

# CCTV EVOLUTION:

integrated systems and smart video



## WHO WE ARE

Suranjan Ray

Director - Business Development

Intelligent Security Systems

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Director - Operations

Intelligent Security Systems

- Combined 15 years industry experience
- Assisted in specification and development of next generation smart video systems
- One of the lead personnel for defining vertical markets and opportunities to large integration partners including IBM, Siemens, and Alcatel
- Specified and supported engineering of multiple projects including newest FBI Training Facility, largest waterfront housing complex in North America, and multiple school systems and retail chains

cctv capabilities

## GENERAL CCTV CAPABILITIES

Almost all CCTV systems share certain fundamentals similarities:

- Video Acquisition and Management
- Multiple Camera and Audio Inputs
- Macro Capability
- Limited User Rights Management
- Time schedule engine
- AVI export utility
- Alarm message sending by modem or email
- Query engine
- Input / Output Capability
- Remote IP based Viewing



## CONVERGENCE

TRADITIONAL  
SECURITY

INFORMATION  
TECHNOLOGY

Advanced CCTV systems represent a paradigm of traditional security system capabilities and use information technology to deliver new functionalities and more robust capabilities.

## ADVANCED CCTV CAPABILITIES

Advanced systems should have at least some of the following criteria:

- Robust User Management Capabilities
- Network Capabilities
- Digital Mapping
- Customization of System
- Integration Capabilities at software level
- Smart Search
- Object Oriented and Scalable Architecture
- Modular and Distributed Components
- Industry Specific Solutions
- Advanced Event Management – Scenario Management
- Smart Video (Intelligent Automated Analysis of Video)

## SCRIPTING / EVENT MANAGEMENT

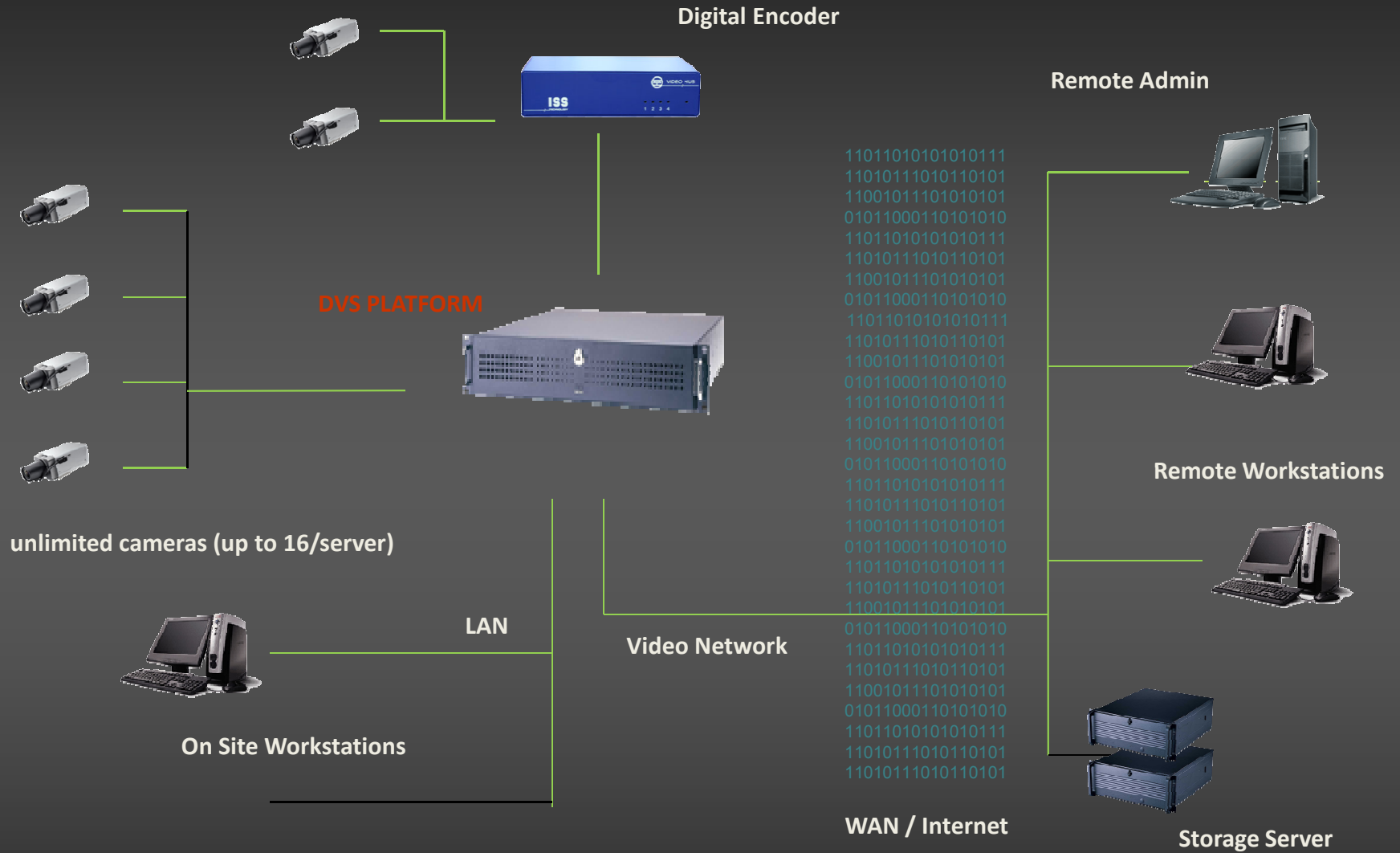
- System becomes more scalable
- System needs to be Object oriented & event driven architecture
- Multiple system configuration setup based on object status and/or incoming event.
- Scripting simplifies process for future updates
- Allows complex reactions to complex events
- Allows the integration of baseline scenarios.

