

# Critical Communications Workshop 2014



<http://www.pscr.gov>

Public Safety Communications Research Program  
Department of Commerce – Boulder Labs

# Presentation Agenda

- Why Standards?
- The Public Safety Market
- FirstNet Standards Strategy
- Current Efforts
- Next Steps

# PSCR Overview

# FirstNet Overview

- FirstNet is an independent authority within NTIA created to:
  - Hold a single public safety 700 MHz wireless broadband license
  - Take actions to ensure the design, construction, deployment, and operations of the nationwide Public Safety Broadband Network, in consultation with Federal, State, tribal and local entities.
- 15-member board
  - No fewer than 3 individuals will represent states, localities and tribes

# Why Standards?

# Standards Development for Public Safety

- Public safety is a small market relative to the commercial mobile consumer market
- Lack of a single set of LMR standards
  - Causes interoperability problems and
  - Increased costs for public safety
- Goal:
  - Create global market for public safety broadband
  - Drive convergence of commercial and public safety features

# The Public Safety Market

# Global Market for Public Safety

- Wide variety of estimates for number of public safety users in the US
  - 3-5 million people based on census data
  - Doesn't account for sensors and other machine type devices
- Global estimate for public safety users
  - ~45 million people
  - Again, doesn't account for sensor and other machine type devices



# Convergence between Commercial and Public Safety

- Tier 1 commercial mobile network operators in the US have 100+ million customers
- Vodafone is estimated to have more than 400+ million customers
- China Mobile is estimated to have more than 770+ million customers
- If public safety can use the same technology that these operators deploy
  - Costs go down dramatically

# PSCR Standards Support to FirstNet

# Mission Critical Voice – NPSTC Req's

- Two modes of operation acceptable
  - Push To Talk
  - Traditional Cellular Telephony
- Direct Mode
- Group Communications
- Audio Quality
- Speaker Identification
- Emergency Alerting

# Standards Focus

- **Mission Critical Voice**
  - Use 7 features of NPSTC MCV as the goal for what needs to be standardized in LTE
- **Global Reach**
  - Ensure global public safety market
- **Widen Manufacturer Base**
  - More diverse vendor set given the move to a globally accepted commercial technology

# Current Efforts

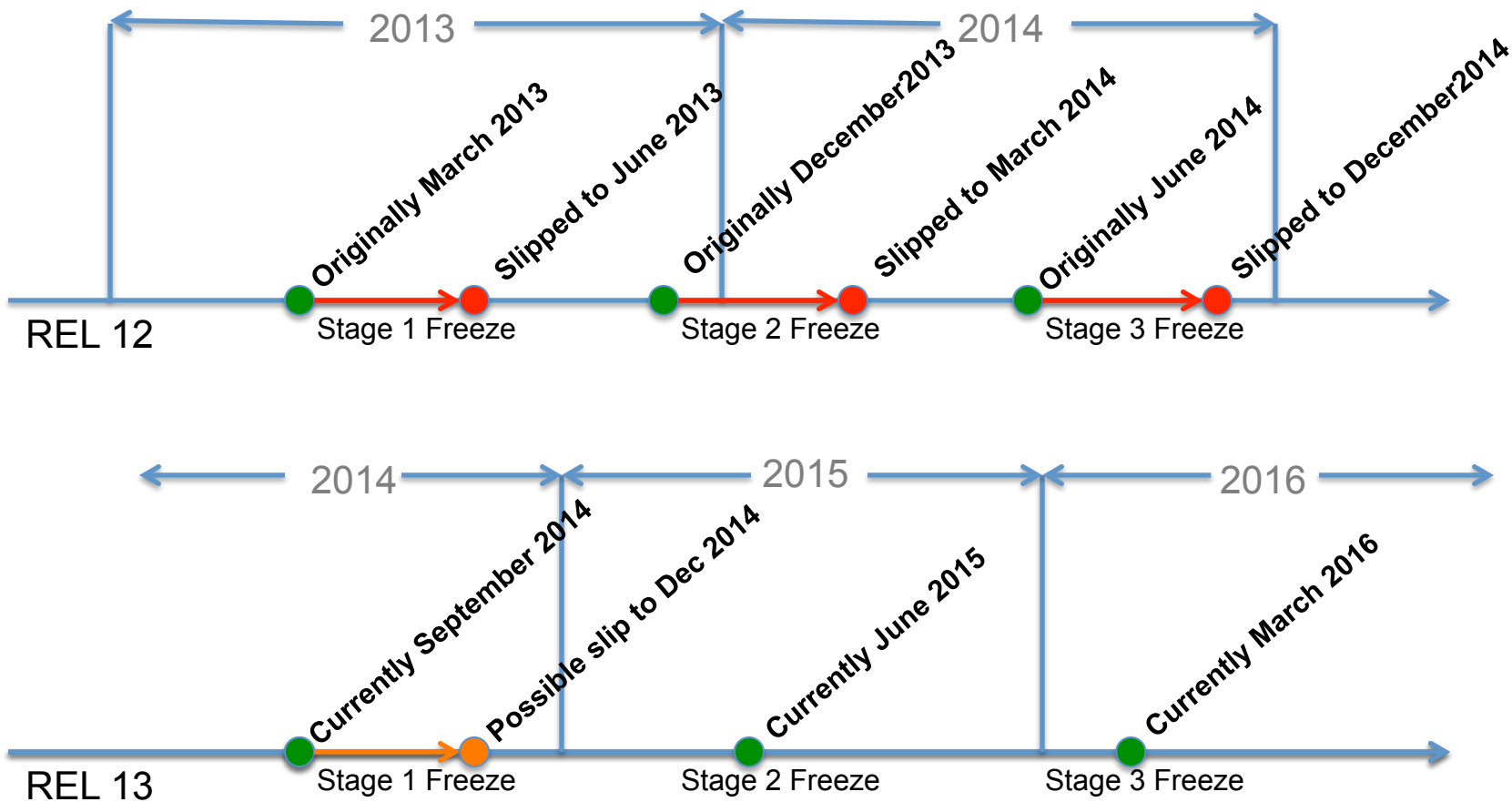
# So What Are We Working On?

