Mobile reporting

erik.vold@nrk.no

zep.hurme@gmail.com

Mobile reporting

- Apps
- Equipment
- Preparation
- Location
- Execution
- Post-production notes

https://archive.org/details/BrunoTorturra_2014G

Apps

- What is a good app for mobile reporting?
- Stick to the app you find most suitable for your working habits.

Equipment

- Handheld mic gives you air of authority at the scene (interviews)
- Lapel or headworn mic frees both your hands (reporting).
- Consider getting a tripod if doing video

Preparation

- Write down clear goal of the report
- Select and research location
- Is it technically feasible to do live bits on the location with the gear you have? What's the plan B to get the material on air?
- Write down some questions you may ask
- Small cards are better than A4
- Open questions vs. closed ones
- Prepare everything, but try making it feel like it's not too prepared and "dry"
- Check the equipment

Location

- The background of the video and audio ambience should support the story. E.g. cathedral, city traffic, playground, office, …
- Try finding interesting perspectives. On the roof, down at the cellar, …
- If doing video you should rehearse possible camera movements if applicable
- Put the device in “flight mode” or disable all sounds
- B-roll video footage is almost vital when not doing live reporting. Prefer activity-shots before static ones
- Record plain audio ambiance. Fixes may be needed in the post-production phase

Execution

- Agree on the “in-words” and “out-words” with the studio/director when doing live
- Ad-lib – try not just to read from the notes. Use your notes more like a guide.
- Do follow-up questions
- Be yourself

Post-production notes

- Video:
  - B-roll material makes you video edits easier and more dynamic
- Audio:
  - If you want to make the intro sound like you are there at the location, don’t record it in the studio

Technical advice

Camera/encoder limitations:

- Avoid quick pans due to rolling shutter issues
- Use light to reduce camera noise on small sensors
- Bring power cable extenders or portable USB battery packs when live
- When in dialogue with studio, open with a beautyshot to conceal delay issues (Don't open with a waiting reporter - "stupers don't give you high hoopers")

Journalistic advice

Use at least 5 angles to cover a situation

1. Closeup of action with close sound
2. Overview/big picture to provide orientation (long shot on tripod to allow comments)
3. Moving shot to provide depth and sense of presence as well as view-variation in edit
4. Over shoulder, cover observer or Point Of View on the action point
5. A creative or artistic shot

Journalistic advice

Classic recording mistakes

1. Few shots
2. Short shots
3. Disturbing motion

Classic editing mistakes

1. "Radio TV" - Long and static dialogues
2. B-roll misuse - Not present in the situation
3. No use of opening shot (I.e. close up of action) - Fail to engage

Journalistic advice

- Allow the viewer to be as present as possible in the situation
- A situation is what happens when it happens - not constructed
- Ask questions in the situation and avoid static interviews

Boyd Huppert:

- "The biggest challenge is to keep the viewer watching - Soundbites drives the story forward"
- Soundbites are comments and sounds confirming the voiceover and storyline

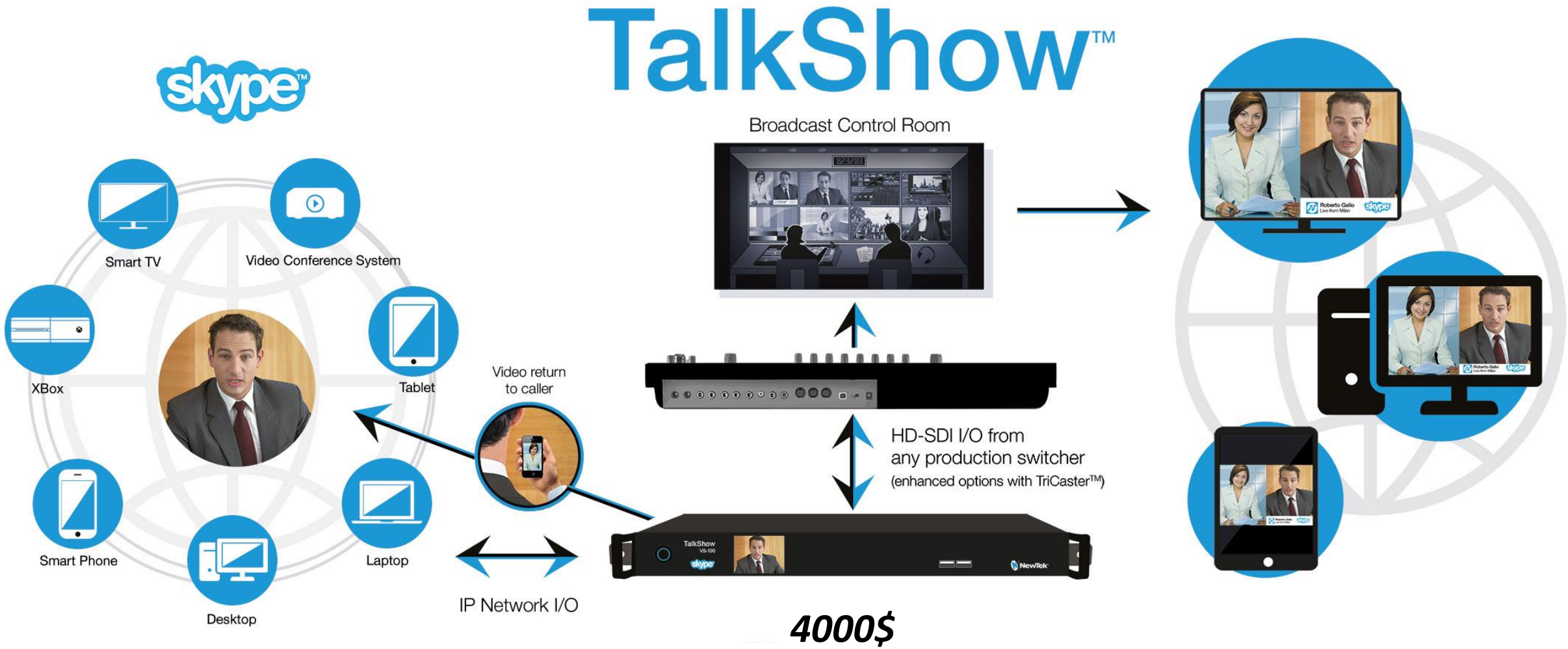
Compress the sequence

- A sequence is what happens in one place
- Observe and preserve highlights (document important events/soundbites in a log)
- Final edit should show the development in a fraction of realtime but don't miss out