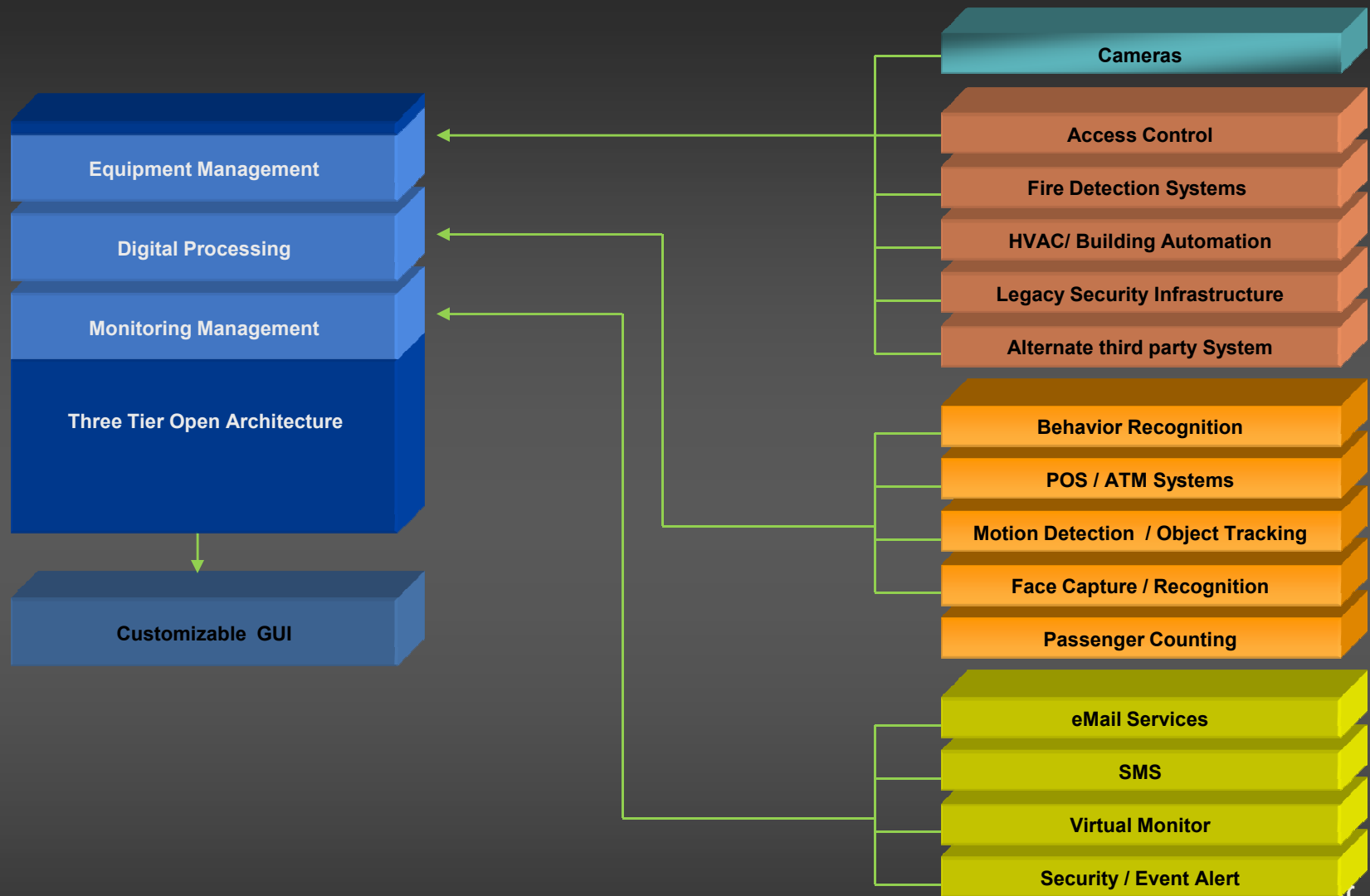
## IP CAMERA SUPPORT

- Industry is slowly converting to IP based security networks using either :
  - IP Cameras
  - Digital Encoders
- Currently system cost is often prohibitive but varies depending on complexity of project and the related labor costs
- As systems in future move further towards IP Networks, systems must be scalable to allow connectivity of IP and hybrid systems
- DVS platform will become a monitoring and management tool.



## NETWORK CAPABILITIES





## INTEGRATION – HARDWARE & SOFTWARE

- Integration capabilities using dry contacts for input / output control (hardware based integration)
  - Simpler process
  - No significant adjustments to software required
- API or SDK level integration of multiple software platforms
  - Extensible control over multiple systems
  - Systems are capable of “talking” to each other
  - Unified command and control

## SUMMATION – UNIFIED CONTROL

- Advanced systems can be remotely managed and monitored
