

Managing Broadband Push To Talk Communications

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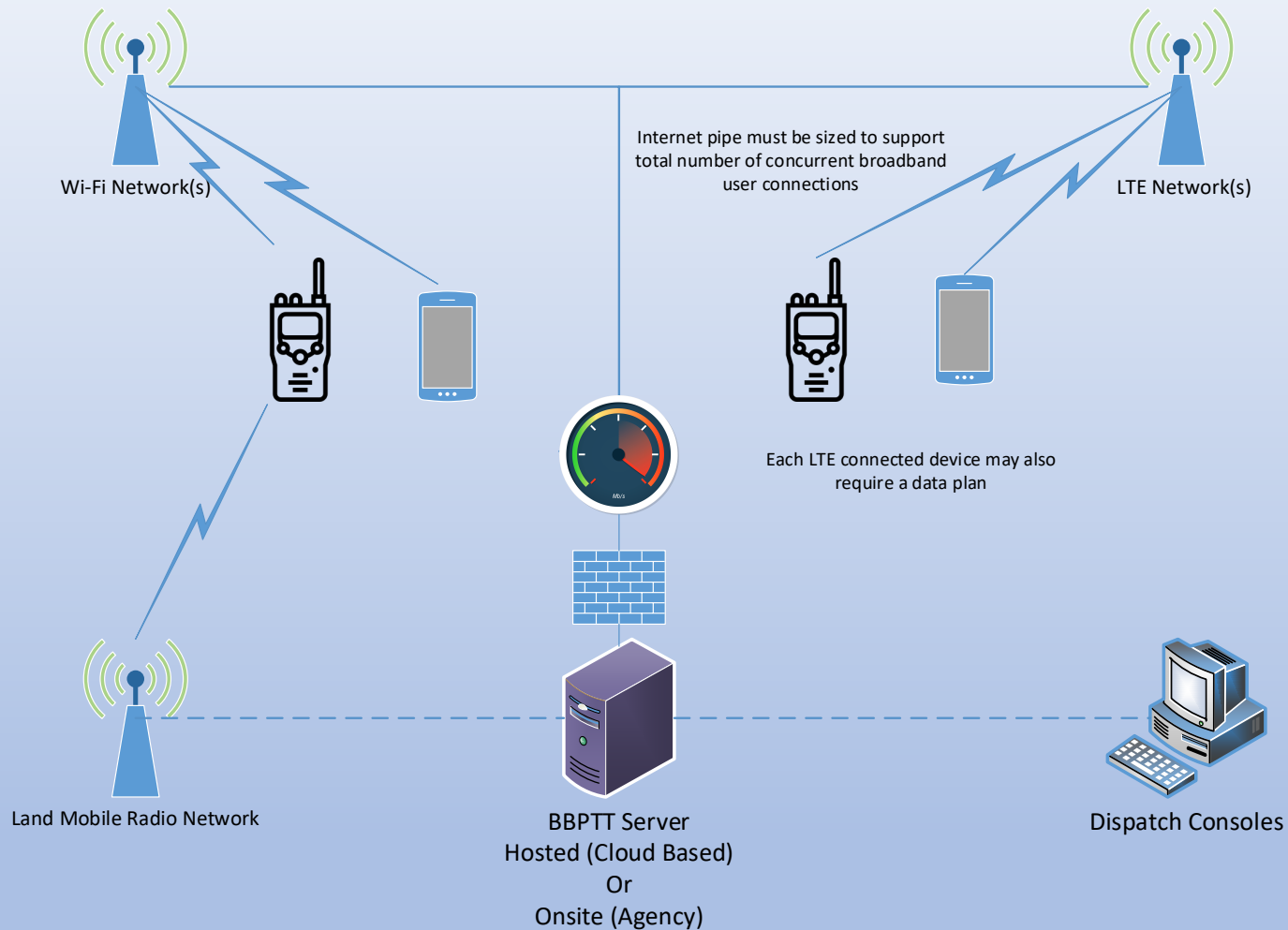
Agenda

- **Introductions**
- **Broadband PTT overview**
- **Planning**
- **Managing**
- **Q&A**
- **Closing**

What is Broadband Push to Talk?

- **Broadband push to talk (PTT) or BBPTT refers to the use of broadband technologies, e.g., LTE and Wi-Fi, to deliver what has typically been a land mobile radio function – one-to-many communications**
- **Commercial wireless carriers, applications and services providers, as well as traditional land mobile radio (LMR) vendors offer broadband-based PTT solutions**
 - **These offerings consist of a variety of carrier-integrated PTT solutions and “over-the-top” (OTT) PTT solutions, where the OTT solutions are carrier agnostic and provided by traditional LMR system vendors as well as PTT application providers**
 - **LMR system and equipment vendors also provide LMR subscriber equipment that incorporates emerging technologies, such as access to FirstNet, carrier LTE systems, and Wi-Fi systems.**