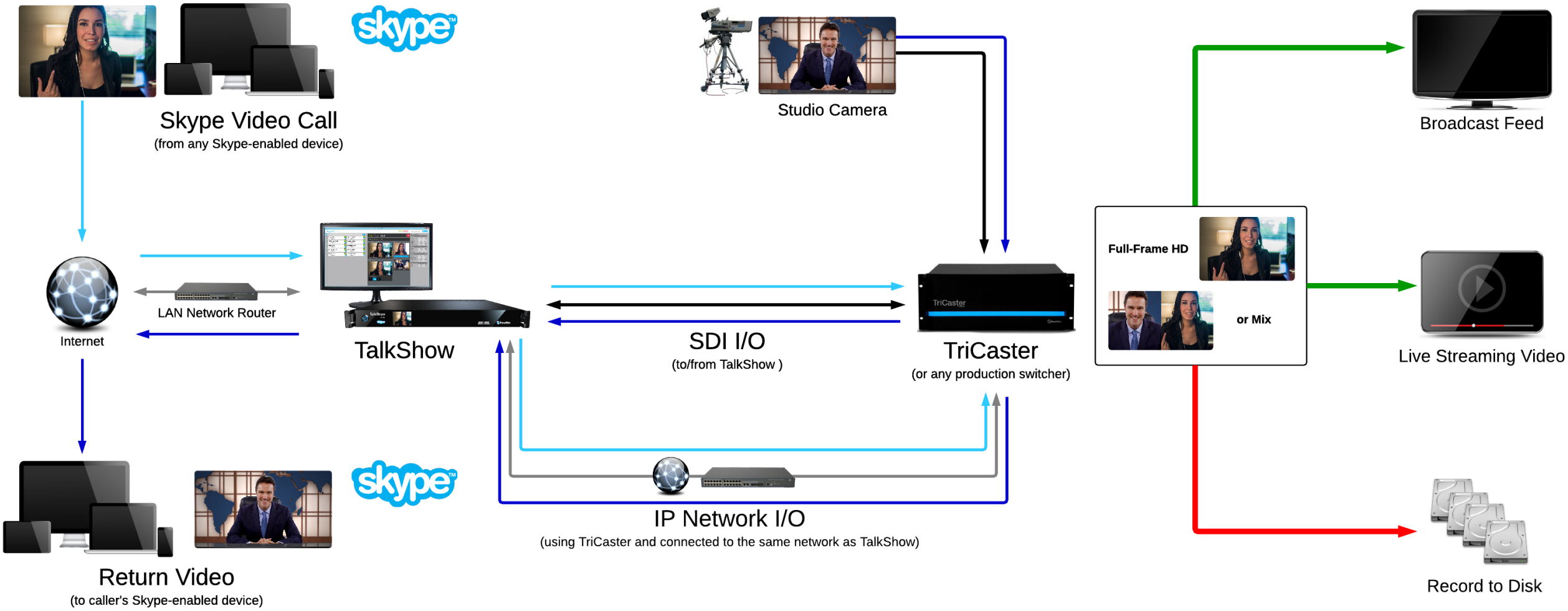
Final note

- Once you learn the “rules”, break them and try out new things

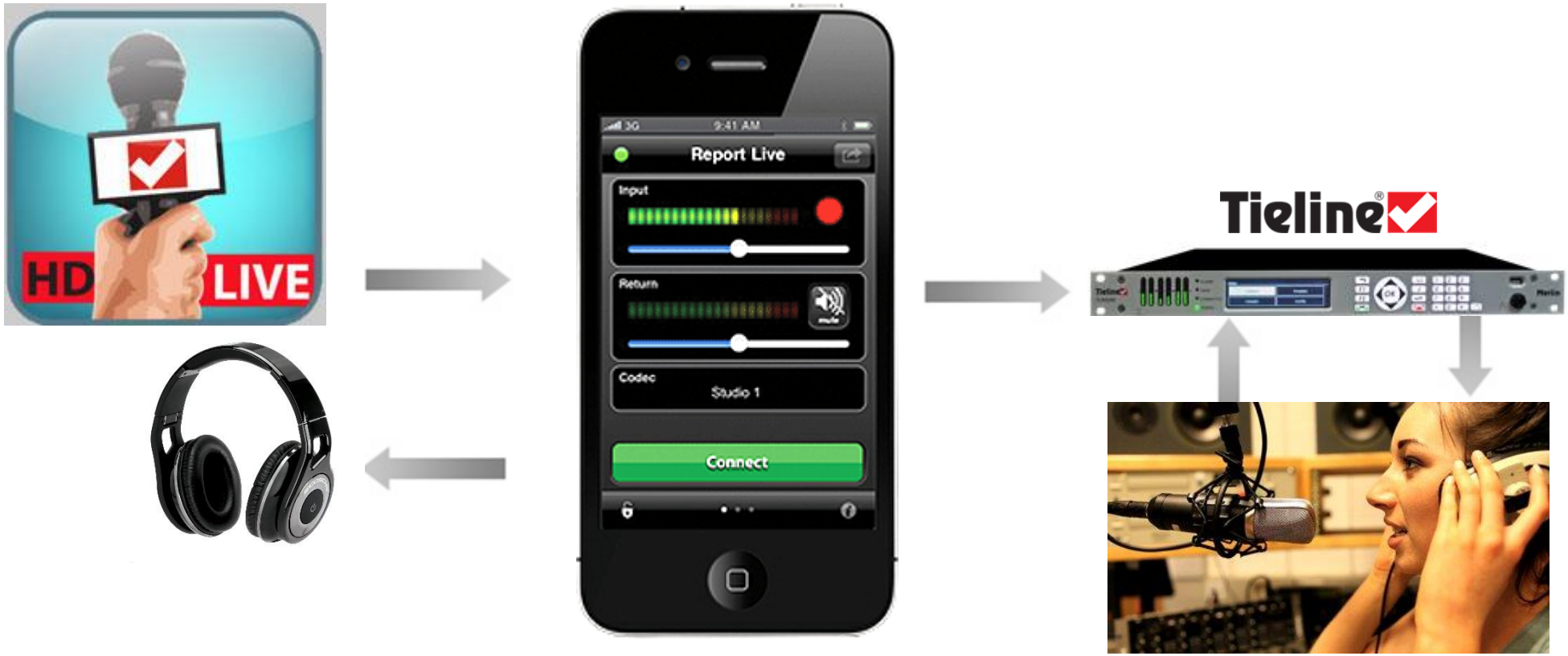
Skype in broadcast



Skype in broadcast

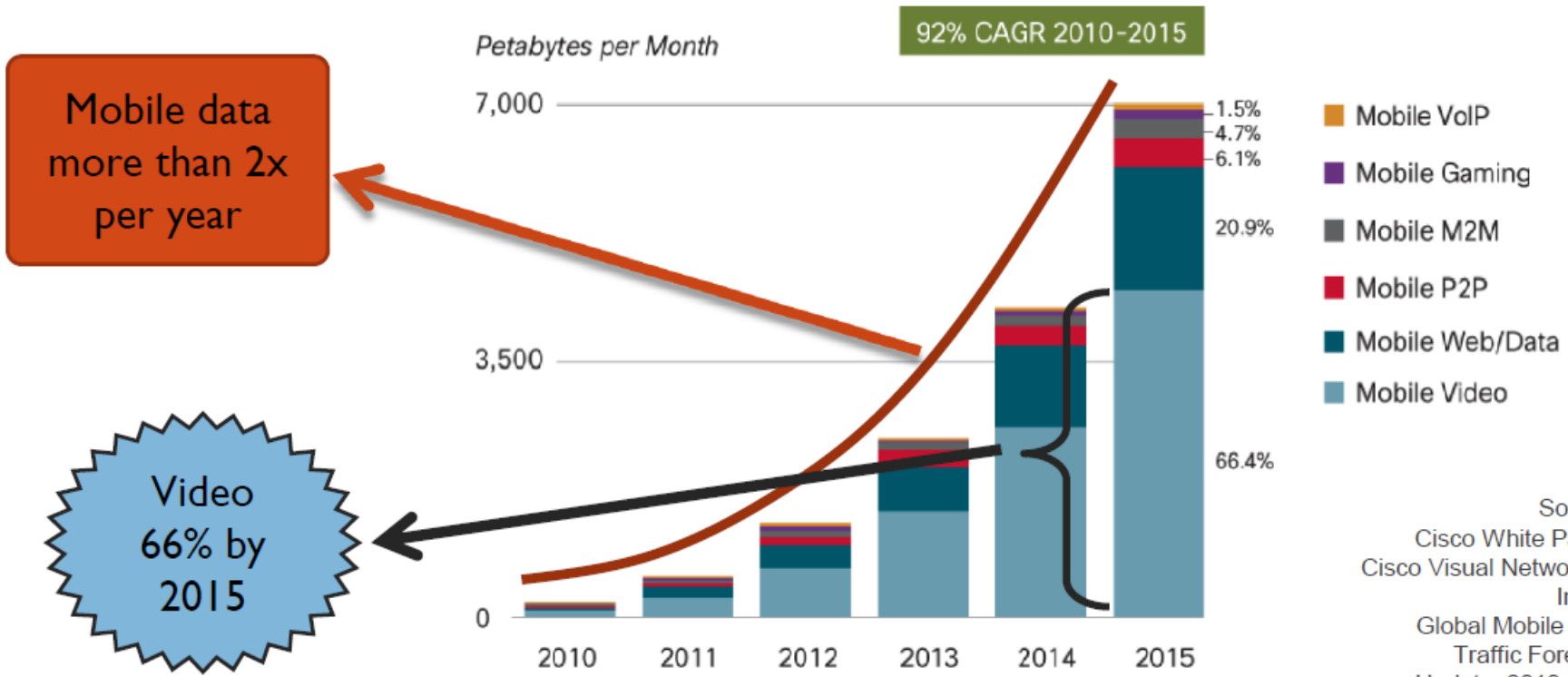


Report live for radio – Tieline Report IT



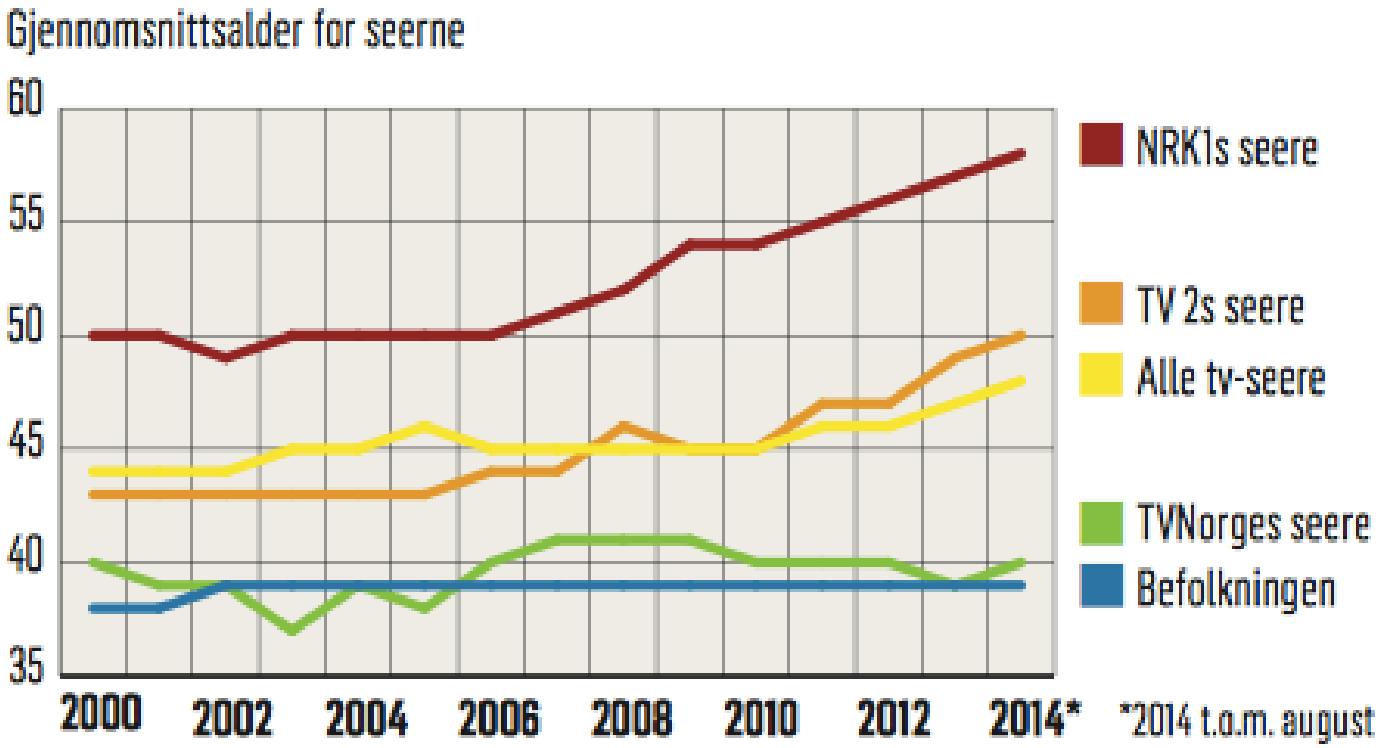
Video will dominate the Internet and Mobile

- Internet: Real-time video is 50% of the traffic at peak periods
  - notably 30% from Netflix and 11% from Youtube
- Mobile: Video traffic is growing exponentially & is a large portion.

