



Multi-screen TV

NICC Open Forum 2011

NETWORKED SOCIETY

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> 2B view/day (May 2010)

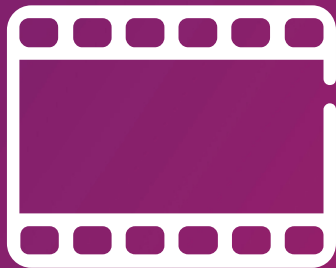


> 36B photos uploaded (2010)



0.6B fixed broadband

7.9B mobile phones (in 2015)



~3.6M google searches

600K people log on facebook

1.6M videos viewed on YouTube

70M SMS sent

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50B Connected Devices

BY 2020 CONNECTED DEVICES ESTIMATED:
50 000 000 000

It's all about Video



Industry estimates place global IP traffic quadrupling over the next 4 years.

- CAGR of 35%
- 90% will be Video
- 60% will be Internet Video

BY 2020 CONNECTED DEVICES ESTIMATED:
50 000 000 000

15 BILLION WILL BE VIDEO ENABLED

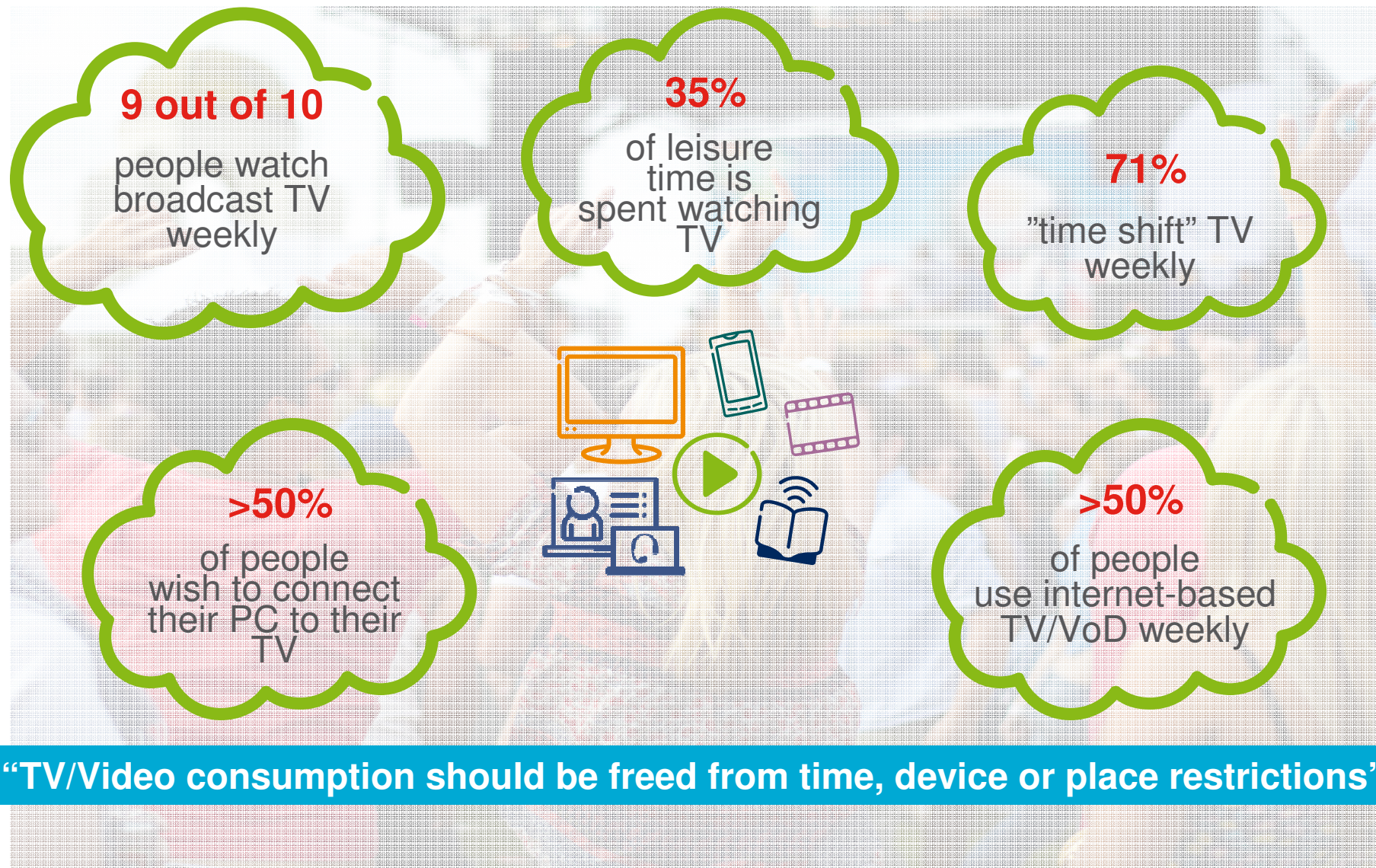
Ericsson ConsumerLab

- › The voice of the consumer into Ericsson since 1995
 - Research representing opinions of more than 1.1 billion people
 - More than 80 000 Interviews every year
 - More than 40 countries worldwide

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TV/Video Consumer trends



“TV/Video consumption should be freed from time, device or place restrictions”