- Critical installations may require remote or redundant storage capabilities
- One system should be able to manage multiple other systems through a unified GUI resulting in:
  - Less training times
  - Better permissions management
  - More integrated security topography
  - Fail safe mechanism

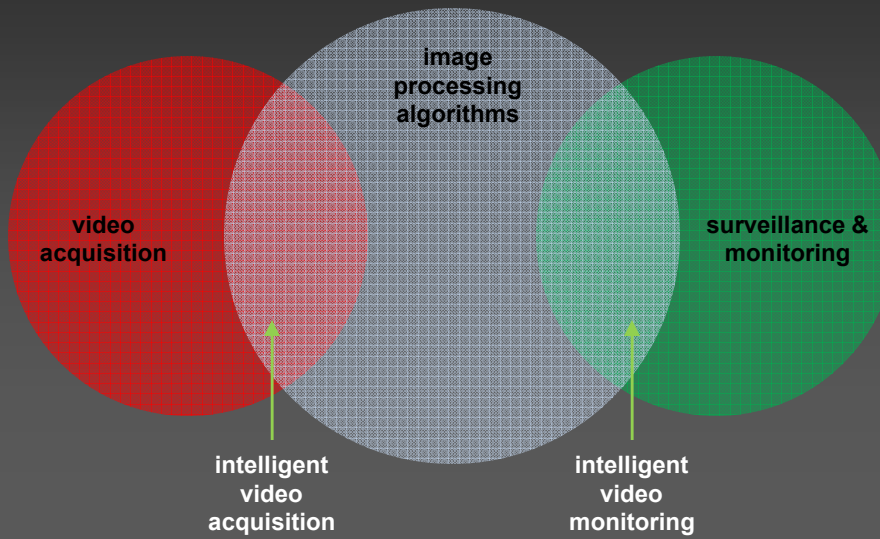
smart video

## SMART VIDEO

- Complex enough to apply “artificial thought processes”
- Operate on a network wide basis
- Can “talk” to each other
- Can be “taught”
- Is scalable



## SMART VIDEO CONCEPTUALIZATION



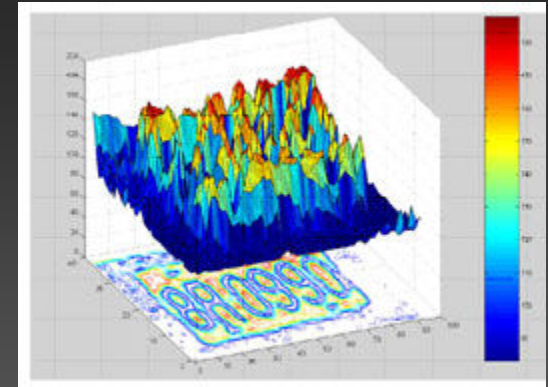
## FACE RECOGNITION

- Detection During High-speed Movements
- Moving Face Tracking
- Controlled Area Search & Capture
- Automatic Optimal Face Position
- Specify Reaction to Positive Comparison
- Simultaneous Multiple Face Detections
- Automatic Optimal Face Position
- Automate Image Transmission & Comparison
- Multiple Camera Environment
- Remote Database Query – retrieve video based on face



