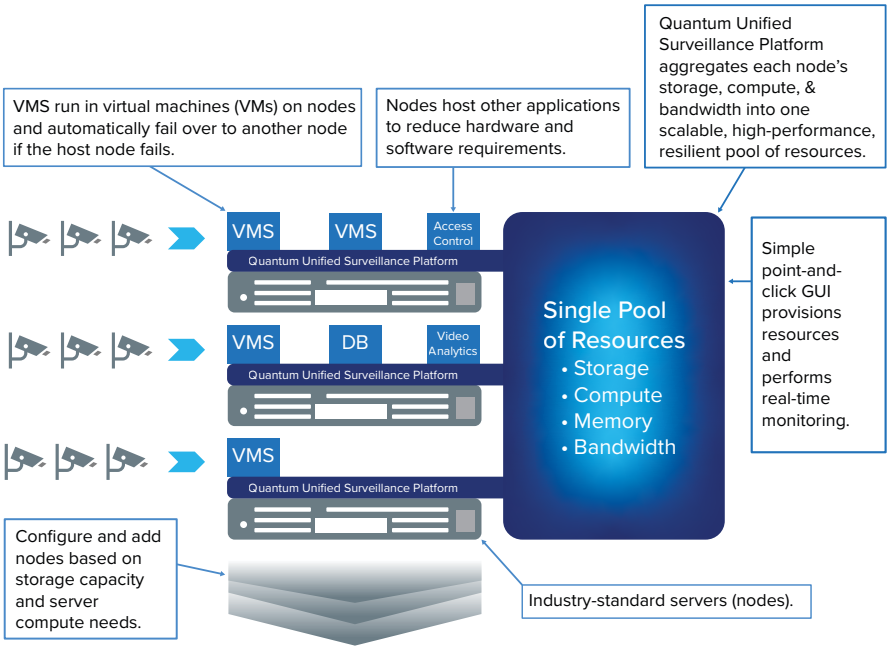
LEARN MORE:

www.quantum.com/video-surveillance

LOWER COSTS – RUN MULTIPLE APPLICATIONS ON A SINGLE PLATFORM

Quantum Unified Surveillance Platform software transforms a group of servers into a complete unified video surveillance platform. It provides the necessary compute, storage, and networking requirements to host not just the Video Management Software (VMS), but also other related capabilities, such as access control, license plate recognition, video analytics, etc. This lowers costs by reducing the amount of hardware needed to support your applications.

Expansion is on-demand, non-disruptive, and very granular with compute only, storage only and compute plus storage nodes and support for external storage systems.



USE NEW OR EXISTING SERVERS IN YOUR SYSTEM

True to its hardware agnostic architecture, Quantum USP software supports a wide range of x86 server vendors. The same hyperconverged cluster can also have servers from different server vendors. These servers can be new or can be a part of your existing inventory.

LOWER RISK WITH HIGH AVAILABILITY AND AUTOMATED VMS FAILOVER

The solution is designed with resiliency at every level. It's able to withstand failures across racks, servers, disks, NICs, switches and other components if a corresponding resource is available to absorb the load. Even the management services that run within the software are designed to always be available.

Data protection is provided with configurable erasure coding technology, a more advanced form of erasure coding, which provides for higher levels of resilience than traditional RAID technology. Whereas traditional erasure coding allowed for no data loss scenarios in case of a single node failure, Quantum USP allows for multiple disks to fail at the same time along with the failed node. Depending on the level of erasure coding you have chosen, this resiliency level can allow for up to 5 simultaneous disk failures or a single node + 2 disk failures without losing any data.

VMS recording servers and other applications running on the system are automatically failed over from one node to another in the event of a complete node failure.

MAINTAIN OPTIMUM WRITE AND PLAYBACK PERFORMANCE

The solution is designed for high write performance. All incoming camera streams are written to a fast storage layer and then distributed offline into an erasure coded pool of cost-effective hard disk drives. This algorithm helps eliminate frame loss.

VMS operations are characterized at times by variable writes depending on the recording scene activity. This introduces a variable I/O rate within the cluster. Quantum USP's intelligent cache is able to keep pace with this variable rate and accommodate for higher throughput whenever needed.

Video surveillance often requires an instant playback of incidents that happened a short time prior. Quantum USP has been designed with this in mind with a provision for keeping recent video recordings in a faster access layer sized according to the desired time limit.