TV/Video Consumer Trends

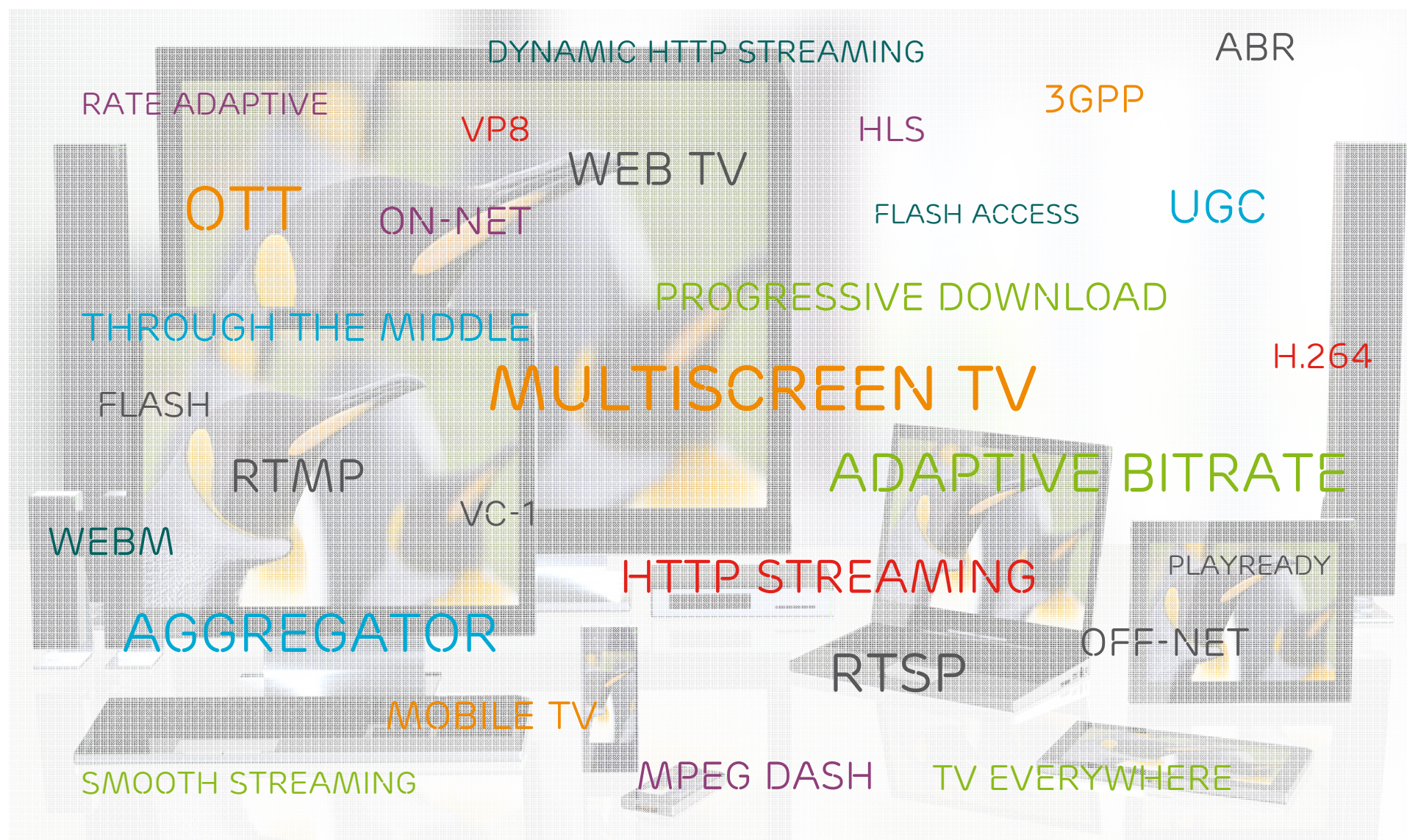
From...



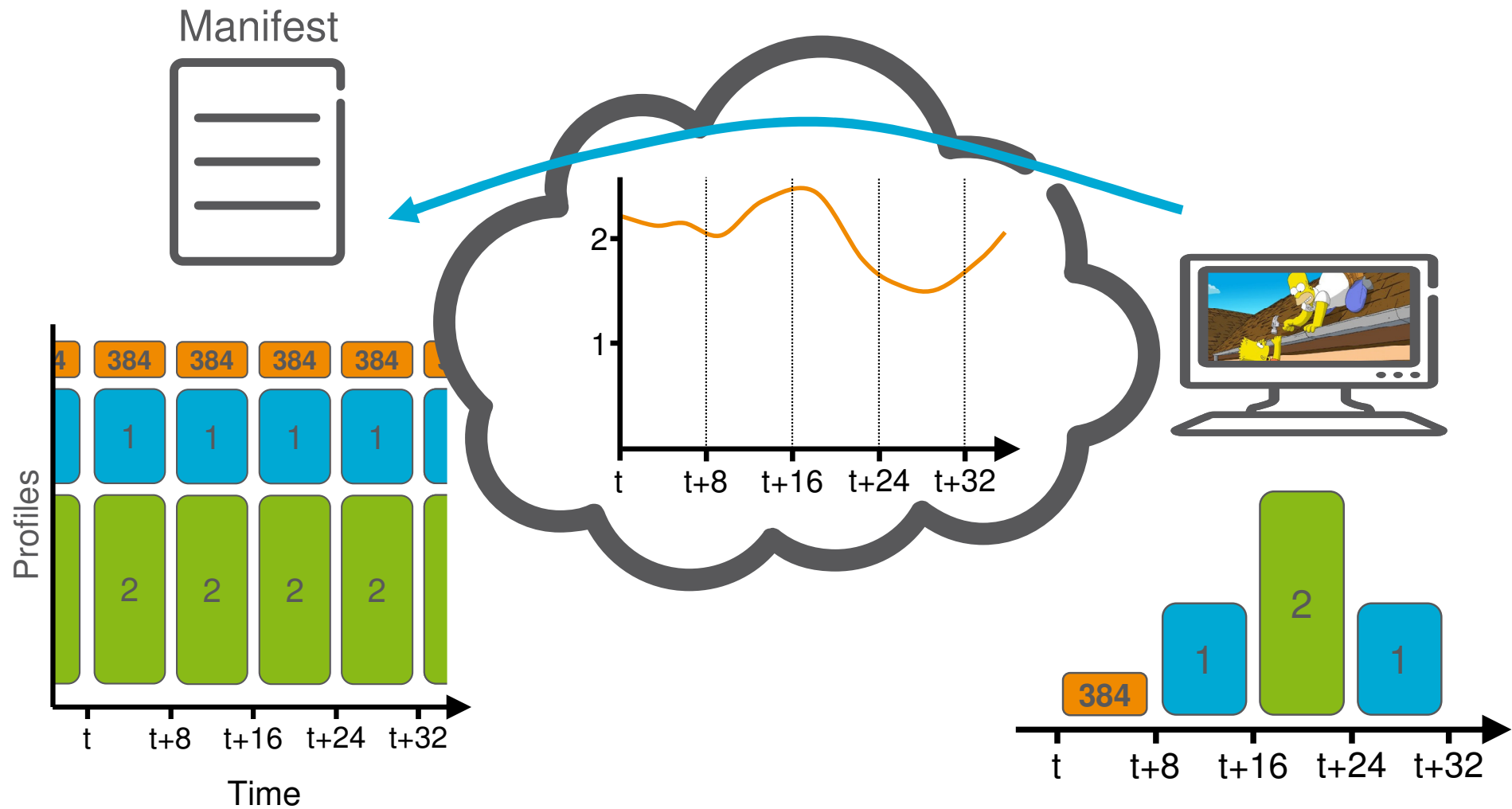
Source: Ericsson ConsumerLab TV & Video Consumer Trends 2011

