NVMe Use Case: Surveillance Video Processing

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Surveillance video volumes are growing

Average data generated daily by new surveillance cameras shipped globally

Surveillance Video Processing and Distribution

Surveillance applications are pervasive and expanding
Trends in Video Surveillance

- Internet Video Surveillance is growing faster than overall video surveillance market
  - Internet video surveillance traffic will grow seven fold in 5 years (CISCO VNI)

- Video content analysis

- Video Surveillance as a Service (VSaaS)

Video surveillance applications are migrating to the cloud
Video surveillance is moving to the cloud

Why?
- Reduced monitoring staff costs
- Easier to share surveillance video and data
- Enhanced privacy and compliance to data protection regulations
- Reduced CAPEX costs and IT infrastructure
- Enhanced control of security footage.

Security outsourced to cloud monitoring service
- Cloud equipment consolidation simplifies maintenance.
- Economies of scale to outsourcing
Cloud video surveillance processing is moving to the edge

Premise:

- Surveillance Video is generated at Edge, so process at Edge.
- Saves long-haul bandwidth and OPEX costs
Summary of Edge Data Center Requirements for Video Surveillance

- Video storage
  - Compressed video saves storage space
- Video Analysis
  - To generate alarms or metadata
- Video encode and transcode
  - To generate lower bitrate versions of video for situational awareness or ABR streaming

Challenges:
- Space Constrained
- Power Limited
The fusion of:

- **SSD Storage** combined with
- **Video Processing** into a
  - **Low-power compact module**, designed for
  - **Edge Deployment** in the
  - **Video Cloud**.
Video Surveillance Workflows

Host Server in Edge Data Center

- Camera Inputs
- YUV Input
- YUV Output
- H.264/H.265 Decoder
- Cache Storage SSD
- H.264/H.265 Encoder
- Server-side Analytics: AI processing of YUV frames

Archive Storage: DVR/HDD

- Archive Video
- Alarms, Events, Metadata
- ABR Streaming:
  - Monitoring Center
  - First responders
  - Authorized consumers

ABR Streaming

Encoding Ladder

H.265 saves 50% space
Summary

- Surveillance cameras generating increasing volumes of video data
- Trends are moving video surveillance from customer premise to cloud
- Processing at cloud edge minimizes video distribution OPEX
- Codensity EdgeFusion provides SSD and video transcoding for surveillance video processing at the Edge
Questions?

Visit our booth#724 during FMS 2019, or [www.netint.ca](http://www.netint.ca) for more information

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