



MMEDIA & MOPAS PANEL
Content and Semantic Approaches

**The Most Challenging Issues in
MultiMedia are...**

Moderator:

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Panelists:

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Special Topics on New semantic paradigms

April 20, 2011 - Budapest, Hungary

Multimedia – The Most Challenging Issues

Status

Context and Perspective

Vision

- Convergence
 1. Data – Web, etc – Obvious Limitations
 - Web 2 – Search engine per link
 2. Voice
 - VoIP
 - Quality of Service
 3. Video
 - YouTube, BBC I-Player, FaceBook
 - Smart Phones – iPhone, Android, etc
 - Bandwidth

Where are we with Multimedia?

- Convergence – Mobile MM experiencing severe congestion
 - Exponential global demand
 - 70% of Internet Bandwidth
 - YouTube, BBC iPlayer, VOD streaming, P2P Games
 - Requirement for ‘Always, everywhere’ connectivity
- Wired Infrastructure → Bandwidth for ‘free’
 - 10/100 ‘Fast Ethernet’, Gigabit, Terabit
 - 1000Gbps = 1Terabyte/s, 1000Tbps = 1 Peta byte/s
 - ‘PetaWeb’, ‘ExaWeb, etc



Bournemouth University

Multimedia at 10^{15} bits/s ?

	SI decimal prefixes		Binary usage	IEC binary prefixes		
	Name (Symbol)	Value		Name (Symbol)	Value	
1960						Teletype
1970	kilobit (kbit)	10^3	2^{10}	kibibit (Kibit)	2^{10}	VDU
1980	megabit (Mbit)	10^6	2^{20}	mebibit (Mibit)	2^{20}	Windows
1990	gigabit (Gbit)	10^9	2^{30}	gibibit (Gibit)	2^{30}	Mobile Video
2000	terabit (Tbit)	10^{12}		tebibit (Tibit)	2^{40}	Searchable
2010	petabit (Pbit)	10^{15}		pebibit (Pibit)	2^{50}	Semantic
2020	exabit (Ebit)	10^{18}		exbibit (Eibit)	2^{60}	Immersive
2030	zettabit (Zbit)	10^{21}		zebibit (Zibit)	2^{70}	Adaptive
2050	yottabit (Ybit)	10^{24}		yobibit (Yibit)	2^{80}	

Source: Wiki

- Future MM Internet Architecture: ‘Petra-Web’
 - Local loop will be wireless and mobile
 - 4G / LTE / 5G ...
- Merging of Data, Voice and Video
 - Access ‘everyone’, ‘anytime’, ‘everywhere’
 - Bandwidth and Routing issues
- Content
 - Semantic Modelling, ‘Smart’ Technology
 - ‘Adaptive Multimedia’ = Meta-data + Data-Analytics

The Third International Conference
on Advances in Multimedia
MMEDIA 2011

The Most Challenging Issues in
Multimedia ...
a User Perspective

Voicu Groza

School of Information Technology & Engineering

Université d'Ottawa | University of Ottawa



uOttawa

L'Université canadienne
Canada's university

IARIA

NexComm 2011,
April 17-22, 2011,
Budapest, Hungary



- Antagonistic interests driven by business policies, political directives and heterogeneity of classes of users
 - The Bold BlackBerry is provided with the hardware for running GPS navigation applications or MM VoIP software (such as Skype), but one cannot use it without permission from a provider or enterprise, even for the own device.
 - Third party applications cannot be developed or run on iPhone without Apple's accept.
 - Apple collects credit cards details of all iStore users even though one would not download but only free applications!
- Developers of MultiMedia (MM) devices address the requirements of internet or content providers and pay less attention to users' needs
- Currently, bandwidth limitation is controlled through plans' prices, by employing QoS tools

- MM can improve the interface between patients and health care systems, but cannot replace professional assistance with virtual MD's (as some politicians may consider as a viable option).
- Vast majority of users accept mediocre solutions, as long as an acceptable functionality is provided

