3DTV

- Creating a Stereoscopic Broadcasting Channel

Partners

OPENSKY is a Satellite provider for Value Added Services.

- OPENSKY provides advance solutions for DIGITAL CINEMA and SAT IPTV solutions.
- Digital Cinema:
  - LIVE and 3DLIVE
  - DCP delivery

SKYLOGIC is an Eutelsat company with focus on teleport services.

Project Key Facts:

- Set up a complete end to end chain for 3DTV channel vie satellite
- Target to industry solutions for 3DTV consumer products
- Set up reception sites which will be used to gather end user feedbacks.
- Produce 3D contents and delivery 3D events to complete Pilot trial

Duration: September 2008 – September 2010

Scope of the project: Bring 3DTV at home

Loop

- 3D contents are pre-recorded and stored in a playout server and the sent via satellite

Live

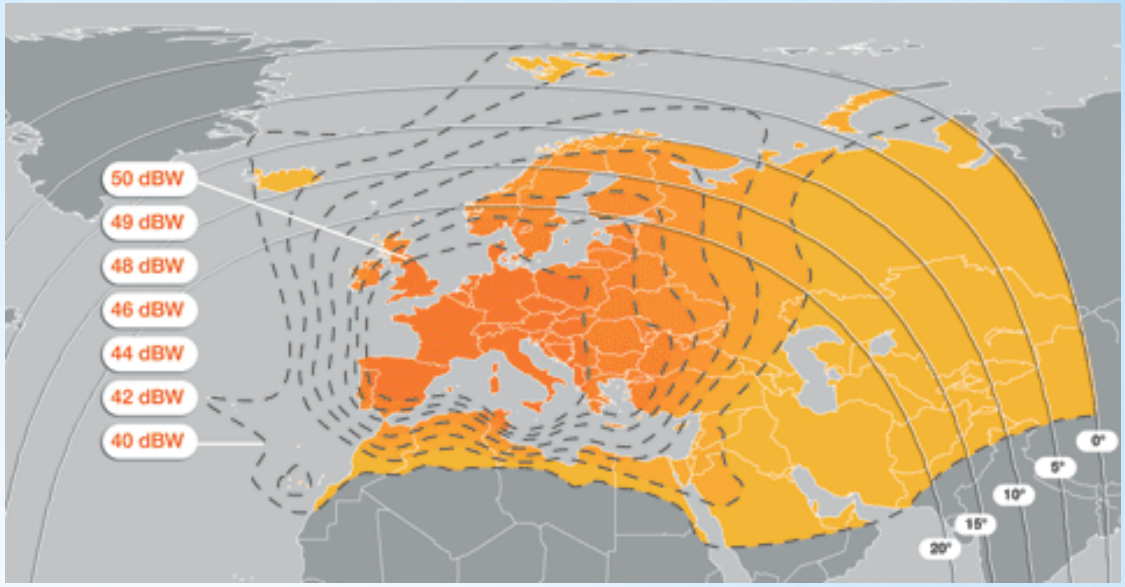
- 3D contents are shot in real time and transmitted via satellite