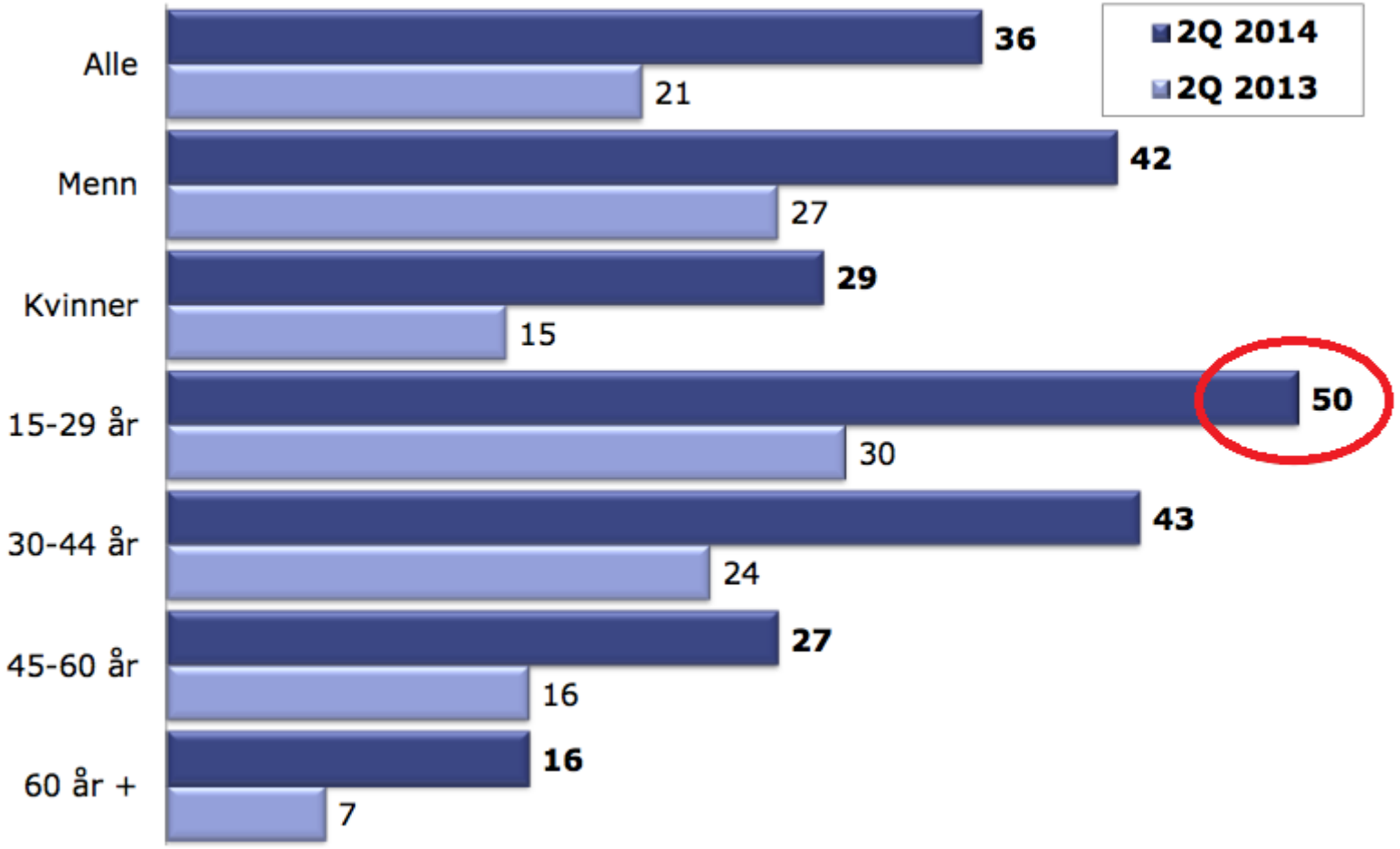


Source: Cisco White Paper: Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010-2015

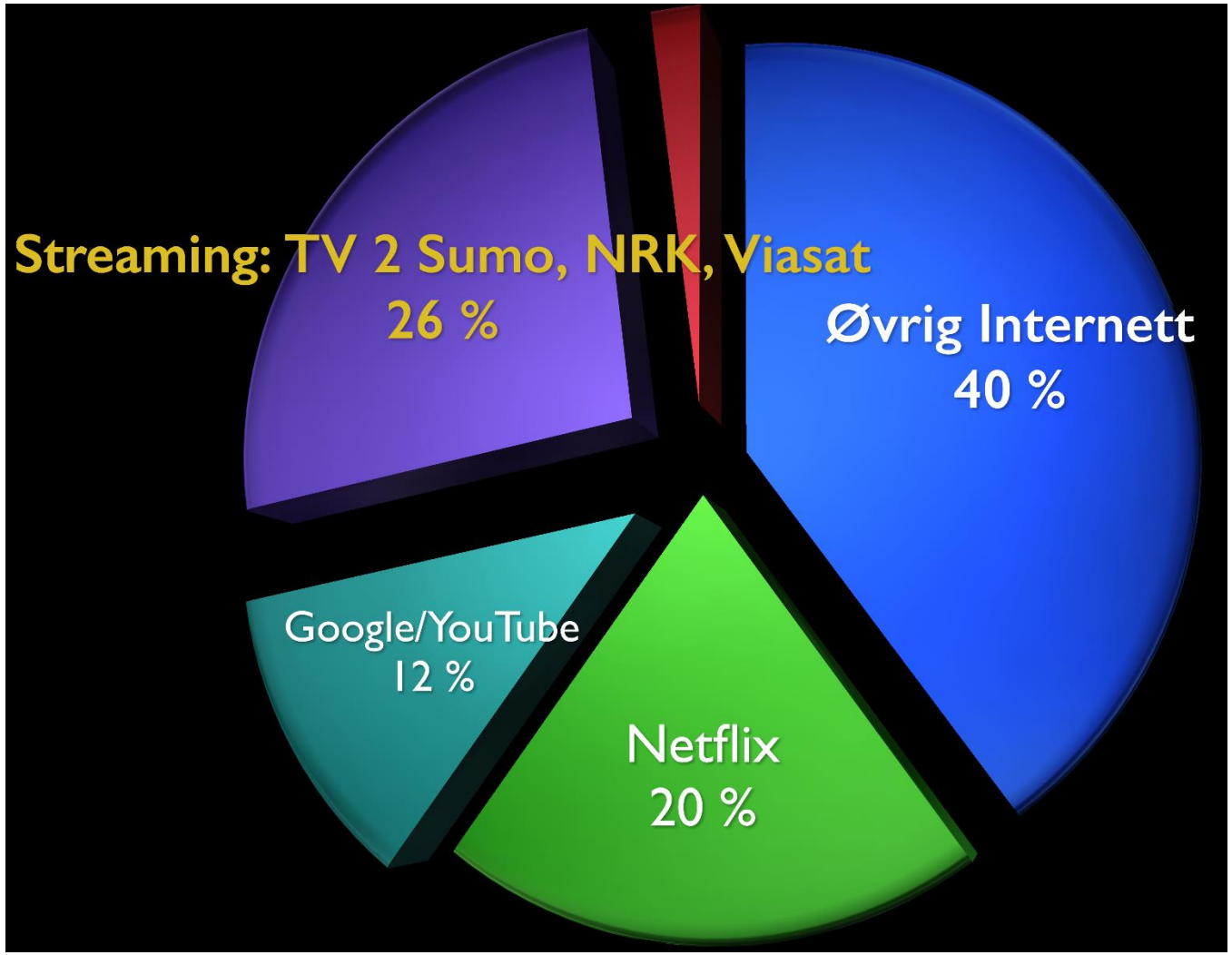
Regular TV viewers getting older?



Half are viewing TV on live stream

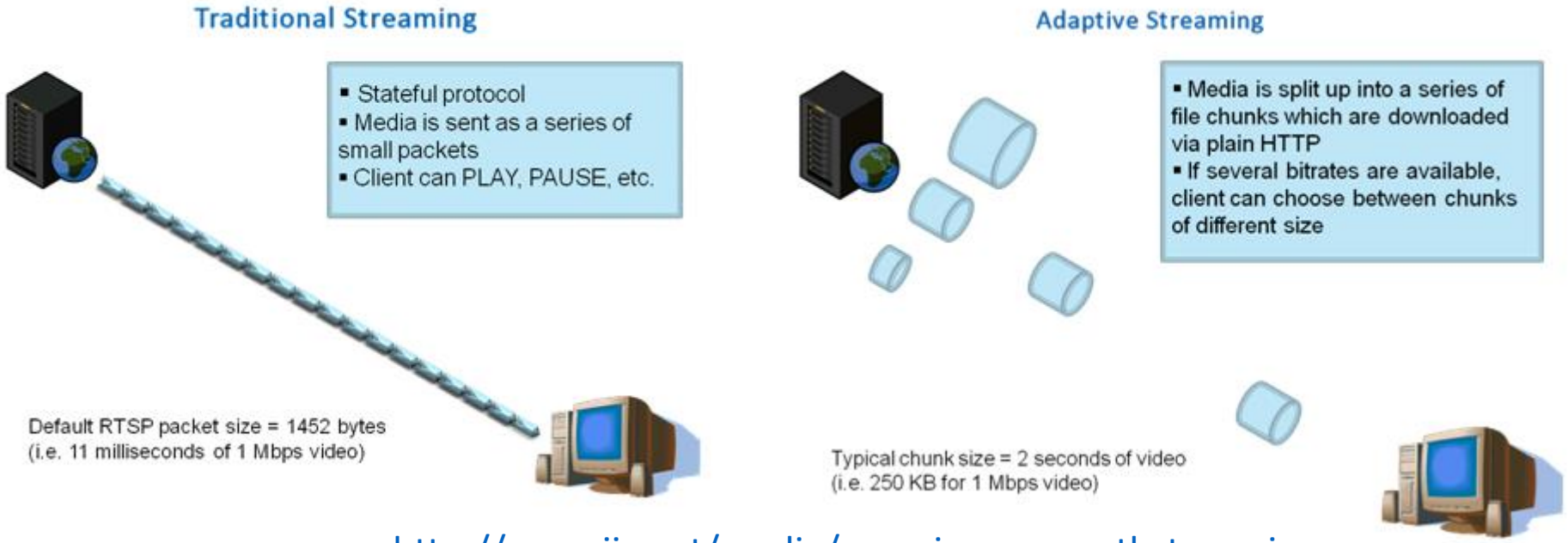


Live streaming is international



What is media streaming?