MMEDIA 2011

IPTV Service in Bosnia and Herzegovina

Anel Tanovic

Department for IT development of multimedia services

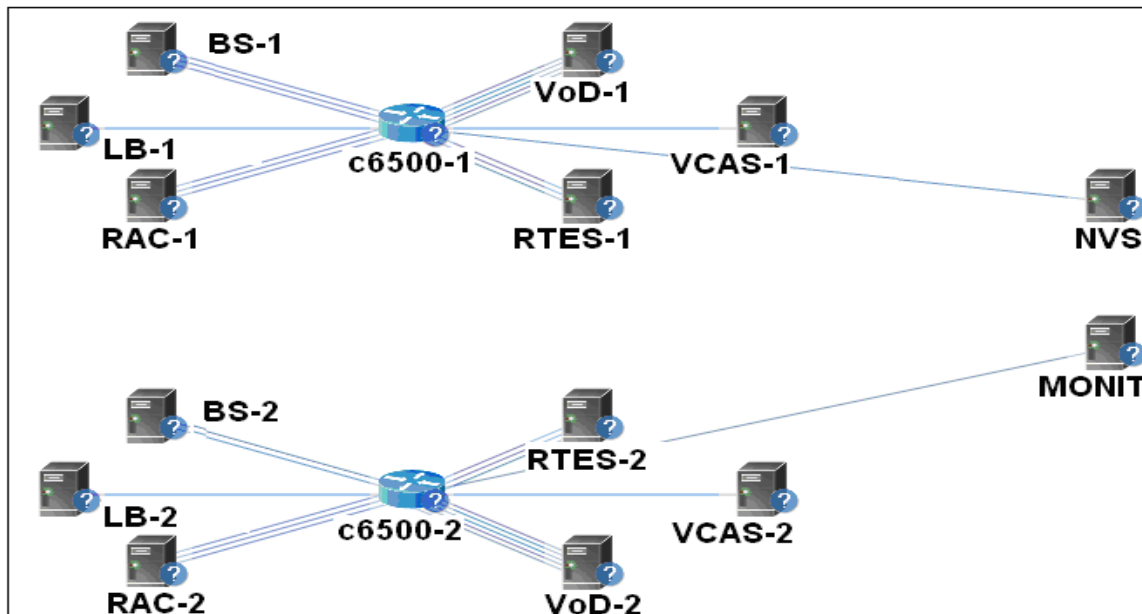
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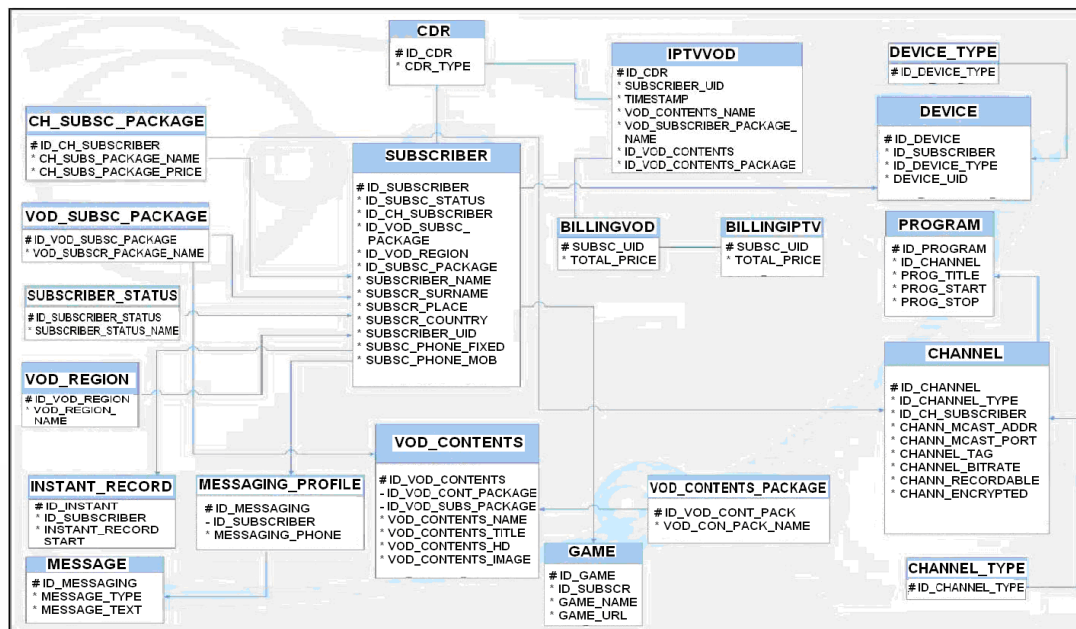
BH Telecom's IPTV Application center

