Cloudian® storage solutions address the two most compelling challenges facing the video surveillance industry: scalability and searchability. With its capability to scale to hundreds of petabytes, not only can Cloudian’s solution store the burgeoning volume of video data, it can also provide fine-grain searchability of this enormous amount of audio and video data through the use of embedded metadata.

The Data Difficulties of Modern Surveillance

Video surveillance is universally adopted as the primary means to serve the security needs of the military, government, public utilities, and industries including healthcare, retail, hospitality, transportation, education, and more.

Traditional use cases center around ingesting feeds from dispersed cameras which are viewed in real-time or retrieved manually through a Video Management System (VMS). Advancements in camera technology (analog cameras are being replaced with sophisticated digital cameras taking videos and images with finer resolution) and AI (Artificial Intelligent neural networks, machine learning, and deep learning) have allowed video surveillance systems to become smart visual intelligence platforms capable of triggering actions based on events as well as on patterns and predictive analytics.

Today, the use cases have expanded from incident prevention and risk management to the real-time analysis of dynamic environments using deep learning techniques for facial recognition, element identification, vehicle analysis and license plate reading, etc. The applicability spans across industries and covers use cases like dynamic billboarding in retail, food quality monitoring, and safety in the hospitality industry.

These new use cases create and are dependent on large quantities of video data generated by data sources like police and security officers wearing body cameras, dashboard cameras, drones, etc. This massive amount of data needs to be stored in an economical manner so that it can be analyzed with machine learning/deep learning algorithms in real-time or batch mode. Moreover, for the video and audio data to be searchable and inherently useful for analytics, it also requires association with metadata and tagging. And depending on the industry and regulations, the retention time for this data varies from months to years, or perhaps even indefinitely.

Enterprises must solve these real and current data challenges to achieve a state-of-the-art video surveillance solution that delivers increased levels of threat detection and security, as well as enhanced business intelligence to remain competitive.

The Changing Dynamics of Video Surveillance

Technology has evolved the nature of video surveillance and its applications.

- **Cameras have grown in density.**
  Today, a camera does not necessarily have just one lens; it may have multiple lenses in a single package, all recording simultaneously.

- **Camera resolution has dramatically increased,** allowing small details to be viewed and recorded, driving greater efficiencies at identifying events or incidents.

- **Advancements in AI technologies through machine learning and deep learning** are being rapidly adopted and integrated into the camera, storage, and VMS to help drive real-time analytics.

- **Cloud-like on-premises storage solutions that can scale storage capacity and performance dynamically** have become a necessity, lowering costs while delivering required security and data protection.
The Cloudian Video Surveillance Storage Solution

The Cloudian storage solution provides several benefits for storing all the video and audio data generated by modern video surveillance solutions. Cloudian offers a highly scalable, secure and fault-tolerant platform, along with embedded metadata tags that allow the data to be labeled and quickly searched for specific patterns via integrated tools such as Elasticsearch.

Key Solution Benefits

- Petabyte-scalable to handle extended retention time requirements. Start small and easily expand the solution with non-disruptive linear scaling options to meet data growth needs.
- Unmatched data durability — with choice of erasure coding and/or replication across nodes, data centers, and locations. The solution has no single point of failure, offering high data integrity.
- Rich metadata tagging to store user-defined metadata with the actual media data. Store information such as scene content, sound clip descriptions, or image subject. This allows content creators to capture important attributes about the file and enable rapid media search.
- Drop-in Integration: Validated with popular cameras and VMS systems. Easily integrates with existing ecosystems without any modification.
- Consolidation of disparate storage silos with a single scalable storage platform that reduces technical complexity, supports future growth needs and offers flexible deployment and configuration options, including tiering to AWS, Google Cloud Platform, Azure, or other cloud locations.
- Performance to handle the largest environments with bandwidth for HD and multi-megapixel content. Performance that scales independently up to 10s of Gb/s aggregate throughput.
- Simplified storage management across all locations including the cloud. A single-pane system across locations eliminates management overhead and complexity through a unified view of data.
- Cost-effective economics — reduce storage infrastructure and operating costs. TCO approximately 50% less than traditional storage systems.

Summary

Video Surveillance (VS) is experiencing growth at massive scale across multiple industries. With the increase in camera density and the scale of deployments, immense volumes of video and now audio are being generated that need to be stored, protected, and analyzed. The Cloudian video surveillance storage solution offers an ideal platform to accommodate this unprecedented growth based on demand and needs. The solution offers unlimited scale, intelligent metadata tagging for advanced analytics, and simple data management through a single pane of glass across on-premises and public cloud deployments for optimized investments.

For more information about Cloudian HyperStore and HyperFile® visit https://cloudian.com/resource/data-sheets/