Standards Development & Requirements Gathering

http://www.pscr.gov

Public Safety Communications Research Program
Department of Commerce – Boulder Labs
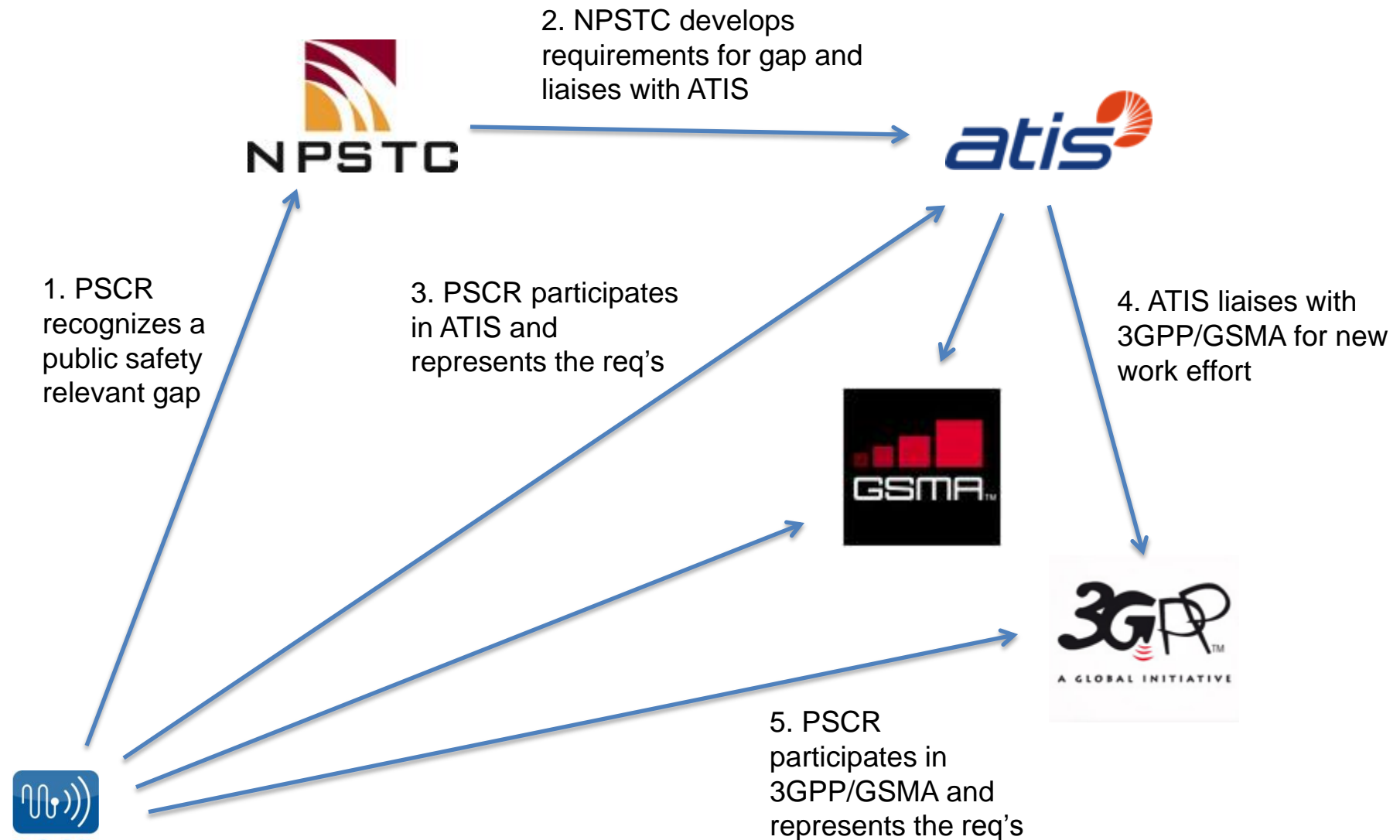
Sponsor Acknowledgment
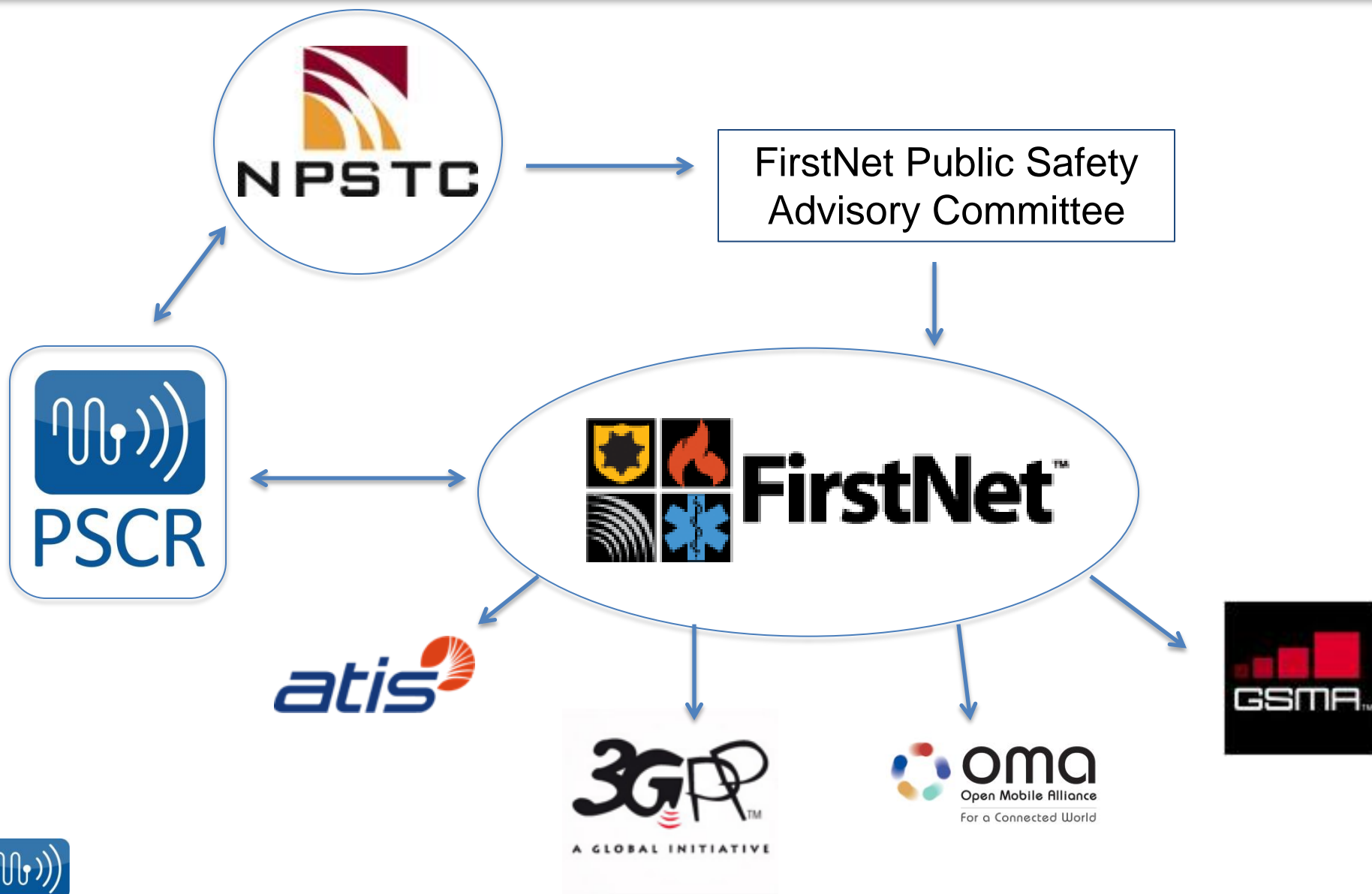
- Funding for this work is provided by FirstNet