- Middleware system (vendor Beesmart)
- Video on Demand system (vendor Kasenna)
- Encryption system: Real Time Encryption system and Verimatrix system (vendor Verimatrix)
- Database system: Real Application Cluster (vendor Oracle)
- Statistic system (vendor Beesmart)
- Monitoring system (vendor Netvisor)



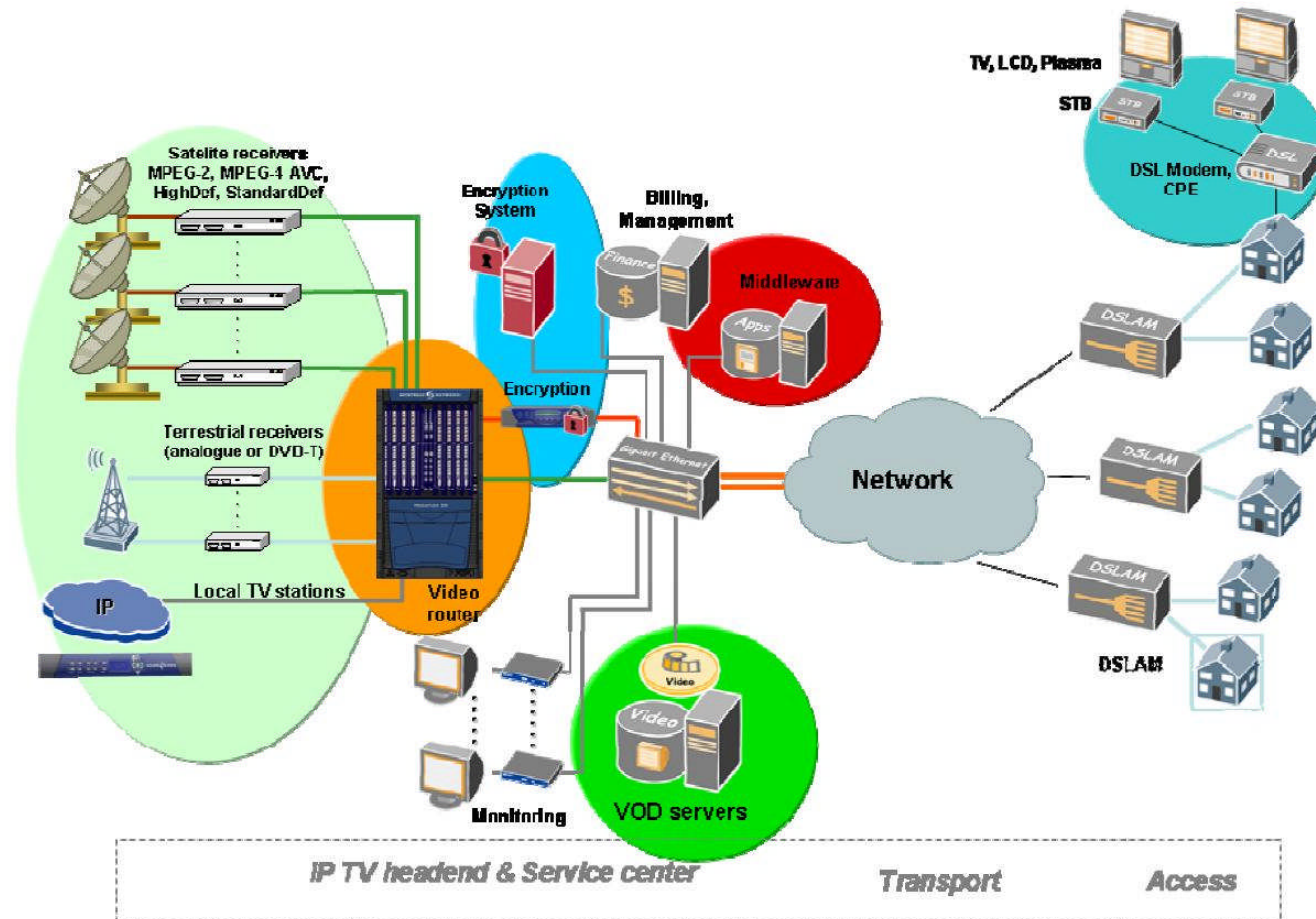
BH Telecom's IPTV Middleware system

- Live TV
- Program search, Electronic Program Guide (EPG)
- TV Mosaic, Show TV recommendations
- Video on Demand (additional payment), Show VoD recommendations
- Instant recording (Program recording)
- Additional IPTV services (Radio, Internet, Games, Promotions, Info)
- VoIP options on IPTV (Phone Book, Phone, Caller ID, MWI)



