County-Wide CCTV Interoperability Project – Orange County, California

ITE Western District
San Francisco Bay Area Section

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Project Vision

- County-Wide CCTV Interoperability
- Sharing video (**view only**) between Caltrans, D12 and local cities, and agencies
- Caltrans: +/-250 CCTV cameras
- Cities: +/- 10 CCTV cameras
Project Goals and Objectives

- Provide inter-agency coordination
- Share video information to improve travel time / traffic management, incident management
- Open architecture
- Use IP Platform to share cameras *without impacting* Caltrans and agencies operations
Project Goals and Objectives

- PTZ capabilities will remain with owner
- Agencies will not need to build application
- Not open to the public / media
- No cost to agencies
- Design, Implementation, Operations, Maintenance – Funded
- System hosting for 3 years - Funded
Improve Interagency Coordination
Existing Conditions
Caltrans D12
Existing Conditions
Caltrans D12
Existing Conditions
Caltrans D12

- Snapshot of http://video.dot.ca.gov
## Existing Conditions

### Caltrans D12

<table>
<thead>
<tr>
<th>Location</th>
<th>Sites</th>
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| **San Bernardino** | 10 at Vineyard  
10 at Waterman  
15 at Airport Blvd  
15 at Arrow Blvd  
15 at Glen Helen Pkwy  
15 at Sierra  
60 at Archibald  
210 at Mountain  
215 at Washington |
| **Riverside**   | 15 at Detroit  
15 at Hidden Valley Pkwy  
15 at Limonite  
60 at Main St  
91 at 14th  
91 at Co Line  
91 at Maple  
91 at Promenade  
215 at Central |
| **Los Angeles** | Multiple cameras along 5, 60 and 210  
Multiple cameras along 101, 110 and 118  
Multiple cameras along 405, 10, 105 and 91  
Multiple cameras along 605, 710 and 134 |
| **Orange County** | SB 5 at 22  
NB 5 at 133  
SB 5 at 405  
NB 5 at Christianitos  
NB 5 at Oso  
NB 5 at Las Ramblas  
NB 5 at Lake Forest  
WB 22 at Brookhurst  
WB 22 at City Dr  
WB 22 at Knott  
EB 22 at Los Alisos  
SB 55 at 22  
SB 55 at 73  
SB 55 at 405  
SB 55 at Macarthur  
NB 57 at Chapman  
NB 57 at Imperial  
NB 57 at Tonner  
NB 405 at Beach  
SB 405 at Bristol |
| **San Diego**   | NB 5 at Sorrent Rd  
EB 8 at 163  
NB 15 at 15/163 Merge  
NB 805 at Adams Ave |
Existing Conditions
City of Garden Grove
Existing Conditions
City of Anaheim
PROJECT TIMELINE

- **August 2005**: Approved Project Study Report
- **November 2013**: Project Report (Caltrans)
- **November 21, 2013**: Notice-To-Proceed (RBF/Iteris)
- **February 2014**: Project Communication Platform, Project Architecture, System Needs and Requirements
- **February 2014**: Draft PS&E
- **March 2014**: PS&E Approval & Construction Funding
- **June 2014**: Ready to List
- **August 2014**: Advertise for Construction
- **December 2014**: Award Construction
System Design Goals

- Transparent to existing operation
- Minimize impact on communication bandwidth
- System that is easily replicated
- Independent system
  - No existing TMC Servers impacted
  - No maintenance / monitoring by City staff
Project Approach – IP System Processes

- **Existing Video Network**
  - Existing Video Data
  - **Video Viewing Displays**

- **Normalized Video Device**
  - Normalized Video Data
  - **Streaming Server**
    - Normalized Video Stream
    - **Streaming Video Web Server**

**Sharing System**

**Private Cloud**
Proposed Architecture
Proposed Architecture

- **Physical connection**
  - Use Internet Connection

- **Interface**
  - Video Streaming Server to 3rd Party Web Server

- **Roles/responsibility**
  - Third party will host the system
Project Architecture and System Needs Requirements

- Common Architecture/Platform
- IP Communication Link
- Video Streaming, Bandwidth, and Quality
  - 15 frames per second video quality
  - 192 kbs
  - 320 x 420 resolution
  - Compression- H.264
- Private Cloud Integration
- System Scalability and Expandability
Participating Agency Survey

- 16 Cities and OCTA invited
- Do you like to participate on this Program?
- Do you require a MOU?
- Who will need to approve your participation?
- Do you have rack space at your TMC control room?
- Do you need another rack?
- Do you have constraints/issues?
- Do you have other questions?
Participating Agencies

- 12 Cities
- Caltrans D12
- OCTA
Memorandum of Understanding and Construction Support

- Goals and objectives of the project
- Caltrans oversight
- Caltrans role and responsibilities
- Agencies role and responsibilities
- Caltrans funding agreement
- System administration guidelines / policies
- CCTV cameras viewing priorities
- On-site construction coordination
- System operations, maintenance, and hosting
Project Challenges

- New Project Type for Caltrans
- Technology Project vs. Highway Project
- New Caltrans drafting / design standards
- IT staff with ITS experience
- Storm Water Data Report
- Right-of-Way Certification
- Over 50 internal / external meetings
Project Team

- **Caltrans District 12**
  - Dr. Morteza Fahrtash, PhD, PE, PMP
  - District 12 TMC Staff
  - District 12 OE Staff

- **Twelve (12) Cities**

- **OCTA**

- **RBF**
  - Carlos Ortiz, PE, TE, PTOE
  - Josh McNeill, PE

- **Iteris**
  - Ramin Massoumi, PE
  - Gabriel Murillo, PE
Similar Deployments

- MDOT > 1,000 Cameras
- VDOT > 1,000 Cameras
- PennDOT > 900 Cameras

http://www.511virginia.org/
QUESTIONS