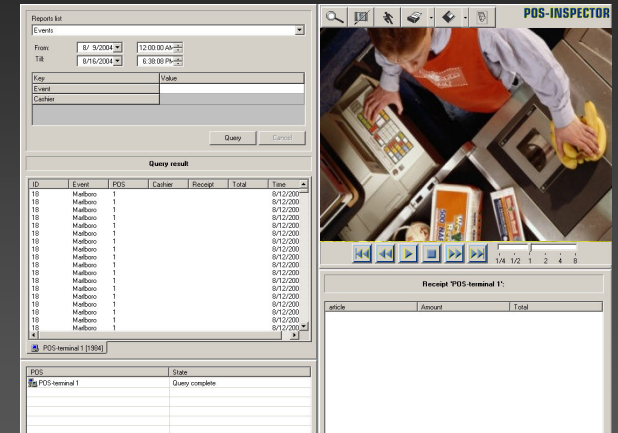
## LICENSE PLATE RECOGNITION

- Capture Plate Numbers Associated with Video.
- Capture Numbers & Letters at High Speed
- Compare Plates to Profiles
- Query Remote Database
- Specify Alarm Event and Reactions



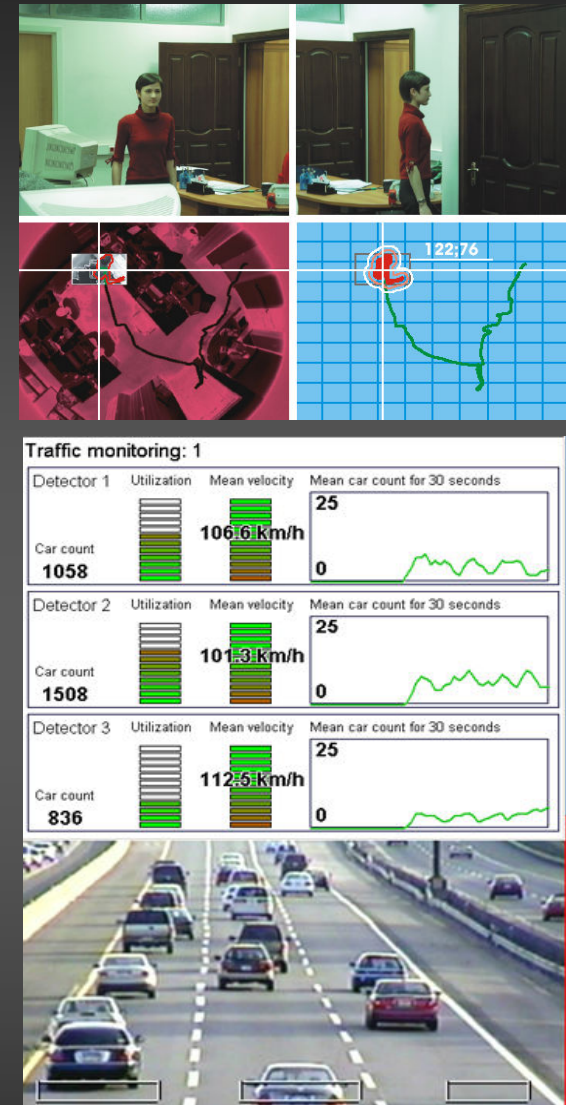
## POS / SHRINKAGE DETECTION

- Integrate Transaction Data with Captured Video
- Search by assorted queries
  - Transaction Amount
  - Transaction Type
  - Cashier or Terminal
  - SKU / Product Code
- Detection of fraudulent activity by cashier personnel



## OTHER SMART VIDEO SYSTEMS

- Object Tracking
- Unattended Object Detection
- Traffic Monitoring
- ATM Transaction Synchronization & Monitoring
- Behavior Recognition



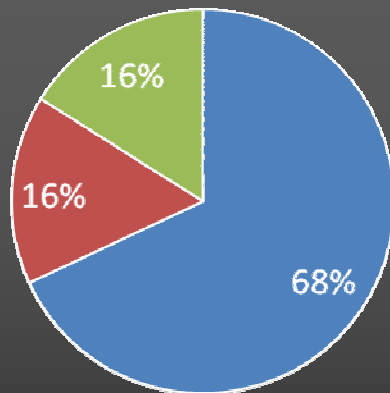
cctv market



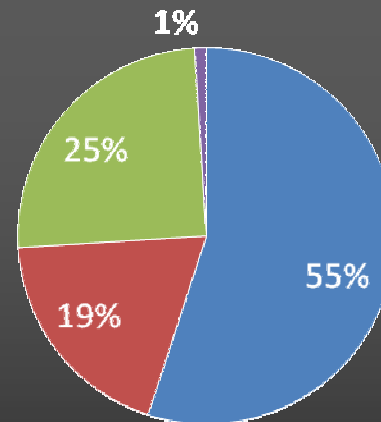
## MARKET DEMOGRAPHICS (IBM – DATAMONITOR REPORT)