BH Telecom's IPTV Video receiving Headend

- H.264 (AVC) video compression
- Completely redundant system with automatic backup system
- System uses multicast for real-time content distribution and unicast for VoD content

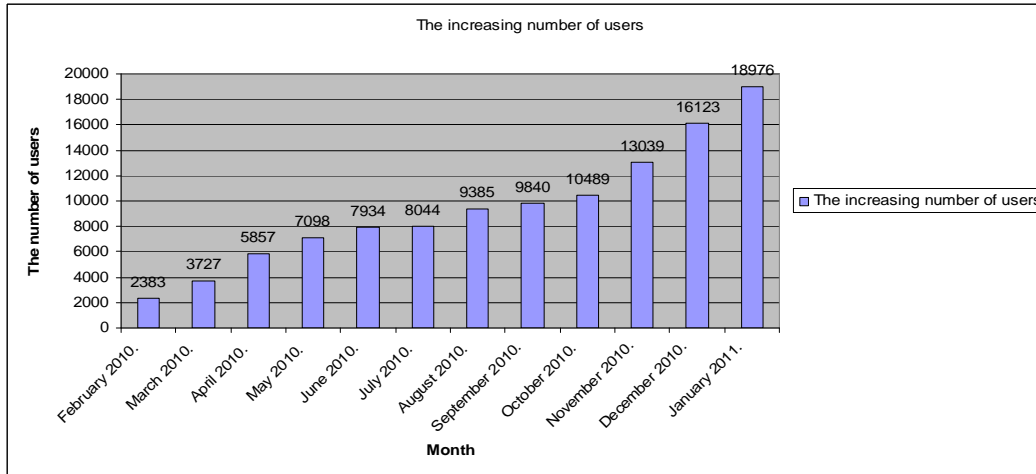


BH Telecom's Access network

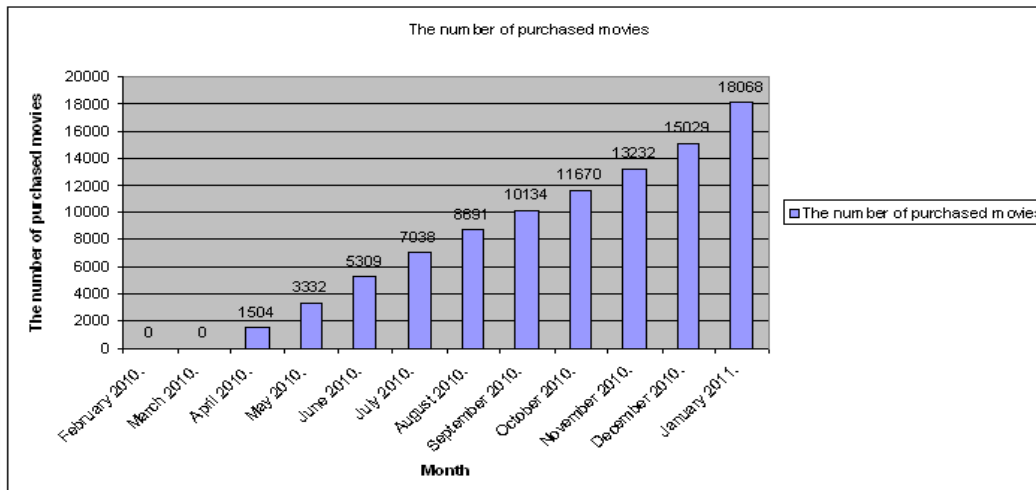
- Primary access network is Copper wire – twisted pair – with ADSL 2+ capacity
- Plan in progress for fiber optic cable – Fiber To The Curb solution – new areas of cities already connected with fiber optic
- Wireless access network – 802.11n solution within unlicensed bandwidth – for rural areas and small towns – test period passed in heavily populated area in the capital city
- Internally developed and deployed Automatic Configuration Server system for CPE equipment
- Bootcast servers and File Distribution servers for STBs

