

Making a Painless Transition to Public Safety Broadband Networks



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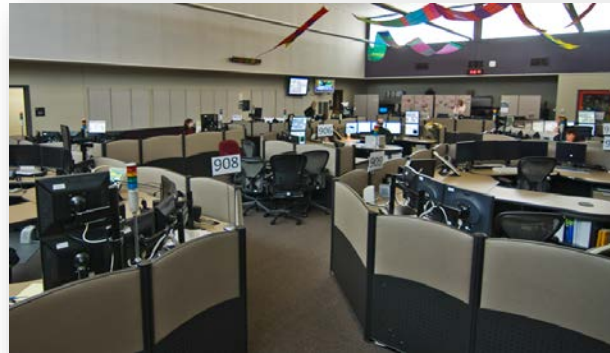


Federal Engineering

- **Introductions and Expectations**
- **Transitioning to a Public Safety Broadband World**
 - **What to Expect**
 - **How to Be Ready**

Your Expectations

- **What are your expectations from this session?**
- **Why are you here?**
- **What would you like to take away?**
- **How can we help you?**



Public Safety Broadband Networks (PSBN)



A Little Background

A Little Background

- **LMR vs. LTE**
- **LMR and PSBN**
- **Technology Transitions – Not a switch flip**
- **Coexistence will be the norm**
- **Key issues and considerations as agencies migrate**

LMR vs. LTE

- **Public Safety communications and LMR grew up together**

Technology

Operational

Products

- **LTE developed from the commercial/consumer cellular world**

Different requirements

Different solutions

Public Safety Broadband Networks \ FirstNet

- **Provides the next evolutionary step**
- **LTE Technology and Systems evolved for Public Safety**
 - **Features and Functions**
 - **Coverage**
 - **Reliability**
 - **Products**

Public Safety System Evolution

- **PSBN provides the next evolutionary step**
 - **PSBN Paralleled with LMR (Now)**
 - **PSBN Partnered with LMR (Soon)**
 - **PSBN Replacing LMR (Future)**

Technology Transitions / Not a Switch Flip

- **Coexistence will be the norm**
 - **Coexistence due to technology readiness**
 - **Coexistence due to transition timing**
 - **Coexistence due to interoperability needs**

PSBN Paralleled with LMR

- **LMR carrying today's voice traffic**
- **LTE/PSBN carrying supplemental data**
 - **Extension of current mobile data applications**
 - **Potential for improved performance**
 - **Targeted capacity**
 - **Priority and preemption**

PSBN Partnered with LMR

- **Selective voice services transition to PSBN**
- **Telephone like voice services**
- **Non-Mission Critical PTT**
 - Administrative
 - Investigation
 - Code enforcement
- **New applications**

PSBN Replacing LMR

- **MC-PTT**
- **Coverage Enhancements**
- **Direct / Off-Network Mode**
- **Specially Products**

