



## 2012 Texas APCO/NENA Joint Conference

# Considerations in Upgrading Emergency Communications Technology

**“Food for thought” allowing a rational examination of issues related to technology and services upgrade initiatives.**



Mart D. Nelson – Consulting Principal – Avistas  
P.E., ENP, CISSP

# Why are We Here?

- ◆ Examine Technology Upgrade Processes and understand how to assess change.
- ◆ Assess progress of standards development and timing of external drivers for upgrades.
- ◆ Consider both functional and cost considerations in upgrade processes.
- ◆ Ask questions and discuss individual situations.

# Agenda

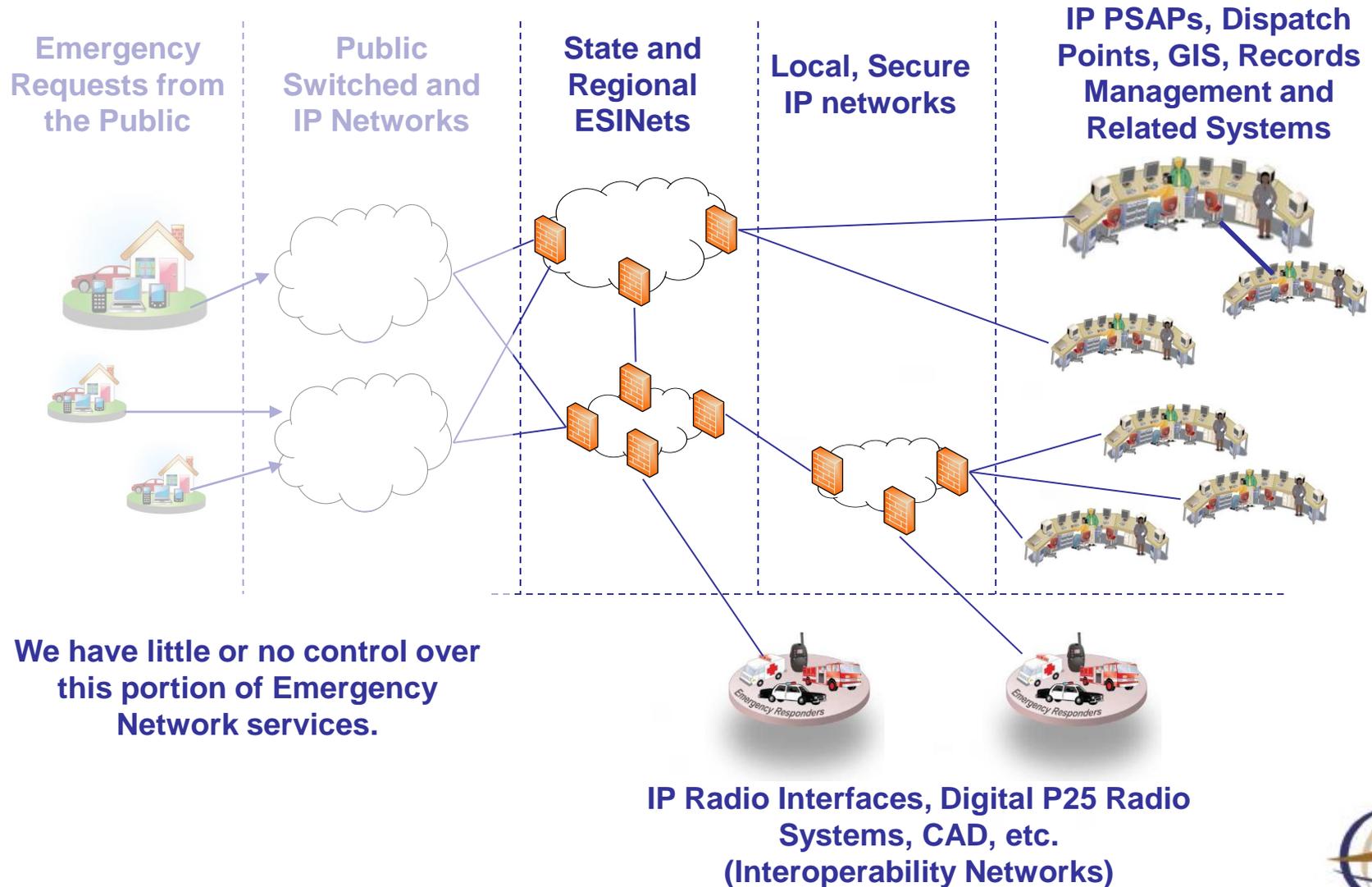
- ◆ Nice to Know vs. Need to Know
- ◆ The “Big Picture” for Emergency Communications
- ◆ Focused View of Emergency Communications
- ◆ Top Level Considerations
- ◆ Pressures to Upgrade
- ◆ Focus for Upgrades
- ◆ Timing Considerations
- ◆ Where Are We in Next Gen Migrations?
- ◆ PSAP Equipment Considerations
- ◆ Radio and Network Considerations
- ◆ R. A. C. S. – A Simple Project Evaluation
- ◆ Summary

In upgrading to Next Generation Emergency Communications, it is important to know what you need to know vs. what is nice to know.