AUTOMATICALLY ENSURE PERFORMANCE FOR WHAT MATTERS MOST

The video surveillance environment has a variety of applications, each with different requirements. Quantum USP ensures applications receive the resources they need based on their profile and priority. A Quality of Service (QoS) feature is available that assigns a compute priority and throughput threshold to each application so that critical applications perform as needed if there is a resource crunch.

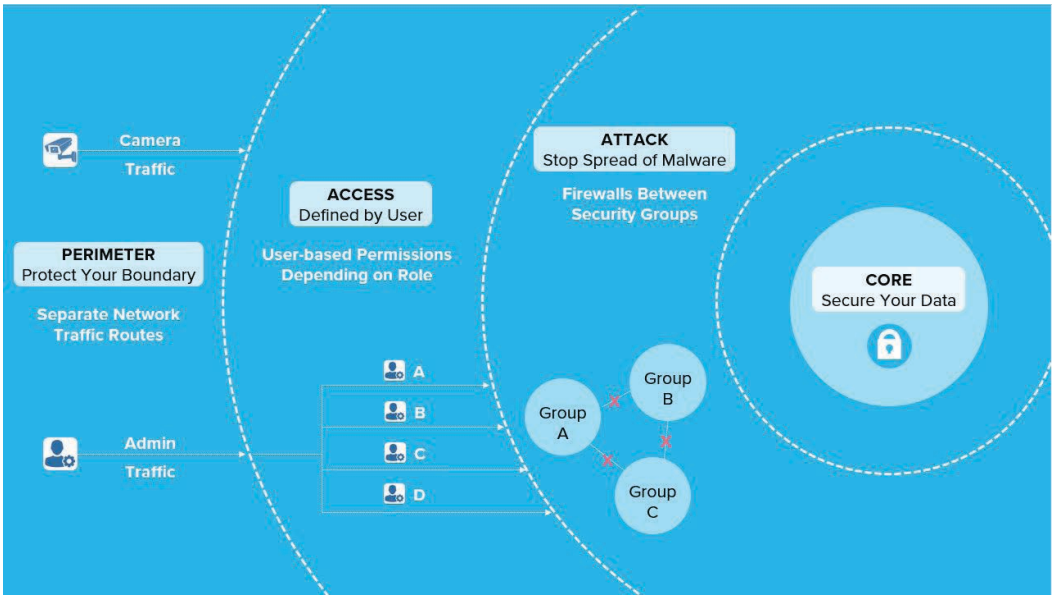
Supports storage media such as SSD, SAS, NL-SAS, and SATA HDDs in both the same server or cluster.

SIMPLE, INTUITIVE MANAGEMENT WITH SYSTEM-WIDE MONITORING

The entire Quantum Unified Surveillance Platform is managed through an intuitive web-based management dashboard. It adopts a simple point and click approach similar to most modern-day consumer applications. Everything is graphical in nature and functions are self-explanatory.

The management is complemented with an in-depth view of all resources that make up the system. Proactive health monitoring is available at the cluster, physical server, and virtual machine level, as well as inside virtual machine levels. Historical and real-time resource utilization graphs help in identifying and resolving potential issues even before they manifest.

ADVANCED SECURITY FOR STRONGEST VIDEO DATA PROTECTION*



Special care has been taken to create the most secure infrastructure platform for video surveillance. Right from the network perimeter to user access to the core data, strict security measures can be adopted at every level.

Software-defined networking coupled with a multi-tenant architecture helps create isolated silos of camera groups as necessary, which can be further enhanced with the available software firewalls.

MAXIMUM VALUE PER DOLLAR INVESTED

Quite simply, Quantum USP delivers the highest value across other infrastructure approaches. Savings come from a number of sources:

- No dependencies on expensive external storage
- No lock-in of vendor-specific or proprietary hardware
- Works with existing available infrastructure
- Works with any custom configuration
- Works with any VMS, supports multiple applications simultaneously

Quantum Unified Surveillance Platform is available on a subscription-based pricing model giving you operations flexibility, so that you can pay as you grow.

CONCLUSION

Software is what gives hardware its intelligence and the ability to meet the requirements of a specific use case. If you're looking to modernize your server and storage infrastructure to meet the current and future demands of your mission-critical video surveillance and physical security environment, Quantum Unified Surveillance Platform can deliver. Quantum USP's unique combination of resilience, flexibility, performance, and security meets the requirements of the most demanding video surveillance and physical security environments, while reducing total cost of ownership and providing an on-premise, private cloud type experience.

