SP-140524

MISSION CRITICAL* STANDARDS DEVELOPMENT

3GPP TSG SA Meeting #65
Edinburgh, Scotland, Sep 15-17, 2014
Motorola Solutions

*** Critical Communications = Public Safety requiring *Mission Critical* standards and solutions + other markets requiring Business Critical standards and solutions**

How should 3GPP enable Critical Communications Standards Development?

PUBLIC SAFETY KEY MISSION CRITICAL REQUIREMENTS → **INTERESTED SDOs** → **STANDARDS COMPONENTS**

- INTEROPERABLE PUBLIC SAFETY APPLICATIONS
- TETRA/P25 INTEROPERABILITY for MIGRATION
- LTE OPTIMIZED AND SUPPORTS MULTIPLE TRANSPORT NETWORKS
- USER –BASED AUTHENTICATION & GROUP MGMT
- LOCAL/AGENCY-SPECIFIC ENCRYPTION
- SITUATIONAL AWARENESS, DYNAMIC PRIORITY MGT.
- FAST SET-UP GROUP CALL
- BROADCAST, GUARANTEED CALL CAPACITY
- OFF-NETWORK DIRECT MODE

ETSI

oma Open Mobile Alliance

3GPP

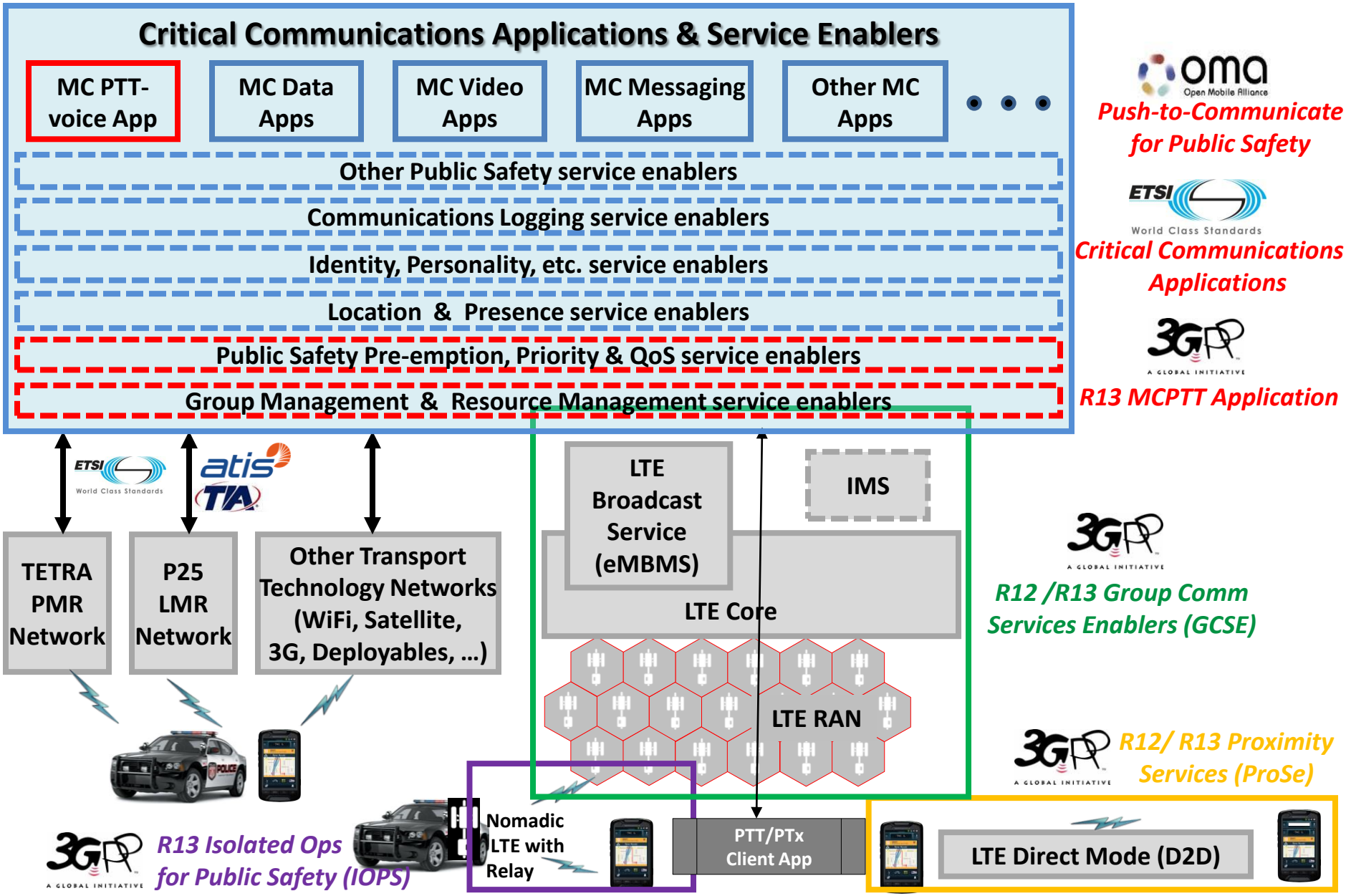
APPLICATION LAYER

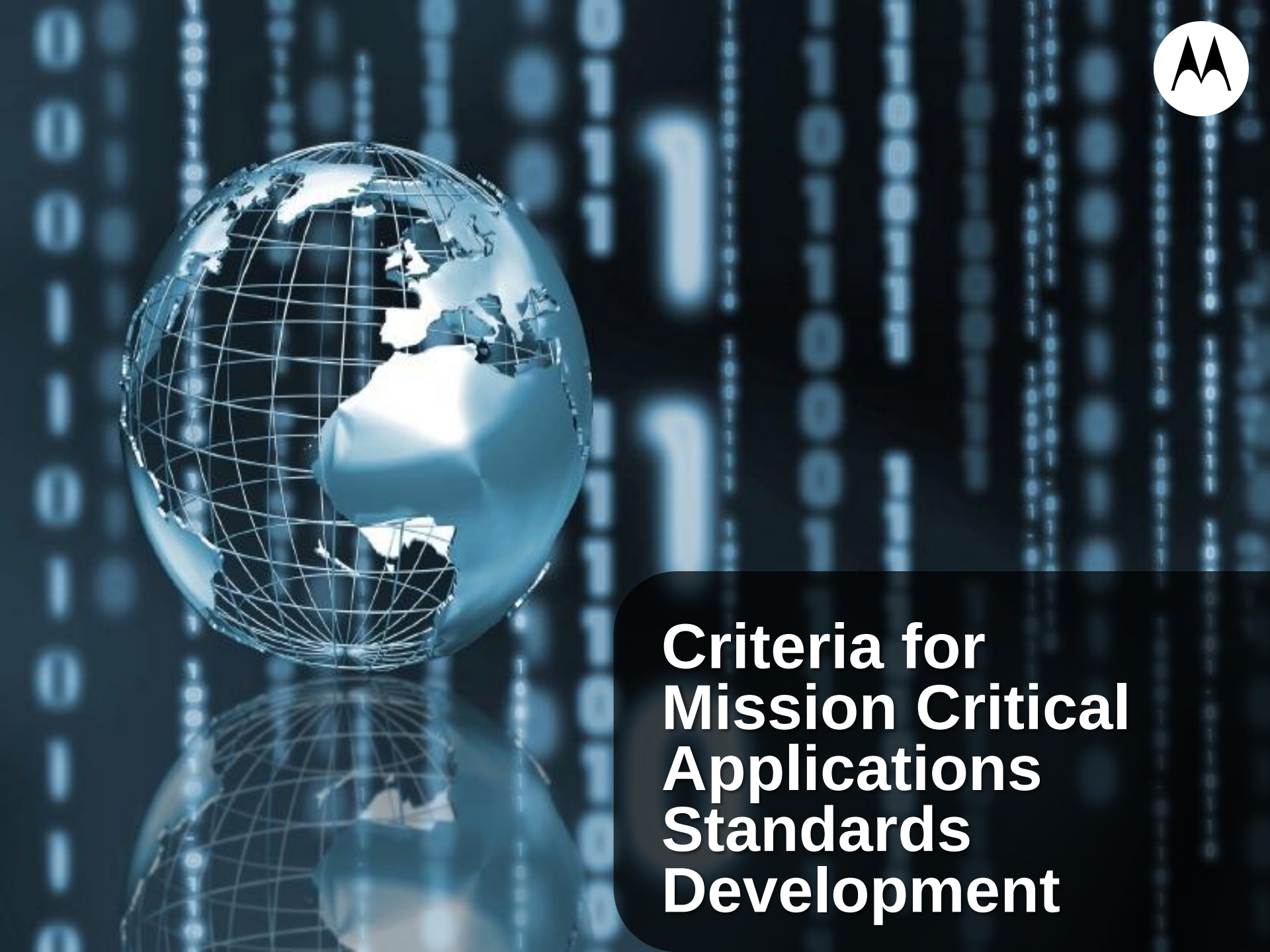
Enabling Interface(s) to Local Agency IT Services, Incident Command & Control, etc.