*Services

Architecture

Recorded Contents

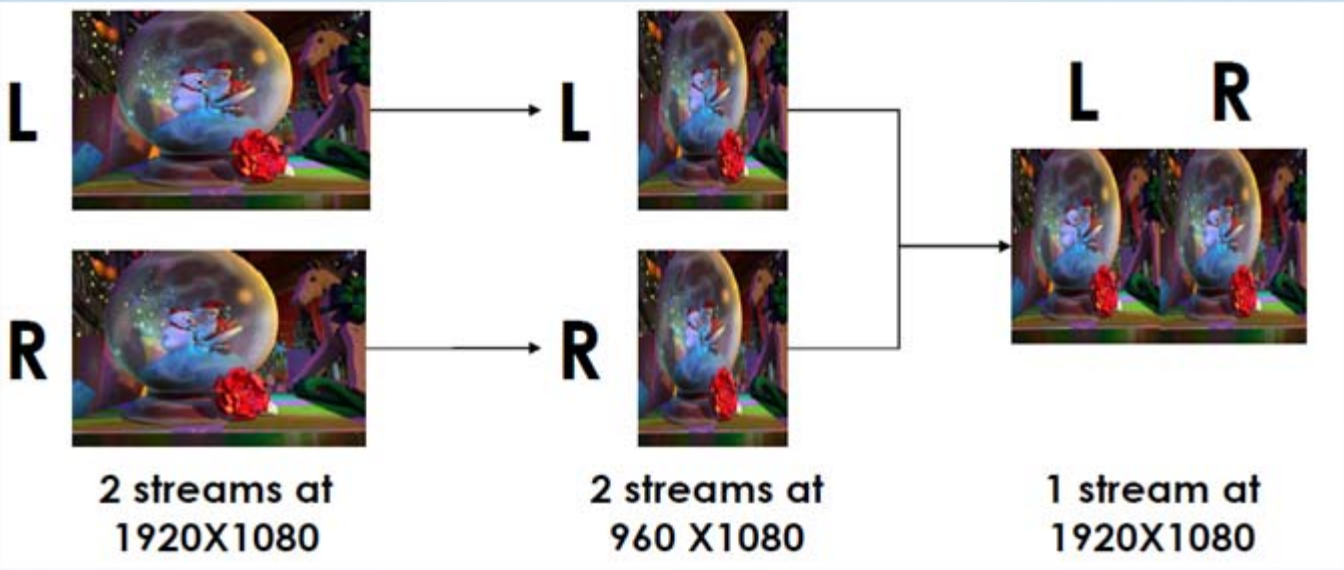
- Uplink from Torino
  - Satellite: EB9



Live contribution

- SNG Uplink
  - Encoder HD MPEG2
  - Satellite : AB2 or AB3

Implementation

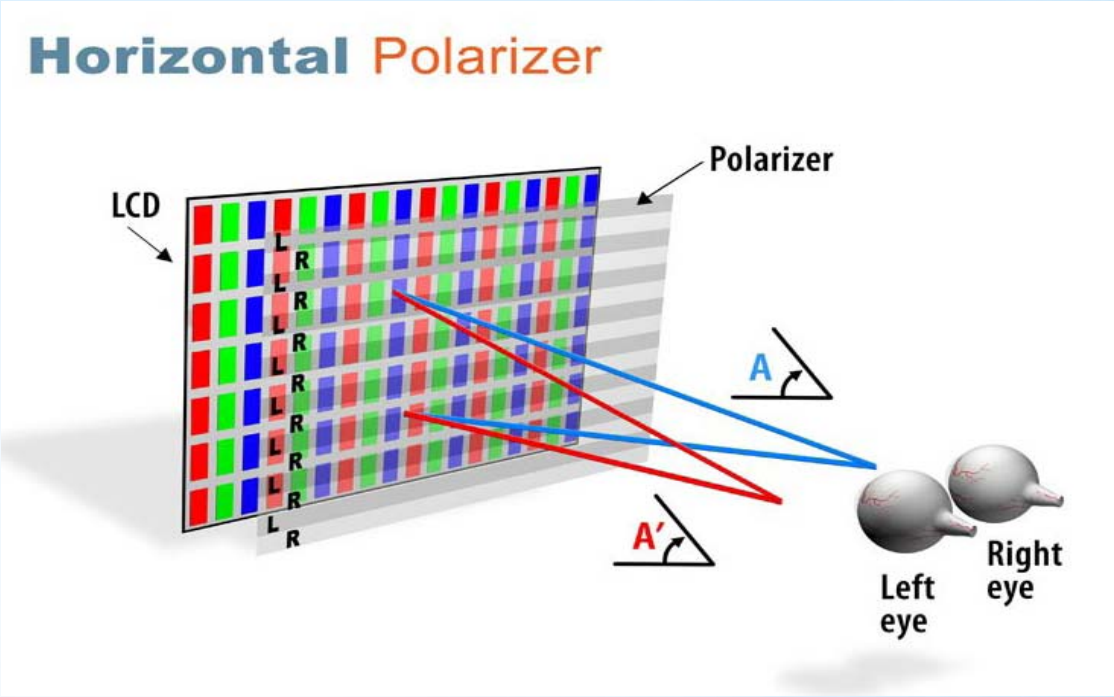


Sensio encoding

- Coding optimization of a couple of image in one image
- Decimation at pixel level of image
- Improvements on SBS through quincunx sampling

3DTV

- Model: LCD 46” Hyundai
- Model : LCD 46” LG
- How does it work:
  - Stereoscopic: with passive glasses
  - Circular polarized glasses
  - Polarized panel: separation of odd and even rows



Passive vs Active:

- Passive glasses less expensive
- Passive glasses more confortable
- Passive glasses doesn’t need battery

- **Sync of right and left view**. Pre-encoded files have been selected
- **Ingestion of content**: hard disk and FTP transfer.
- **Content storage parameters.** The bit rate of the content has been encoded for storage at 50Mbits/s and the GOP structure has been refined.
- **Availability of 3D equipment**. Extremely restricted availability of professional 3D equipment at the start of the project.
- **Increased bit rate of channel**. The increase in bit rate of channel from 8Mbits/s to 12Mbits/s has been planned and executed.
- **HD consumer receiver overscanning**. Some HD consumer decoders used in the project cause enlargement of the image.
- **Obtaining 3D content.**

Pilot

3D Live event

- Basket: April 2009
- SatExpo: February 2010
- Mariinsky Ballet: April 2010

Questionnaire results

- Glasses not confortable: 45,8%
- Content preferred:
  - movie: 83,3%
  - sport 27,7%
  - dance/music: 16,6%
- Already seen something in 3D: 76%
- 3DTV better that 3D seen before: 45%

- 3D perception: involvement: 51,6%
- Headache: 14,1%
- Burning eye: 8,3%
- Visual fatigue: 31,6%
- Buy 3DTV: 56,6%

- Technical learning
- Experience in acquiring HD 3D content
- Experience in live transmission in 3D
- Generation of content: live and loop for channel
- Paved the way for commercial services and offers.
- Today there are **19** 3D Satellite Channel on air

*Main Benefits

The 3DSatTV channel is yet on air and can be received from the EuroBird 9 satellite at 9 degrees East with the following parameters:

- Frequency: 11474
- Symbol Rate: 27500
- Modulation: DVB-S
- FEC: ¾

Go see for yourself in the demo corner!

*Conclusion

Thanks for your attention

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