This allows for better focus on the projects at hand and for better allocation of time, money and resources.



# Focused View of Emergency Communications



# Top Level Considerations

## ◆ **Funds Available:**

If one-time funds are available for upgrades and ongoing costs are not materially affected, then seriously consider the upgrade(s).

## ◆ **Reduced Life Cycle Costs:**

If the life cycle costs of technology changes will result in improved operations at similar costs or will result in reduced ongoing costs, consider the upgrade(s).

## ◆ **Public Safety Improvements:**

If systems replacements improve the safety and security of the public, there is strong incentive to find funding for the project(s).

## ◆ **Mandated Upgrades:**

If State or Federal mandates require upgrades, investigate the most economical means to meet the requirements of the mandates.

# Pressures to Upgrade

**Next Gen 9-1-1**

**GIS**

**ESINets**

**Digital P25 Radio**

**IP Networks**

**Integration**

**CAD**

**Upgrades should focus on  
improving operations or cost  
structures.**

# Focus for Upgrades

## ◆ Reduce ongoing costs

- ◆ Newer equipment may have reduced maintenance and lower life cycle costs.
- ◆ More efficient networks may reduce ongoing costs.

## ◆ Improve measurable public safety response performance

- ◆ Assure faster call answering and location data acquisition
- ◆ Allow collection and transfer of better dispatch data

## Focus for Upgrades (continued)

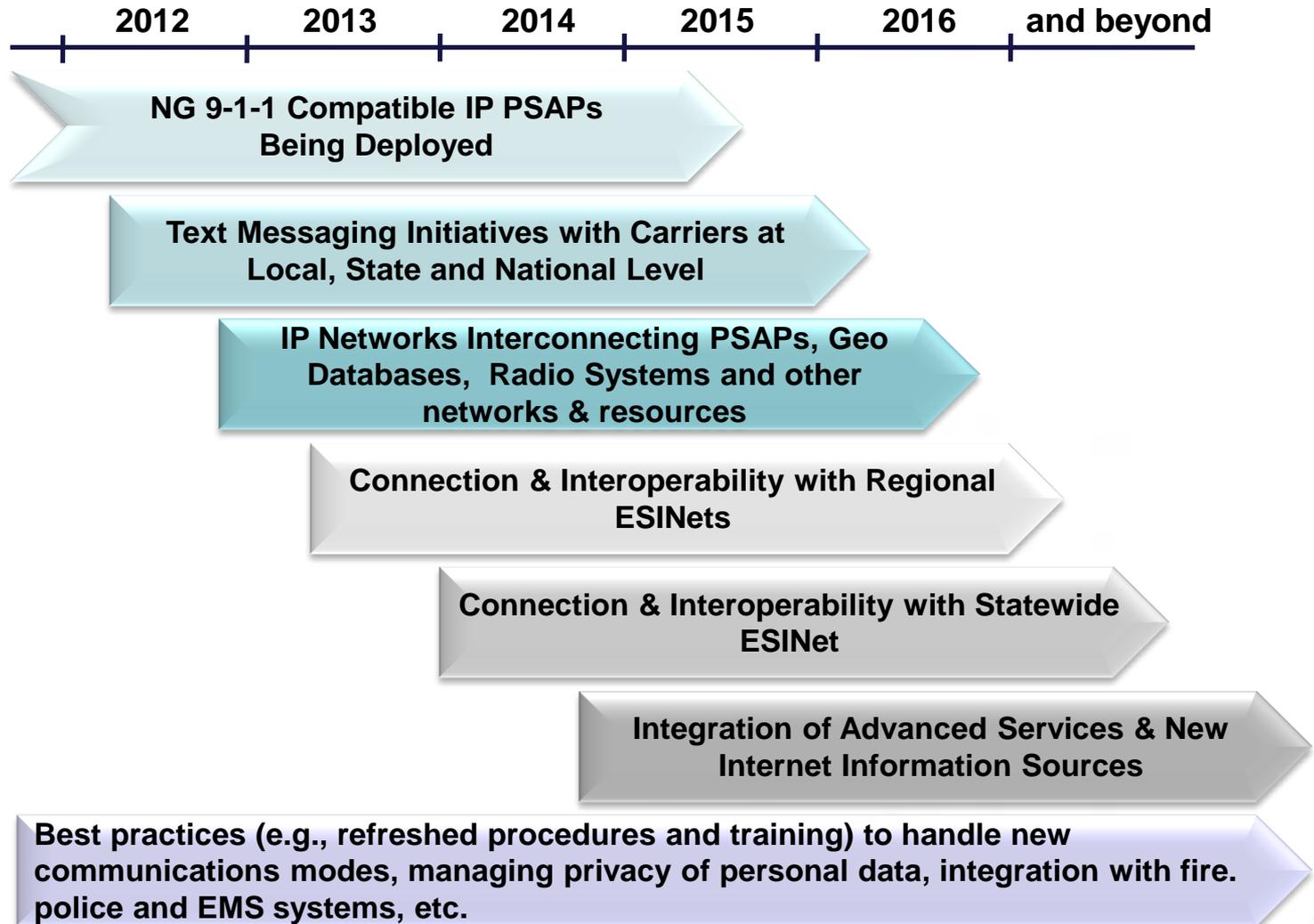
- ◆ Improve emergency management and disaster recovery performance
  - ◆ Improve multi-location operations
  - ◆ Reduce time to backup activation
  
