The Evolution of Push-to-talk Over Cellular (POC)

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Push-to-talk Over Cellular (POC) Overview

- A form of communication that allows users to engage in immediate communication with one or more users, providing a “walkie-talkie”-like service.
- The communication is half-duplex: Only one person can talk at a time and all other participants hear the speech.
- Other participants can respond to this message once this initial talk-burst is complete.
- Contention of the Right-to-Speak amongst different participants is managed via **Floor Control** by the PoC “Service Entity”.
- The receiving participants hear the sender's voice either by **Auto Answer** without any action on their part, or by **Manual Answer**, i.e. being prompted/alerted and accepting the call before hearing the sender's voice.
- PoC utilizes the Group Management and Presence enablers to support Group List, Control Lists, and Presence.
Standards Objectives

- User perspective:
  - Ability to connect all other PoC users from different operators (Inter-carrier support)
  - Accurate and low latency indications to speak
  - Accurate and robust presence service
  - Easy to use

- Operator and Vendor Perspective:
  - Interoperable over the air (OTA) and between carriers to reduce development and deployment costs
  - Easy integration with other enablers (e.g., Presence, Group Management, Device Management, etc.)
  - Easy to integrate over the IMS/MMD to avoid redundant core network capabilities in PoC
  - Spectrally efficient
Inter-carrier Support

- There are multiple deployments of PoC in the market.
- Current deployments including deployments by the same vendors are different and do not interoperate together
- It is essential for PoC users to be able to use POC with users from other carriers
- The standards define standard interface between POC systems.
- The standards interface between POC systems can be utilized to support inter-carrier not only between standards POC but between standards and proprietary POC Systems
POC Standards Activities

- The POC standards specifications are split between OMA and 3GPP/3GPP2.
- OMA is responsible for developing the PoC specifications that are access technology independent.
- 3GPP/3GPP2 are responsible for developing the PoC Specifications that are access dependent.
- The PoC specifications from OMA and 3GPP2 provide complete PoC specifications for cdma2000 technology.
- Sprint has been heavily involved in OMA and 3GPP2 to ensure alignment between the work in OMA and 3GPP2 and avoid overlap between the two organizations.
POC Architecture

Remote PoC Network contains the same network elements and reference points as the home PoC network.
POC Standards Activities - OMA

- Completed use-cases and user requirements for POC enabler
- Developing architecture and specifications for POC enabler
  - Providing standard interfaces between the POC clients and the POC servers
  - Providing standard interfaces to support inter and intra POC systems communication
  - Allowing utilization of the MMD/IMS features developed by 3GPP/3GPP2
  - Allowing utilization of the Presence and Group Management enablers
POC Standards Activities – 3GPP2

- Adopted OMA User/Application requirements
- Developing POC system requirements document that captures the CDMA network requirements from the OMA POC applications requirements.
- Responsible for codec selection
- Will develop necessary CDMA specifications to support POC service
Sprint’s interest in POC Standards

- Sprint is very active and interested in POC standards development
  - Active in OMA-POC and vice chairing OMA-POC group
  - Active in OMA-PAG to ensure completion of Presence and Group Management to support POC. Chairing the OMA-PAG group
  - Active in 3GPP2 and chairing POC Architecture FG under TSG-S WG2
Benefit of PoC Standards

- Provide interoperability between POC standards systems to support inter-carrier communications which is the key for POC success
- Provide interoperability between the POC client on mobile devices and network
- Provide interfaces to other enablers such as Presence and Group Management
- The standard interface between POC systems can be added to proprietary and legacy POC systems in order to support inter-carrier communications
- Provide economy of scale by reducing the cost for standards POC systems