

**3GPP TSG SA Plenary
Meeting #10, Bangkok, Thailand
11th – 14th December 2000**

Tdoc SP-000640

Title: Relationship between 3GPP and the “DVB”

Source: TSG SA Chairman

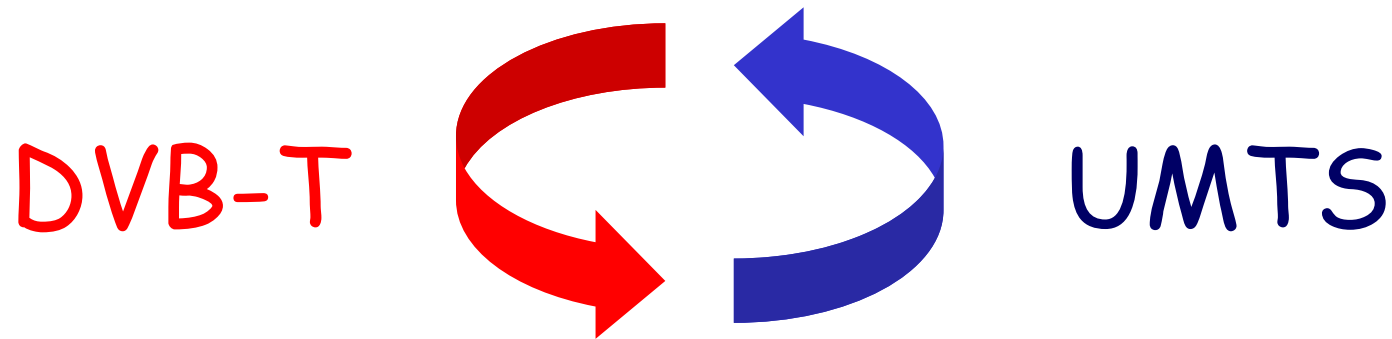
To: TSG-SA

Cc:



Research & Technology Innovation Centre

BROADCASTING & MULTIMEDIA CONVERGENCE



Which opportunities for broadcasters?

Presented by Vittoria Mignone



DVB-T: SERVICES

One-way services (broadcasting)

- ✓ AUDIO (MPEG1)
- ✓ VIDEO (MPEG-2)
- ✓ EPG, MULTIMEDIA (super-teletext, local WEB browsing) (DVB/MHP)

Low-Capacity Two-way services

(downstream by DVB-T, up-stream via modem)

- ✓ E-COMMERCE, PERSONAL BANKING, MESSAGES
 - ✓ Internet access protocols available
- but with serious limitations on interactive capacity on the broadcast channel



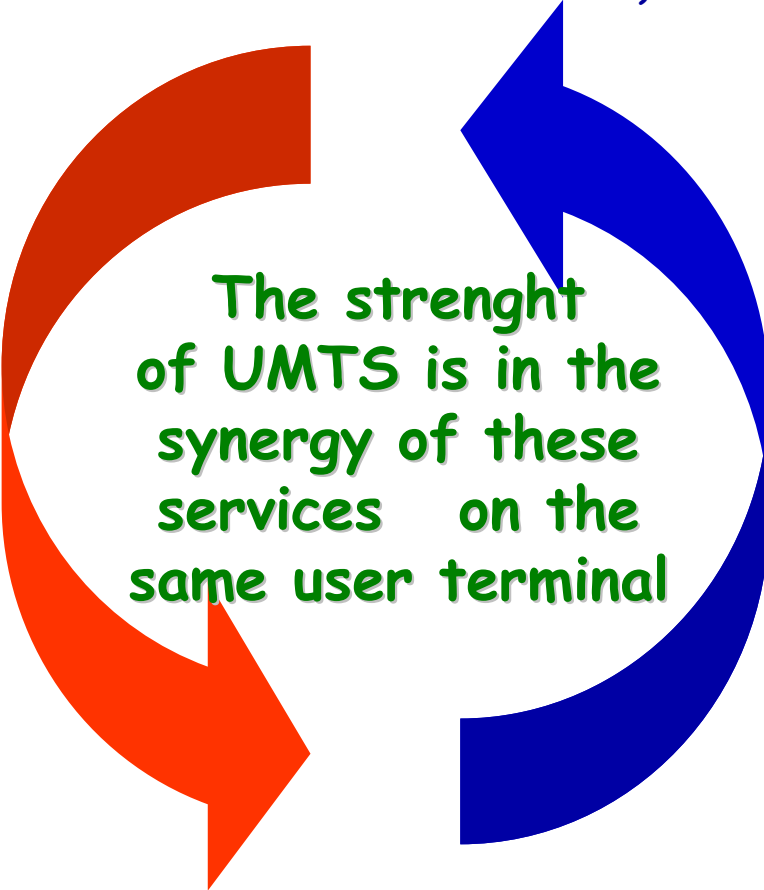
UMTS: SERVICES

Two-way services (Interactive services)