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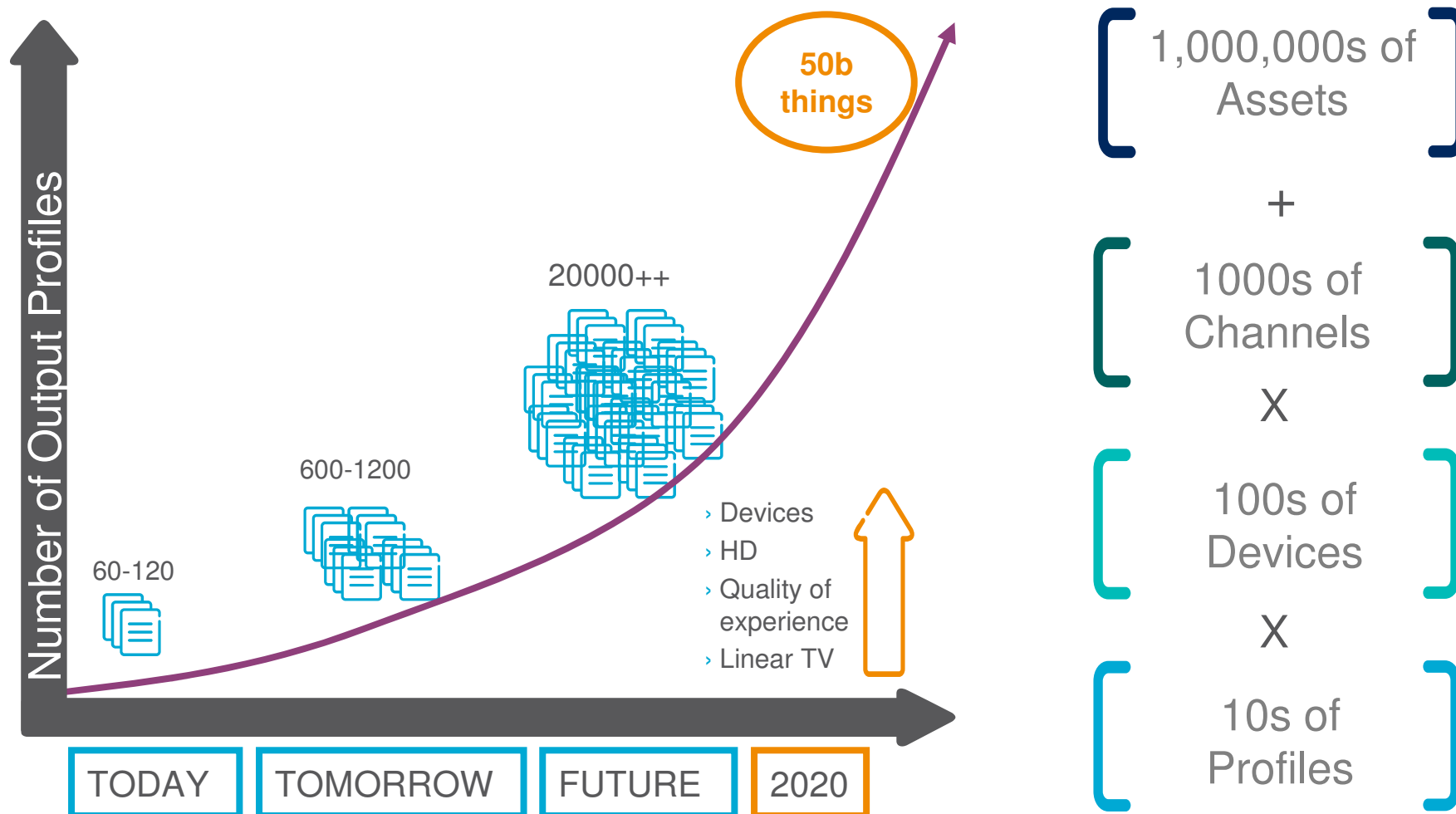
Multi-screen Television



Adaptive Streaming

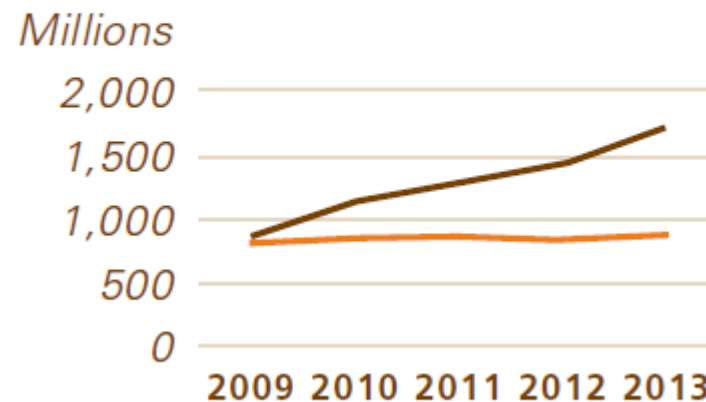


The Scale Challenge



CODEC. Some convergence...

Estimated Worldwide MPEG-2 and MPEG-4 AVC/H.264 Shipments



©2010 Digital Tech Consulting

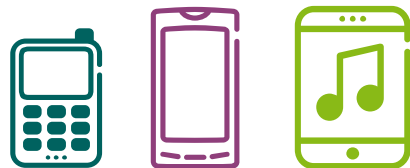


2011 will be the first full year in which boxes capable of decoding MPEG-4 AVC/H.264 will exceed legacy boxes capable of decoding only MPEG-2