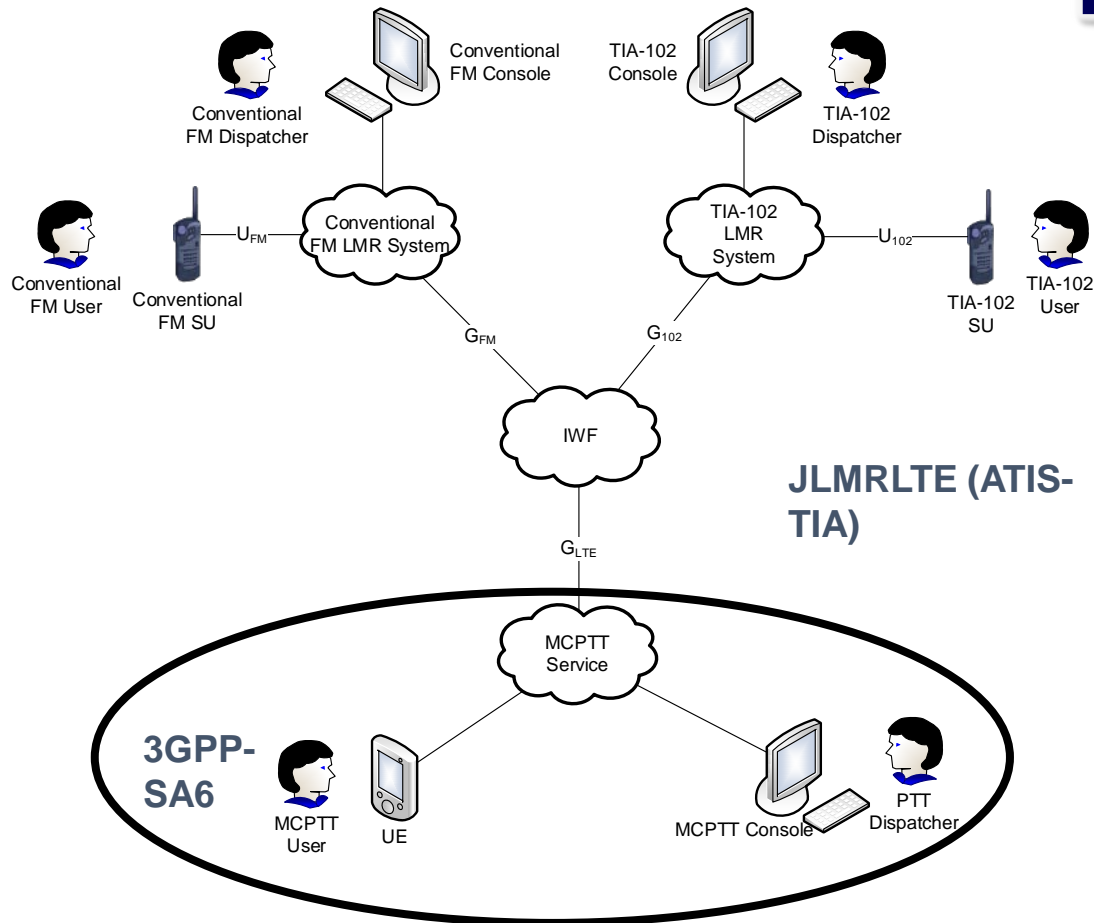
Key issues and Considerations

- **Your Agency / Your Needs**
- **Technology**
- **Products**
- **Policy**

Key issues; Technology

- **Coverage**
 - Overall
 - Targeted
- **Features**
 - MC-PTT
 - Direct Mode
- **Interfaces**

LTE to LMR Interfaces



- **GLTE** is what 3GPP SA6 is defining
- **G102** has not been defined yet – maybe ISSI/CSSI
- **GFM** hasn't been defined yet – could be ISSI/CSSI
- The IWF being defined in JLMRLTE (ATIS-TIA)
- Will likely look like
 - MC-X server on the LTE side
 - An ISSI node on the LMR side

Key issues; Products

- **Ruggedized**
- **Specialized Functions**
- **Specialized Form Factors**

Key issues; Policy

- **Shared Resource**
 - Shared Responsibility
- **Local Control**
 - Overlapping control
- **Communications Interoperability**
 - Content ownership and control

Interoperability in the Coming Public Safety Broadband World



How to Be Ready?

How to Be Ready: Planning!

- **Your Network**
- **Your Agency and Area**
- **Your Operation**

How to Be Ready: Planning!

- **Your Network**

- **One size does not fit all**
- **Trunking, Conventional, Mixed**
- **Wide area or zoned,**

How to Be Ready: Planning!

- **Your agency and area**
 - **Coverage requirements**
 - **Current and planned LMR coverage**
 - **LTE coverage; Existing and planned**
 - **PSBN Coverage**

How to Be Ready: Planning!

- **Your Operation**

- **Type of Agency**

- **Police, Fire, EMS, Merged**
 - **Every agency has a unique evolutionary path**

The Big Issue; Budgets



Or Rather; Budget Discussions

Differing Budgetary Systems

- **Capital Expenditure (CapEx)**

A product or system with durable asset value beyond the current budget cycle

- **Operational Expense (OpEx)**

A product or service with a value consumed (or mostly consumed) within the budget cycle

Why Does This Matter?



Capital Expenditure (CapEx)

- **Capital Expenditure (CapEx)**

A product or system with durable asset value beyond the current budget cycle

- **CapEx is typically addressed as a “one time” expense**
- **Return from funding is anticipated to be “long term”**
- **Each cycle funded separately**

Funding of one cycle does not assure funding of the next

- **Funding sources change between cycles**
- **Next cycle is often not even considered**

Operational Expense (OpEx)

- **Operational Expense (OpEx)**

A product or service with a value consumed (or mostly consumed) within the budget cycle

- **OpEx is typically addressed as an ongoing expense**
- **Return from funding is typically exhausted during the funding cycle**
- **Continuing funding is expected cycle to cycle**

Funding cycles are usually based off previous cycle

Funding is usually expected for the following cycle

Funding source may change over time

- **Typically similar between cycles**

“System” Costs

- **LMR - CapEx Model**

Higher Initial Cost

- Long Term Return on Value in Equipment

Lower Recurring Costs

- **LTE - OpEx Model**

Higher Recurring Costs

- Ongoing Value Requires Ongoing Costs

Lower Initial Costs

LMR “System” Costs

- **Infrastructure procurement and deployment**

12 to 25 year cycle

- **Infrastructure maintenance and operation**

Ongoing

- **Subscriber procurement and deployment**

5 to 15 year cycle

Subscriber replacement anticipated

- Often not “budgeted”

- **Subscriber maintenance and operation**

Ongoing

LTE “System” Costs

- **Service/Usage (Infrastructure)**

Service Agreement

Ongoing

- **Interface procurement and deployment**

May be long term

Interface maintenance and operation

- **Subscriber procurement and deployment**

1 to 3 year cycle

Subscriber maintenance and operation

Subscriber replacement

- Needs to be planned and budgeted

What to Do



Planning and Budgeting

- **Evaluate your current budget and funding plans**
- **Look for opportunities to align future budgets and funding to anticipated needs**

Capital and Operational

- **Set reasonable expectations**

Don't assume PSBN will supplant LMR in the short term

“Paralleled” and “Partnered” solutions require support of both networks

Don't assume PSBN will reduce costs

Discussion Q&A



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YOUR EXPECTATIONS REVISITED



How did we do?

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