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OPERATIONAL ISSUES AND CONCERNS WITH BROADBAND DATA

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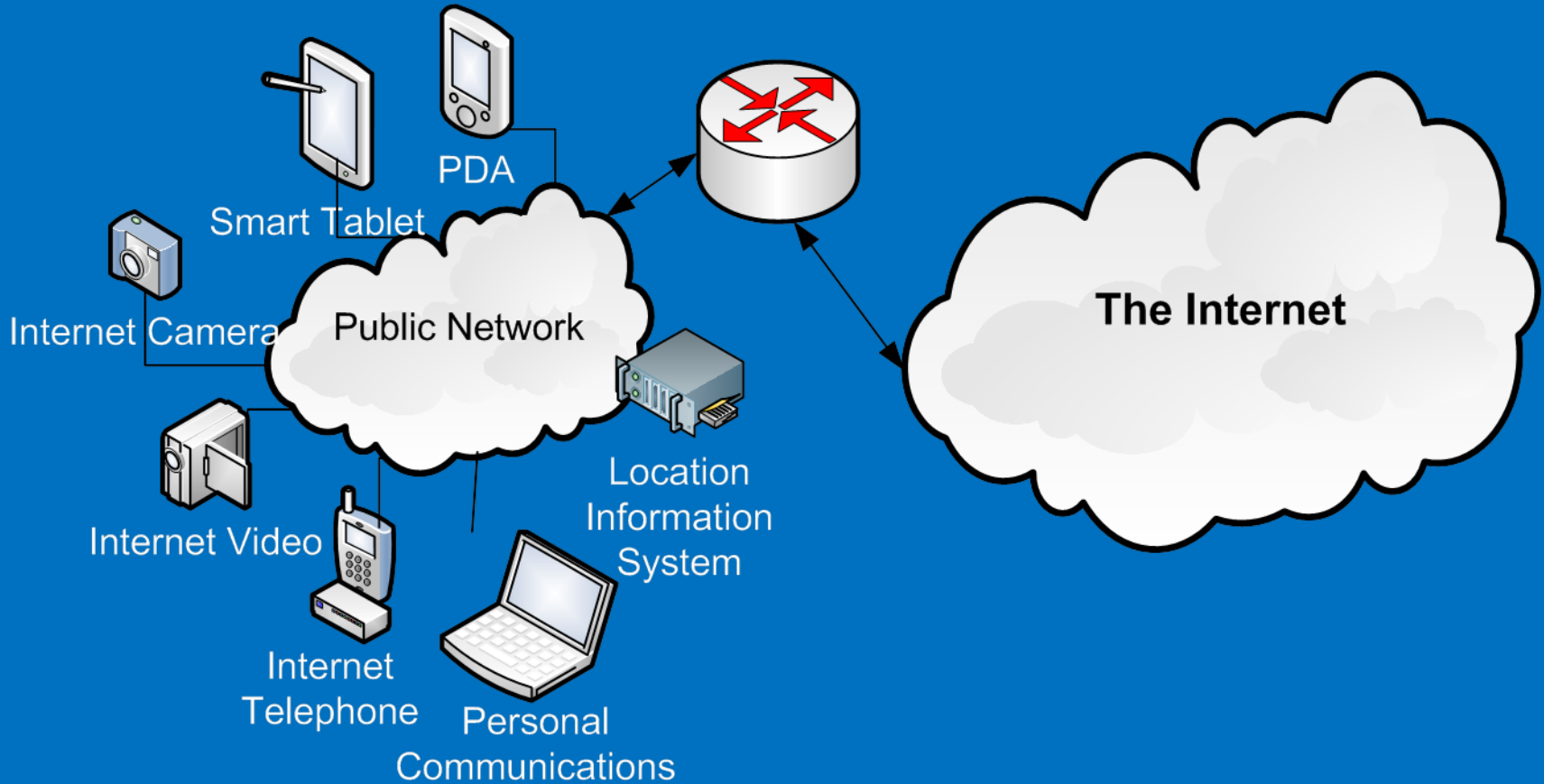
RCC Consultants

- Working with public safety and mobile data systems for over 30 years
- RCC has developed tools to design and analyze mobile data/LTE systems with consideration for operational criteria including coverage, capacity, security, cost, number of users, and system management and control.

“Choke Points”

- 9-1-1 information from public to PSAP (ESINet capacity)
- PSAP to first responder (Public Safety Broadband Network)
- Human Intel Capacity (how much data can an individual process?)

Data Sources



Capacity Issues Drive Functional Capabilities

- Historically, low bandwidth limits applications and amount of data being sent
- Higher bandwidth allows more data intensive applications including streaming video, pictures
- Passing more data means more data to process, both at the PSAP and in the field
- Processing of data will take time and resources, thus increasing the amount of time to process each call (for non-traditional calls)

PSAP Considerations

- How do you manage new types of data?
 - Dedicate a position in the PSAP to handle Text-to-9-1-1 messages?
 - Screen messages and filter data?
 - Send everything to the field?

Recent article summarizes concerns: “Public-safety representatives wary of ‘tsunami’ of data from text-to-911 services, NG-911” (Urgent Communications – April 9, 2014)

Distance vs. Capacity

The further a device is from the center of an LTE cell site, the slower the data speed is and the less capacity there is.*

<u>Distance from Center of Cell</u>	<u>Download</u>	<u>Upload</u>
1.25 Miles	34 Mbps	16 Mbps
2.00 Miles	25 Mbps	12 Mbps
3.00 Miles (edge of cell)	768 Kbps	257 Kbps

*APCO Technology Forum – Public Safety Broadband
12/03/2013 by Andrew M. Seybold

Typical Data Per Application

- According to the Federal GAO report on data capacity and rates:
 - HD resolution video will require 3.5 Mbps of data capacity
 - Typical video sent from an incident will require 1.2 Mbps of total available capacity
 - At the edge of the cell sector, only low-resolution video will be possible

Field Considerations

- Large incident may exceed bandwidth capacity and will require careful management
- Prioritization of applications is critical (ensure high priority messages go through)
- Coordination between users and agencies becomes especially important (manage bandwidth using NIMS type of approach)
- Infrastructure may be damaged thus further limiting coverage and capacity

Recommendations

- Plan for bandwidth overutilization during major incidents (CONOPS, training, lessons learned)
- Discuss priorities with first responders
- Prioritize the types of information needed
- Prioritize users (COML)
- Utilize existing resources
 - APCO Standards Development Committee (standards, best practices, methodologies)
 - APCO Broadband Committee
 - NPSTSC 700 MHz Broadband Working Group
 - NENA PSAP Operations Committee

Recommendations (cont.)

APCO magazine – April 2014, Reality of Broadband Standards for First Responders

- Marketing hype vs. reality
- Not all responders need to generate data
- Develop new CONOPS to:
 - Manage upload and download of data
 - Determine who generates, who manages data
 - Ensure only timely information needed to manage the incident is transferred
 - Don't distract or add to first responder workflow

Conclusions

- NG9-1-1 and Public Safety Wireless Broadband/4G LTE will provide the capability to provide significantly more information to the PSAP and the first responder
- Managing the data will require increased time and resources for the PSAP
- Intelligent dissemination of this data from the PSAP will be critical to the first responder in the field
- **PLAN IN ADVANCE!**

Q & A



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