- Streaming or media streaming is a technique for transferring data so that it can be processed as a steady and continuous stream



http://www.iis.net/media/experiencesmoothstreaming

Internet data traffic

- Bursting nature
  send: - - - - - - - - - - - receive: - -- --- - - --- ---
- Sender is sending data as continuous small packets
- Receiver:
  - Packets may spend different time on route (congestion, different routes)
  - Packets may be received at different order
  - Some packets may never reach destination so they may be needed to resend or are just discarded

Latency (delay)

- Time between processing+transmitting and receiving+processing the data. In media streaming the recording and playback buffering increases the latency also.
- Processing time at both ends is usually known. Depends on amount of data, devices and applications (could be from some milliseconds to some hundred milliseconds)
- Network latency is harder to predict (range usually from tens of milliseconds to even seconds)

Buffering

- Preloading data to memory before it is used at for example playback of the data
- Needed to keep the data stream solid and continuous

Bitrate

- How many data bits are transmitted in one second
- Plain audio needs far less data to be transmitted than audio+video
- Data compression is used to reduce bitrate, but it also reduces data quality
- Bitrate is typically represented as kbps (kilobits per second. 1000 bits per second)

Data delay in mobile reporting

- Critical factor in two-way live situations (increased pauses between two-way communication)
  - Keep GOPs short (shorter keyframe intervals means less quality pr bit)
  - Use traditional streaming protocols, not HTTP based with segmenting
    (Choose variable bitrate, not adaptive bitrate as used in distribution)
  - Use FEC (forward error correction) and decrease buffersize

- Not that critical in one-way live situations. Initial starting delay may need to be addressed.

Remedies for streaming problems

- Good network connection
- Enough network bandwidth
- Good data compression (application dependent)
- Lowering bitrate - sacrificing audio/video quality
- Using multiple simultaneous connections for transmitting data (dedicated devices)
- Avoiding live reporting from Mars until scientists beat the speed-of-light barrier ;)

Adaptive streaming distribution

Encoding profiles (NRK)

Video ID180

- ID: 180
- Codec: MPEG4 H264, Baseline profile, level 2.1, CAVLC, Square pixel
- Video: 320x180, 25fps, progressive (16:9)
- 25fps
- Bitrate: 141 Kbps
- Lyd stereo: AAC-LC, 48Khz, 64kbps
- Container: MP4
- (ved koding fra SD576i: 720x576 -> deinterlace -> crop [23,18,22,18] -> 675x540 scale to 320x180)

Video ID270

- ID: 270
- Codec: MPEG4 H264, Baseline profile, level 3.0 CAVLC, Square pixel
- Video: 480x270, 25fps, progressive (16:9)
- 25fps
- Bitrate: 316 Kbps
- Lyd stereo: AAC-LC, 48Khz, 64kbps
- Container: MP4
- (ved koding fra SD576i: 720x576 -> deinterlace -> crop [23,18,22,18] -> 675x540 scale to 480x270)

Video ID360

- ID: 360
- Codec: MPEG4 H264, Main profile, level 3.1, CABAC, Square pixel
- Video: 640x360, 25fps, progressive (16:9)
- 25fps
- Bitrate: 563 Kbps
- Lyd stereo: AAC-LC, 48Khz, 96kbps
- Container: MP4
- (ved koding fra SD576i: 720x576 -> deinterlace -> crop [23,18,22,18] -> 675x540 scale to 640x360)

Video ID540

- ID: 540
- Codec: MPEG4 H264, Main profile, level 3.1, CABAC, Square pixel
- Video: 960x540, 25fps, progressive (16:9)
- 25fps
- Bitrate: 1,266 Mbps
- Lyd stereo: AAC-LC, 48Khz, 128kbps
- Container: MP4
- (ved koding fra SD576i: 720x576 -> deinterlace -> crop [23,18,22,18] -> 675x540 scale to 960x540)

Video ID720

Skal kun kodes dersom kilden er HD.

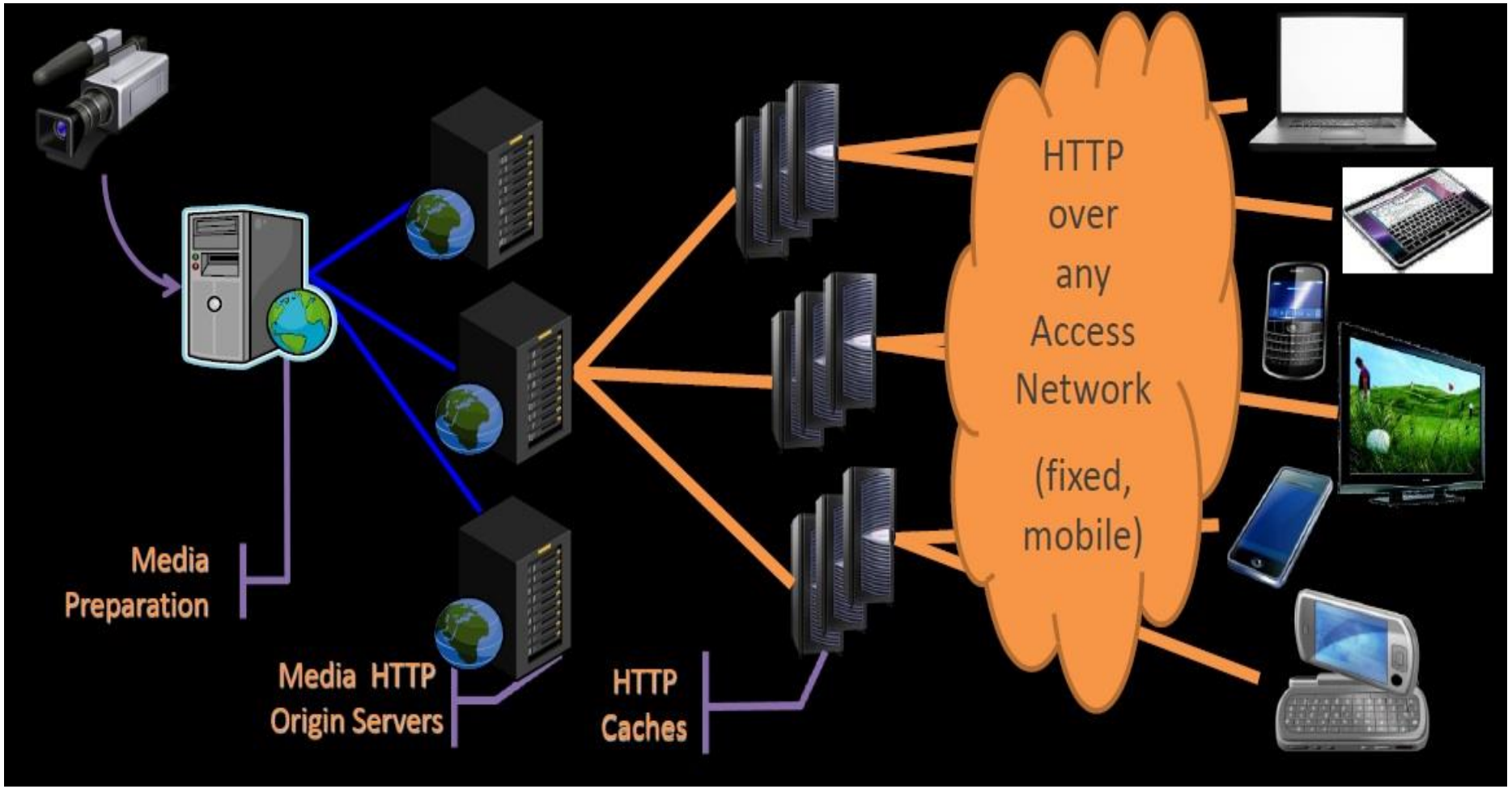
- ID: 720
- Codec: MPEG4 H264, High profile, level 4.1, CABAC, Square pixel
- Video: 1280x720, 25fps, progressive (16:9)
- 25fps
- Bitrate: 2,250 Mbps
- Lyd stereo: AAC-LC, 48Khz, 160kbps
- Container: MP4