© 2011 ABI Research



Virtually 100% H.264 capable



In 2010 smart phone shipment were 302.6M units, up 74.4% on 2009

© 2011 IDC



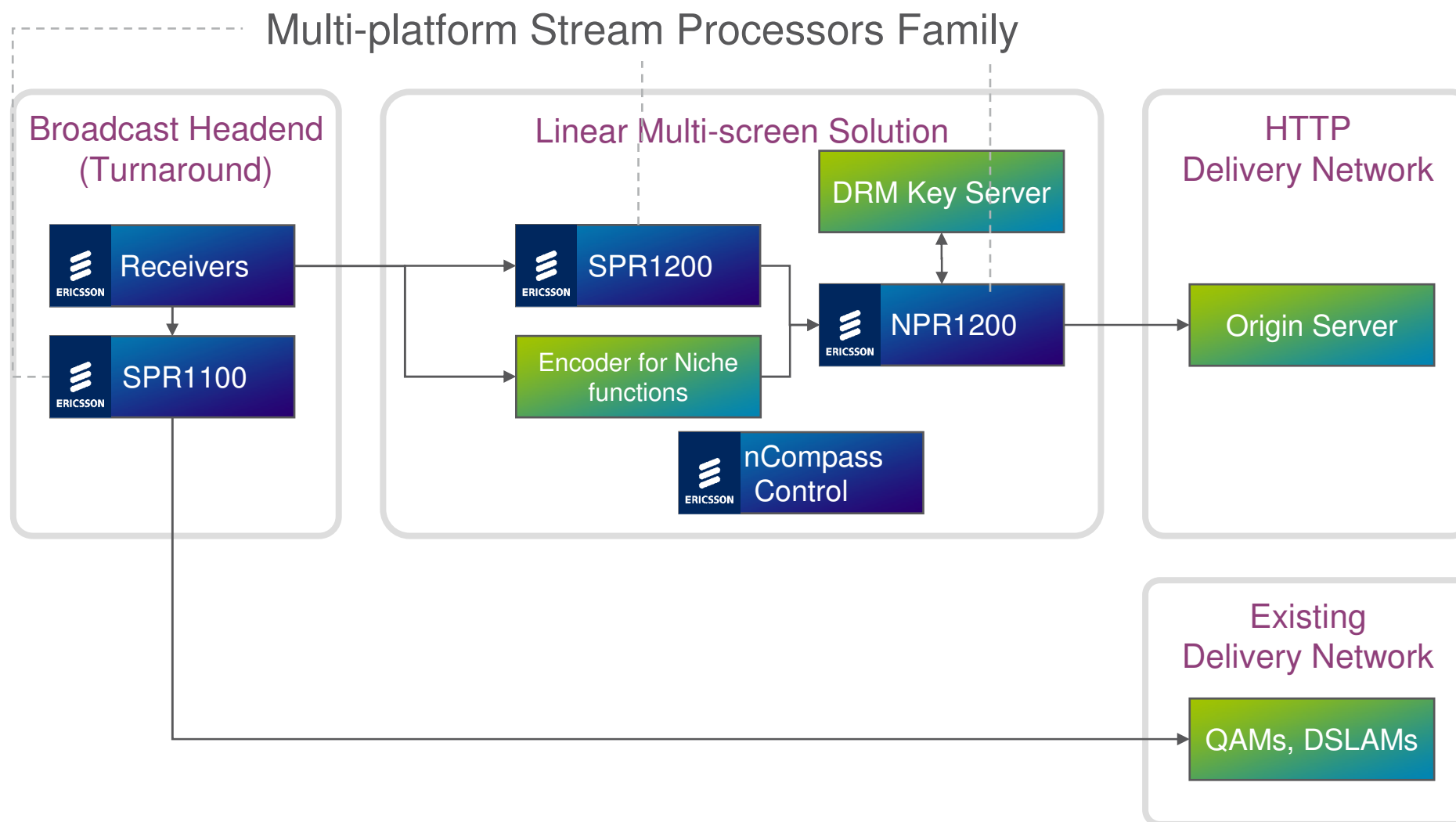
By 2015, >80% of flat panel TVs shipped in US and Western Europe will be connected TVs

© 2010 ABI Research

... but not complete

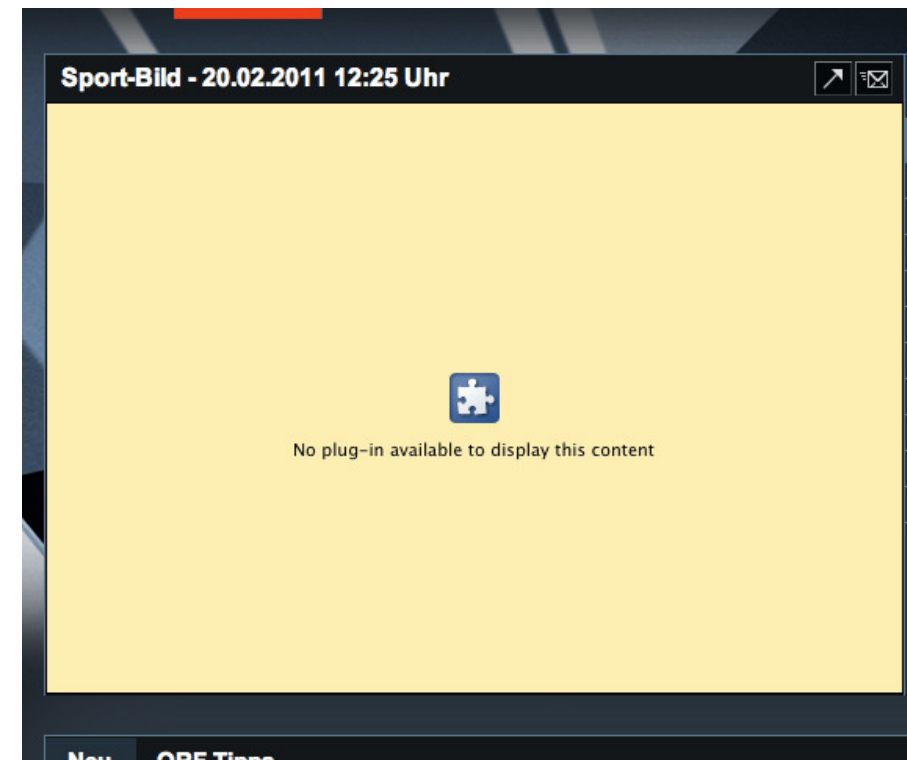
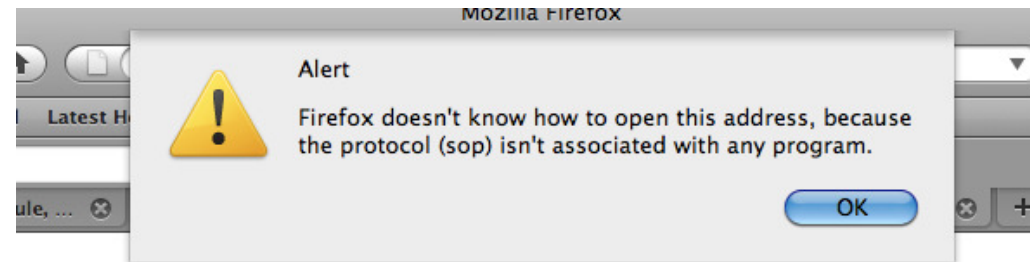
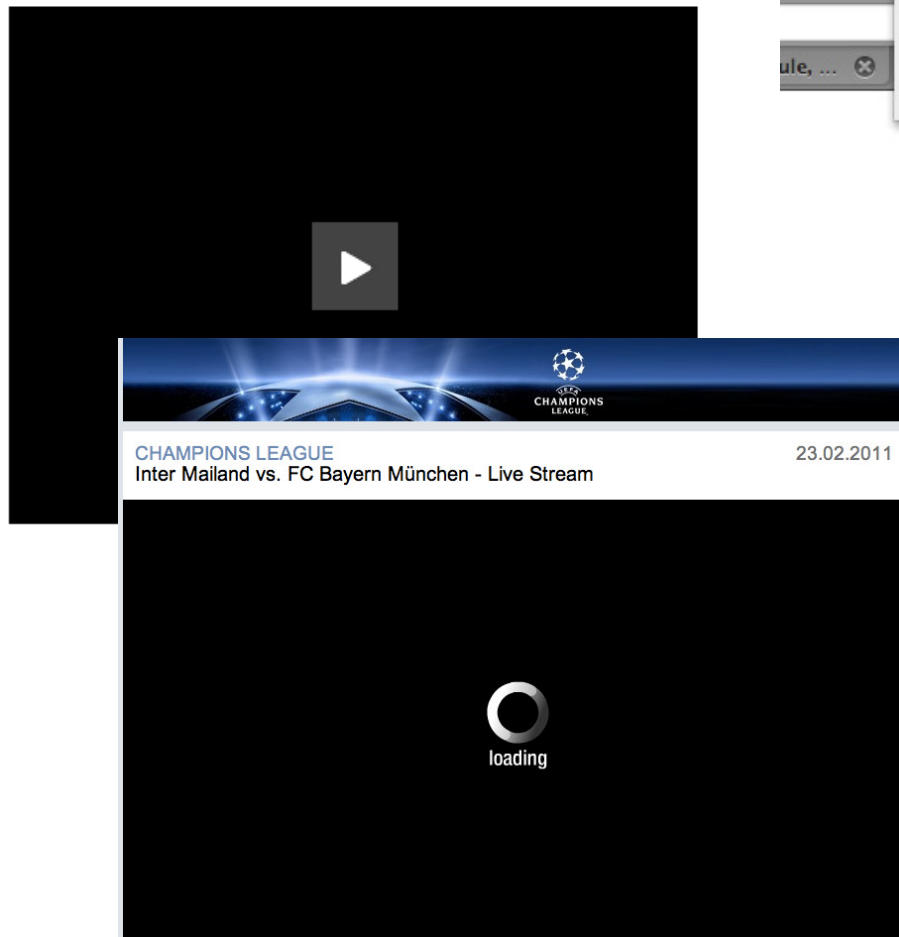