Sample BBPTT Network

Integrated BBPTT

- Operates within a specific commercial wireless carriers' system
- May provide quality of service (QoS) and priority of service, including preemption
- Examples:
 - AT&T Enhanced Push-to-Talk
 - FirstNet PTT(built with AT&T)
 - Verizon PTT Plus
 - T-Mobile Direct Connect
- Carriers can offer traffic management tools within their services and other advanced features
- Integrated BBPTT services can also connect to LMR systems
- No direct interoperability between carrier-integrated solutions



Over the Top (OTT) BBPTT

- OTT BBPTT services ride on top of the wireless carrier network, are carrier agnostic, and may be interoperable
- OTT BBPTT enables communications between users on different networks, whether they are commercial wireless, Wi-Fi, or even private LTE networks
- May not include the desired quality of service (QoS) and priority of service, including preemption, needed for most public safety agencies and some public service agencies
- Examples:
 - ESChat
 - Mutualink
 - JPS VIA
 - Response
 - L3H BeOn
 - Tango Tango
 - Modulo
 - TeamConnect PTT
 - Motorola SmartConnect



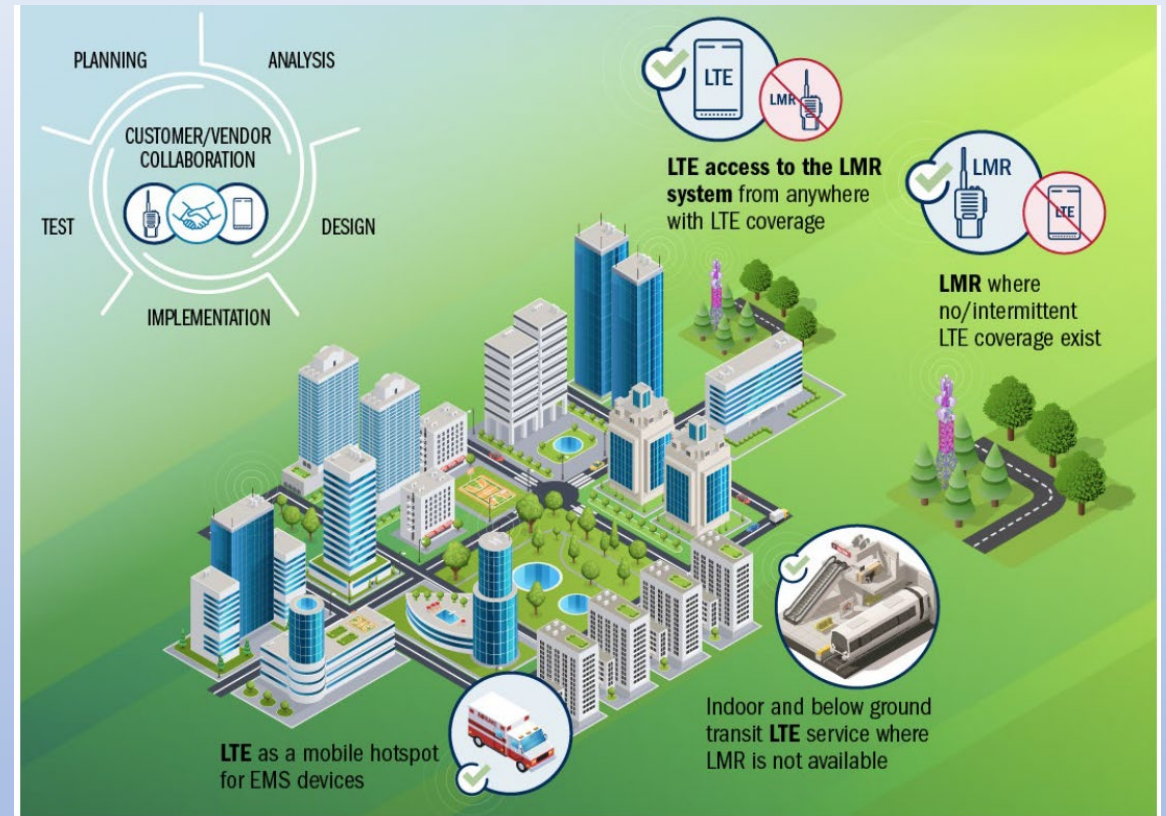
Wi-Fi Enhancements

- Multiple manufacturers offer subscriber radios that can operate using Wi-Fi for PTT, often to supplement in-building coverage
- Users need to program each Wi-Fi system Service Station Identifier (SSID) and security passwords into subscriber radios for each location where Wi-Fi is accessed
- Requires a gateway connection to the internet or the intranet that the Wi-Fi network is on that connects those users on Wi-Fi to the appropriate radio system and talkgroups



Why use a BBPTT Network?