Video ID720_2

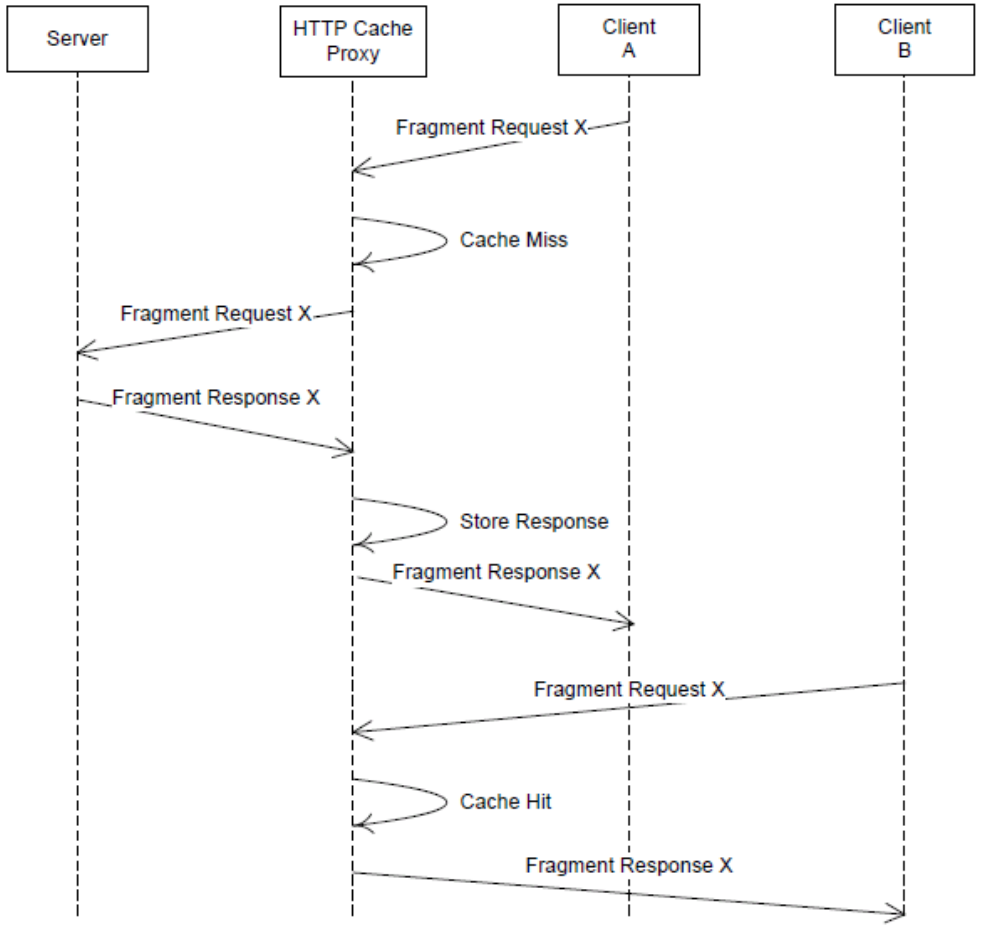
Ekstra høy kvalitet for live Dynamic Streaming

- ID: 720_2
- Codec: MPEG4 H264, High profile, level 4.1, CABAC, Square pixel
- Video: 1280x720, 25fps, progressive (16:9)
- Bitrate: 3,500 Mbps
- Audio: AAC-LC, 48Khz, 160Kbps (stereo)
- Total bitrate: 3660Kbps
- Container: MP4

HTTP streaming

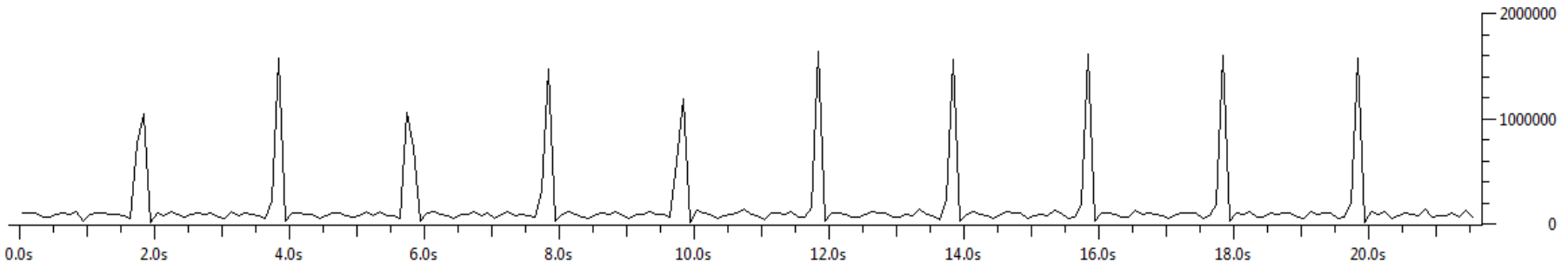


HTTP streaming

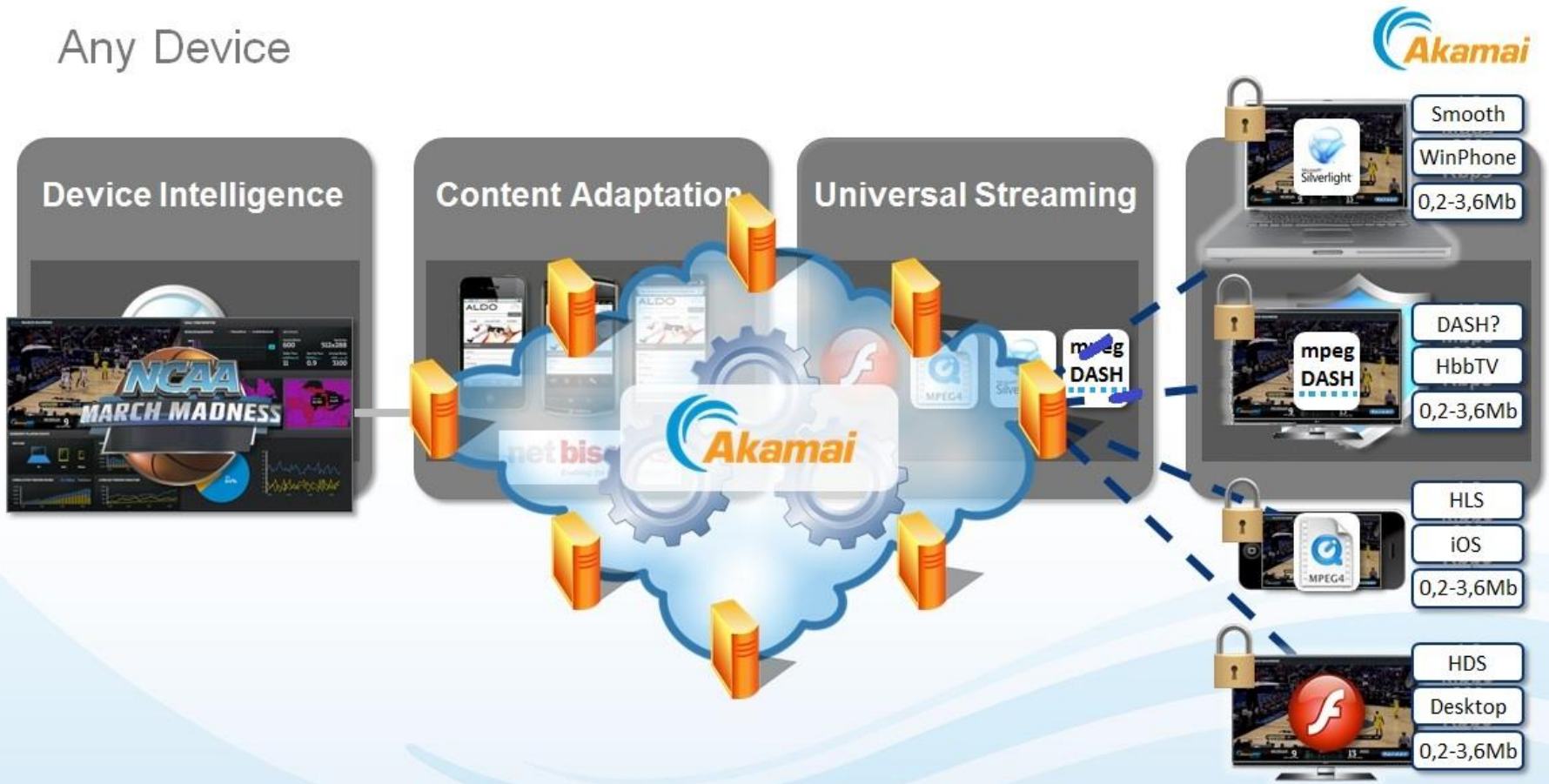


HTTP burst

«HTTP streamng = Video deliveered in chunks. As much data as possible in as short time as possible. Not ideal for capacity planning on networks compared to traditional streaming»