Multiscreen TV turn-around

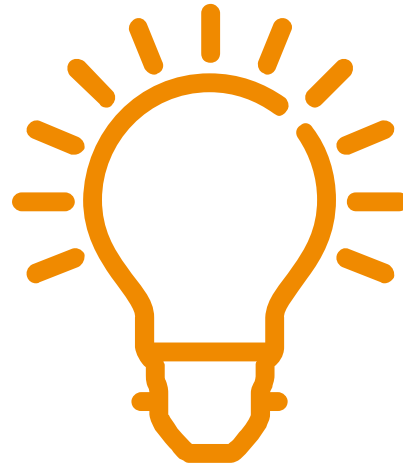


What does it mean for consumers?

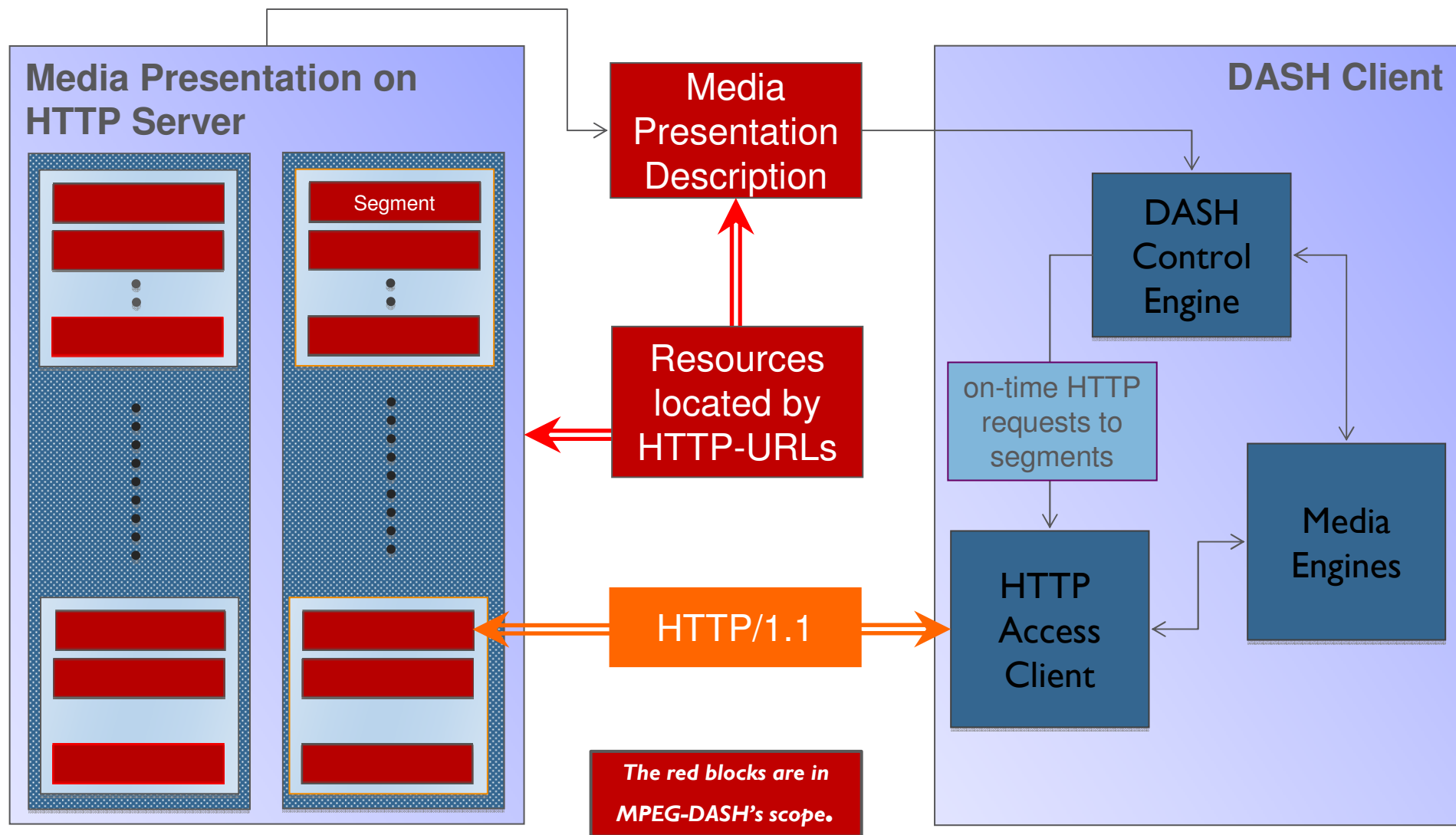
Internazionale vs Bayern Munchen



But, things are changing...



