

IP/MPLS Network Infrastructure for Video Surveillance



Robert M. Dallas

May 2009

Agenda

1. Video Surveillance Market and Applications
2. Trends
3. IP/MPLS Networking - Infrastructure Importance
4. Why is Partnering correctly important? Ask Lt. Burke Farrah
5. Customer Reference: City of Fresno, California Police Department

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Video Surveillance Market and Applications



Where Surveillance Networks grow:

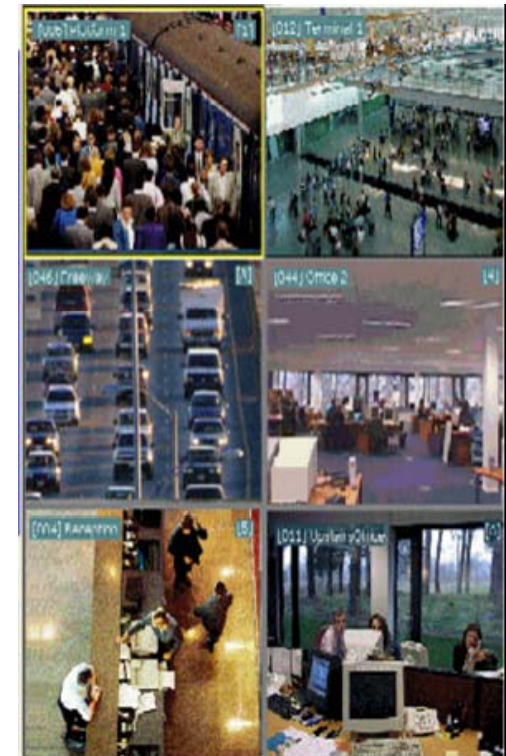
Public Safety, Government, Transportation,
Utilities, Healthcare, Education, Finance

- A critical application



Why video surveillance?

- Public safety
- Crime prevention
- Crowd control
- Critical infrastructure monitoring
- Traffic management



Video Applications

- **Security and protection**
 - Public areas, enterprises, residential and family environments (old and young people, pets / plants) safety surveillance.
- **Industry**
 - Logistics/storage management
 - Construction site monitoring
 - Production line quality management
 - Banking
- **Traffic**
 - Traffic flow inspecting, traffic accidents insurance-type judging, and license plate identification
 - Train platform monitoring & train dispatching
- **Culture and education**
 - Distance learning, Telemedicine
- **Specific / Niche environments**
 - Homeland security, border control
 - Sports stadiums
- **Critical Infrastructures**
 - Power Substations



CCTV: Closed Circuit Television

Video surveillance - a continual focus and growth pattern

- Enhance public safety
- Mitigate risks of crime and terrorism
- Protect assets
- Meet regulatory mandates

Table ES.1
The West European Rail Market for Electronic Security Products by Product Type
(Revenues US\$)

	2007	2008	2009	2010	2011	2012	CAGR	07 - 12
Video Surveillance	141.2	158.0	175.3	197.7	227.9	260.3		13.0%
		11.9%	10.9%	12.8%	15.3%	14.2%		
Intruder Alarms	2.6	2.6	2.6	2.6	2.6	2.6		0.5%
		0.6%	0.5%	0.4%	0.4%	0.4%		
Access Control	60.7	64.6	68.7	72.8	76.7	80.3		5.8%
		6.4%	6.3%	6.0%	5.4%	4.7%		
Total	204.5	225.2	246.6	273.1	307.2	343.2		10.9%
		10.1%	9.5%	10.7%	12.5%	11.7%		

Source: IMS Research May-08

Monday 8 December 2008 Ent

iGovernment » Governance

Railways plans hi-tech security gadgets in Orissa

Railway stations in Orissa will soon have CCTV cameras, baggage scanner machines and exclusive detection machines for enhanced safety

Published on 12/1/2008 1:43:28 PM

Bhubaneswar: India's East Coast Railway authorities have decided to install hi-tech security gadgets at leading stations of Orissa in view of the recent terror attacks in different places of Mumbai, a railway official said on Monday.

A high level meeting was conducted by East Coast Railway authorities on Monday to review the security situation at railway stations, especially in Bhubaneswar, Puri and Cuttack, reports IANS.

The meeting took stock of the security scenario at these stations and additional measures required to be taken were discussed, an East Coast Railway press release said.

