# PSnet EC Meeting: Coordinating CIMS & PSnet Deployments

## Cambridgeside Galleria Mall
## Public Safety room

**Presented to PSnet EC and**
**Office of Emergency Management**

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METRO BOSTON HOMELAND SECURITY

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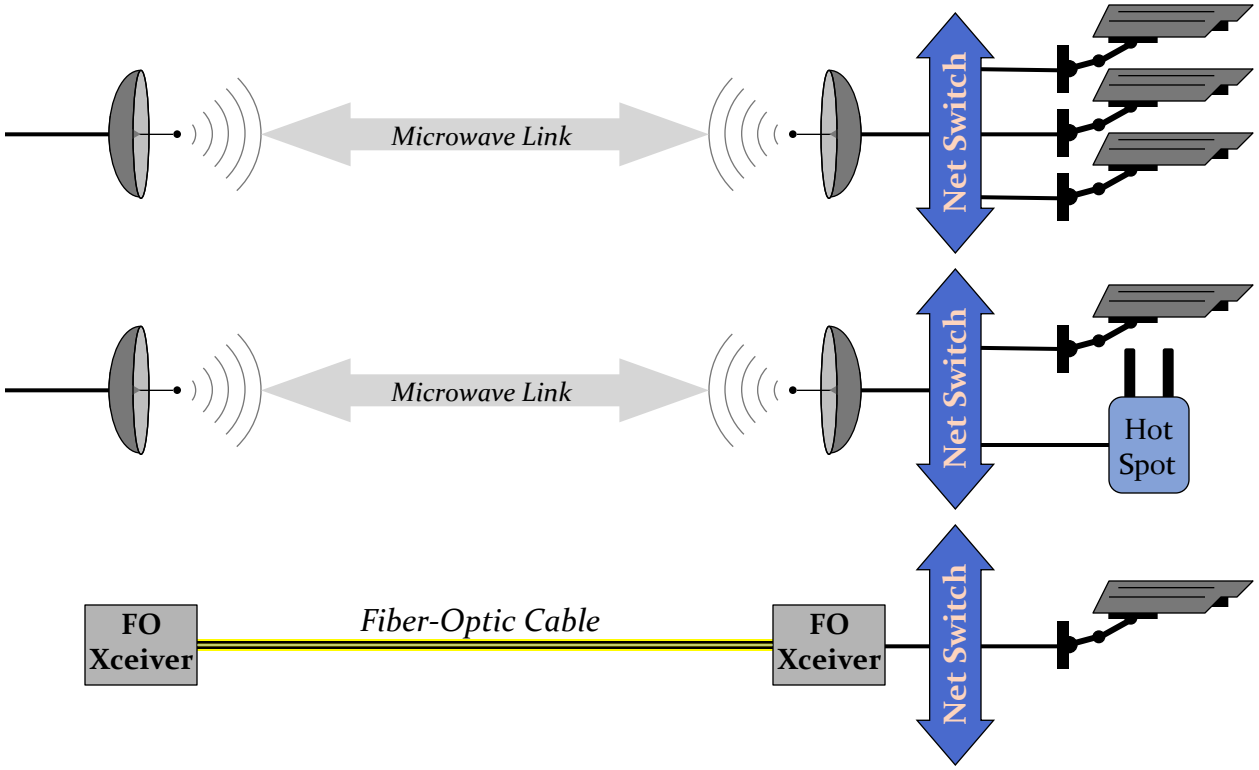
# Background and relevant considerations…

- PSnet exists to support an ever-growing set of public safety applications (video, radio, RMS, CJIS, FATPOT, CrimeView, AFIS, etc.)
- PSnet provides network connectivity, infrastructure services, security, management, and operational support
- Applications share common network infrastructure but needn't be responsible for it—*i.e.*, apps can rely on PSnet
- New applications can be deployed to leverage the existing network (*e.g.*, quick-deploy cameras, radio trunk circuits, CrimeView)
- PSnet also hosts applications at two physically diverse hosting centers using virtualized servers & storage
  - Video servers (DVTEL) are distributed to all nine Police HQs

