Hybrid Flash Arrays for Video Surveillance

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OUTLINE

- Requirements for Video Surveillance
- What has Changed -- and Why Flash
- Profile of a Customer Installation
- What Makes This Work
- Market Opportunity for Video Surveillance
Traditional System

- Many cameras writing to NVR
- Low frame Rate
- Moderate resolution
- “Good enough” to see an image

Traditional Storage Requirements

- Need lots of capacity, cheap
- High write ratio
- Sequential throughout performance
- Did I mention cheap?
WHAT HAS CHANGED?

Too many incidents with high public awareness

Greater security concerns

“\text{I can use my cell phone, why can’t you get better video?}”

What is Enabling Data Growth in Video Surveillance Storage?

- Security Threats across the World
- Growing Installations of Surveillance Systems
- 3D, 4K HD and new Pattern Recognition Analytics
Today’s System

- Hundreds of cameras writing to centralized storage
- High frame rates
- High resolution
- Sophisticated software for identification and analysis
- “I want to see the detail”

Today’s Storage Requirements

- Huge capacity, affordable
- High write ratio
- Sequential throughput performance for massive simultaneous streams
- Transaction performance for transcoding and analytics
Customer Profile: Bakersfield City School District

- 28,000 students
- Elementary, Middle, and High Schools
- 158 square miles
- 43 campus locations plus 2 administration sites
- 2000 IP-based cameras in operation
Requirements:

- Must capture, convert and securely store video content
- Combined need for high-bandwidth, performance-intensive transactions on top of archival requirements
- All cameras record at 10-15 frames per second
- Video resolution at 640x480 or greater
- Ability to store all content for 30 days

“The system needed to handle fast transaction workloads consistently and also provide cost-effective archival storage for video files.”
Solution Overview

- Implemented centralized storage with Dot Hill AssuredSAN hybrid flash array and RealTier software
- Video is captured in various native formats from individual cameras
- Video is converted to H.264 format resulting in a 35% reduction; and stored for 30 days
- Installed and supported through West Coast Technology

Benefits

- Performance is optimized for transactions, capacity is optimized for long term storage
- Reduced rack space, reduced power requirements
- Ease of use
Two keys to success:

1. Hybrid Storage Array
2. Real Time Tiering

- SSD’s are 10 times more expensive than HDD’s
  That’s true on a per-capacity basis
- HDD’s are 10 times more expensive than SSD’s
  That’s true on a per-IOPS basis
- Economics of a hybrid array
  Design a system with only 5% - 10% of the capacity as SSD, that can deliver 70%-80% of the I/O via SSD
Mixed workloads cause dramatic changes in data access. Not well served by traditional storage arrays. Real Stor handles dramatic changes in data. Real Time information enables next gen innovations. Real Time algorithms use this information to create business intelligence. Capturing Real Time information about data.
VIDEO SURVEILLANCE SYSTEM OVERVIEW

Centralized Hybrid Storage System

Network Video Recorders (NVRs)

1,000’s of Devices (IoT)
The largest opportunities for storage include Government & Utilities and Enterprise. And these segments are growing at a 12.9% and 20.7% CAGR respectively.

Older technologies (DVR & DAS) represent close to half of the market, **but...**

New storage systems including Hybrids are driving the storage growth for the future.

What is compelling about this story?

- This could be your neighborhood, your child’s school
- Combination of low cost cameras, flash-enabled storage, and intelligent software can make you safer

Beyond security to Business Intelligence and other applications
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