It was decided in the meeting to install closed circuit television (CCTV) cameras, baggage scanner machines and exclusive detection machines in the stations, besides forming bomb disposal squads and sniffer dog squads.

Table ES.1
The United States Rail Market for Electronic Security Products by Product Type
(Revenues US\$)

	2007	2008	2009	2010	2011	2012	CAGR	07 - 12
Video Surveillance	109.2	125.0	143.1	168.2	196.6	227.6		15.8%
		14.5%	14.5%	17.5%	16.9%	15.8%		
Intruder Alarms	1.3	1.3	1.3	1.3	1.4	1.4		0.9%
		1.5%	1.1%	0.7%	0.5%	0.4%		
Access Control	49.7	53.8	58.3	62.9	67.6	72.3		7.8%
		8.2%	8.4%	7.9%	7.5%	7.0%		
Total	160.2	180.1	202.7	232.4	265.6	301.3		13.5%
		12.4%	12.6%	14.7%	14.2%	13.4%		

Source: IMS Research May-08

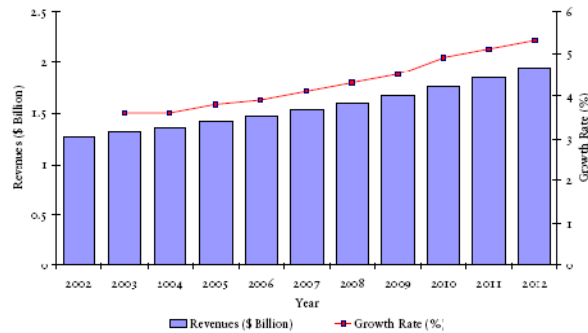
Video surveillance applications

- Forbidden Zone Protection
- Behavior Analysis
- Statistical Analysis
- Traffic Flow management
- Facial Recognition
- License plate recognition



Video surveillance market - \$10 Billion+

Total CCTV and Video Surveillance Equipment Market: Revenue Forecasts (Europe), 2002-2012

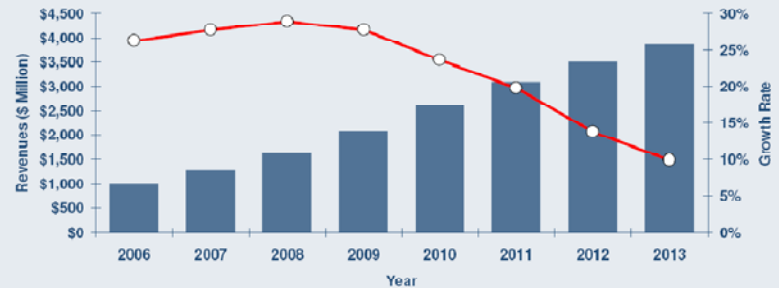


Note: All figures are rounded; the base year is 2005. Source: Frost & Sullivan

FROST & SULLIVAN

Revenue Forecasts

Video Surveillance Market: Revenue Forecasts (Asia Pacific), 2006-2013



Note: All figures are rounded; the base year is 2006. Source: Frost & Sullivan

“The CCTV and video surveillance equipment market in Europe is expected to continue its moderate growth path over the forecast period, driven by the increasing acceptance of IP-based solutions”

European CCTV and Video Surveillance Equipment Market, Frost & Sullivan, 2007

“Network surveillance is seeing strong traction even today”,

Asia Pacific Video Surveillance Report, Frost & Sullivan, 2007

2 Trends



Trends

IP-based system

- IP multicast traffic, video compression

Network based implementation

- Networked video recorder, high number of cameras

Video analytics

- Increased productivity and scalability

Distributed video management

- Multiple control centers, redundant storage, high quality video, third party access

Part of a converged corporate IP network

- Video scalability, QoS, reliability, OA&M

Video surveillance requires mission critical IP networks

Video surveillance systems are now IP-based

- It is integrated with the IP network of an organization
- Adding CCTV traffic onto a traditional IP/Ethernet networks unprepared for video traffic can adversely impact all services on the network

A service-aware IP/MPLS network is well suited for video surveillance

- Can handle thousands of high quality video streams
- Supports the convergence of voice, data and video traffic
- Guarantees quality of service (QoS) levels
- Capable of handling future growth

IP/MPLS networking for video surveillance

Next-generation network enables highly available IP/Ethernet infrastructure

- Guarantees mission critical traffic priority
- Provides resilient network restoration
- Supports network virtualization and security
- Offers comprehensive OAM toolkit
- Supports powerful Service Aware Manager (5620 SAM)

Alcatel-Lucent's MPLS solution enables an organization to

- Integrate the security solutions with the communications network
- Mitigate performance problems encountered when running video surveillance over a traditional IP network

3

IP/MPLS Networking

Building the right backbone...