- ✓ MOBILE COMMUNICATIONS (TELEPHONY, VIDEO-TELEPHONY)
- ✓ WEB BROWSING (FORMAT CONVERSION FOR SMALL VIDEO SCREENS)
- ✓ MESSAGES & e-mail
- ✓ E-COMMERCE, PERSONAL BANKING, ...
- ✓ BUSINESS INDOOR SERVICES
- ✓ ADVANCED LOCALISATION FEATURES

One-way services (multicasting)

- ✓ AUDIO Streaming
- ✓ VIDEO Streaming



The strenght
of UMTS is in the
synergy of these
services on the
same user terminal



Network Structures

The Network Structure is imposed by the traffic type, rather than by the transmission constraints

Broadcast networks

- ✓ The cell dimensions range from some Kilometres to more than one hundred of Kilometres
- ✓ The stations transmit high power levels
- ✓ are the cheapest way to convey the same programme to thousand of houses ... (satellite, terrestrial)
- ✓ ... but the capacity for interactive services is limited

Cellular Telephony Networks

- ✓ The cell dimensions range from few hundred meters to some kilometres
- ✓ The base stations and the cellular phones transmit low power levels
- ✓ are expensive, since they require a large number of transmitters/base stations, totally connected by a backbone network ...
- ✓ ... but they can convey a huge interactive capacity



POSSIBLE SYNERGIES BETWEEN BROADCASTING & UMTS WORLDS

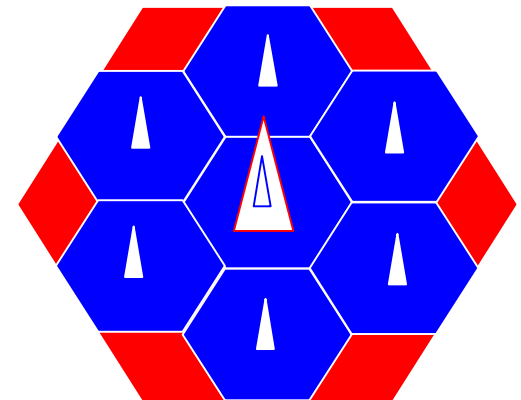
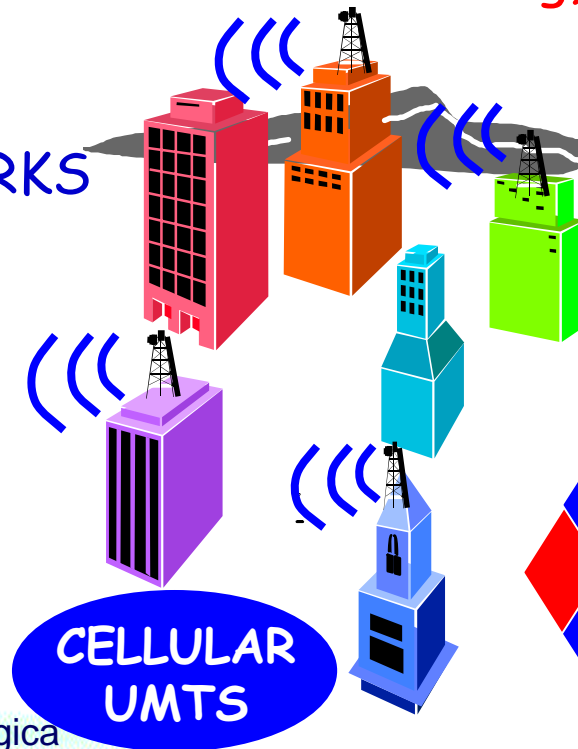
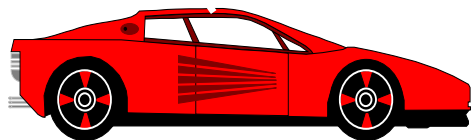
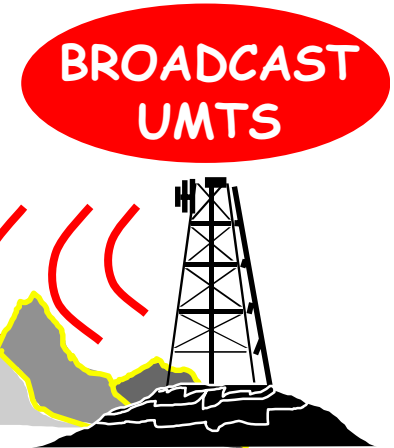
Traditional approaches:

