A M P L I D A T A

SOLUTION BRIEF
Video Surveillance – Managing the Massive Growth and Retention of Digital Video

Video Surveillance Needs:

- Supports large number of concurrent camera streams
- Easy to scale capacity and performance with no outages
- Superior data protection
- Integrates with existing applications
- Dense low power footprint
- Easy to manage - low TCO

HIMALAYA™

OPPORTUNITY / CHALLENGE

Organizations are increasingly turning to IP-based video surveillance technologies to better monitor and protect people buildings and critical infrastructure. The trend towards higher video resolution and longer data retention are driving capacity requirements dramatically higher – increasing overall system cost and complexity. IT budgets are increasing at a much slower rate than the data, challenging organizations to find better-faster-cheaper ways to get the job done.

Video surveillance systems create unique storage challenges for IT administrators with a real-time, resource and write intensive workload running around the clock. Organizations have historically relied on block-based RAID iSCSi storage systems with tape for archive. As the number of high resolution IP cameras per deployment explode and the need to keep data on-line longer, storage requirements have grown substantially. Implementations now range from 500 terabytes to multiple petabytes.

The core issues with block storage at this scale are the large number of data silos created due to volume size limits and that RAID for data protection simply won't scale for current multi-terabyte drives. The large numbers of RAID silos and their parallel data streams need to be carefully balanced manually along with the tape archive. As multiple large drives fail, the risk of data loss increases significantly as RAID rebuild times can now take days to weeks to complete. System throughput is poor while in degraded mode during rebuilds. All this places a huge strain on limited IT resources.

For large-scale video surveillance operators such as municipalities, transportation agencies, state and federal governments, and large retail and gaming operations, the old methods of storing and protecting data are unworkable.

SOLUTION

The new generation of object storage solutions like Himalaya™ were built specifically to solve this big video data challenge. Its modular architecture and fully abstracted software stack delivers unbreakable durability, infinite, scalability, and extreme efficiency at a lower cost. Optimized for Intel-based commercial-off-the-shelf hardware Himalaya is designed to take full advantage of the latest Intel* Xeon* Processors with performance scaling linearly with each new controller in the system.

HIMALAYA™

Reduced CapEx
- COTS hardware
- Reduced storage overhead
- Lower software cost

Reduced OpEx
- High availability
- Single system view
- Longer system useful life
- Fail in place model
- Automated self healing
- Remote monitoring
- High density storage
- Low power consumption

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Himalaya is ideal for creating a common repository for the vast amount of video in a multi or single site surveillance implementation. High ingest bandwidth can handle a large numbers of cameras with either on-board storage, DVRs or NVRs.

A true global namespace allows applications and users to access and analyze video data no matter where they are located. Integrating with existing applications and environments is easy with support for NFS/CIFS or iSCSI protocols via certified technology partner gateways. Patented BitSpread® technology protects data with up to fifteen 9s data durability and handles 19 simultaneous drive failures without losing data or access. GeoSpread offers disaster prevention by spreading data across multiple sites using 65% less capacity than RAID 6 and replication. System data remains protected and accessible even if an entire site becomes unavailable.

Hardware components include Intel* Xeon* processor-based controllers and storage nodes, along with a 10GbE/1GbE fabric. Increasing system capacity or performance is done independently by simply adding more storage or controller nodes. Patented BitDynamics® continuously monitors data integrity and when an issue is detected, quickly and automatically self heals with virtually no impact to system performance. Failed drives can remain in place to be addressed during a planned maintenance interval vs. disruptive ad hoc drive replacements. Below is an example of a large video surveillance implementation involving multiple locations.
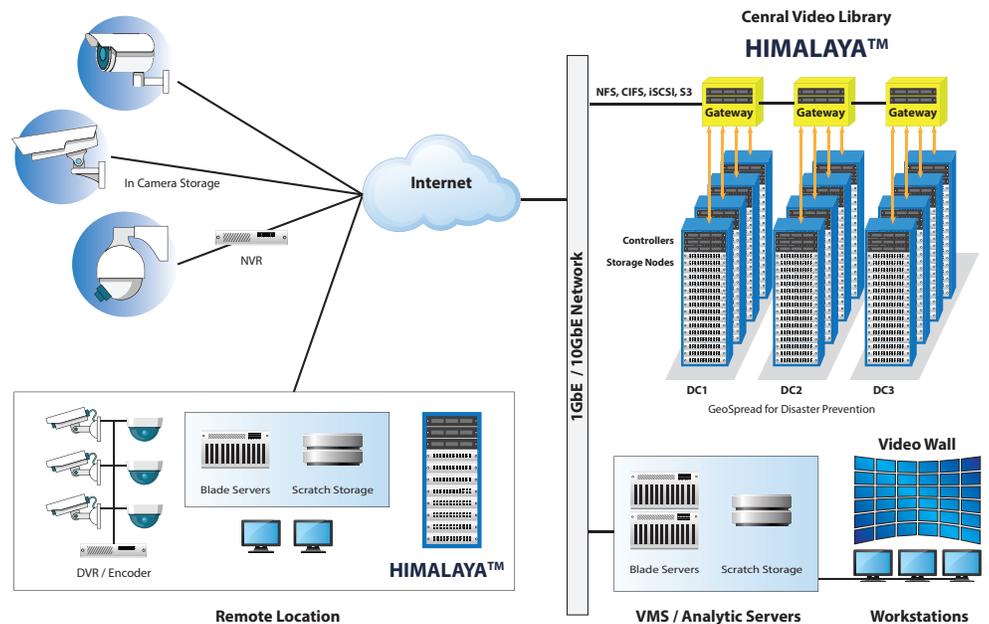

Figure 1: Large scale multi-site video surveillance example

CONCLUSION

Himalaya allows video surveillance operations to dramatically reduce the cost of data storage while enabling new levels of operational and work flow efficiency. Optimized for Intel-based COTS hardware, scaling capacity and performance over time is as easy as adding more nodes. The system automatically adds the resource and will re-balance the data as needed. No more long RAID rebuilds or poor performance in degraded mode. Maintenance becomes orderly with ad hoc drive replacement fire drills a thing of the past. Himalaya is ideally suited for a large scale "video surveillance library" that integrates with existing applications and is better protected and more accessible than conventional systems and tape combined.