TRANSPORT LAYERS

3GPP LTE (Primary)
3G, WiFi, Satellite (Fallback)
Ethernet (Consoles)

PROBLEM: Public Safety needs global Mission Critical Applications Standards (in addition to LTE Transport enhancements)





Criteria for Mission Critical Applications Standards Development

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Technical Criteria:

- 3GPP supports focused all application layer standards development (not just MCPTT):
  1. Dedicated Working Group (WG) for all Critical Communications Applications (CCA)
  2. CCA WG scoped only to application layer standards (i.e., over the top of transport layer technology standards but adaptive to each transport technology)
- 3GPP CCA WG activity supports:
  3. Enabling a common architecture across application and transport layers
  4. Enabling horizontal interoperability at application layer for all Critical Communications applications (e.g., MCPTT voice, MC data, MC video, Messaging, Console, etc.)
  5. Optimizing for 3GPP LTE Critical Communications enhancements but also must function with and across any underlying transport technologies including WiFi, 3G, satellite, temporary deployable, DSL, etc.
  6. Enabling applications that interoperate across both off-access network and on-access network scenarios (including all underlying transport technologies)
  7. Enabling non-IMS (SIP based) and 3GPP IMS and deployments
  8. Emulating current P25, TETRA, etc. narrowband Critical Communications functionality in addition to new types of broadband functionality
  9. Enabling interconnection with legacy narrowband Critical Communications solutions

Criteria for Mission Critical Applications Standards Development

Organizational / Operational Criteria:

- 3GPP CCA WG deliverables:
  10. Are recognized as global standards that can legally be used in any region or country
  11. Include complete Critical Communication Application Server stage 1 requirements, stage 2 architecture and stage 3 interfaces/protocols standards specifications
  12. Ability to test CCA standards
- 3GPP CCA WG processes enable :
  13. Rapid and efficient application layer standards development:
      - Reuse existing application standards, especially those with deployed solutions, where applicable rather that starting from scratch
  14. Critical Communications Application Server standards development independent from LTE and other transport technologies standards development:
      - Enable development and specification delivery independent from LTE development and specification delivery (i.e., not tied to 3GPP LTE Releases)
      - Enable multiple CCA projects to run in parallel and/or overlap with each other
  15. Participation from all Critical Communications vendors, user groups, government agencies, carriers, etc. (including leadership roles)
      - Independent meetings from other 3GPP WG meetings and allow remote participation as needed

3GPP Way Forward: Critical Communications Broadband Standard Development

Permanent*: New TSG CCA

(* Permanent= starting by June 2015)

Apps & Service Enablers:
MCPTT-voice
Group Comm
Priority & QoS
. . .

TSG CCA

CCA WG1: Application Requirements
CCA WG2: Application Architecture & Interfaces
CCA WG3: Special Application Topics
[complete stage 1, 2 and 3 application layer specifications]

Application Layer

LTE Transport Features & CCA Enablers:
ProSe
GCSE
IOPS
. . .

TSG	TSG RAN	TSG SA	TSG CT
GSM EDGE Radio Access Network	Radio Access Network	Service & Systems Aspects	Core Network & Terminals
GERAN WG1	RAN WG1	SA WG1	CT WG1
Radio Aspects	Radio Layer 1 spec	Services	MM/CC/SM (Iu)
GERAN WG2	RAN WG2	SA WG2	CT WG3
Protocol Aspects	Radio Layer 2 spec Radio Layer 3 RR spec	Architecture	Interworking with external networks
GERAN WG3	RAN WG3	SA WG3	CT WG4
Terminal Testing	Iub spec, Iur spec, Iu spec UTRAN O&M requirements	Security	MAP/GTP/BCH/SS
	RAN WG4	SA WG4	CT WG6
	Radio Performance Protocol aspects	Codec	Smart Card Application Aspects
	RAN WG5	SA WG5	
	Mobile Terminal Conformance Testing	Telecom Management	

LTE Transport Layers

Stage 1 (Requirements)

- CCA liaisons with SA1 and creates CCA Req TS(s)
- SA1 creates CCA LTE Transport Reqs as needed

Stage 2 (Architecture)

- CCA liaisons with SA2/other WGs and creates CCA Arch TS(s)
- SA2/other WGs create CCA LTE Transport Arch as needed

Stage 3 (Interfaces/Protocols)

- CCA liaisons with various WG(s) and creates CCA Interface/Protocol TS(s)
- Various WGs create CCA LTE Transport Interface/ Protocol TS(s) as needed

Temporary (Short Term)*: New WG in TSG SA

(* Short Term = starting January 2015, to migrate into TSG CCA)

Apps & Service Enablers:
MCPTT-voice
Group Comm
Priority & QoS
. . .

TSG SA

SA WG6: Critical Communications Apps (CCA)

[complete stage 1, 2 and 3 application layer specifications]

Application Layer

LTE Transport Features & CCA Enablers:
ProSe
GCSE
IOPS
. . .