- ✓ Broadcasters act as Content Providers for audio/video (and possibly Multimedia) multicast UMTS services
- ✓ GSM / UMTS (from a Telecom Network Operator) may enhance the existing broadcasting systems (DVB-S, DVB-T, DAB) as a return path for interactivity (e-commerce, Internet). The broadcast network gives access to interactive services via the Electronic Programme Guide (EPG), but the interactivity is handled by cellular networks

New approaches (to be investigated)

✓ "BROADCASTING" UMTS NETWORKS (using the current broadcasting infrastructures: transmitting sites, bands ???) can deliver multicast (unidirectional) services (audio and video streaming) to UMTS terminals

✓ "CELLULAR" UMTS NETWORKS can deliver interactive services (phone, Internet) to the same portable / mobile terminals

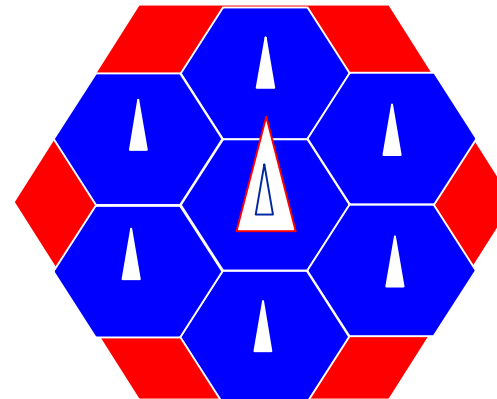
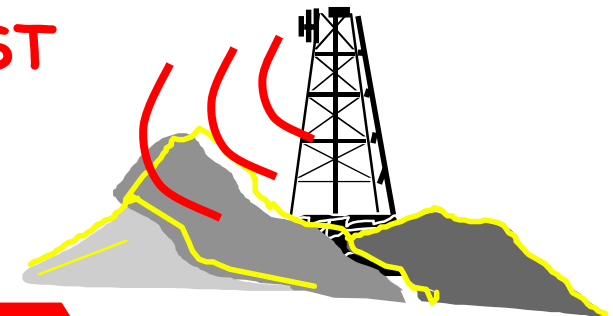


The Broadcast-UMTS approach

Pros:

- ✓ Each service on the appropriate network
- ✓ Low network cost for broadcast services
- ✓ Synergy with interactive UMTS services
- ✓ Same user terminal:
 - ☞ cost reduction due to market scales
 - ☞ unique man/machine interface for an easy access to services

**BROADCAST
UMTS**



**CELLULAR
UMTS**



Possible B-UMTS Services

Streaming services

- ✓ Radio
- ✓ Low definition Television
- ✓ EPG
- ✓ WEB Casting (local storage)
- ✓ Super Teletext
- ✓ Traffic Information
- ✓ ...

... and in synergy with interactive UMTS:

- ✓ Interactive TV & radio (televoting, personalised advertising, ...)



B-UMTS: Open issues

Technologies

- ✓ UMTS terminal control (connection with the base stations, phone call reception while receiving broadcast services, ...)
- ✓ Multicast protocols
- ✓ Access to interactive & broadcast services
- ✓ Dual-band terminals
- ✓ Man-machine interface

Network and coverage aspects

- ✓ network topology
- ✓ cell size, transmit power
- ✓ cell hand-over

Spectrum allocation

- ✓ identification of suitable bands
- ✓ regulations

Standardisation issues

CONCLUSIONS

- ✓ UMTS has the potential to convey both interactive services (telephony, WEB Browsing) and broadcast audio/video services to mobile / portable terminals
- ✓ Broadcasting networks are the cheapest way to deliver streaming audio/video services to UMTS terminals
- ✓ A Broadcast version of UMTS can become the cheapest way to convey radio and TV programmes to mobile terminals