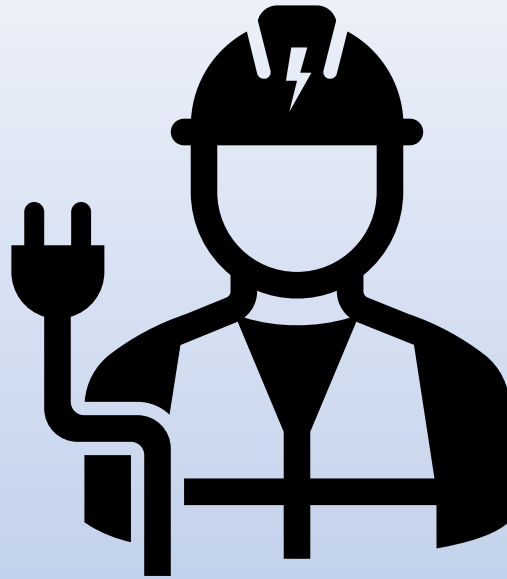
- Coverage enhancement or fill in
- Roaming outside LMR coverage area
- Back up to LMR system
- Additional capabilities
 - Messaging
 - Location information
 - Discreet communications



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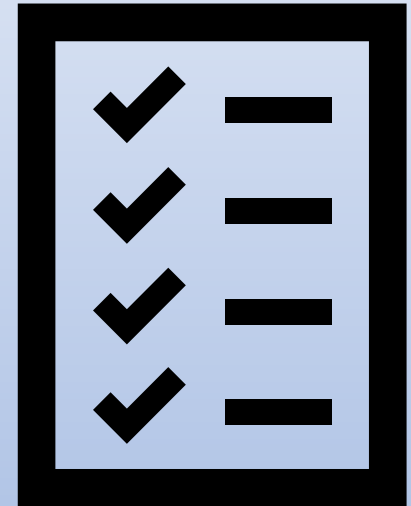
Who, what, where, when, and how?

- Who needs access to BBPTT?
- What talkgroups and other users do the users need to talk to?
- Where do the users need to access BBPTT?
- When should BBPTT be used?
- How should the BBPTT users be connected?
 - **Is encryption required?**
- All these decisions impact the costs, capacity, configuration, and resiliency of your BBPTT and LMR systems



Broadband PTT Requirements

- Carrier and/or Wi-Fi networks for user device connections
- Internet or intranet connection to carrier(s), Wi-Fi networks, and radio systems
 - *Must be sized to support expected concurrent users*
- BBPTT server to connect broadband networks and users to radio systems and/or dispatch consoles
 - *Can be on-premise or hosted*
 - *Must be sized to support the total number of potential users*
- Setup and configurations of connected talkgroups, radios, cell phones, and applications
 - *Default application and radio settings may not be appropriate for your users or operational environment*
- Management systems, policies, procedures, and TRAINING for users and dispatchers
- Security, e.g., CJIS requirements



Broadband PTT Challenges

- LTE and Wi-Fi coverage and resiliency
- Switching delays for networks and users
- Loss of internet connectivity
- Network availability when needed
- Costs for services, licensing, data plans, and ongoing support
- Lack of vendor and agency experience
- End-to-end encryption (where required), security protocols
- Lack of interoperability between commercial carriers
- No or limited off-network capability
- Hardened devices



Broadband PTT Best Practices

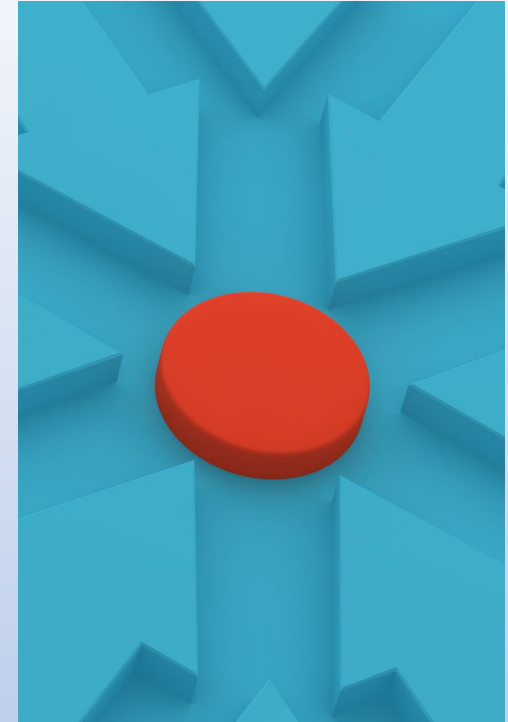
- Partner or consult with other agencies
- Start out slowly, consider pilot projects first
- Work with the system vendor to modify devices, software, and procedures to suit your needs
 - Include this requirement in your contract
- Limit scanning and interconnected talkgroups
- Establish governance policies and procedures for LTE devices
- Establish SLA(s) with the Internet service provider and consider alternate providers (redundancy)
- Train, train, train...then retrain



https://www.cisa.gov/sites/default/files/video/safecom_ncswic_lmr_lte_best_practices_22_0502_final_508c.pdf

Choices, choices, choices

- **Unique to each agency, its requirements and environment**
- **Often impacted by non-technical factors**
- **Requires analysis, time, effort, and commitment**
- **Needs stakeholder and sponsor buy-in and support**
- **Change is inevitable**
 - **Market, applications, and services are still evolving and maturing**



Q&A

Thank You!

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