MPEG-DASH (Scope)



MPEG-DASH

MPEG-DASH is ...

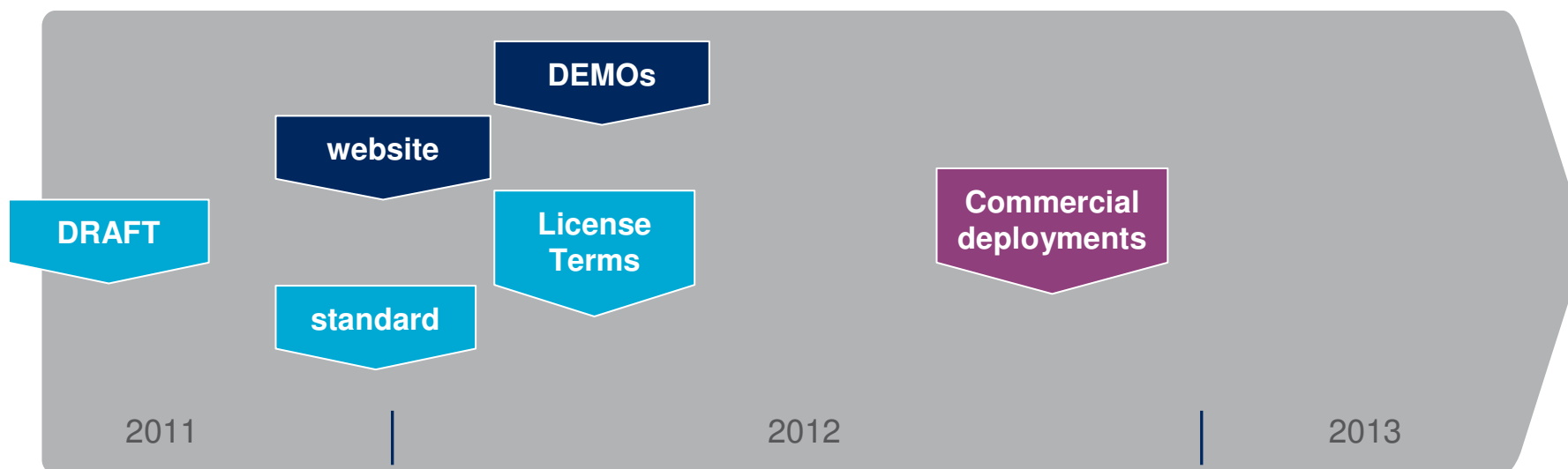
- › Dynamic Adaptive Streaming over HTTP
- › Definition of a standard delivery format for streaming multimedia over Internet
- › Standard for interoperable solutions by various vendors
- › Joint collaborative work under ISO (Apple, Microsoft, Akamai, Netflix, Qualcomm, Ericsson and >70 others)

MPEG-DASH is not ...

- › System, Protocol, Codec, Middleware, Client specification
- › System-level spec left to other organisation (e.g. Open Iptv Forum, 3GPP, HbbTV)

Pre-defined Profiles	Multiple languages	No bitrate limitation
Efficient Media Presentation Definition	Efficient trick modes	
on-demand / time-shift services	Support for both MPEG-2 TS and ISO base media FF	
Low-latency live services	Seamless switching of tracks	Independent of segment size

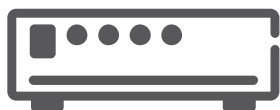
MPEG-DASH (Deployment)



Standard endorsed by ETSI, Open IPTV Forum, HbbTV

Is it enough?

