

# 16<sup>th</sup> IST Mobile & Wireless Communications Summit

International Workshop on IP Networking over Next-generation Satellite Systems (INNSS'07)

## *“The use of novel satellite broadcast technologies for the provision of integrated services”*

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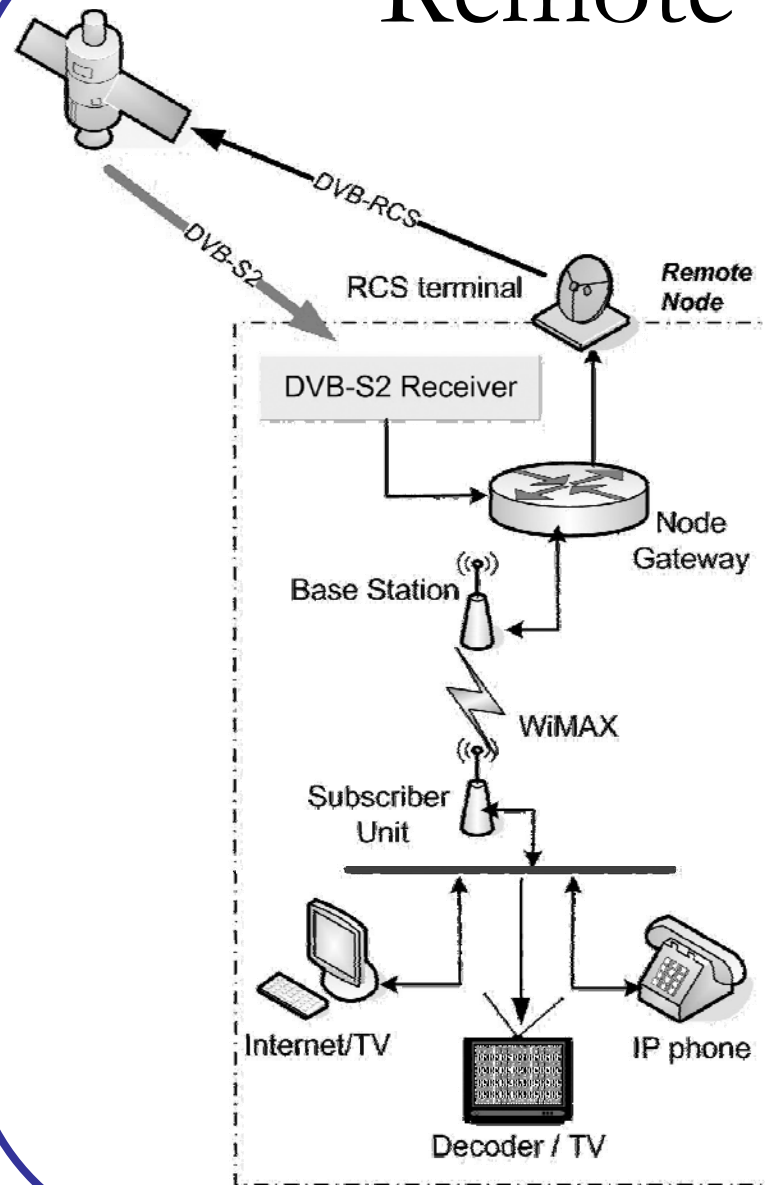
# Structure of the presentation

