Proactive City-Wide Video Surveillance

Description:
Effective and proactive city-wide surveillance is proven to dramatically reduce crime, improve public safety, and heighten trust between law enforcement and the community, all while reducing costs. In this session, participants get step-by-step instructions for implementing a city-wide surveillance system that enables real-time situational awareness and response capability; discuss what it takes to get buy-in from key stakeholders, including the community, dispatchers and officers; and assess the anatomy of a DUI from the time the suspect enters his vehicle under the influence to the field sobriety test.

Learning Objectives:
1. Define the requirements of a pilot program to demonstrate the value of a public safety, city-wide surveillance solution.
2. Qualify an integrator that will be able to fulfill the technological attributes of a solution, specific for their city.
3. Demonstrate the process, from start to completion, of a successful city-wide surveillance solution.
Successful City-Wide Surveillance
First of Three Parts

– Increase Law Enforcement Efficiency
– Fight Criminal Activity
– Improve Quality of Life
– Enhance School Safety/Environment
– Invite Citizen Involvement
– Seek Business Community Input
– Improve Interagency Work Flow

Paradigm Shift in Law Enforcement – Video Intervention
• How To Integrate Video Surveillance in Policing
• Improved Post-Incident Process

Successful City-Wide Surveillance
Increase Law Enforcement Efficiency

• Paradigm Shift in Law Enforcement – Video Intervention
• How To Integrate Video Surveillance in Policing
• Improved Post-Incident Process

Lynwood, CA

<table>
<thead>
<tr>
<th>Crime</th>
<th>2000</th>
<th>2009</th>
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<tbody>
<tr>
<td>Homicides</td>
<td>12</td>
<td>2</td>
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<tr>
<td>Assaults w/ a Firearm</td>
<td>212</td>
<td>139</td>
</tr>
<tr>
<td>Rapes</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td>Burglaries</td>
<td>479</td>
<td>298</td>
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</table>

Source: Public Safety Communications Oct 2010
Reduced Budgets Audio Intervention

Integrating Video Surveillance into Real Time Response

Successful City-Wide Deployments
Increase Law Enforcement Efficiency

Prospect Park – Redlands, CA

<table>
<thead>
<tr>
<th></th>
<th>May 2009 - Apr 2010</th>
<th>May 2010 - Apr 2011</th>
<th>Difference</th>
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<tbody>
<tr>
<td>Total Incidents</td>
<td>354</td>
<td>673</td>
<td>319</td>
</tr>
<tr>
<td>Officer Response</td>
<td>172</td>
<td>99</td>
<td>-73</td>
</tr>
<tr>
<td>Citizen Volunteer/Ranger Response</td>
<td>182</td>
<td>155</td>
<td>-27</td>
</tr>
<tr>
<td>Camera Operator Disposition</td>
<td>0</td>
<td>419</td>
<td>419</td>
</tr>
<tr>
<td>Remote Resolution Rate</td>
<td>51%</td>
<td>85%</td>
<td></td>
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</tbody>
</table>

Almost overnight the graffiti and vandalism stopped, even in areas of the park not monitored by the system. Nearly two years later the benefits are still evident...

...According to Redlands Police Department reports, the system effectiveness in addressing potential criminal activity rose 62%, while saving valuable officer response time...

This allows the RPD officers to focus their energy and skill in other areas of the city.

Kris Saukel, Friends of Prospect Park
**Successful City-Wide Deployments**
**Fight Criminal Activity**

**Paradigm Shift – Surveillance Video Intervention**

<table>
<thead>
<tr>
<th>Illegal Drug Use</th>
<th>DUI</th>
<th>Outstanding Warrant</th>
<th>Violent Crime</th>
<th>Future of Crime Fighting</th>
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<tbody>
<tr>
<td><img src="image1" alt="Illegal Drug Use" /></td>
<td><img src="image2" alt="DUI" /></td>
<td><img src="image3" alt="Outstanding Warrant" /></td>
<td><img src="image4" alt="Violent Crime" /></td>
<td><img src="image5" alt="Future of Crime Fighting" /></td>
</tr>
</tbody>
</table>

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**Successful City-Wide Deployments**
**Fight Criminal Activity**