- \$36 Billion opportunity in Americas
- Americas holds the biggest share of Digital Video Surveillance opportunity at 55% in 2007.
- The sweet spot verticals are, in order, Large Retailers, Public Sector, (Homeland Security), Banking & Financial Services, Travel/Transit, and Utilities.

■ Services ■ Hardware ■ Software



■ Americas ■ Asia Pacific ■ EMEA ■ Other



## RETAIL

- Retail is the top vertical for DVS with forecast \$1.5B opportunity in 2007.
- Key uses in Retail include monitoring both customers and employees for fraud (altering price tags, etc.) and theft, and monitoring purchasing behavior.
- Overall, the largest number of DVS implementations occur in Retail.
- Retail adoption is high due to strong and clear ROI. On average, 75% of retailer “shrinkage” is due to employee theft or shoplifting. By eliminating some of this loss, DVS systems can pay for themselves within first 6 -12 months



## PUBLIC SECTOR

- The Public Sector is very strong, with about \$1.4B in opportunity in 2007.
- Key uses include security surveillance for high-crime or other hot spots, monitoring buildings or security checkpoints (i.e.. schools, gov't buildings), monitoring of high-security processes (money printing, military exercises), and monitoring of prisons and use by police in police cars
- The strongest driver in Public Sector, especially in US, is heightened security concerns leading to greater use of surveillance.
- Generally, government implementations are larger and more advanced in scope and also have highest propensity to keep video data for extended periods (1 year or more)

## TRANSPORT

- Travel/Transit has higher opportunities compared to other verticals, driven by current heightened awareness for security. Opportunity in Travel/Transit by 2007 forecast to reach \$843 million.
- DVS is used in Travel/Transit for both security surveillance (i.e.. passport control, runway monitoring) and for traffic/service monitoring (i.e.. monitoring traffic, fare evaders, and giving ETA projections for transit)
- Travel/Transit is similar, to public sector, concentrated generally on need for larger implementations. Similarly data storage needs are significant. Video data tends to be kept 1 year +.

## BANKING & FINANCE

- Financial Services is forecast to account for about 13% of DVS opportunity in 2007, with almost \$800 million in opportunity.
- Financial Services is growing strongly – estimated at 52% annually. Key boundary to market penetration is banks do not show strong desire to replace analog systems as in other verticals. Many banks globally see analog system as sufficient.
- Uses of DVS in Financial Services sector include ATM surveillance (for fraud and theft) and internal security surveillance for employees.

## ENERGY & INDUSTRIAL

- Energy, Utilities, and Industrial Complexes are growing strongly at a 59% rate and accounts for about 6% of DVS opportunity in 2007.
- Includes surveillance (both employee and customer) for theme parks and arenas, but casinos is biggest part of segment.
- Utilities is a vertical with excellent potential as heightened security awareness has led to adoption of surveillance systems for power plants, dams, etc. Currently, utilities has low number of surveillance installed, so offers good potential to start out with DVS systems (no analogy legacy)



## VEHICULAR & SMART ROADWAYS

- Smart Roadways is new vertical market and is currently growing more aggressively in Europe. US opportunities abound due to large interstate network.
- DVS can be used to monitor traffic, incident reaction and/or law enforcement.
- Current uses for DVS in US is primarily surveillance at toll booths.
- Parking control systems and roadway access systems also offer new market entry points.

## OTHER KEY MARKETS

- Healthcare and Hospitality
- Schools and Campuses
- Gaming / Casinos
- Smart Buildings

summation

## SUMMATION

- Convergence of IT and traditional security is gaining critical mass at a rapid rate
- Integrated systems offer the best value and dividend for mid to large applications
- Smart Video offers a first line of defense and makes video monitoring active rather than passive
- Unified Monitoring and Administration a key
- Industry is in its infancy – opportunities abound in respect to business, technical standardization, and technologies & processes
- DVS marketplace will continue to grow dramatically due to two components:
  - Immediate ROI in some industries
  - Increased Homeland Security Threats