TSG
GSM EDGE Radio Access Network
GERAN WG1
Radio Aspects
GERAN WG2
Protocol Aspects
GERAN WG3
Terminal Testing

TSG RAN
Radio Access Network
RAN WG1
Radio Layer 1 spec
RAN WG2
Radio Layer 2 spec
Radio Layer 3 RR spec
RAN WG3
Iub spec, Iur spec, Iu spec
UTRAN O&M requirements
RAN WG4
Radio Performance
Protocol aspects
RAN WG5
Mobile Terminal Conformance Testing

TSG SA
Service & Systems Aspects
SA WG1
Services
SA WG2
Architecture
SA WG3
Security
SA WG4
Codec
SA WG5
Telecom Management

TSG CT
Core Network & Terminals
CT WG1
MM/CC/SM (Iu)
CT WG3
Interworking with external networks
CT WG4
MAP/GTP/BCH/SS
CT WG6
Smart Card Application Aspects

LTE Transport Layers

Stage 1 (Requirements)

- CCA liaisons with SA1 and creates CCA Req TS(s)
  - SA1 completes MCPTT
- SA1 creates CCA LTE Transport Reqs as needed

Stage 2 (Architecture)

- SA WG6 liaisons with SA2/other WGs and creates CCA Arch TS(s)
- SA2/other WGs create CCA LTE Transport Arch as needed

Stage 3 (Interfaces/Protocols)

- SA WG6 liaisons with various WG(s) and creates CCA Interface/Protocol TS(s)
- Various WGs create CCA LTE Transport Interface/ Protocol TS(s) as needed

3GPP SA WG6-CCA 2014-15 Meeting Schedule

SA CCA Meetings	CCA Co-location Opportunities (focus on SAx & CTx)
Q4 2014	Nov 13-14, 17-21 – San Francisco: Potential ad-hoc or informal meetings with SAx, CTx, RANx
Q1 2015	• Jan 26-30 – Sorrento: SA2, SA3 • Jan 26-30 – Dubrovnik: SA4 • Feb 2-6 – China: SA1 • Feb 2-6 – Sorrento: CT1, CT3, CT4
Q2 2015	• Apr 13-17 – US: SA1, SA2, SA4 • Apr 13-17 – La Guadeloupe: CT1 • Apr 20-24 – US(?): SA3 • May 25-29 – Japan: SA2 • May 25-29 – China: CT1, CT3, CT4
Q3 2015	• Jul 6-10 – Dubrovnik: SA2 • Jul 6-10 – Sophia Antipolis • Aug 17-21 – Belgrade: SA1 • Aug 17-21 – US: CT1, CT3, CT4 • Aug 24-28 – Singapore: SA3 • Aug 24-28 – Japan: SA4
Q4 2015	• Oct 19-23 – China: SA2 • Oct 26-30 – tbc: SA4 • Nov 16-20 – US: SA1, SA2, SA3, CT1, CT3, CT4

Way Forward Summary

Way Forward - Summary

<u>Global Mission Critical Needs</u>:

- **Global Mission Critical LTE transport layer *and* application layer Mission Critical standards**
- **Application layer standards that work with a multitude of narrowband and broadband transport technologies in addition to LTE**
  - **Includes (a) off-network and on-network and (b) non-IMS and IMS**
- **Permanent Mission Critical application layer standards development environment that will attract *and retain* subject matter experts from all Public Safety, Critical Communications, regional, technical, etc. perspectives (*in addition to* 3GPP's LTE transport layer environment)**
  - **Includes (a) complete stage 1, stage 2 and stage 3 standards and (b) flexible, agile project scheduling *independent from* 3GPP LTE Release scheduling**
  - **Ability to co-locate with SAx, CTx and/or RANx WGs as needed**
  - **Ability to work with Mission Critical related industry groups (NPSTC, TCCA, etc.) and standards development organizations (ARIB, ATIS, CCSA, ETSI, TTA, TTC, etc.) as needed**

Way Forward - Summary

3GPP Proposal:

- **Step #1 (Jan-Jun 2015) – Create new independent Critical Communications Applications (CCA) Working Group in SA [SA WG6 – CCA]**

TSG SA

SA WG6: Critical Communications Apps (CCA)

[complete stage 1, 2 and 3 application layer specifications]

- **Step #2 (Jun 2015 and beyond) – Create new dedicated, focused TSG CCA as permanent home for Mission Critical application standards development and migrate SA WG6 – CCA into TSG CCA**
  - **Could initially be modeled after TSG GERAN processes**

TSG CCA

CCA WG1: Application Requirements
CCA WG2: Application Architecture & Interfaces
CCA WG3: Special Application Topics

[complete stage 1, 2 and 3 application layer specifications]

THANK YOU !