**Prevention, Intervention, Suppression, Apprehension**

<table>
<thead>
<tr>
<th>DUI Arrest</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image6" alt="DUI Arrest" /></td>
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</tbody>
</table>
Anatomy of a DUI – Step 1

Redlands DUI: 13Nov09: Camera: 328 Orange
T 21:01:48 Suspicious Behavior

Anatomy of a DUI – Step 2

Redlands DUI: 13Nov09: Camera: 328 Orange
T 21:02:53 Suspect Enters Vehicle
Anatomy of a DUI – Step 3

Redlands DUI: 13Nov09: Camera: 328 Orange
T 21:06:13  Suspect Leaving in Vehicle

Anatomy of a DUI – Step 4

Redlands DUI: 13Nov09: Camera: 328 Orange
T 21:07:01  Operator Captures Plate
Anatomy of a DUI – Step 5

Redlands DUI: 13Nov09: Camera: 328 Orange
T 21:07:08 Vehicle Leaves Parking Lot

Anatomy of a DUI – Step 6

Redlands DUI: 13Nov09: Camera: Redlands/6th
T 21:07:59 Suspect Driving South on 6th
Anatomy of a DUI – Step 7

Redlands DUI: 13Nov09: Camera: Hales Park
T 21:08:21        Suspect Proceeding South on 6th

Call for Responding Officer T:02:08

Anatomy of a DUI – Step 8

Redlands DUI: 13Nov09: Camera: Hales Park
T 21:08:28        Suspect Proceeding South on 6th

Call for Responding Officer T:02:15
Anatomy of a DUI – Step 9

Redlands DUI: 13Nov09: Camera: Citrus/6th
T 21:09:09 Suspect Proceeds West on Citrus

Anatomy of a DUI – Step 10

Redlands DUI: 13Nov09: Camera: Citrus & Orange
T 21:09:59 Suspect Stopped
Anatomy of a DUI – Step 11

Redlands DUI: 13Nov09: Camera: Citrus & Orange
T 21:10:18 Acquire License Plate

Anatomy of a DUI – Step 12

Redlands DUI: 13Nov09: Camera: Citrus & 6th
T 21:10:24 Officer Arrives on Scene
Anatomy of a DUI – Step 13

Redlands DUI: 13Nov09: Camera: Citrus & Orange
T 21:10:51 Suspect Exits Vehicle

Call for Responding Officer T:04:38

Anatomy of a DUI – Step 14

Redlands DUI: 13Nov09: Camera: Citrus & Orange
T 21:16:31 Redlands PD Contact Suspect
Anatomy of a DUI – Step 15

Redlands DUI: 13Nov09: Camera: Citrus & Orange
T 21:18:47 FST

Successful City-Wide Deployments
Improve Quality of Life

- Reclaim City Parks
- Reduce Nuisance Crime
- Impact of One-Way Audio
- Clean Up Schools

Prospect Park
Redlands, CA

Lynwood Unified School District
Lynwood, CA
Successful City-Wide Deployments
Citizen and Business Input

- Big Brother
  - Privacy Committee
  - Transparency
- Citizen Concerns
  - Citizen Safety
  - Quality of Life
- Business Input
  - Safe Shopping Environment

Getting Started
Part Two of Three

- Tactical or Strategic (Start Small or Go Big?)
  - Quick overview of Redlands PD’s camera system for perspective
  - Determined by consensus; based on funding, stakeholder buy-in, etc.

- Establish a Point of Contact
  - Usually from the Police Department
  - Will remain the POC

- Visit Other Cities
  - Form a team with representation from stakeholders.
  - Learn from successes and failures!!
  - Once a city is found that closely aligns with the City’s needs, send more team members to learn as much as possible.
Getting Started
Myth Busting

- The Camera can See what I can See
  - A fixed camera has a stationary field of view
  - A PTZ (Pan Tilt Zoom) camera is moveable, but not always in the right place
- Facial Recognition Always Works
  - Define the requirements and understand the limitations
- The Effect of Merely the Presence of a Camera
  - Needs to become integrated into the policing process
  - Interaction with suspects is beneficial
  - Let the citizens know of successes through media
- All Wireless Video Systems are the same
  - High degree of complexity requires experience
- Closed Circuit Television (CCTV) vs. IP Video
  - Composite video vs. compressed video
  - Video Quality – Storage – Network Considerations - Latency
- All IP Cameras are the Same
  - Interoperability – Features – Quality
- Other Myths