The growth of IPTV service in BH Telecom

- The number of users during the first year of IPTV service in BH Telecom



- The number of purchased movies during the first year of IPTV service in BH Telecom



Future options in BH Telecom's IPTV service

- Client PVR
- Home PVR
- Multimedia Sharing System
- Target Advertising
- TV Commerce
- Prepaid TV
- Improved EPG
- Weather Info
- Centralized Search
- Open API
- Interactive User Portal

THANK YOU FOR YOUR ATTENTION

BH Telecom daje više!

www.bhtelecom.ba



QUESTIONS





The Most Challenging Issues in MultiMedia are...

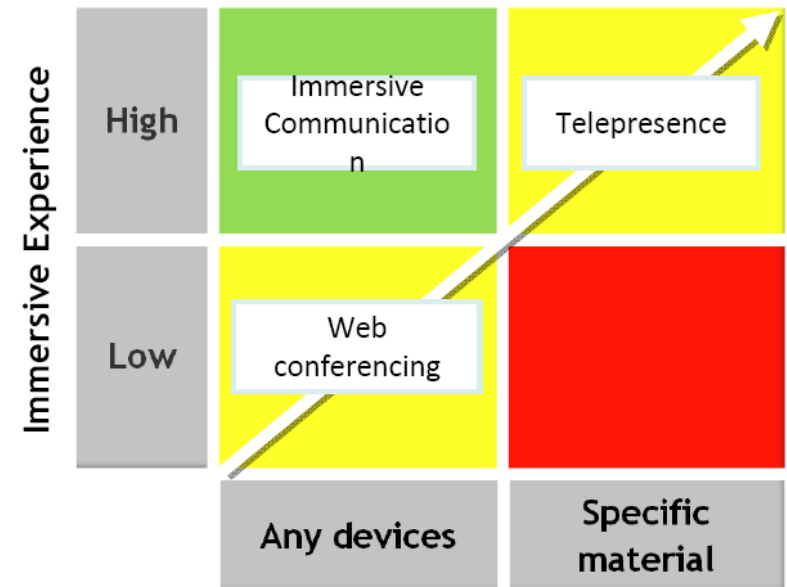
MMEDIA 2011 Panel on Content and Semantic Approaches

Patrice Rondao Alface
April 20, 2011



..... Alcatel-Lucent 

Immersive Communications



Immersive Communications

MULTIDISCIPLINARY CHALLENGES



USER EXPERIENCE

- Natural and effective collaboration
- Virtual Director
- Attention Detector
- Privacy

A/V CODING & COMM.

- HQ & low-latency transport over networks
- Representing natural & computer-generated content
- ~3D video rendering

VIDEO PROCESSING

- Real-time and accurate Video Segmentation
- Gesture Recognition for more intuitive interaction

AUDIO PROCESSING

- Spatial audio, multi-source capture & composition
- Echo control, noise reduction, and de-reverberation

SENSORS

- Improved 3-D sensors (2-D image + depth)

USABLE SYSTEMS

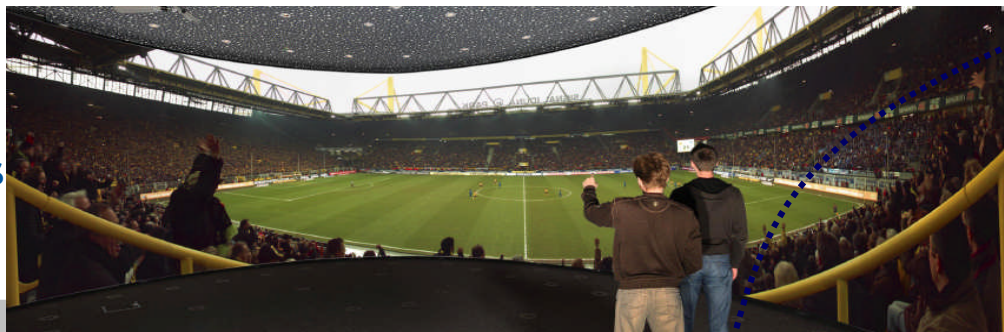
- Real-time processing on cost-effective systems