Current Business Trends



Bandwidth and delivery constraints



Increased reach needed



Emerging multi-screen to tablet and mobile



Future Business Trends



1080p60/50

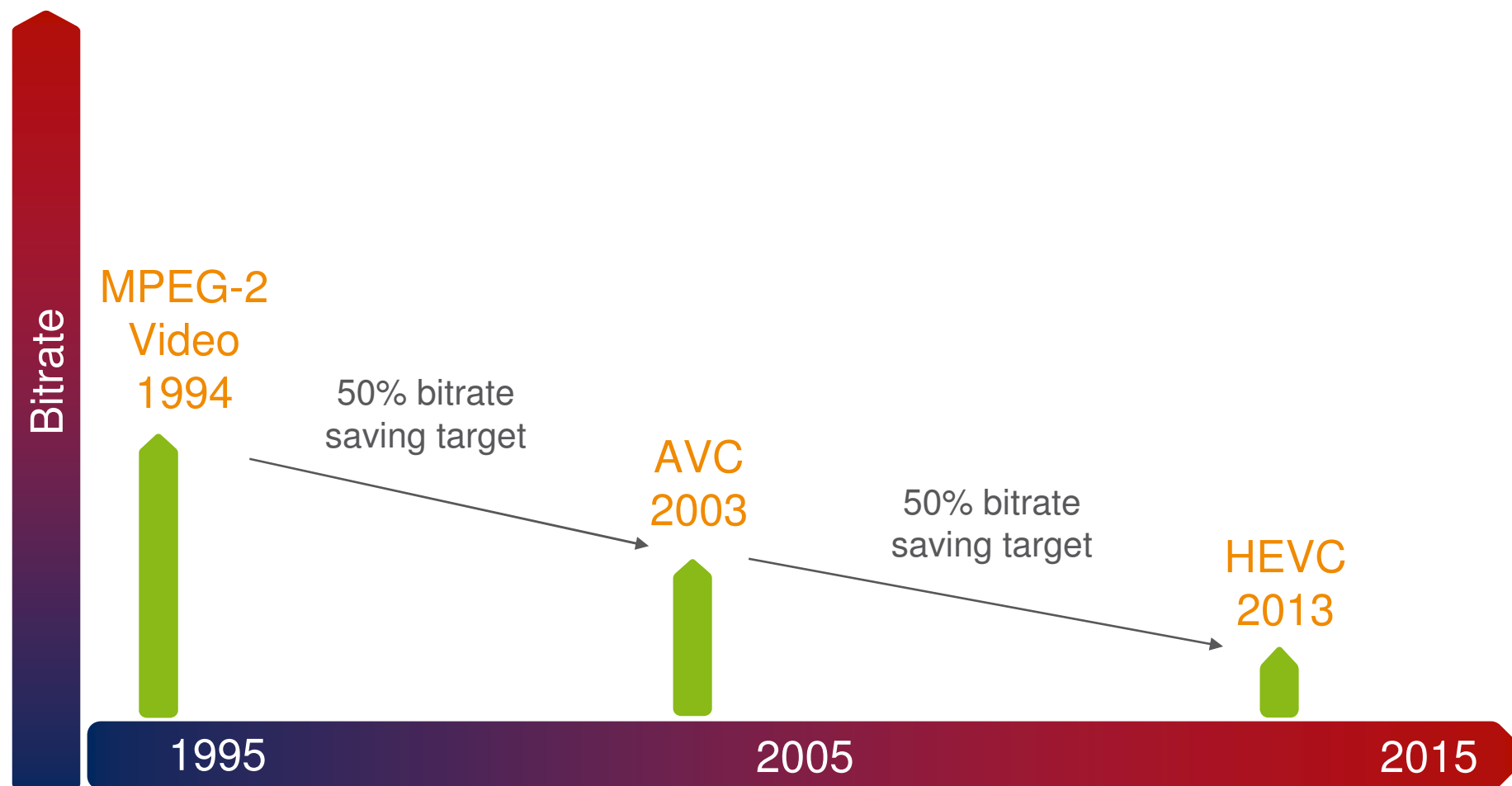


Full HD 3DTV



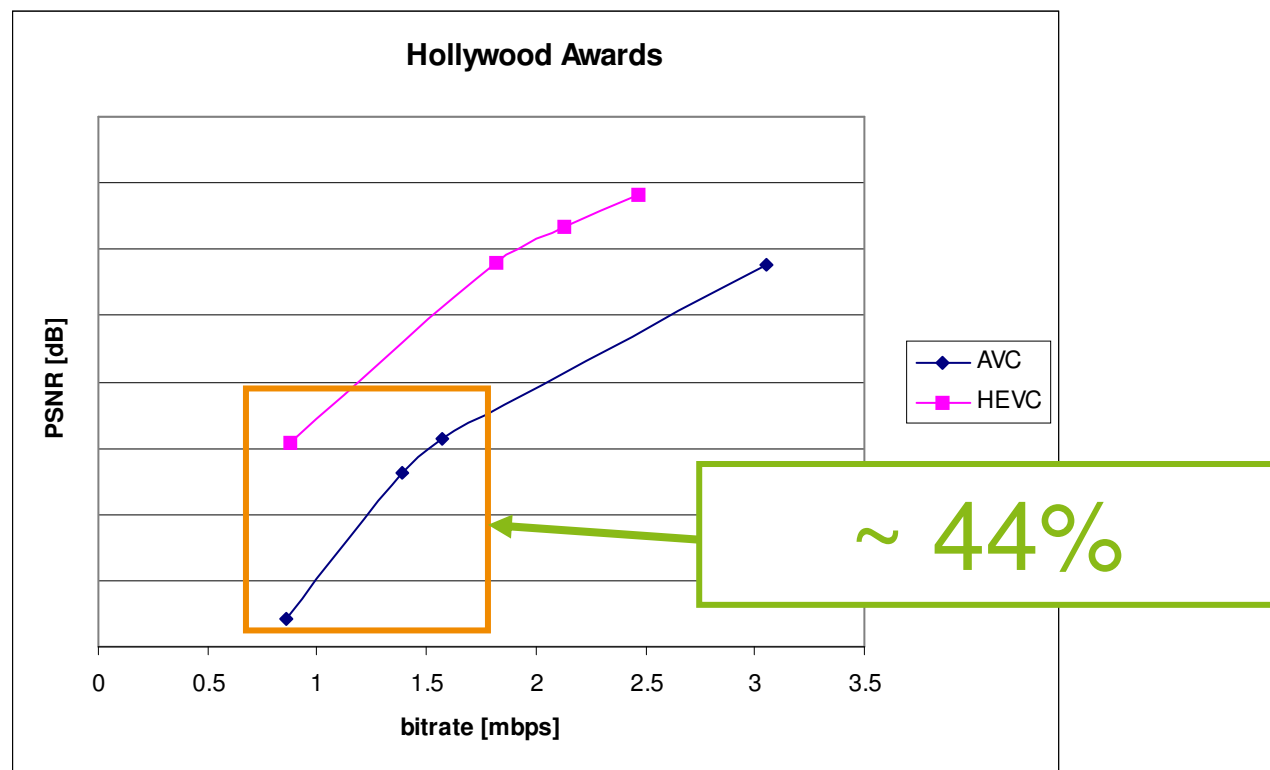
4K & higher resolution TV

Introducing HEVC

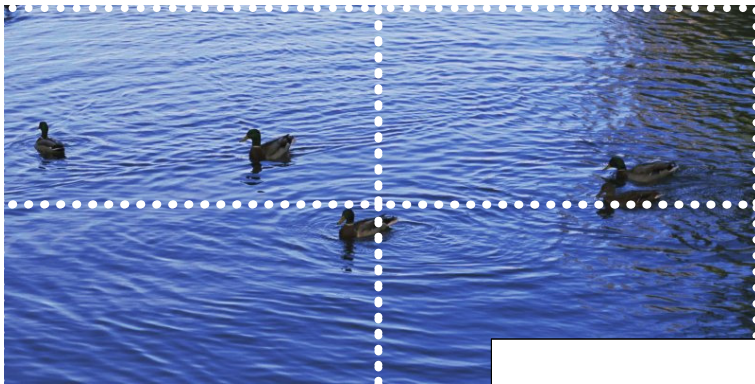


Savings at lower resolutions

