



Mission Critical Services

3GPP SA Ljubljana June 2012

TETRA + Critical Communications Association

SP-120381



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Chairman

TETRA + Critical Communications Association



A Background on the importance of Mission Critical Communications

TETRA + Critical Communications Association



TETRA

- Created by ETSI during the 1990s



- Provides a digital technology for the users of Mission Critical or Business Critical wireless communications



User categories

- Public Safety (Police, Fire, Ambulance)
- Utilities (Gas, Electricity, Water)
- Transport (Rail, Metro, Bus, Trams, Ports, Airports)
- Fuel and Power Generation
- Petrochemical
- Mining
- Military and Paramilitary





Mission Critical Usage



Defined to satisfy the needs of those that work in groups and therefore need to communicate in groups.

- *Mission Critical users*
- *Business Critical users*



Bank Robbery



Presentation on behalf of the TETRA + Critical Communications Association



Public Cellular Networks





TETRA Functionality

- Simplex Calls
- Duplex Calls
- Broadcast Calls
- Direct Mode
- Telephony
- SDS
- Circuit/Packet Data
- Wideband Data
- GPS Protocol
- Area Selection
- Handover
- Roaming
- Gateways
- Repeaters
- Air I/F Encryption
- E to E Encryption
- OTAR
- ISI



Cellular use by Police



Currently the UK Police have more than 40,000 Blackberries in operation



Dynamic Grouping



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Airports

Amsterdam Cologne Heathrow

Doha Cape Town Bangalore
Delhi Paris Madrid
Oslo Hyderabad Beijing
Barcelona Munich

Shanghai Athens



Suvarnabhumi Hanover Zaragoza
Bangkok Brussels Jersey.
Malaga Birmingham Singapore
Hong Kong Stuttgart Leipzig.
Seville Granada
Copenhagen





CLP (*China Light and Power*)

TETRA used to control
Power Distribution



Courtesy of EADS
Presentation on behalf of the TETRA + Critical Communications Association



Oil Platform

- All at sea



Courtesy of Rohill
Presentation on behalf of the TETRA + Critical Communications Association



Transneft



Presentation on behalf of the TETRA + Critical Communications Association



Singapore Metro



Presentation on behalf of the TETRA + Critical Communications Association

North America
TETRA FORUM





Ferrari

- Noise tolerant
TETRA



Courtesy of Selex
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BDBOS

- Destined to become the largest TETRA network in the world
 - *BDBOS commenced April 2007*
 - *Circa 500,000 users*





Interoperability

Interoperability Process

- Ensures equipment compatibility
- Enables Users to purchase with confidence
- Critical to an open and competitive market
- Key element of the TETRA Association