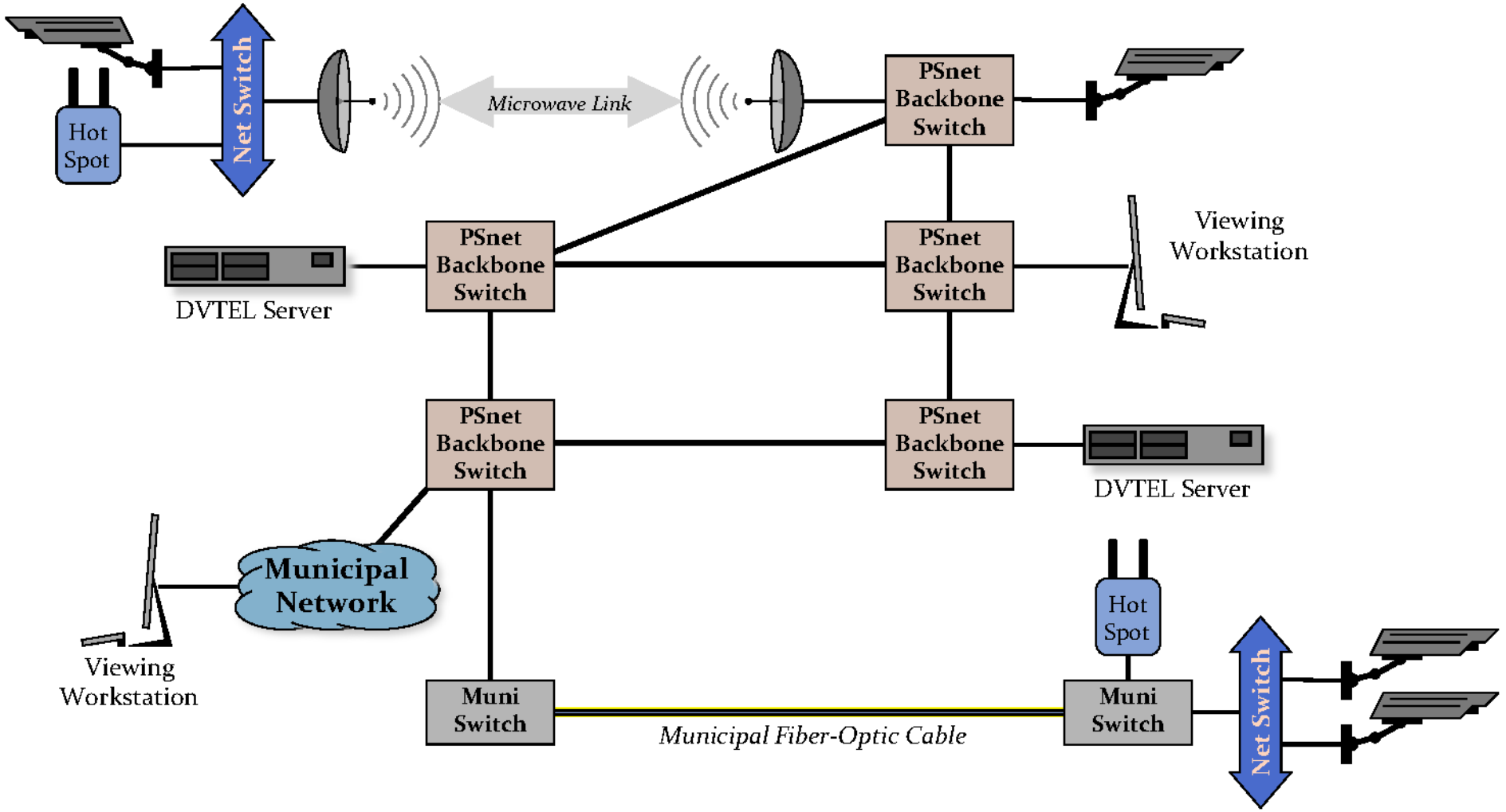
# PSnet operational characteristics…

- Owned and controlled by the Metro Boston Municipalities
- A collaboration of municipalities, State agencies, and contributing vendors
  - Primary vendors today: D2Five, Interisle, LAN-TEL
  - All players working together—cooperation is the "norm"
- PSnet leverages…
  - MBHSR investments by CIS, CIMS, and recently, Intel
  - Municipal & State resources (IT, fiber, buildings)
  - Plus some private and academic institution assets
- This has been a good thing so far—*let's keep it going*

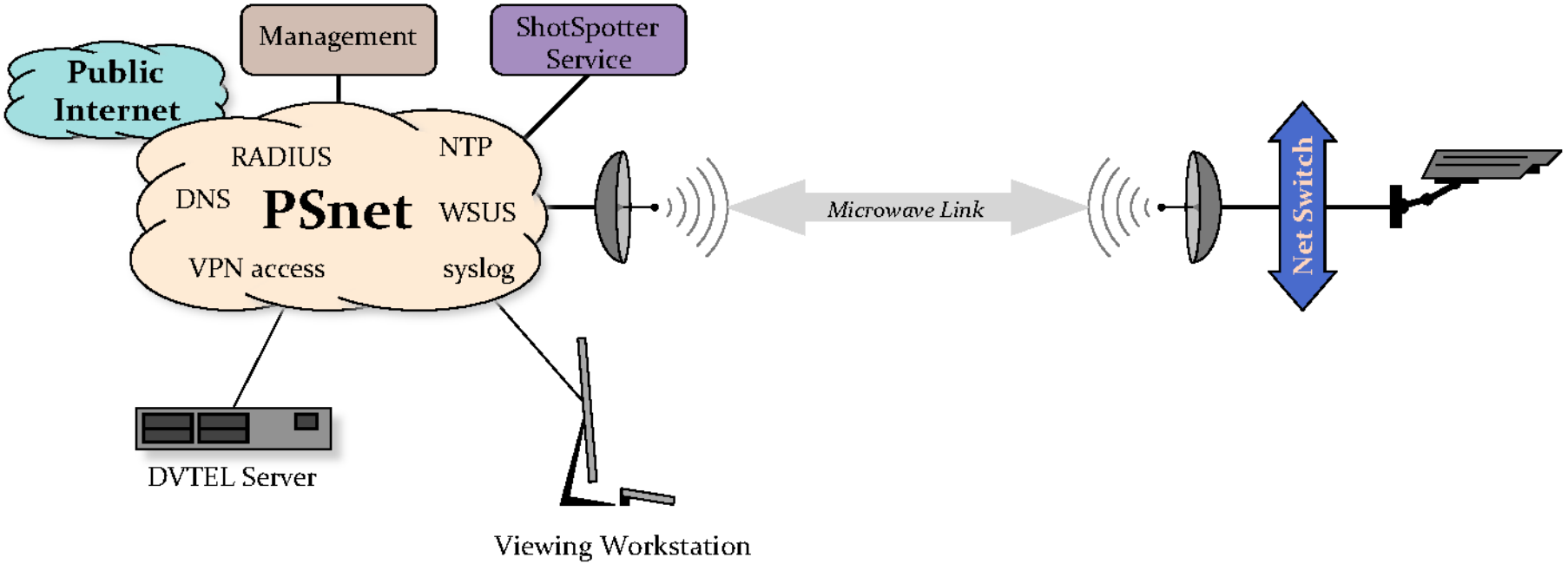
# CIMS Camera Connections



# PSnet plus CIMS deployments
## *joined at the hip*



# CIMS Camera Application




***Much more than just cameras…***

# Where are we going with new investments?

- Substantial expansion and upgrade of camera deployments (and retirement of outdated systems)
- Overhaul of video servers throughout region
- Integration with other video systems and more external services such as ShotSpotter
- Broader access to video services, including from mobile platforms
- Mobile camera systems and “quick deploy” cameras
- Significant increases in video bandwidth demands
- Confronting security challenges