Getting Started
Design Requirements

- Consider Scalability – Infrastructure First
- End User Needs
- Recorded Video – Retention and Reliability
- Interoperability – Open Standards
- Design Timeline, Deployment Schedule, Priorities
- Training, Support and Maintenance
- Proactive Surveillance Should Provide Latency of less than 1 second
- Viewing Requirements will be Different than Playback Requirements
- Core Infrastructure Reliability
- Memos of Understanding (if needed)
- Get all necessary City Departments on board with the design
- No Unnecessary Requirements
Getting Started
Selection of a Solutions Provider

• **Networking Expertise**
  — **Requirement:** The integrator must be highly accredited (i.e. Cisco Gold Partner).
  — **Purpose:** Provisioning video across an IP Network, while meeting performance and security requirements is an extremely complex undertaking which requires an experienced and knowledgeable integrator.

• **Experience**
  — **Requirement:** The Integrator must be able to provide at least 5 City-Wide IP Surveillance references. Deployments must consist of at least 30 cameras deployed via wireless, and all at least ½ mile from the core video surveillance network equipment.
  — **Purpose:** A deployment of surveillance cameras connected via wireless and at least ½ mile from the video network core provides assurance of the technical capability of the integrator to design and deploy a wireless network capable of meeting current requirements and future scalability.

• **Local Support**
  — **Requirement:** The same 5 City-Wide IP Surveillance references must currently be supported by the Integrator. Be wary of subcontractors performing support (i.e. certifications, experience)
  — **Purpose:** A City-Wide IP Surveillance System is extremely complex and requires a collaborative effort to maintain its capabilities. Ensuring the IP Surveillance System is operational requires the integrator to provide local service resources.

• **System Effectiveness**
  — **Requirement:** The Integrator must provide at least 3 video incidents from at least 3 different City-Wide IP Surveillance Systems. A video incident is defined as one or more video clips depicting an incident of interest to the Police Department.
  — **Purpose:** This is the objective of a City-Wide IP Surveillance System and should be a minimum standard to prove a successful deployment.

• **Post-Installation Support Track Record**
  — **Requirement:** The integrator must provide at least 5 City-Wide IP Surveillance references where the system has been completely installed and maintained for at least 24 months.
  — **Purpose:** Many integrators promise to deliver capabilities, but do not have successful deployments. Identifying a satisfied customer and one that has been satisfied for 2 years provides assurance the integrator is capable of successfully installing and maintaining a City-Wide IP Surveillance System.

• **Video Quality**
  — **Requirement:** The integrator must provide quality video that is acceptable in frames per second (30) and resolution (D1) and also provide samples of video from other City-Wide IP Surveillance Systems that they have installed and are supporting.
  — **Purpose:** Many surveillance systems meet the minimum technical requirements; however due to poor design, compromised the video quality. This is commonly done by throttling the video stream data rate, resulting in poor video.
Getting Started
Selection of a Solutions Provider

- **System Scalability**
  - **Requirement:** The Integrator must defend their architecture's ability to scale and explain to the City their recommendations to scale the system based upon requirements. The Integrator should provide at least 3 City-Wide IP Surveillance Systems where they have expanded from the original deployment.
  - **Purpose:** Creating a scalable, minimal latency system requires a system designed to provide virtual connectivity between any video camera and any video viewing station. The City may not know the extent they'd like to scale the system, but need the assurance that the system has flexible scalability.

- **System Interoperability**
  - **Requirement:** The Integrator must discuss and defend the ability to integrate other systems (Computer Aided Dispatch, Automatic License Plate Recognition, Gun Shot Detection, etc.) and cameras (Axis, Bosch, Sony, etc.) into the proposed City Wide IP Surveillance System. The Integrator must provide at least 3 City-Wide IP Surveillance Systems where the integrator was able to accomplish both integration into other systems and integration of multiple camera manufacturers.
  - **Purpose:** Scalability will most likely require integration of multiple camera manufacturers into a City-Wide IP Surveillance system. For proactive response capabilities integration of CAD and other notification systems into the City Wide IP Surveillance System is a requirement.

