



Noordwijk, 10 February 2004

Dear Sir,

You are herewith cordially invited to attend the Final Presentation of an ESA funded project carried out by **Joanneum Research (A)**, in partnership with **GCS (A)**, **University of Salzburg (A)**, **EMS (CAN)**, **University of Aberdeen (UK)** on:

Internet Protocols over DVB Media (IP over DVB) Study of Encapsulation and Protocol Performance

The project will present the development of a general purpose IP over ISO MPEG-2 transport stream encapsulation that will not only be applicable to satellites but to the whole of the DVB and MPEG-2 community. The new encapsulation method was verified in an implementation and also in simulation. The results were well received in the IETF community and lead to a working group in this field.

The Final Presentation will take place will take place at the ESTEC premises in Noordwijk, the Netherlands in meeting room **Da 026**, on **5 March 2004, 10.00h – 13.00h**.

The following is an outline agenda:

10:00 – 10:10 Introductions (ESA/JR)

10:10 – 12:00 Presentation on the following study topics:

- DVB context: the relation between DVB-S/T/H/RCS, ETSI BSM, IETF, IP Datacast, ... etc.
- Background on IETF activities and ULE (Ultra Light Encapsulation)
- Results using ULE and MPE using real traffic captures from teleport(s)
- Implementation of ULE and interoperability tests results
- Header compression issues
- Simulation results for ULE and MPE over DVB-RCS using the NS-2 simulator

12:00 – 13:00 Questions and informal discussions

Confirmation requested for external visitors

Please confirm your attendance by email to Frank.Zeppenfeldt@esa.int, in order to gain access to the ESTEC premises. A badge will be waiting for you at the main entrance gate. Information on ESTEC and a route description can be found on <http://www.estec.esa.nl/pr/estecinfo/contact.php3>.

Note

For your information: this Final Presentation is taking place the day after the ETSI SES BSM#17 meeting (also at ESTEC, 2-4 March 2004). During the last day of this meeting, 4 March, there will be a discussion on ip-over-dvb issues which may be relevant to future BSM work.

Project Summary

Digital Video Broadcast (DVB) technologies are widely used over broadcast media that include satellite (DVB-S), cable (DVB-C and Open Cable) and terrestrial (DVB-T). They provide unidirectional communications from the content provider to the end user. The standard defines a link layer protocol to enable the transmission of the digital multimedia content.

More and more however DVB is used to build Internet compatible networks. In order to do this an MPEG-2 Transport Stream cell is used as a “container” for the IP packets with an added encapsulation header to allow the information to be adequately processed. In essence we define MPEG as a general-purpose data link layer that will allow the efficient delivery of IP traffic over DVB networks.

The project analysed current solutions such as MPE or optimised solutions as proposed in <draft-fair-ipdvb-ule-02.txt>. The study has also looked at more optimised solutions for the return channel and in essence provides a full analysis of encapsulation for DVB-RCS.

The project has implemented <draft-fair-ipdvb-ule-02.txt> in DVB-S receiver cards for Linux, and modified a commercially available IP/DVB Gateway of GCS (A) to support this Internet Draft at the sender’s side. The project has performed interoperability tests with another independent implementation by IABG (D) and 6WIND (F) using IPv6 and IPv4.

This project contributed to a demonstration given during the Global IPv6 Services Launch Event on 15-16 January 2004 in Brussels, during which the enhanced encapsulation was used to demonstrate the use of native IPv6 over DVB-S satellite links. More information on this can be found on <http://telecom.esa.int/telecom/www/object/index.cfm?fobjectid=11850>.

Background reading

This project is supporting work that is ongoing in the recently established IP-over-DVB (ipdvb) IETF WG, of which the charter can be found on <http://www.ietf.org/html.charters/ipdvb-charter.html>.

Yours sincerely,

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