# Issues we need to address

- Will there be a "Program Office"?
  (see Ross&Baruzzini report for a possible definition of Program Office)
- Conducting whole system planning and integrated design for video upgrades and new deployments
- Overall project management and coordination (*e.g.*, schedule regular conference calls for sharing issues, plan updates, progress, tech concerns)
- Expanding use of municipal and cross-border fiber throughout the region, including leveraging Loop A fiber, METFON fiber, BoNet, other municipal fiber
- Coordination & integration with other video systems

# More issues we need to address

- Wireless channel coordination and link optimization, including new strategies to avoid interference and improve efficiency of spectrum use (*e.g.*, use of PtMP in dense areas or use of 4.9 GHz)
- Greater use of fiber-connected sites to reduce microwave link distances
- Capacity increases on links and at intermediate nodes as required to support increases in video traffic
- Integration with network management and inventory control for all additions or replacements
- Security…
  - Camera systems and associated lateral connections
  - Security of video services and links to external services

# Approaches that we know work

- Exploit synergies across all applications and seek every opportunity to find new synergies
- Continuously improve collaboration and coordination of activities
- Evolve consistent practices and repeatable deployment schemes
- Leverage everyone's expertise and skill sets
- Recognize and embrace "shared responsibilities" (there's plenty of work for everyone)
  - Municipalities and other government agencies
  - CIMS camera systems and vendors
  - PSnet and network vendors

# CIMS Camera System Responsibilities

- Provision and operation of cameras and connections to backhaul links
- Deployment of backhaul links and satellite nodes as required for cameras
- Rapid deployment capabilities for cameras and video monitoring services
- Field support for cameras, backhaul links, satellite nodes, and NVR servers
- Field support for backbone node site maintenance in collaboration with PSnet team
- Deploy and support physical site infrastructure at camera sites, including power distribution, battery backup, and physical mounting and enclosures

# CIMS Camera System Responsibilities (continued)

- Provision and operational support for Network Video Recorders and related applications infrastructure
- Provision and operation of video storage systems
- Integrate with other video monitoring systems within Region
- Integration with situational awareness systems (*e.g.*, ShotSpotter)
- Facilitate access to video streams from more locations and mobile platforms

# PSnet Responsibilities

- Provision and operation of regional network broadly capable of supporting public safety applications, including video monitoring
- Support backbone nodes and communications links between backbone nodes
- Coordinate deployment of, and support for, all “laterals” off PSnet, including camera backhaul links
- Integration with municipal network assets
- Provide and support network monitoring and management tools for use by all network applications and constituents
- Provide and support essential network applications infrastructure, including DNS, NTP, syslog, WSUS, authentication, PKI, software update, and backup services

# PSnet Responsibilities (continued)

- Establish and maintain security practices appropriate to the shared interests of all applications and constituents
- Provide and support secure tunnels for confidential communications as well as remote access VPN services
- Provide and support authentication of users and applications accessing PSnet, though not necessarily authentication of users to applications supported by user agencies
- Provide and support infrastructure at each backbone site, including power and environmental monitoring as well as racking systems and cabling
- Develop and keep up to date technical guidelines for network extensions and connections that incorporates the requirements of key players
- Frequency coordination and license tracking/management

# Moving ahead to meet goals…

- Establish project coordination practices
  - Cross-team communications
  - Coordinated planning and scheduling
  - Define engineering practices and technical approaches
  - Consistent documentation and reporting
- Organize work into major categories
  - Camera systems
  - Camera backhaul and network capacity upgrades
  - Video servers and storage
- Engage each municipality in local project planning
  - Establish points of contact for coordination
  - Align schedules
  - Leverage municipal resources
- Allocate work and tasking to the appropriate players based on areas of responsibility, expertise, capabilities
  - Manage areas of overlap