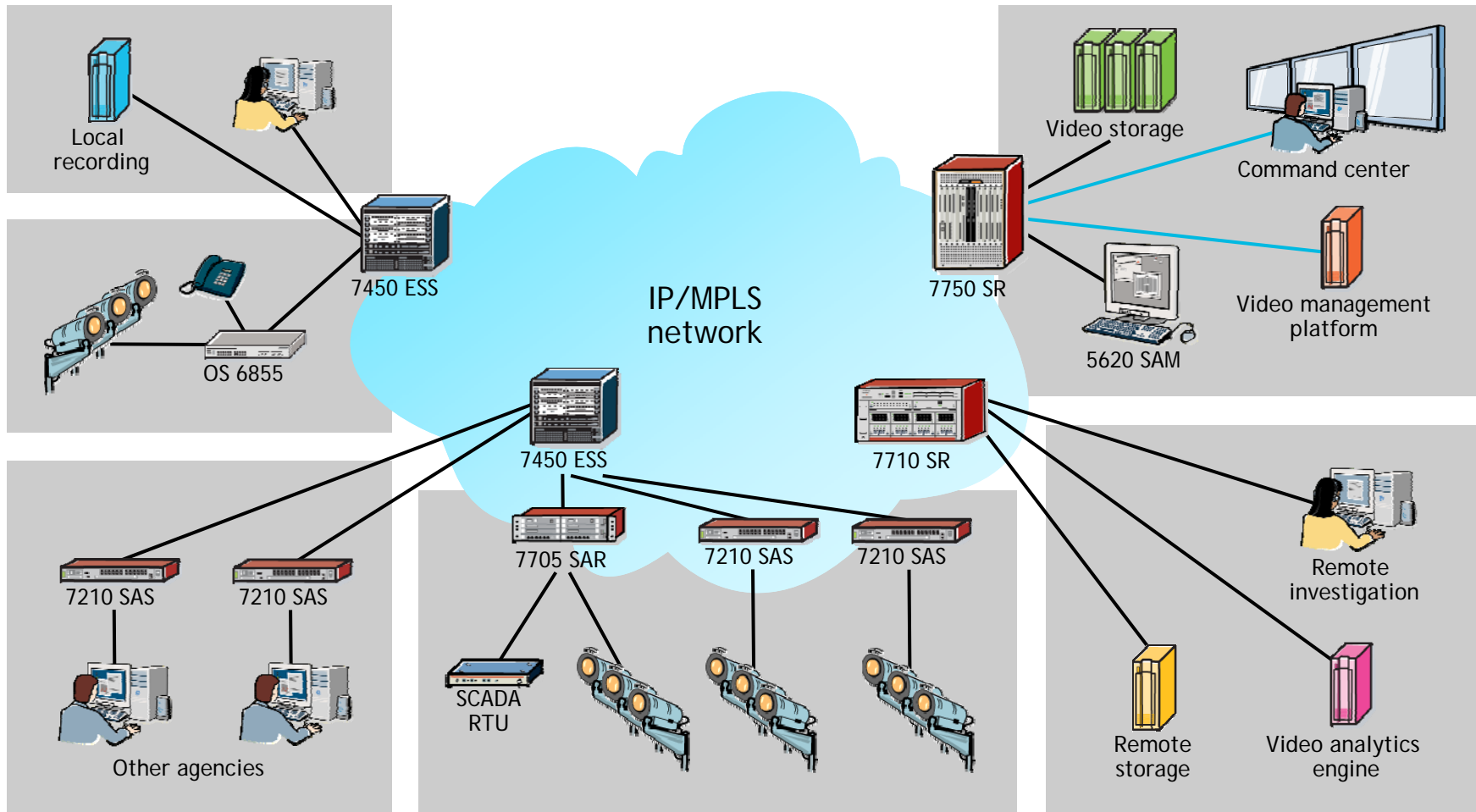


IP/MPLS network for video surveillance

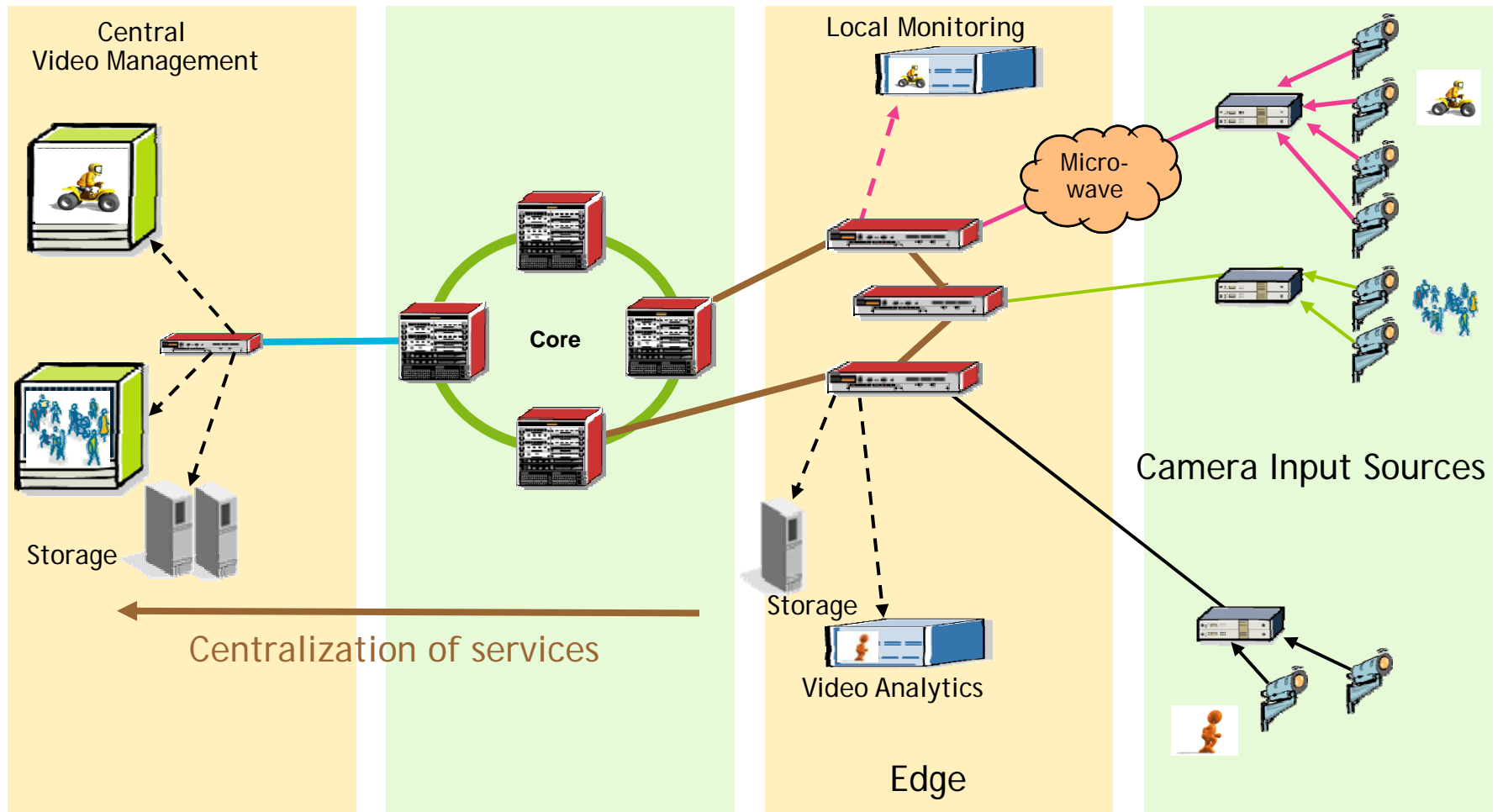
The ALU IP/MPLS product portfolio leads the industry in reliability, scalability, QoS, manageability, and maintainability

- Meets the requirements of mission critical operations
- Facilitates the integration of security solutions with corporate IP networks
- High Availability
 - Non Stop Routing and Non Stop Services
 - Fast Re-Reroute for resilient network restoration
- Quality of Service
 - One converged network to support different services
 - Guarantees mission critical traffic priority
- Powerful Service Aware Manager (5620 SAM)
 - Centralized network management and simplified maintenance