1. Triple Play Services
2. Remote Satellite Node
3. DVB-S.2 Platform
4. Validation Process
5. Conclusions

# Triple Play Services

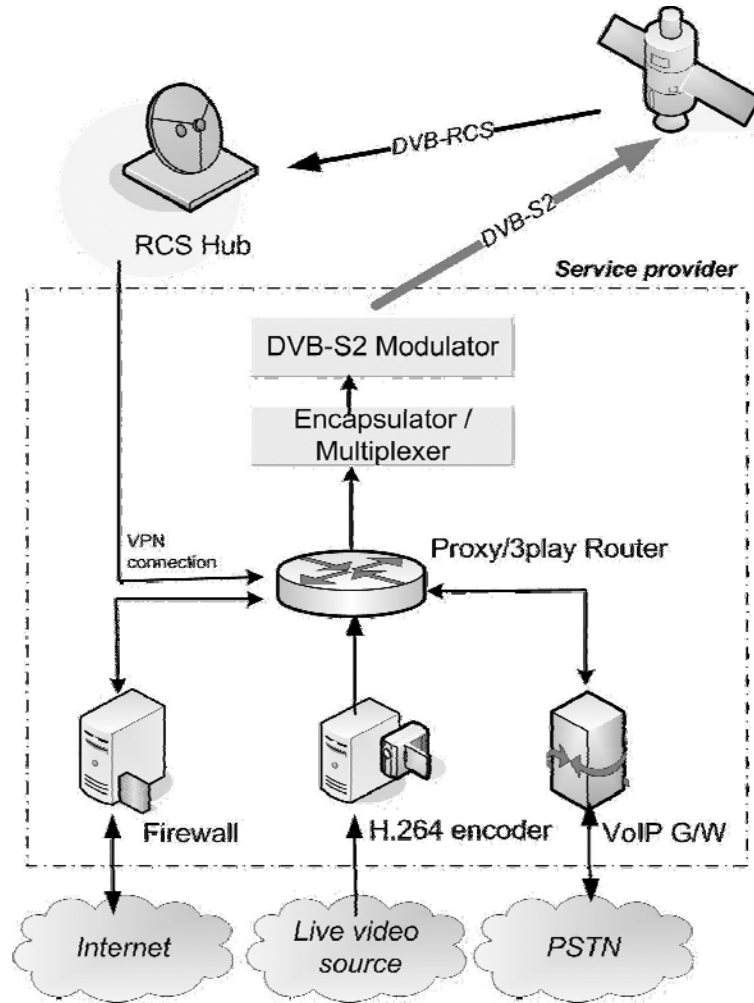
- **Data Access/ Internet Connection** is provided via a Web proxy router  
User Equipment: PC with a Web Browser for voice and video
- **Digital Television** service is provided by a real-time H.264 encoder fed by a live source  
User Equipment: H.264 decoder/TV screen
- **VoIP Telephony** is offered by the PSTN, which uses the VoIP Gateway interface utilizing H.323/SIP  
User Equipment: VoIP phone

# Remote Satellite Node



- **DVB-S.2 Receiver** receives the broadcasting traffic from the Satellite and boosts it to the Node Gateway
- **RCS Terminal** forwards the users requests/ACKs to the platform (Return Channel)
- **Node Gateway** undertakes the routing and the policing of the traffic between the end users and the terminal
- **Terrestrial access networks** e.g. WiMax, LAN, MAN etc., to connect users to satellite node

