



ENGINES Task Force 6

End-to-End System Integration

ENGINES 5th PCC Meeting
Valencia, Spain
22nd March 2011

Dr. David Gómez-Barquero

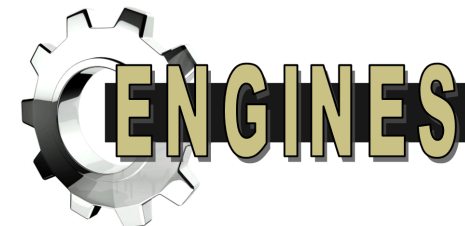
Universidad Politécnica de Valencia



UNIVERSIDAD
POLITECNICA
DE VALENCIA



CELTIC
Telecommunication Solutions



TF6 Summary and Tasks



Summary:

*“This TF aims at investigating cross-layer optimization issues in DVB-T2 and DVB-NGH systems. Naturally, some overlapping with other task forces exist, but **this task force focuses on the upper layers above the physical layer** that have a direct impact on the end-to-end performance.”*

Tasks:

- **Definition of Quality of Service (QoS) classes for DVB-T2 and DVB-NGH**
- Upper layer Forward Error Correction (FEC) schemes at the link and application layer in DVB-T2 and DVB-NGH
- Scalable Video Coding (SVC) delivery in DVB-T2 and DVB-NGH
- DVB-T2/NGH transmission protocols and signalling

TF6 Partners



Active

- Technical University of Valencia
- Nokia
- Teracom
- Abo Akademy
- University of Turku
- Ramon Llull University ¿?
- Enensys ¿?

TERACOM



NOKIA
Connecting People



TURUN YLIOPISTO
UNIVERSITY OF TURKU



UNIVERSIDAD
POLITECNICA
DE VALENCIA



Follows

- University of Tampere
- Media Broadcast
- Dibcom
- Teamcast
- Telecom Bretagne
- France Telecom
- IETR
- TDF
- Abertis
- SIDSA
- UPV/EHU



UNIVERSIDAD
POLITECNICA
DE VALENCIA

TF6 Deliverables and Interim Reports



● Deliverables:

- TF6-D1 QoS Classes for T2/NGH, Dec. 2010 – **cancelled!**
- TF6-D2 Upper Layer FEC and SVC in T2/NGH, May 2012
- TF6-D3 T2/NGH Transmission Protocols, May 2012

● Interim Reports:

- TF6 Progress Dec. 2010
- TF6 Progress Dec. 2011

TF6 Status – Trx. Protocols & Signalling for NGH



● Nokia **NOKIA** Connecting People

- Robust Header Compression (ROHC)
- IP profile
- Signalling optimization, MPLPs signalling and synchronization
 - TF1 ¿?
- Contributions to NGH standardization: 31

● Teracom **TERACOM**

- Robust Header Compression (ROHC)
- TS profile for SVC
- Contributions to NGH standardization: 9

**Very Important Contributions
to NGH Standardization**

TF6 Status – Trx. Protocols & Signalling for NGH



University of Turku



TURUN YLIOPISTO
UNIVERSITY OF TURKU

- **Performance of DVB-T2 physical layer signaling in mobile environment** has been studied, to detect possible improvements required for DVB-NGH
- It was observed that the time diversity for physical layer signaling transmitted in DVB-T2 preamble is potentially too short for mobile reception scenarios
- Studies on how this could be solved are currently on-going in TM-H group by other companies
- **Publications:**
 - *Ph.D. thesis* (x1)
 - *IEEE Trans. on Broadcasting* (x1)

TF6 Status – UL-FEC



Abo Akademy



Presentation by K. Nybom

- An upper layer FEC coding scheme has been developed for distributing SVC content to receivers
- The developed RCPF (Receiver-Controlled Parallel Fountain) codes are rateless UEP (Unequal Error Protection) codes, which allow receivers to control the UEP level on their own
- Performance evaluation has so far been done only on the BEC
- EEP (Equal Error Protection) FEC codes are currently being studied
- **Publications:** *conference paper submitted to IEEE ICME 2011*

TU Valencia



UNIVERSIDAD
POLITECNICA
DE VALENCIA

- Evaluated the performance of MPE-iFEC at the DVB-T2 link layer
- **Contributions to NGH standardization: 1**
 - TM-NGH049, *Link Layer FEC for DVB-T2*, Geneva (Switzerland), Jan. 2010.

TF6 Work 2011



- **NOKIA** and **Teracom** will continue working in the NGH standardization process:
 - Definition of the IP profile
 - L1 signalling robustness
 - MPLPs synchronization
 - L1 signalling optimization
- **Abo Akademy** will continue working on UL-FEC for SVC during 2011
- **TU Valencia** will continue working on UL-FEC for mobile T2 and NGH
 - Intensity depends on other activities (TF1 and TF3)
- **Universtiy of Turku** has no plan to contribute to this TF6 in 2011
- **Ramon Llull University?**



Thanks for your attention!

Questions?

Dr. David Gómez-Barquero

Mobile Communications Group
iTEAM Research Institute
Universidad Politécnica de Valencia (Spain)

dagobar@iteam.upv.es



UNIVERSIDAD
POLITECNICA
DE VALENCIA

