



Mission Critical User Needs



Mission Critical User Needs

- The main needs of the mission critical PMR users, such as the ones representing the Public Safety and Security (PSS) forces can be briefly categorized as follows:
 - ❑ **Specialized functionality**
 - Instant connection
 - Security
 - Dynamic management of talk groups
 - Emergency calls
 - Prioritization of communications

Mission Critical User Needs

□ **Response times**

- Typical requirements for voice call set-up time are in the range 0.3 to 1 second

□ **Seamless radio coverage**

- Throughout the whole served area, including guaranteed availability of coverage under exceptional conditions, including the means to maintain communication during network outage

Mission Critical User Needs

- **Incident capacity**
 - the need for radio capacity increases during major incidents and accidents and that capacity must be guaranteed to the rescue and law enforcement forces
- **Uncompromised voice quality**
 - allowing the listener to recognize who is speaking, even under excessive background noise

Mission Critical User Needs

□ Radio coverage

- Complete coverage under normal operating conditions
- Mechanisms to guarantee coverage for rescue forces under exceptional conditions

□ Members always hear

- A mechanism usually called Late Entry is needed to rejoin lost talk group members in the call

Mission Critical User Needs

□ Network Cost

- Also sharing of network infrastructure with commercial users should give cost benefit.
- **Mobile terminals cost**

Available Public Safety Communication Systems PMR

- **Available public safety communication systems PMR**
 - Conventional single repeater Systems
 - Simulcast Radio System
 - Multicast Radio System
 - Trunked Radio System
 - TETRA Radio System

What is **TETRA**?

- ❑ **UHF** Radio network
- ❑ **TERrestrial TRunked RADIO (TETRA)** is the modern digital **PRivate MOBILE RADIO (PMR)** and **PUBLIC ACCESS MOBILE RADIO (PAMR)** technology.
- ❑ TETRA uses **TIME DIVISION MULTIPLE ACCESS (TDMA)** technology with 4 user channels on one radio carrier
- ❑ TETRA provides voice and data communication and suits a wide range of users.

TETRA

- ❑ **Adopted by 77 countries (Europe – Asia – Africa and South America**
- ❑ **1076 contract around the world to date**
- ❑ **www.TETRAmou.Com**
- ❑ **ETSI standard – non proprietary**
- ❑ **Multi vendor subscriber units .**
- ❑ **Low cost – more features – continuous development**

Voice Communication Services



- ❑ **Excellent voice** quality
- ❑ Fast call set-up
- ❑ Individual (one-to-one) calls (Full duplex)
- ❑ Express calls (push & talk)
- ❑ Group communication
 - ❑ Broadcast groups
 - ❑ Group calls
 - ❑ Scanning of groups
 - ❑ Dynamic regrouping
- ❑ Emergency calls
- ❑ Direct Mode
- ❑ Supplementary services
- ❑ Extensive security:
 - ❑ Authentication of radios
 - ❑ Encryption of voice, data & signaling

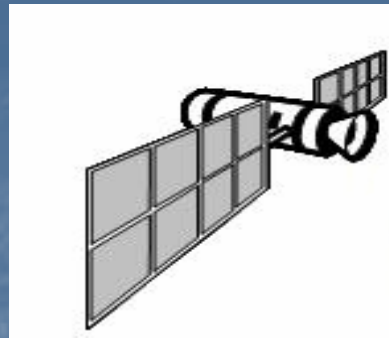
What makes TETRA unique

- Unique group communication package in total
- Fast call set-up time
- Direct Mode (DMO)
- Queuing of channel resources
- Signalling during voice call
- Pre-emptive priorities, ambience listening
- Multiple security schemes & algorithms
 - authentication of radios (& networks)
 - air interface & end-to-end encryption
 - disabling of stolen radios