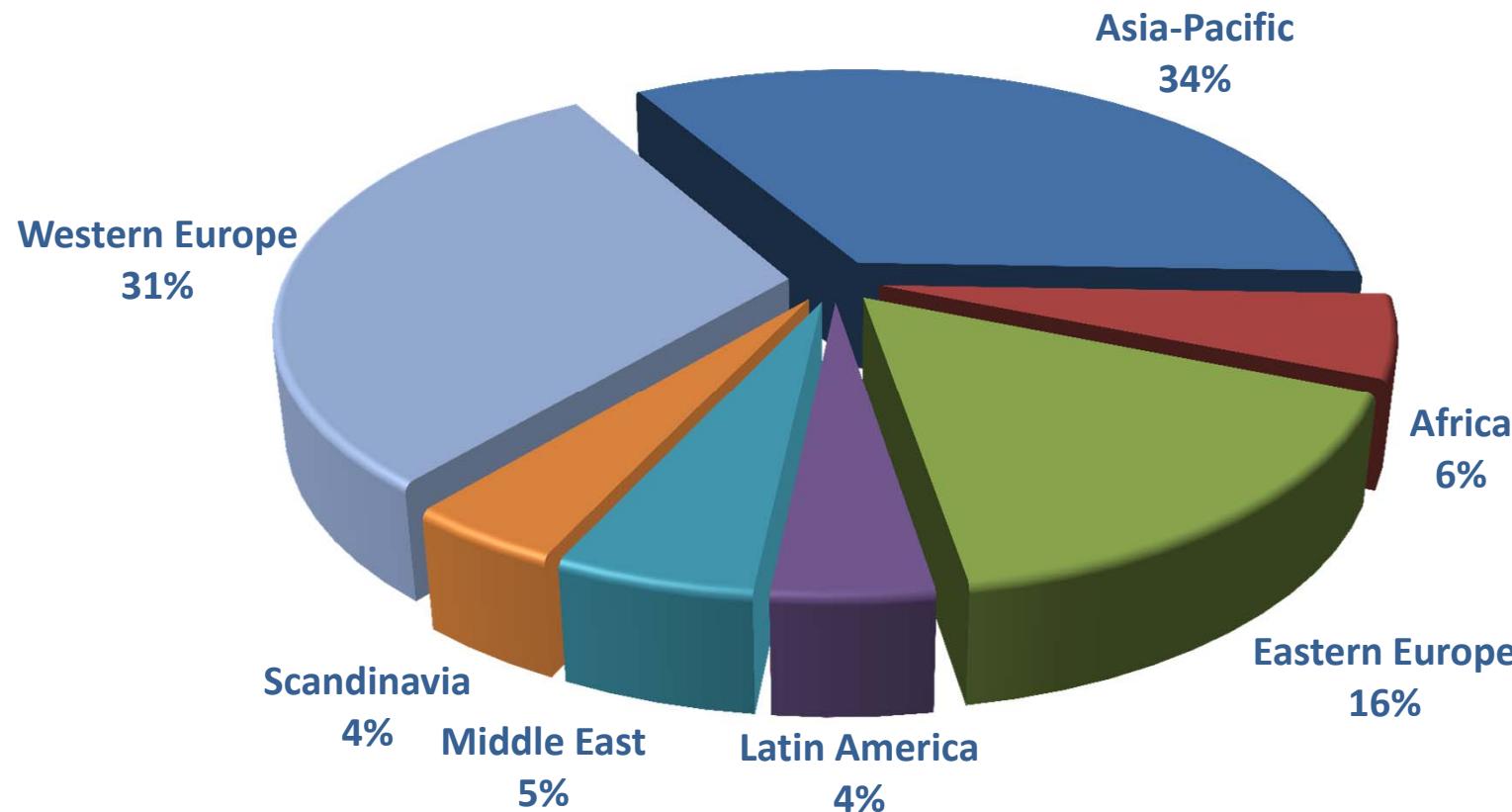
Worldwide Presence





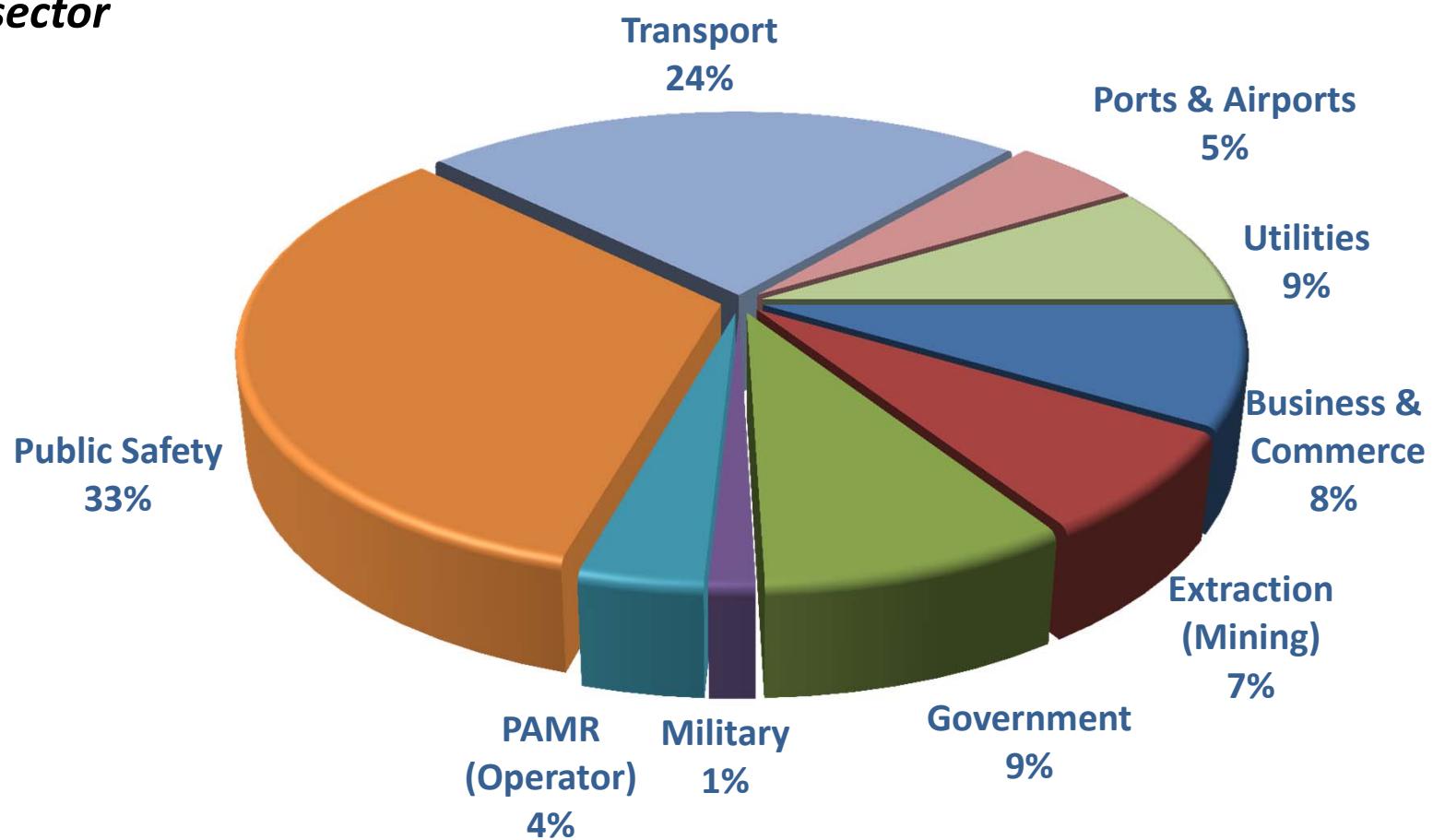
2011 Analysis by region

Installed Systems *by region*



2011 Analysis by sector

Installed Systems by sector





Global Economy





TETRA shipments

- 2010 a record year for terminal shipments
(IMS analysis)
- Deployment of new networks up 6%
(TETRA Association)
- Including significant extensions up 8%
(TETRA Association)



TETRA in Canada

- BC Hydro - Vancouver
 - *Infrastructure : PowerTrunk*
 - *Terminals : Sepura and PowerTrunk*
 - *Consultant : Planetworks*
 - *Pilot completed*
 - *Well received by users*
 - *No interference issues*



- Contract placed with PowerTrunk October 2011. 25 site system 820 terminals



TETRA in the USA



Presentation on behalf of the TETRA + Critical Communications Association

TETRA Release 2

- Range Extension
- New Codecs
- Air Interface enhancements
- High Speed Data
 - *Various modulation schemes*
 - *25kHz, 50kHz and 100kHz and 150kHz channels*
 - *Up to 538kbit/s*





Mobile Data

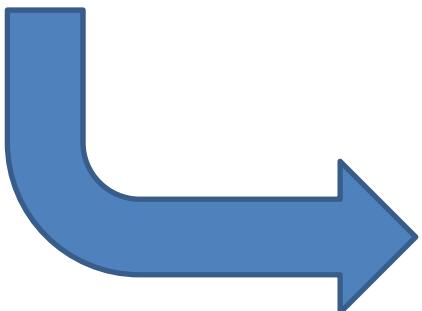
Mobile Broadband



Presentation on behalf of the TETRA + Critical Communications Association



Name Change





Critical Communications Broadband Group

- Established to drive forward the creation of mobile broadband solutions for Mission Critical users
- We welcome the inclusion of
 - *Tetrapol Users*
 - *UIC*
 - *EUTC*
 - *P25 users*
 - *Others with an interest in MCMBB*





USA Initiatives

- Committed to building Broadband network
- Secured 2x5MHz Spectrum + 2x5MHz D-Block
(managed by the Public Safety Spectrum Trust – PSST)
- Chosen LTE
- US\$7 billion funding
- Pilot networks running
- NPSTC agrees cooperation with TCCA





Mission Critical Broadband

- Likely to be based on LTE
- Some requirements cannot be met by current LTE standard
 - *Group based working (Multicast?)*
 - *Device to Device*
 - *Resilient Base Stations*
- Project in TC-TETRA



Priorities

- Priority 1 is to develop Broadband Data services for Mission Critical and Business Critical users.
- Priority 2 is to transport TETRA/P25 voice services to a Broadband network.



Protecting the Citizens





Thank You

TCCA

TETRA + Critical Communications Association



Our Heritage



- Created in 1994
- Objective:
 - *To promote TETRA technology worldwide and facilitate an open and competitive market using our Interoperability Process (IoP)*