Standards Agenda

- Pre-FirstNet Standards

- FirstNet Standards

- Standards Strategy

- 3GPP Release Process & Structure

- Current focus

Pre-FirstNet Broadband Standards Efforts

2. NPSTC develops requirements for gap and liaises with ATIS

1. PSCR recognizes a public safety relevant gap

3. PSCR participates in ATIS and represents the req's

4. ATIS liaises with 3GPP/GSMA for new work effort

5. PSCR participates in 3GPP/GSMA and represents the req's

FirstNet Standards Process

FirstNet Standards Strategy

- Mission Critical Voice
  - Use MC PTT as the goal for what needs to be standardized in LTE barring errors found

- Global Reach
  - Ensure global public safety market

- Widen Manufacturer Base
  - More diverse vendor set given the move to a globally accepted commercial technology

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Mission Critical Voice

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

Global Public Safety Market

- U.S. estimated at 3-5 Million Public Safety users
  - 60,000+ agencies, 8000+ land mobile radio networks
- U.K. estimated at 300k Public Safety users
- Canada, France, Australia, Germany, South Korea, etc.
- Global estimate of 45 Million Public Safety users

- 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

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Standards Cont.: 3GPP Release Process

- Release 12
  - Stage 1 Freeze is March 2013
    - slipped to June 2013
  - Stage 2 Freeze is December 2013
    - slipped to March 2014
  - Stage 3 Freeze is June 2014
    - slipped to December 2014
    - Protocols stable 3 months later
- Release 13
  - Stage 1 Freeze is September 2014
    - expected to slip 3 months
  - Stage 2 Freeze is June 2015
  - Stage 3 Freeze is March 2016
- Typically a desired feature will appear 2 years after a Stage 1 Freeze or 1 year after a Stage 3 Freeze

Technical Specifications Group (TSG) Structure

TSG GERAN	**TSG RAN**	**TSG SA**	**TSG CT**
GSM EDGE Radio Access Network	**Radio Access Network**	**Service & Systems Aspects**	**Core Network & Terminals**
GERAN WG1 Radio Aspects	RAN WG1 RL 1 Spec	SA WG1 Services	CT WG1 MM/CC/SM (Iu)
GERAN WG2 Protocol Aspects	RAN WG2 RL 2 Spec RL 3 RR Spec	SA WG2 Architecture	CT WG3 Interworking w/ Ext networks
GERAN WG3 Terminal Testing	RAN WG3 Lub, lur, lu specs UTRAN O&M Reqs	SA WG3 Security	CT WG4 MAP/GTP/BCH/SS
	RAN WG4 Radio Perf Protocol Aspects	SA WG4 Codec	CT WG6 Smart Card App Aspects
	RAN WG5 Mobile Terminal Conformance Testing	SA WG5 Telecom Mgt	

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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

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

- 3GPP: MC PTT – REL 13
  - Current progress to date
    - Normative, standards track
    - Stage 1
      - In progress at 60% completion
        » Note that there was objection to rapporteur estimation of 60%
      - Large unknown with OMA and TCCE requirements
    - Stage 2
      - Began two weeks ago, largely informative discussion
      - No formal approval of WID (June SA Plenary)
      - Potential contention regarding where to standardize PTT

Standards Continued

- What we have learned
  - Public safety LTE is a global market
    - We have worked closely with:
      - TETRA CCA
      - APCO Global Alliance
        » In particular USA, Australasia, Canada, and Britain
      - Canadian government & Canadian Interoperability Technology Interest Group (CITIG)
    - We have been successful because of the global partnerships
  - Each effort requires different partners depending on varied business interests

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Standards Upcoming Events

- ## Events:
  - [3GPP] SA1 Working Group – May 2014 – Sapporo
    - MC PTT week of May 12, critical meeting for progress, REL 13 starts for PRoSe and GCSE_LTE
  - [3GPP] SA3 Working Group – May 2014 – Sapporo
    - Security aspects for PRoSe and GCSE_LTE
  - [3GPP] SA2 Working Group – May 2014 – Phoenix
    - Working begins on MC PTT, along with continued discussions for REL 13 PRoSe and GSCE_LTE
  - [3GPP] RAN1 & RAN2 Working Groups – May 2014 – Seoul
    - Continued standardization of ProSe
  - [3GPP] RAN & SA Plenary – June 2014 – Sophia Antipolis
    - Expected discussion about what, if any, breakup of standardization of MC PTT across 3GPP, OMA, and ETSI