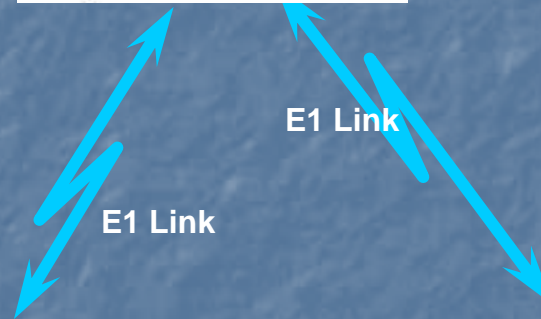
Supplementary Services

- Busy Queuing and Call Back
- Queuing Priority
- Recent User Priority
- All Start / Fast Start
- Late Entry
- Critical Site Assignment
- Requested Sites
- Talking Party Identification
- Calling Line Identification Presentation
- Dynamic Site Assignment
- Valid sites
- Dual Tone Multi-Frequency Overdial
- Priority Monitor
- Pre-emptive Priority Call
- Pre-emptive Priority Call – Busy User Pre-emption
- Site Wide Call
- Barring Incoming Calls
- Barring Outgoing Calls
- Air Interface Encryption
- Authentication (MSO initiated)

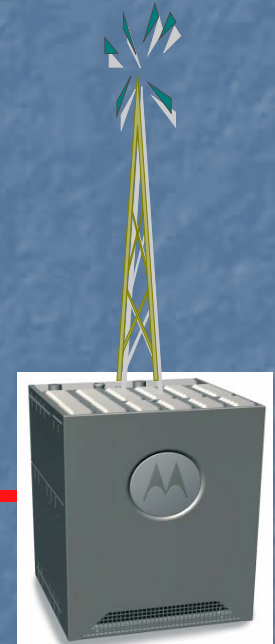
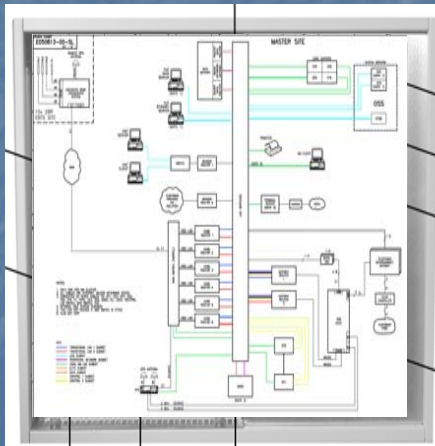
Transportable Dimetra Site