# DVB-S.2 Platform

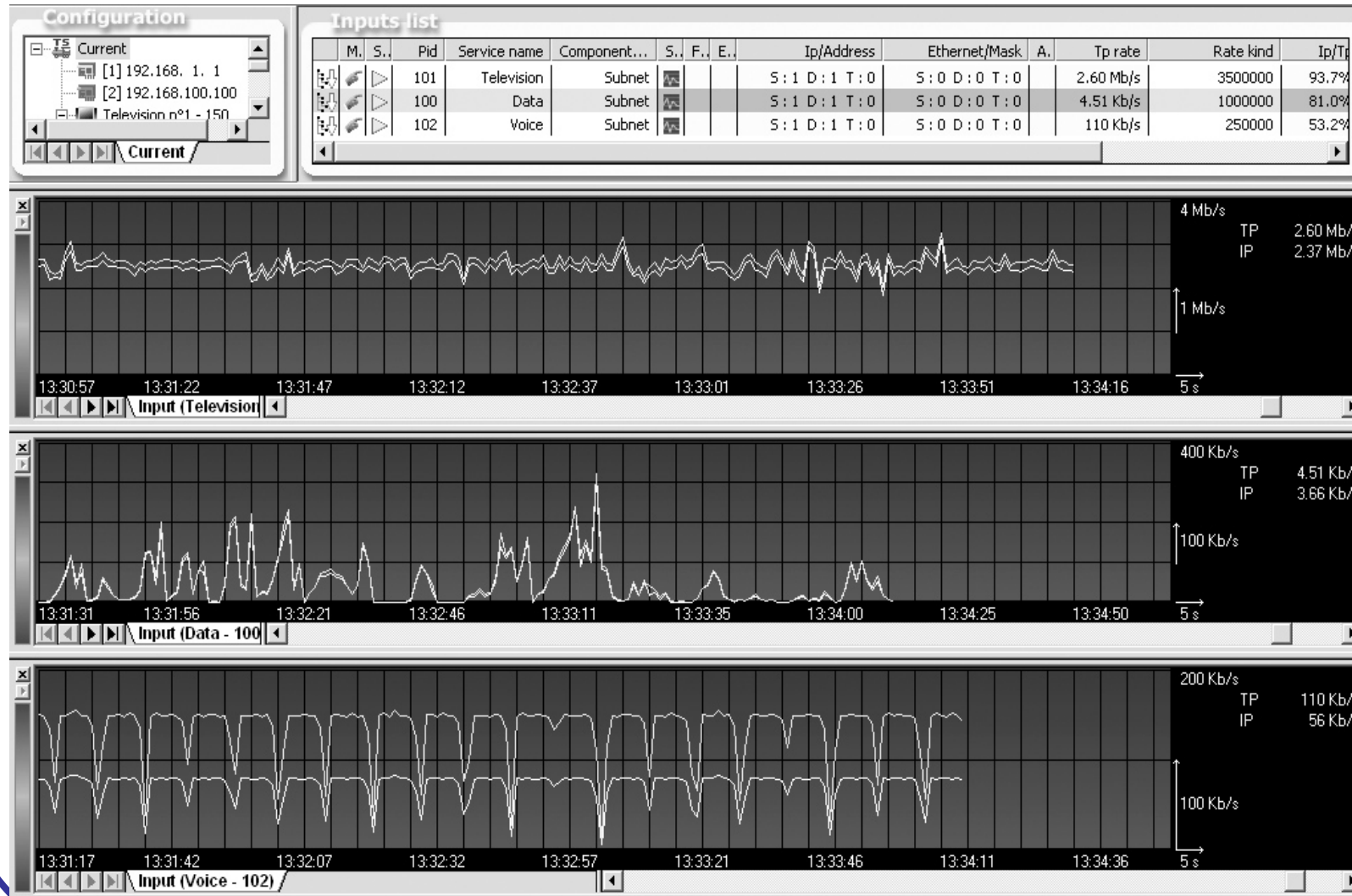


- **DVB-RCS Hub** which collects the uplink data and feeds the provider platform with the reverse traffic
- **Proxy/3play Router** feeds the Encapsulator with triple play streams and routes the IP datagrams which arrive from end users via DVB-RCS uplink
- **DVB-S.2 communication chain** (IP-to-DVB Encapsulator/ Multiplexer, DVB-S.2 Modulator)

# Validation Process

- IMOSAN Platform was validated in a real scenario during a 2-hours transmission via the HellasSat II
- The end user was located near the node gateway of the satellite terminal.
- WiMax has been utilized as a terrestrial access network for the IMOSAN infrastructure.
- DVB-S.2 standard parameters: Bandwidth 18MHz  
Modulation 8PSK  
Code Rate 3/5

# DVB-S.2 Multiplexer



Video

Web  
Access

Voice

# Results

- The Lower line corresponds to the actual IP bit rate of the services.
- The Upper line corresponds to the bit rate, which measured after encapsulation process.
- The difference between the two is most observable in the voice case
  - Small-sized IP packets results to high overhead

# Conclusions

- The exploitation of the newly standardised DVB-S.2 technology adds efficiency and flexibility.
- This paper proposes and implements an infrastructure for the provision of triple play services over an implemented DVB-S.2/RCS network.
- This networking infrastructure provides a quite efficient solution for triple play services provision.



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