Networked video surveillance architecture



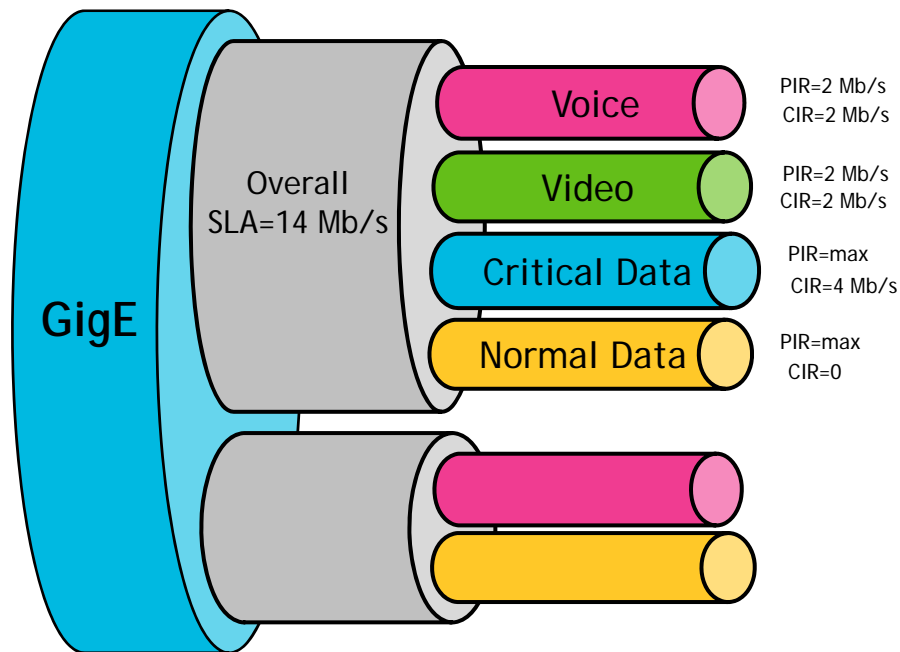
Surveillance video within shared environments



Quality of Service equals scalability and customization

Virtual Private LAN Service - VPLS service with four forwarding classes

- Reserve 2 Mb/s for voice and 2 Mb/s for video
- Enforce 14 Mb/s Peak Information Rate (PIR) for overall service
- Allow critical and best-effort traffic to burst up to 14 Mb/s if bandwidth is available



Less overall bandwidth is required

- Lower overall cost

Priority and best-effort traffic are equally well served

- Voice and video do not always consume all the reserved bandwidth

Service Management is proven to reduce complexity and OPEX

Forrester Consulting, Total Economic Impact of 5620 SAM, October 2007 (Study of four carrier networks)

Improve provisioning efficiency by 69%

Alcatel-Lucent Services Management System (5620 SAM)



Provision a 5 site Ethernet Virtual Private LAN solution.

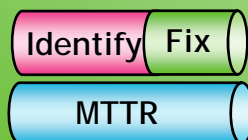
Element/Network Management System (4 vendor average)



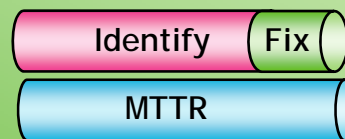
Source: RHK-Ovum, VPLS growth requires carrier-class network features, October 2005

Improve restoration time by reducing problem isolation time by 36%

Problem Isolation with Alcatel-Lucent Service Manager (5620 SAM)
8.3 minutes



Problem Isolation with Element/Network Manager (4 vendor average)
13 minutes



Troubleshoot a multipoint Ethernet event or alarm.

MTTR = mean time to repair

Source: RHK-Ovum, VPLS growth requires carrier-class network features, October 2005

Management

Service Management

- Service-Oriented Management
 - Service Alarms & State Cause
 - Service Topology Map
 - Service Assurance
 - Service Provisioning
 - Service Templates & Policies

Network Management

- Network-Oriented Management
 - Physical Topology Maps
 - Network Topology Maps (LSP, SDP)
 - Network Commissioning (Tunnels, MPLS, LSP)
 - Routing Configuration and Views