VSat Satellite



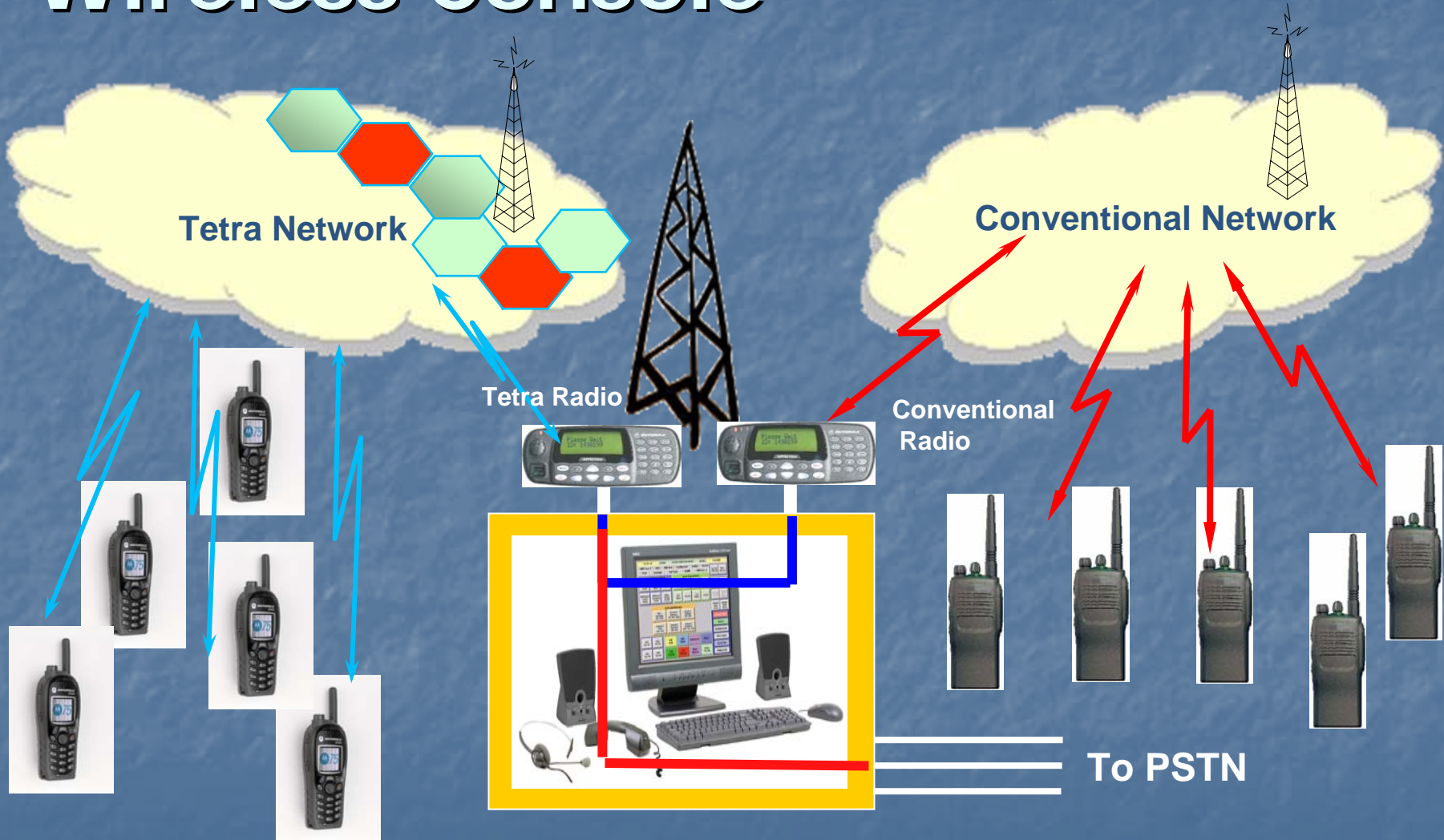
Dimetra Master site



MTS 2

Transportable Dimetra Site
For rural area and temporary coverage

Wireless Console



Cross Patch Operation

Data Communication Services

Status Message

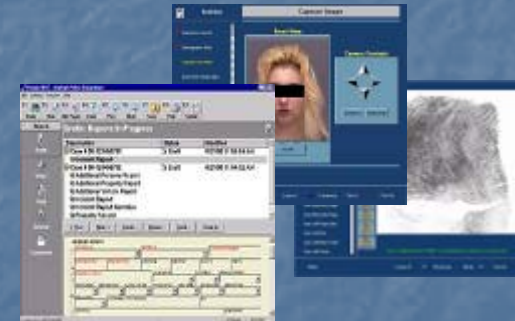
- User sends pre-coded message to the console
- Sent from radio keypad or interface
- Database inquiry
- Predefined Auto reply

Short Data service

- Messaging to and from a host
- English text messages up to 140 characters
- Arabic text messages up to 70 characters
- Simultaneous “voice & short data”

Packet Data

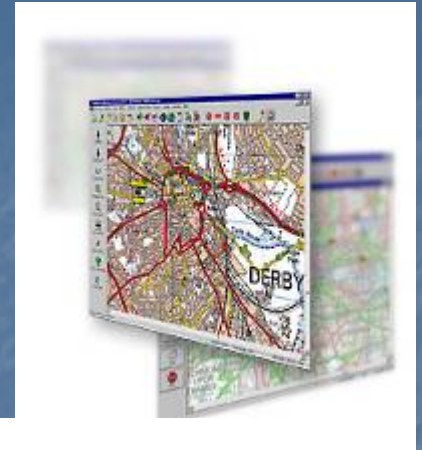
- Similar to short data
- Larger data file transfer
- Photos, reports...etc
- Tailored WAP applications



Short Data Applications

Short Data Application Examples:

- iSDS
- Work orders, group messaging.
- Reports.



Tetra Coverage



Tetra Cairo Sites



Image © 2007 DigitalGlobe

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Streaming 100%

Eye alt 19.45 mi



Thank You

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