<http://bellabs.be/internships>

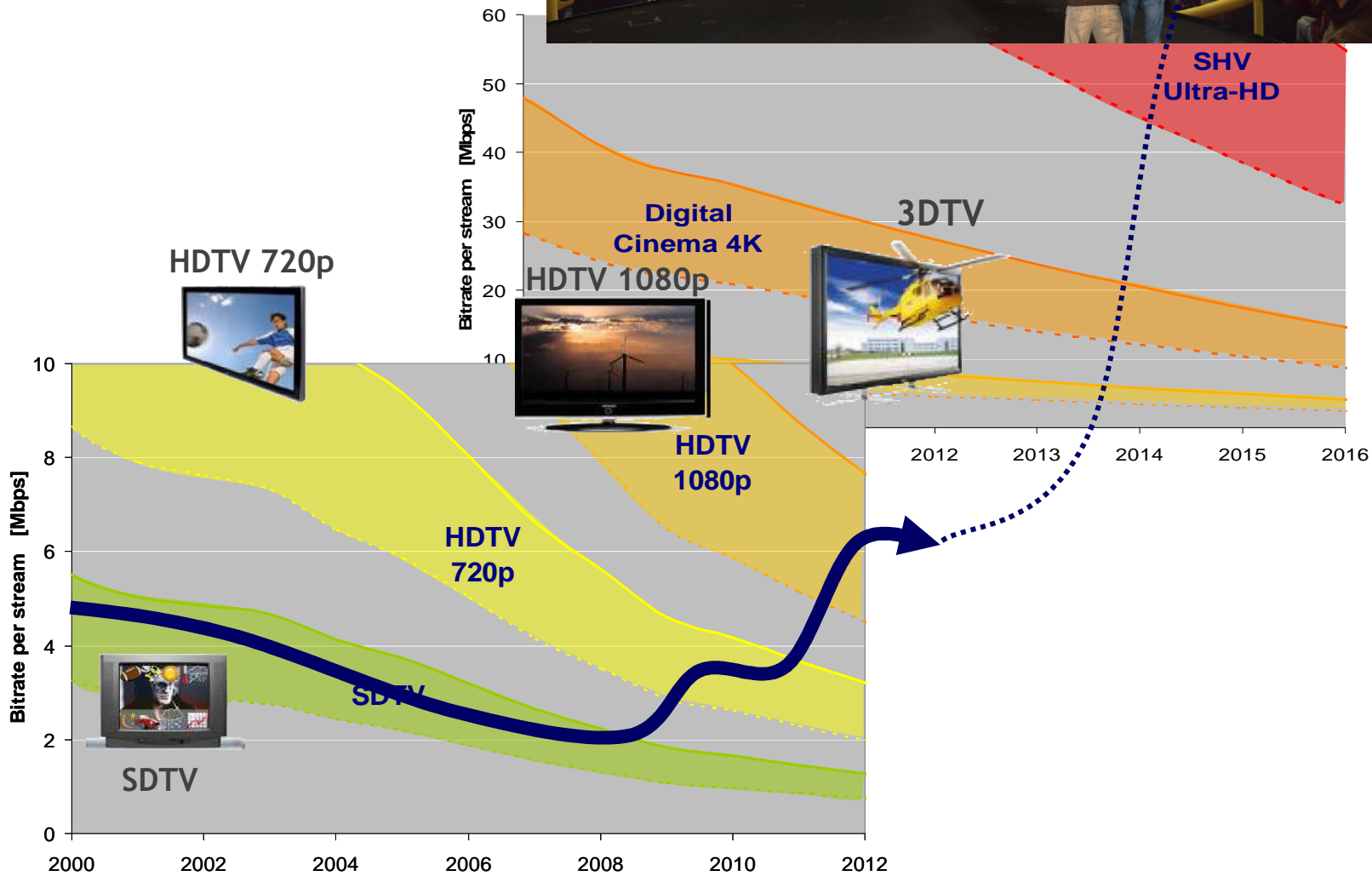


Beyond HD Video Transmission and adaptation

10 Gb/s



Holography



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