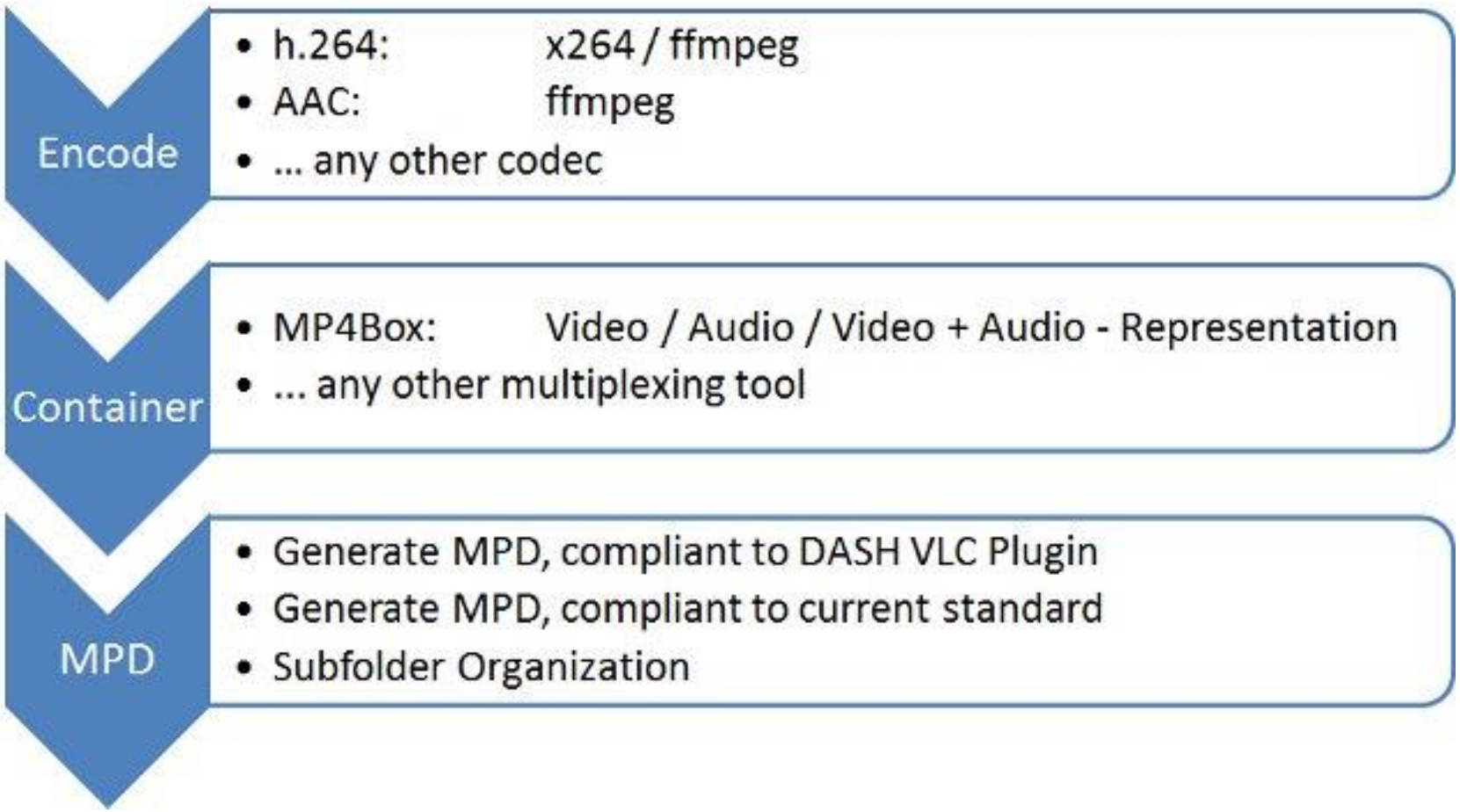
Any Device


Akamai
Device Intelligence
Content Adaptation
Universal Streaming
NCAA
MARCH MADNESS
Akamai
mpeg
DASH
Smooth
WinPhone
0,2-3,6Mb
DASH?
HbbTV
0,2-3,6Mb
HLS
iOS
0,2-3,6Mb
HDS
Desktop
0,2-3,6Mb

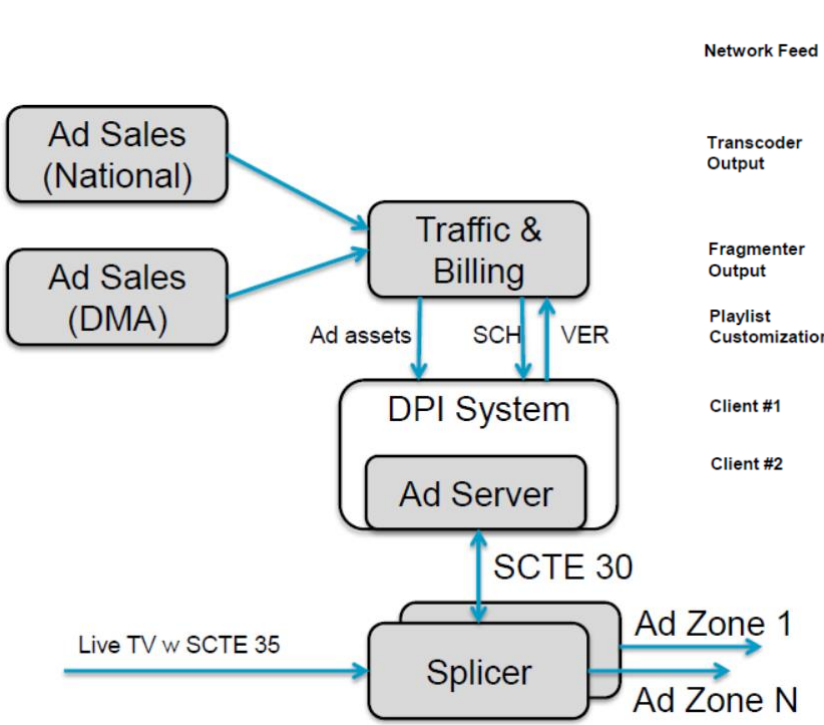
Adaptive packaging

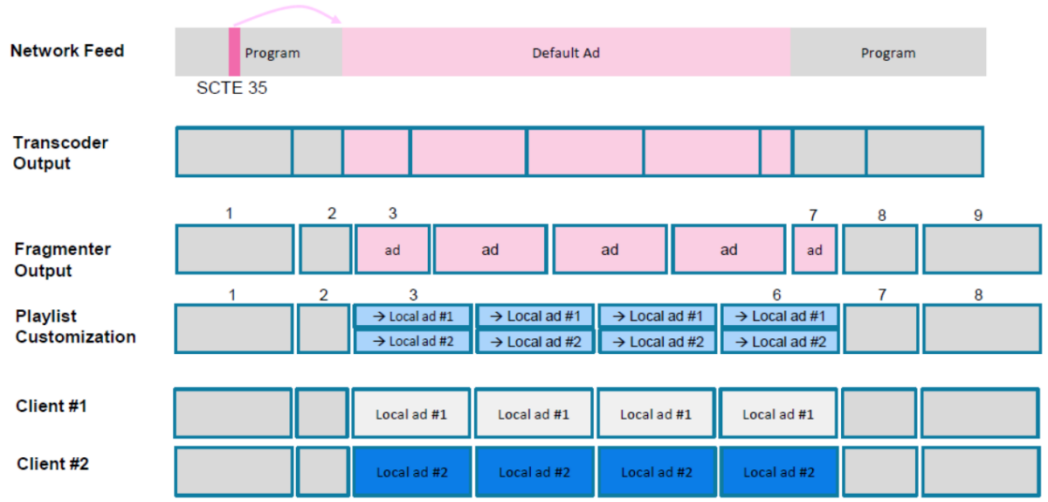
	Apple[1]	Microsoft[2]	Adobe[3]	3GPP / OIPF[4]	MPEG [5]
Name	HTTP Adaptive Bitrate Streaming	Smooth Streaming	HTTP Dynamic Streaming	Dynamic Adaptive Streaming over HTTP	Dynamic Adaptive HTTP Streaming
Container	MPEG2-TS	fragmented MP4	F4F, MP4 variant	3GPP, MP4 variant	Final Draft very similar to 3GPP
Video codecs	H.264	H.264 & VC-1	H.264 & VP6	no implementation yet	
Audio codecs	AAC & MP3	AAC & WMA	AAC & MP3		
URLs communicated	hierarchical playlist explicitly	XML manifest schema	XML index schema & explicit	XML	

