

Advanced Video Analytics – Streaming Data Management with Cloud-OnPrem Integration

Client Overview

A global leader in specialized, mission-critical vehicles serving defense, airport, fire safety, and commercial industries. The organization needed a unified, secure, and highly scalable video management platform to support streamlined operations across distributed edge environments.

Business Challenge

To support mission-critical operations, the business needed a modern solution capable of ingesting multiple video streams from their fleet at high speed. It also required secure storage for all incoming data and seamless cloud-to-on-prem integration.

- ➔ No unified system for edge video ingestion and playback
- ➔ Difficulty handling high-volume, concurrent video streams
- ➔ High storage and infrastructure costs
- ➔ Lack of streamlined session management and metadata handling
- ➔ Operational delays due to slow or unreliable video retrieval

Technical Need




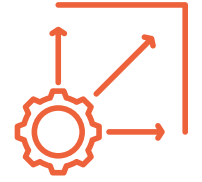

The client's existing systems could not support the speed, scale, and reliability required for mission-critical environments. They needed:

- ➔ A platform capable of handling concurrent video streams without failures
- ➔ Fast, reliable ingestion and retrieval of large, high-resolution video files
- ➔ Smooth integration between the cloud and on-prem Cloudera setup
- ➔ Improved session management and consistent video playback
- ➔ A cost-efficient, scalable storage architecture
- ➔ An architecture capable of supporting future edge AI and video analytics

Solution Delivered

Innominds built a next-generation, scalable video management platform that integrates the cloud with Cloudera’s on-prem environment. The solution enables uninterrupted video ingestion, storage, retrieval, and playback across distributed edge devices.

Key Solution Components

- **Automated High-Speed Video Ingestion**
Real-time ingestion pipelines designed for high-throughput edge environments.
- **Cloud-On-Prem Integration** – Seamless, secure data flow between the cloud and Cloudera’s data lake.
- **Optimized Metadata & Session Management** – Enhanced session controls and metadata models for reliable playback and retrieval.
- **Scalable Storage Architecture** – Cost-efficient data lake implementation supporting long-term storage and analytics.
- **User-Friendly Video Playback & Analytics Interface** – Intuitive UI enabling operational teams to quickly view, analyse, and retrieve video streams.





Outcome

- With the new platform deployed, the client now has a unified system for ingestion, storage, retrieval, and playback across distributed edge locations:
- ➔ Stable support for 250+ concurrent video streams in production
 - ➔ High-speed ingestion pipelines and significantly faster retrieval times
 - ➔ More reliable session, metadata, and playback management
 - ➔ Fully integrated cloud–Cloudera hybrid architecture enabling smooth data flow
 - ➔ Reduced storage footprint through optimized data lake utilization
 - ➔ A scalable architecture ready for advanced edge AI analytics and video intelligence

Tools and Technologies

C | Java | Springboot | Angular | RTSP | FFMPEG / Gstreamer | Cloudera Data Platform | HDFS

Business Outcomes

- **Lower Data & Storage Costs**
Optimized use of Cloudera data lake reduced infrastructure spending.
- **Better Decision-Making**
Real-time visibility into critical video insights.
- **Higher Operational Efficiency**
Unified access to video streams across high-speed operations.
- **Improved Reliability**
Smooth video retrieval and playback even at high concurrency.

Reimagine Video Management
Enabling smarter analysis, reliable operations, and scalable video intelligence.

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