- 3GPP Release 12 & 13
  - Proximity Services
    - This is basically direct mode but with some added capabilities
  - Group Communications System Enablers
    - LTE wasn't really designed for interactive one to many communications
- 3GPP Release 13
  - Mission Critical Push To Talk
    - Let's be real about timelines

# Standards Cont.: 3GPP Release Process

- 3GPP uses a system of parallel “releases” to provide developers with a stable platform for implementation and to allow for the addition of new features required by the market
- Each release has three phases of a “freeze” which means that no additional features can be added after each successive freeze

# Standards Cont.: 3GPP Release Process





# Standards Continued: Direct Mode

- 3GPP: Proximity Services (Direct Mode) – REL 12/13
  - Current progress to date for REL 12
    - Communications
      - In and out of network included
    - Discovery
      - In network only included
    - Relaying
      - Ue-to-Ue and Ue-to-Network not included
  - Next steps
    - REL 13 work to include REL 12 unaddressed work
    - Looking at adding priority to LTE direct mode

# Standards Continued: Group

- 3GPP: Group Efficiency (Group communications) – REL 12/13
  - Current progress to date
    - Normative, standards track
  - Next steps
    - Group Management back for REL 13

# Standards Continued: PTT

- 3GPP: MC PTT – REL 13
  - Current progress to date
    - Normative, standards track
    - Stage 1
      - In progress, expected to complete in November, at 75%
    - Stage 2
      - Beginning of architectural discussion and potential break up of work

# Next Steps

# Next Steps

- Mission Critical Push To Talk
  - Factors in making a decision for where to do this work
    - Time
    - Resources
    - Expertise
    - Participation
    - Market Reach

# Next Steps: Cont'd

- Mission Critical Push To Talk – Time
  - Well known timeline for the United Kingdom with regard to MCPTT
  - France also looking for technology demonstrator for MCPTT
  - 3GPP freeze dates looming
    - Need method to bypass bottlenecks while still ensuring adequate participation
  - Cross SDO collaboration is time consuming and messy

# Next Steps: Cont'd

- Mission Critical Push To Talk – Resources
  - Governments, vendors, and operators have limited standards resources
  - Coordination for one organization across multiple SDOs is challenging
  - Participating between multiple SDOs is expensive

# Next Steps: Cont'd

- Mission Critical Push To Talk – Expertise
  - Current LTE expertise predominant in 3GPP
  - Proximity Services expertise solely in 3GPP
  - Group Communications System Enablers expertise solely in 3GPP
  - Current IMS expertise predominant in 3GPP
  - Push To Talk over Cellular expertise exists somewhat within OMA and 3GPP



# Next Steps: Cont'd

- Mission Critical Push To Talk – Participation
  - OMA
    - Governments freely participate in OMA with exceptions on capability
      - No formal voting, cannot chair technical working group, cannot appeal on technical issues, etc.
      - Ongoing discussion with OMA Board on above exceptions
    - Vendors participate in OMA for a fee based on capability
  - 3GPP
    - Governments and vendors participate for a fee in 3GPP with no limitation on capability
  - ETSI
    - European governments and vendors participate in ETSI with no limitation on capability
    - Non-European governments and vendors participate in ETSI with small exceptions on capability
      - Cannot approve European Standards, cannot nominate for GA and Board elected officials, Industry specification group participation (?)

# Next Steps: Cont'd

- Mission Critical Push To Talk – Market Reach
  - 3GPP
    - Global reach for LTE
  - OMA
    - Global reach for OMA specified features across multiple RATs
  - ETSI
    - European reach

# Questions