DASH – a common manifest file

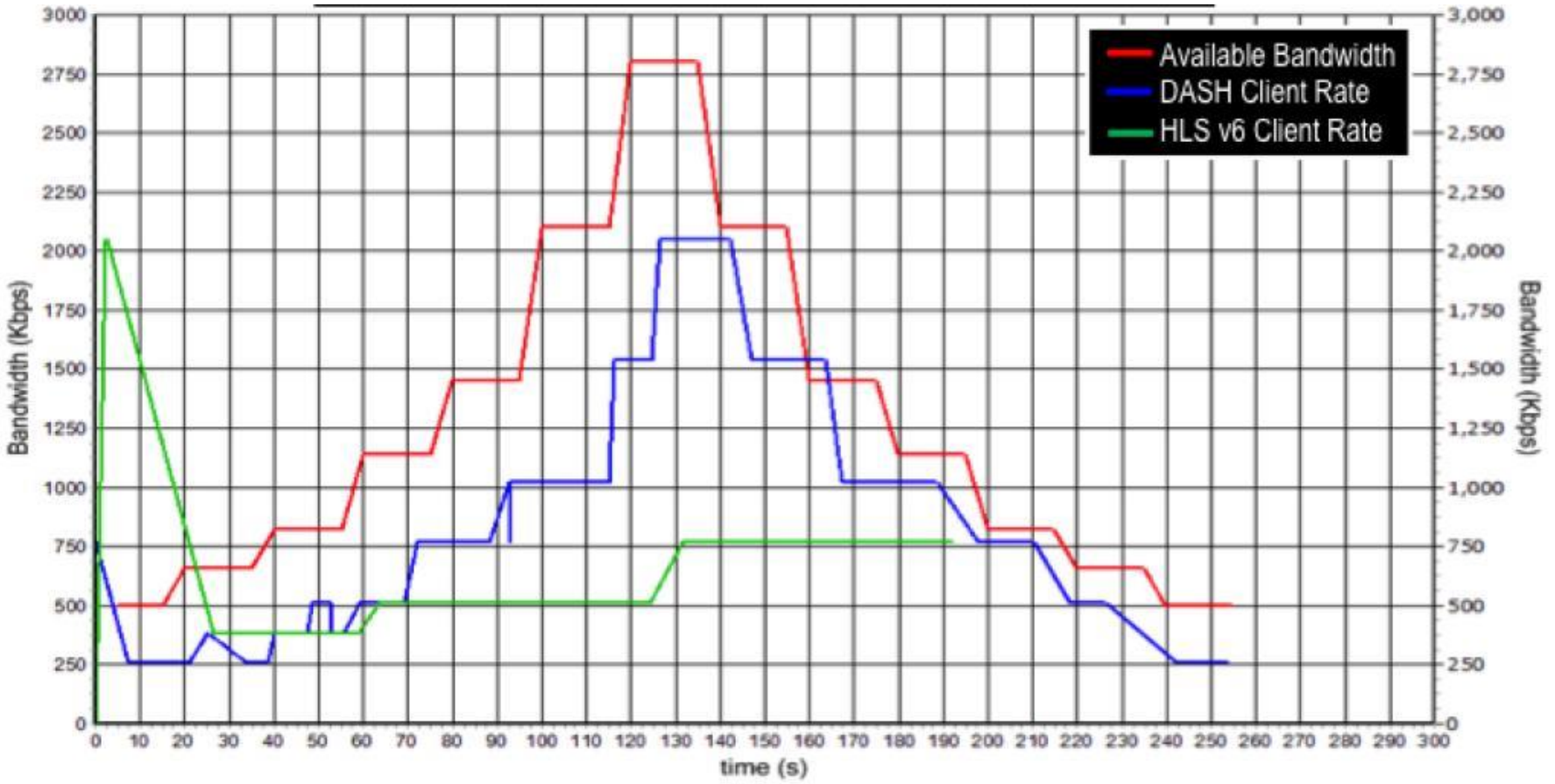


DASH – local inserts

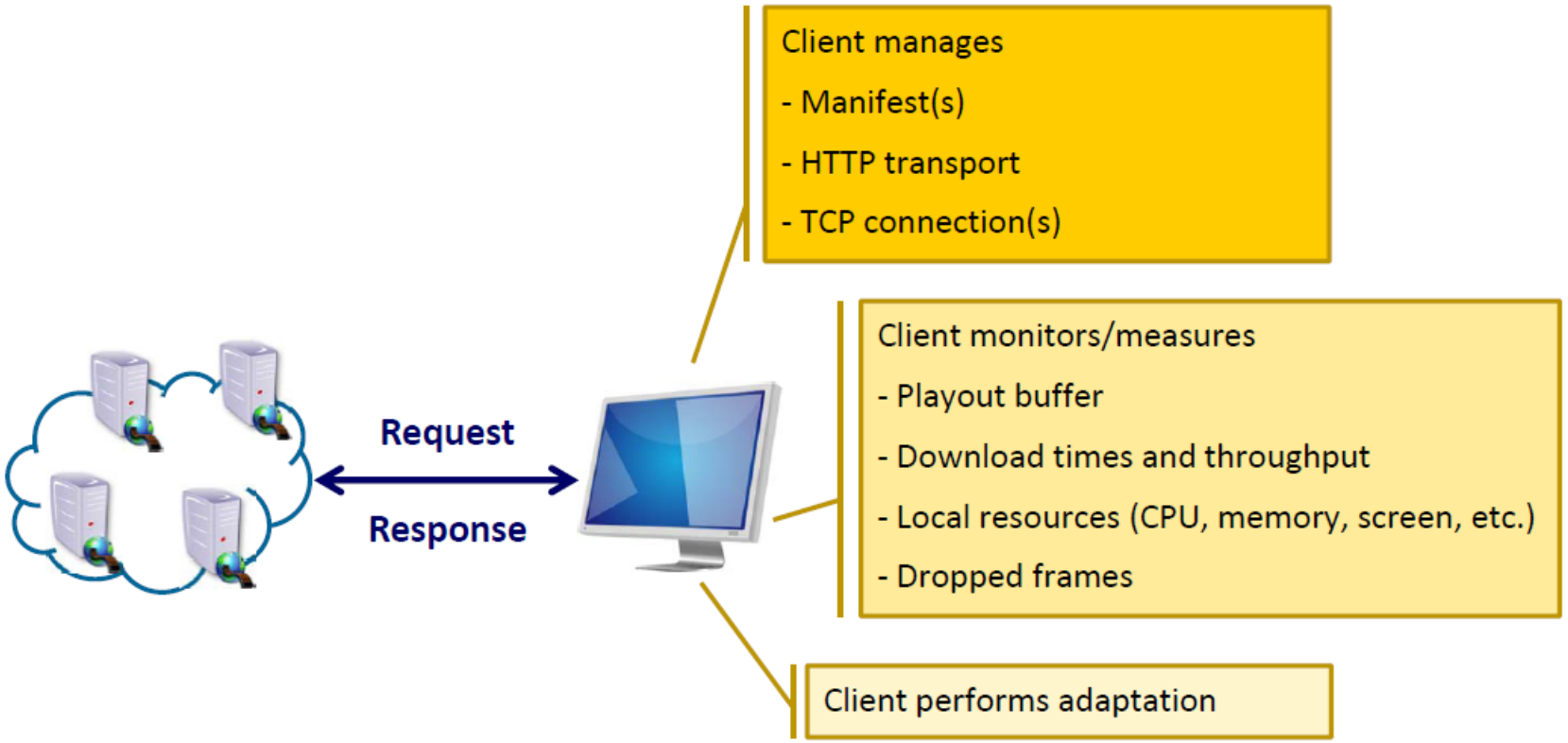




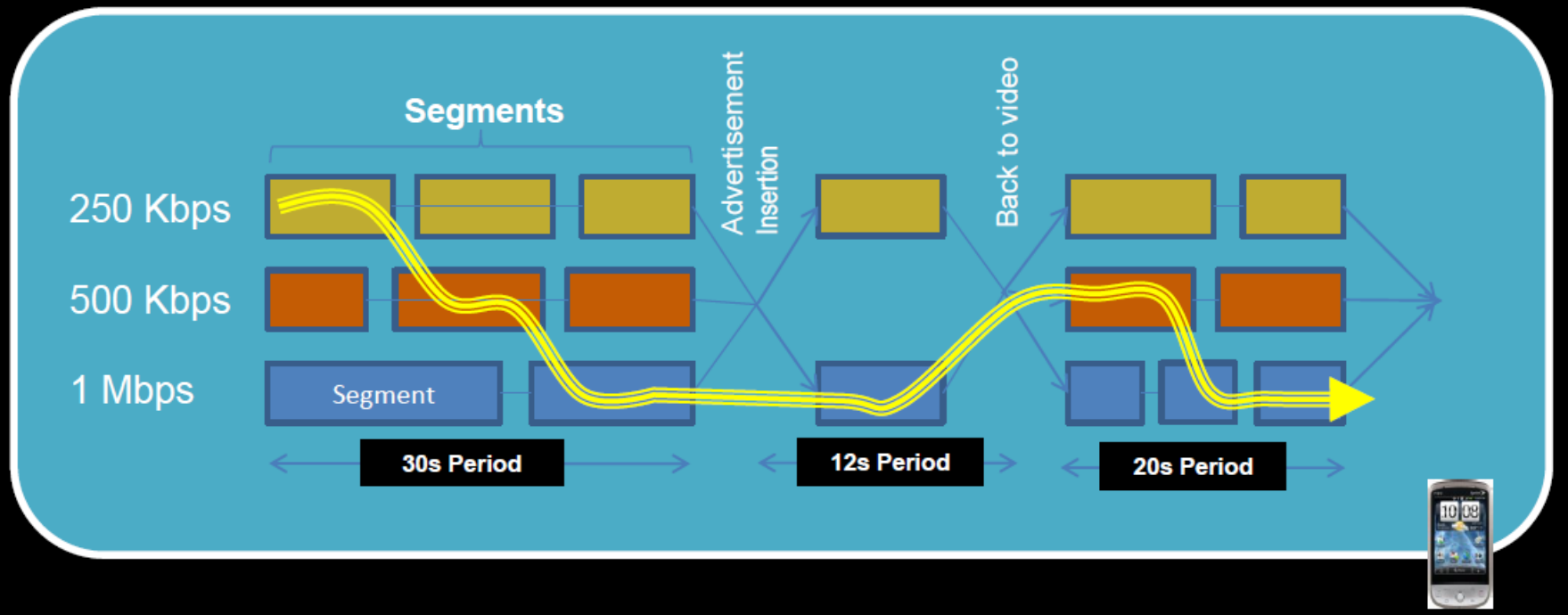
HLS VS DASH – shorter segments



Client-Side Process

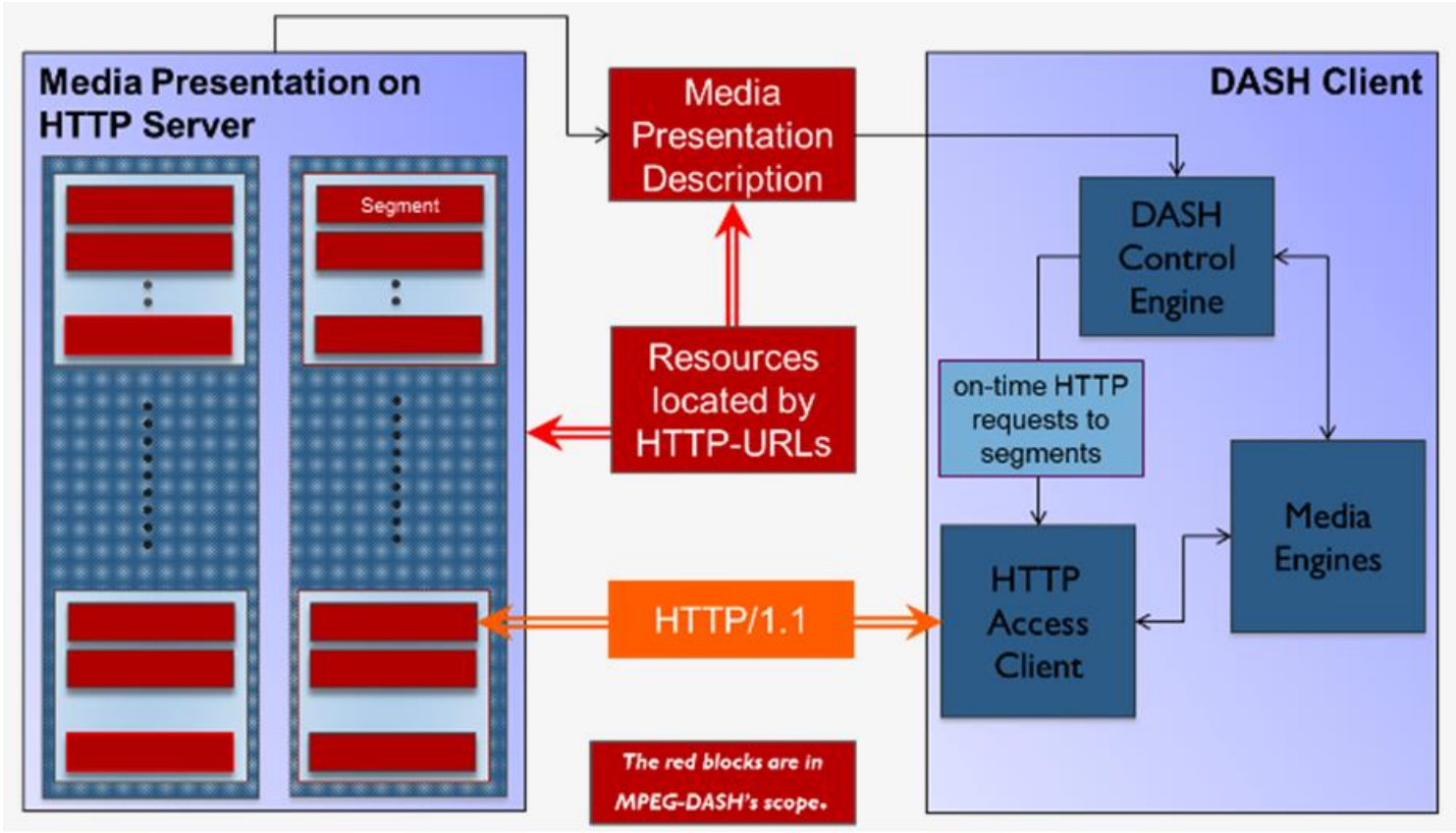


Client-Side Process



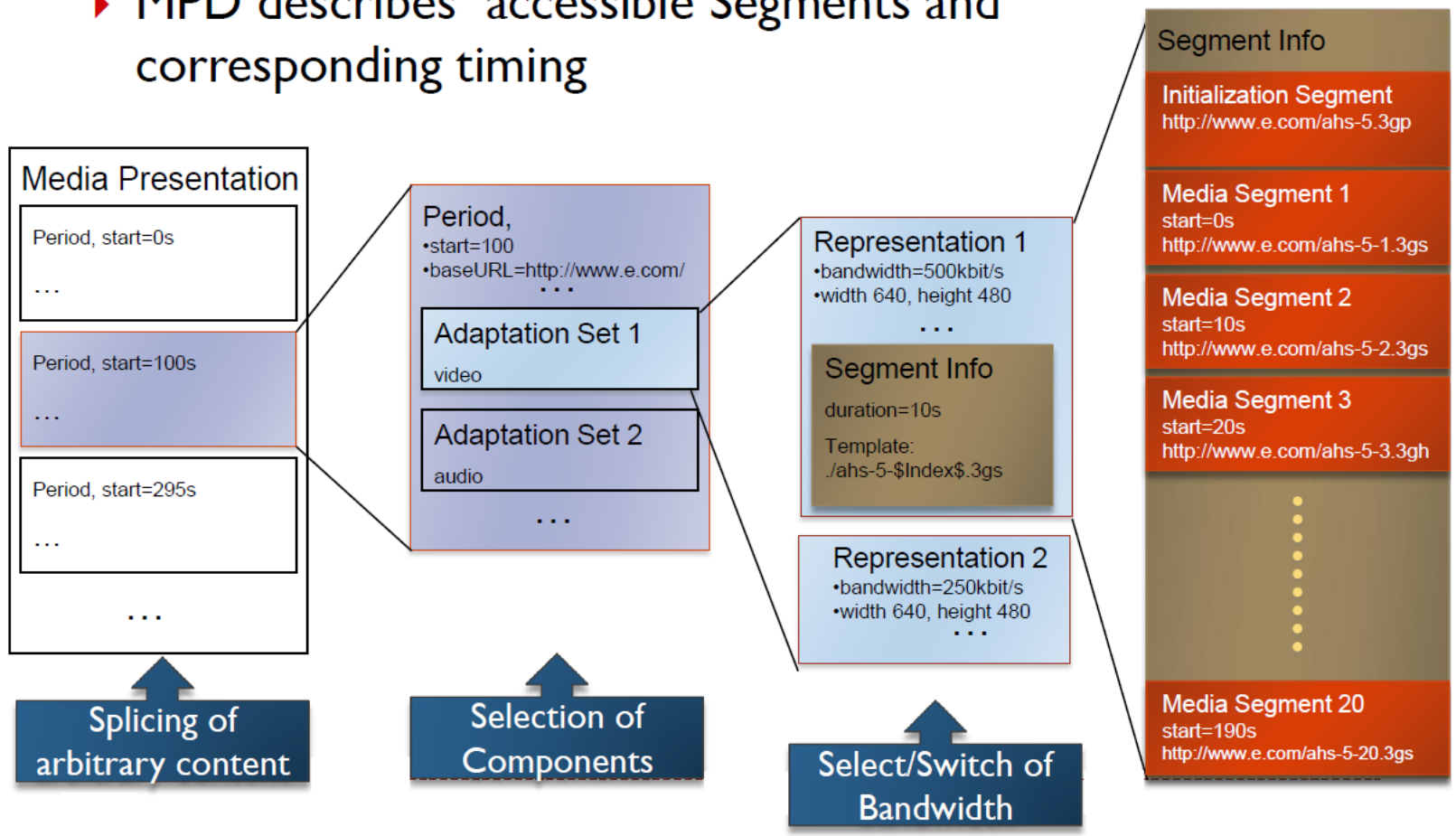
- Process
  - Client downloads the MPD file
  - Client loads next segment to be played
  - Bitrate determined by client
