

Interoperability in the Coming LMR and LTE World: What to Expect and How to Be Ready

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Agenda



Introductions and Expectations
Interoperability in the Coming LMR and LTE World: –What to Expect
Interoperability in the Coming LMR and LTE World: –How to Be Ready



Your Expectations



What are your expectations from this session?
Why are you here?
How will FirstNet fit with your agency
What would you like to take away?
How can we help you?



Interoperability in the Coming LMR and LTE World: A Little Background





A Little Background

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



LTE vs. LMR



Public Safety communications and LMR grew up together

- -Technology
- -Operational
- -Products

LTE developed from the commercial/consumer cellular world

- Different requirements
- Different solutions



FirstNet vs. LMR



FirstNet provides the next evolutionary step

LTE Technology and Systems evolved for Public Safety
Coverage
Reliability
Features and Functions
Products



Public Safety System Evolution



FirstNet provides the next evolutionary step

 LTE Paralleled with LMR
 LTE Partnered with LMR
 LTE Replacing LMR



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



LTE Paralleled with LMR



LMR carrying today's voice traffic
LTE/FirstNet carrying supplemental data

Extension of current mobile data applications
Potential for improved performance
Targeted capacity
Priority and preemption



LTE Partnered with LMR



Selective voice services transition to FirstNet

Telephone like voice services
Non-Mission Critical PTT
Administrative
Investigation
Code enforcement

New applications





LTE Replacing LMR

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



Key issues and considerations as agencies interoperate and migrate

Your Agency

Your Needs

Technology
Products
Policy







Key issues; Technology

Coverage

Overall
Targeted

Features

MC-PTT
Direct Mode

Interfaces



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- 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 LMR and LTE World:

How to Be Ready?





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How to Be Ready: Planning!

• Your Network

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

Your agency and area

- Coverage requirements
- Current and planned LMR coverage
- LTE coverage; Existing and planned
 - FirstNet coverage
- 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 terminology





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CapEx vs. OpEx

Capital Expenditure (CapEx)

- An 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)
 - An 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









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 LTE will supplant LMR in the short term
 - Don't assume LTE will reduce costs





Discussion Q&A





YOUR EXPECTATIONS REVISITED

How did we do?



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