Software Feature	Description
Storage	
Multi-Type Disk Support	Support for all types of storage disks within the cluster – SSD, LFF/SFF, SAS/SATA HDD
Software-Defined Storage	Aggregate capacity across all servers into a single storage pool to create virtual volumes as necessary
Virtual Volumes	User-defined volumes of required size and performance mapped to applications across the cluster
Solid State Caching/Tiering	Initial writing of video on high performance flash storage for no frame loss
Object, Block & File Storage#	Flexibility to support for all three types of storage when needed
Data Protection and High Availability	
Node Data Protection	Prevention of data loss within nodes in case of disk failures
Cluster Data Protection via Erasure Coding	Prevention of data loss within a cluster in case of a complete server failure
Application High Availability	Applications on virtual machines automatically migrated to available servers and restarted
Application Live Migration	Applications on virtual machines moved from one running server to another without downtime for maintenance
Scalability	
External SAN/NAS Support	Expand storage capacity by connecting with an external SAN or NAS based storage box
Non-disruptive Node Addition	Expand the cluster by adding a new node without any downtime
Flexibility of Compute, Storage or Mix Node	Flexibility of adding capacity via a new node with only the resource needed
Virtualization	
Built-in Hypervisor	KVM-based hypervisor for running multiple applications on the same physical server
Virtualization Platform	Complete platform for managing all storage, network and other resources for applications within virtual machines
Load Balancing between Nodes	New virtual machines automatically created in appropriate host for balancing of load throughout the cluster
Networking	
Software VXLANs*	Creates multiple internal subnets for hosting applications and setting network policies
Physical VLAN Integration	Virtual machine can be given an IP from an existing physical network for external communication
Multiple NIC Support	Ability for a virtual machine to be assigned multiple IPs from different physical networks for flexibility
Deployment and Installation	
Simplified Installation Template	An Excel-based input file that can be configured ahead of time by the user for a simplified installation experience
Automated Cluster Deployment	Complete cluster setup via a browser-based GUI with minimal configuration steps and automated single-click deployment
Flexible Configuration	Can set up a cluster with different CPU & RAM within individual nodes and also supports both Flat & VLAN-based networks
Management and Monitoring	
Single Management Console	Easy-to-use single pane for management and monitoring of all cluster resources
Web-Based Intuitive Dashboard	Browser-based modern dashboard design for carrying out all operations without the need for any installation
Storage Monitoring and Reporting	Unified view of total usable storage capacity available along with the capacity already utilized
Infrastructure Monitoring	Status info of the physical servers along with utilization of each individual physical disk, CPU, RAM & network ports
Live Application Server Ranking	Live ranking of all virtual machines running applications in terms of resource utilization for proactive issue resolution
Custom Monitoring Deck	Creates a custom monitoring list of select critical virtual machines for historical and current consumption analysis
Multi-Tenant Management & Monitoring*	Creates groups of virtual machines for segregating cameras or applications into isolated silos
Alerts and Notifications	Configuration of real-time web alerts, email notifications, or integration into other infrastructure management tools
Quantum Cloud-Based Analytics (CBA) Integration	Cloud-based monitoring and management tool that enables administrators, Quantum support personnel, and authorized service providers to monitor system health remotely
Video Management Software (VMS) Monitoring (included with CBA)	Reports information and events for VMS applications including metric count for media overflow, camera disconnects, and errors/warnings
Security	
Perimeter Protection*	Separation of camera and application access traffic into different VLANs for segregation of unsecure network traffic
Access Protection*	Restrict access of camera groups or selective applications by individual user accounts
Threat Protection*	Create secure firewalls between groups so that potential threats do not spread from one group to another

Minimum Server Sizing: Minimum 14 physical cores, 96 GB RAM, 2x 10G + 2x 1G NICs, 240 GB SAS boot drive, 2x 480 GB SSD cache drives, HDD as per camera throughput, hosted applications, and storage needs.

* Part of an upcoming USP 5.x software version release (not present in USP 5.0).

Requires other Quantum products to be added for the complete feature delivery.

Quantum

Quantum technology, software, and services provide the solutions that today's organizations need to make video and other unstructured data smarter – so their data works for them and not the other way around. With over 40 years of innovation, Quantum's end-to-end platform is uniquely equipped to orchestrate, protect, and enrich data across its lifecycle, providing enhanced intelligence and actionable insights. Leading organizations in cloud services, entertainment, government, research, education, transportation, and enterprise IT trust Quantum to bring their data to life, because data makes life better, safer, and smarter. Quantum is listed on Nasdaq (QMCO) and the Russell 2000® Index. For more information visit www.quantum.com.