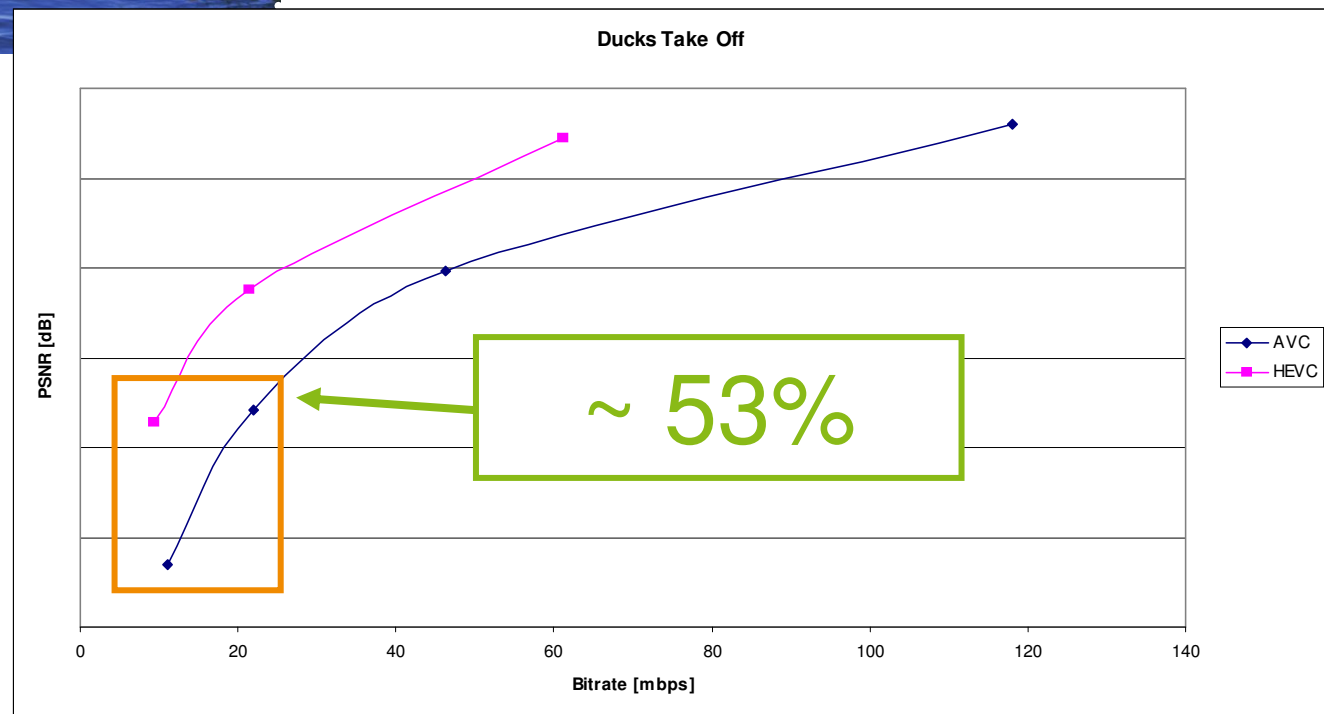
- 480p sequence (Low difficulty)



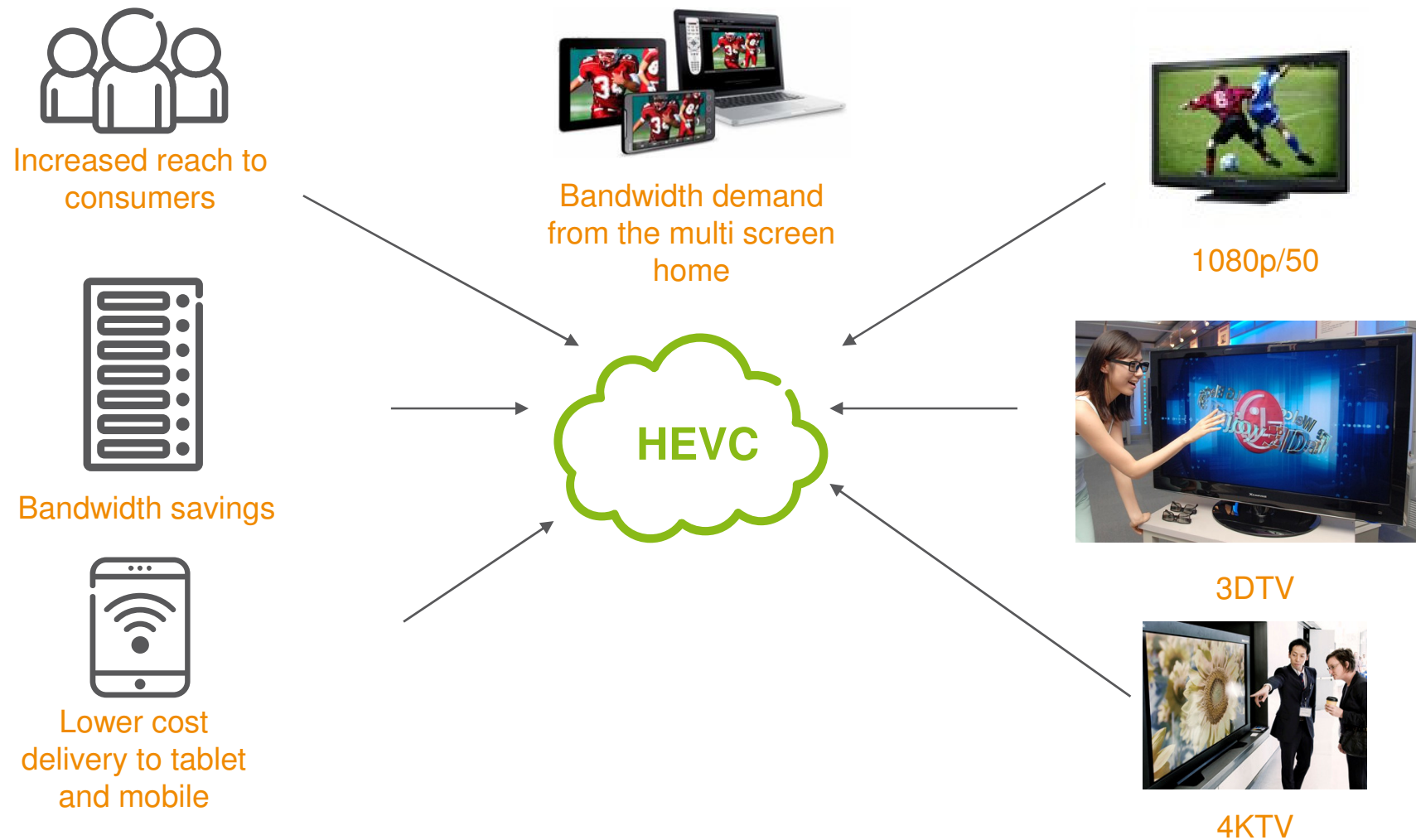
Savings at higher resolutions



- 4K TV sequence (High difficulty)



HEVC applications



Conclusion



Scalability



Quality of Experience



Standardization efforts



Business opportunities



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