- ◆ Governmental mandates
  - ◆ Text Messaging to PSAP
  - ◆ NG 9-1-1 and P25
  - ◆ Radio Interoperability

# Timing Considerations

With regard to NG 9-1-1, a number of factors affect the timing of upgrades:

- ◆ When will true NG9-1-1 calls be presented to the PSAPS? (e.g., text messages from cell phones, etc.)
- ◆ When will IP Selective Routing be available to the PSAPs?
- ◆ What clear requirements or benefits exist today to implement IP 9-1-1 calls to the PSAP?
- ◆ What are the demands for multi-region cooperation and integration?
- ◆ What Federal and State mandates will be put in place, and when?

# Where Are We in Next Gen Migration?



# PSAP Equipment Considerations

When examining hardware and software upgrades, try to focus on the “best” approach:

- ◆ What are the life-cycle cost improvements resulting from PSAP technology upgrades?
- ◆ What operational improvements and/or cost reductions can be effected from upgrades?
- ◆ Can lower cost, incremental hardware or software upgrades meet most or all of the desired improvements?
- ◆ Can modifications to existing hardware or software meet most or all of the desired improvements?
- ◆ Can upgrades be delayed to allow for improved financial conditions?
- ◆ Will the upgrades be completely compatible with current systems (GIS, CAD, etc.)?

# Radio and Network Considerations

Similar considerations apply to networks, but may have broader implications:

- ◆ What are the life-cycle cost improvements resulting from network upgrades?
- ◆ What operational improvements and/or cost reductions can be effected from upgrades?
- ◆ What is the status of regional IP Selective Routing systems to bring calls to the PSAPs?
- ◆ What is the status of regional and Statewide ESINet functionality?
- ◆ What are the benefits of improved public safety interoperability and network cost sharing with public safety organizations?
- ◆ What are the benefits of load sharing, failure recovery and disaster management, independent of IP Selective Routing and ESINet functionality?

# R.A.C.S. – a Simple Project Evaluation

## **Right**

- ✓ The right thing to do?
- ✓ The right timing?

## **Adequate**

- ✓ Accomplish the critical goals?
- ✓ Provide for functional requirements?

## **Cost Effective**

- ✓ Acceptable initial and ongoing costs?
- ✓ Reasonable as compared to alternatives?

## **Sustainable**

- ✓ Effective long term support?
- ✓ Based on standards to allow extension/expansion?

# Summary

- ◆ **Set clear and understandable rationale** for hardware, software or network upgrades.
- ◆ **Review logical and rational alternatives** to accomplish the upgrade goals, including incremental upgrades.
- ◆ **Assure that all required functional requirements** are fully addressed by any upgrade process, including compatibility with current systems and software.
- ◆ **Evaluate the functional improvements** for those that are “nice to have” vs. those that are really required.

## Summary (continued)

- ◆ **Evaluate the additional costs** of the “nice to have” improvements.
- ◆ **Examine life-cycle costs carefully** for each upgrade alternative. That is, the total of all costs (one-time and ongoing costs) over the expected life of the upgrade. Be sure to include any indirect cost reductions in the life cycle costs such as staffing or future cost avoidance.
- ◆ **DO NOT** get caught up in or confused by the technology, but focus on delivering Emergency Communications services to the citizens that depend on you.

**Use a Project Charter to Maintain Control!**



# Open Discussion



# Thank You.

## Considerations in Upgrading Emergency Communications Technology

Contact: Mart D. Nelson, P.E., ENP, CISSP  
214-597-2851  
mnelson@avistas.com

**AVISTAS**  
The Summit at Las Colinas  
545 E John Carpenter Fwy, Suite 300  
Irving, Texas 75062  
Tel: 214-544-0400  
Fax: 214-242-2311  
[www.avistas.com](http://www.avistas.com)