- **System Latency**
  - **Requirement:** The Integrator must demonstrate through existing City-Wide IP Surveillance System deployments that latency is less than 1 second.
  - **Purpose:** Proactive video policing requires that video has minimal latency. An example would be moving a PTZ (pan-tilt-zoom) camera to follow a suspect. Latency of greater than 1-2 seconds is not acceptable for law enforcement.

- **Disaster Recovery – Emergency Operations**
  - **Requirement:** The camera system must be able to operate from an Emergency Operations Center if the primary dispatch location becomes unavailable. The Integrator must provide at least 3 City-Wide IP Surveillance Systems that the integrator has designed, deployed, and verified that an Emergency Operations Center is operational.
  - **Purpose:** When a City adopts an IP based Surveillance System it becomes integrated into everyday processes. Much like a phone system is always operational, so too a City-Wide IP Surveillance System must be operational always.

- **Technical Certification of Integrator**
  - **Requirement:** Integrators will use OEM products. The Integrator must be able to demonstrate via certifications that they are technically vetted by the OEM to design, deploy, and support the proposed system. The certifications should be held by full-time employees.
  - **Purpose:** The Integrator must be able to support the City Wide IP Surveillance System in order for the system to remain fully operational.
Getting Started
Selection of a Solutions Provider

• Video Retention Capabilities – Track Record
  – Requirement: City-Wide IP Surveillance Systems require two distinct video retention policies. Video buffering is required for street level cameras. State and Local Authorities govern video retention policies for jails and other facilities. Video retention strategy and design should include systems with redundancy (power, airflow, RAID, etc.) and failover/failback.
    • Integrator must provide at least 3 City-Wide IP Surveillance Systems references where Video Buffering is in place.
    • Integrator must provide at least 3 City-Wide IP Surveillance Systems references that are recording video for jails, including interview rooms and custody facilities.
  – Purpose: The City-Wide IP Surveillance System will include video retention requirements and an integrator must prove experience in this area.

• School District Integration
  – Requirement: City-Wide IP Surveillance Systems would require the ability to integrate a full school district camera system with the Police Department for viewing of live, latent-free video. The Integrator should be able to prove this functionality, level of competency and experience.
  – Purpose: Maintaining a visible active presence in school campuses will reduce nuisance crime, and provide the necessary information for Emergency Responders. Sharing of surveillance assets ensures the borders of the school campus are seamless to the City-Wide Surveillance System.

Getting Started
Funding

– Who within the City will benefit?
  • Police and Fire are the largest expense for a City
  • Public Works, Schools, Private Business, Parks and Recreation, etc.

– Capital Expense or Operational Expense
  – Federal Grants are a source of Capital Expense and may provide the ability to support a system for a short time.
  – How many cameras and systems are in your City?
  – Who will lead the path to unification?
Implementation
Part Three

– Initial Steps
• Memo of Understanding if needed – finalize
• Power
• Finalize Integrator Negotiation
• Establish a Realistic Time Line
• Convey a Common Message/Expectation with Citizens, Businesses, and the Press
• Finalize Privacy Committee and their role
• Establish Policies

– Equipment Installation / System Normalization
• Core Infrastructure should be complete prior to initial cameras
• Develop Detail Design Deliverables
  – (IP addressing scheme, VLAN, Camera Preset Locations, Camera behavior to an incident, etc.)
• Installation permissions
  – City Permits, Lane closures, Notifications, etc.
• Phase Camera installations
• Validate day and night operations (IR and lighting)
• Verify System Notifications (Cameras, NVRs, Sensors, Etc.)
• Verify Video Retention Policies are met
• Determine who will receive System Notifications
• Incident Management
• System Acceptance
Implementation

Part Three

— Training

• Train the trainer
• End-User Training
• Establish Video Surveillance Policies
  – For each group using the system (Detectives, Dispatch, Citizen Volunteers, etc.)
• Ongoing Training
  – Feature Request
  – Software Updates

— Maintenance and Support

• Establish Point-of-Contacts for City and Integrator
• Determine Level of Service
• Number #1 cause of issues: Temporary loss of Power
• Review all System Notifications
• Software Updates
• Camera Cleaning
• Response Expectations