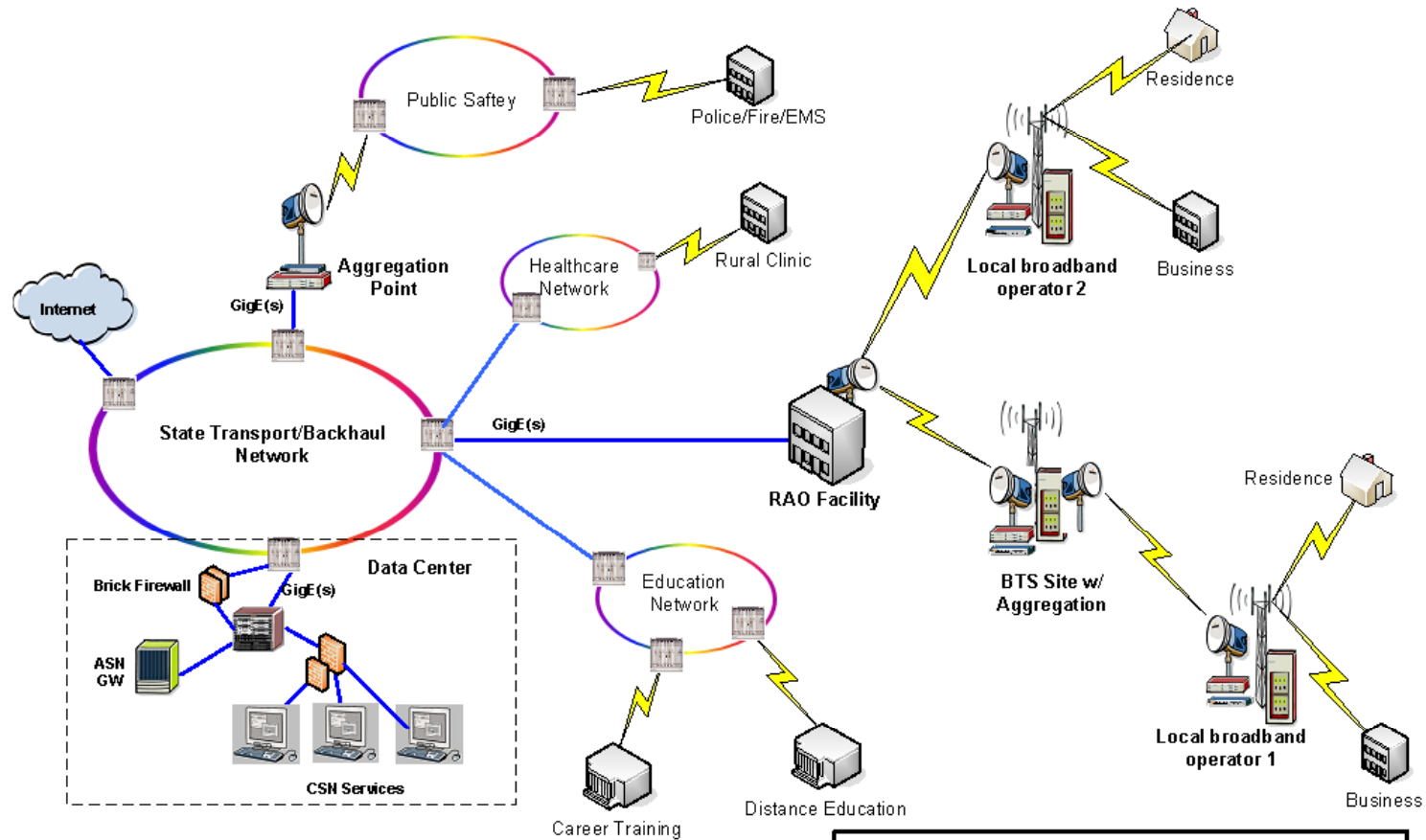
Element Management

- Nodal-Oriented Management
 - Equipment Inventory & Configuration
 - Alarm Surveillance and Policies
 - PM Collection

5620 SAM delivers a 75% increase in provisioning productivity, 20% fewer dispatches and a .9 year payback with a 73% risk adjusted ROI

Part of a larger scenario

ARRA RUS State Network and Regional Operator Architecture



ARRA RUS State Network and Regional Operator Architecture	
INDEX	
7750 Service Router	Brick Firewall
WiMax/LTE 9710 C - WBS	Remote Telemetry Unit
9500 MPR Indoor Unit	WiMax WAC
9500 MPR Outdoor Unit	Radio Connection

4

Why is Partnering correctly important?

Ask Lt. Burke Farrah

Fresno Police Department



Thank you very much!

Robert M. Dallas

Robert.dallas@alcatel-lucent.com

V-469-236-8928

www.alcatel-lucent.com