- Factors relevant for Representation selection
  - Buffer conditions
  - Network conditions
  - User change in resolution – ex: full screen
  - Device activity and resources

MPEG-DASH

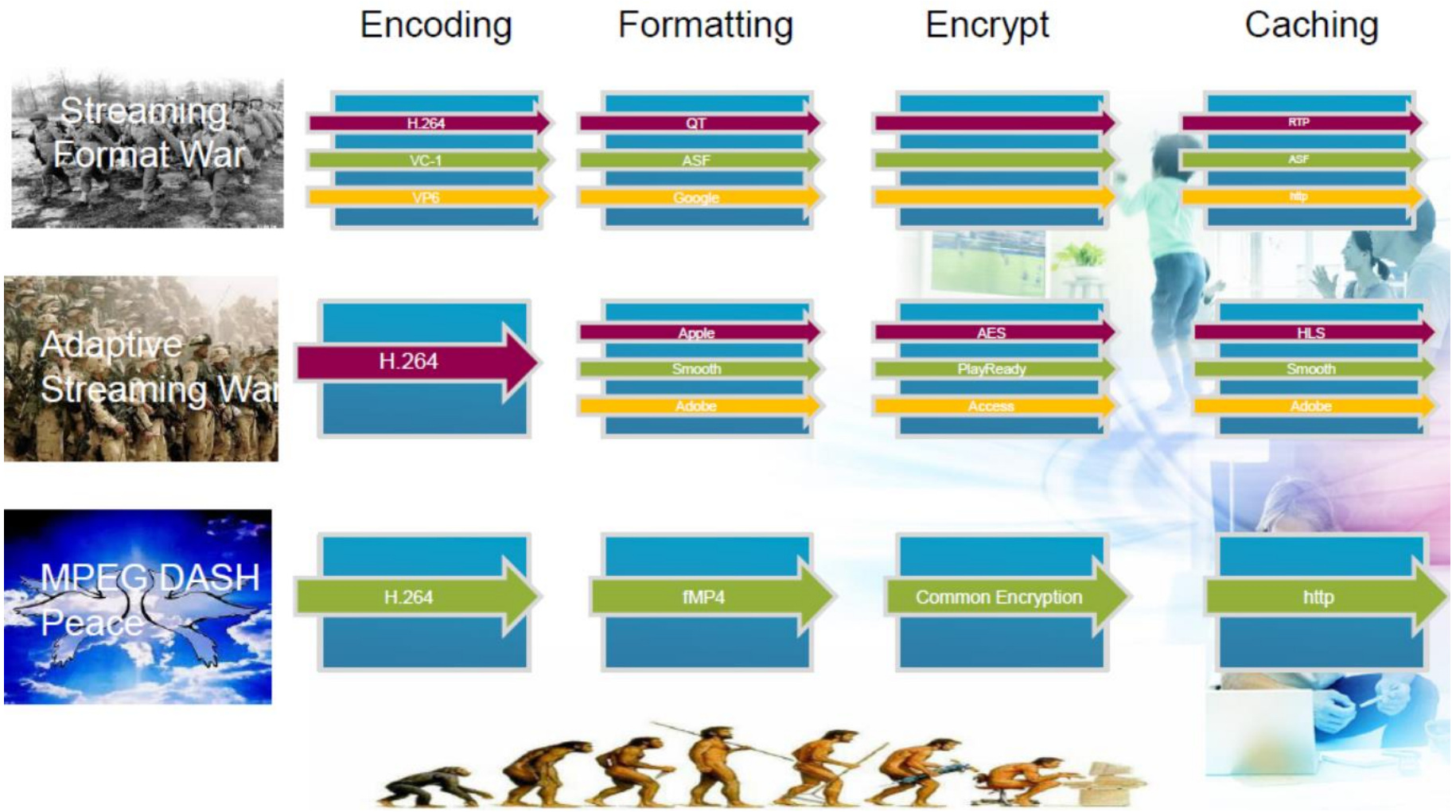

Media Presentation on HTTP Server
Segment
Media Presentation Description
Resources located by HTTP-URLs
HTTP/1.1
The red blocks are in MPEG-DASH's scope.
DASH Client
DASH Control Engine
on-time HTTP requests to segments
HTTP Access Client
Media Engines

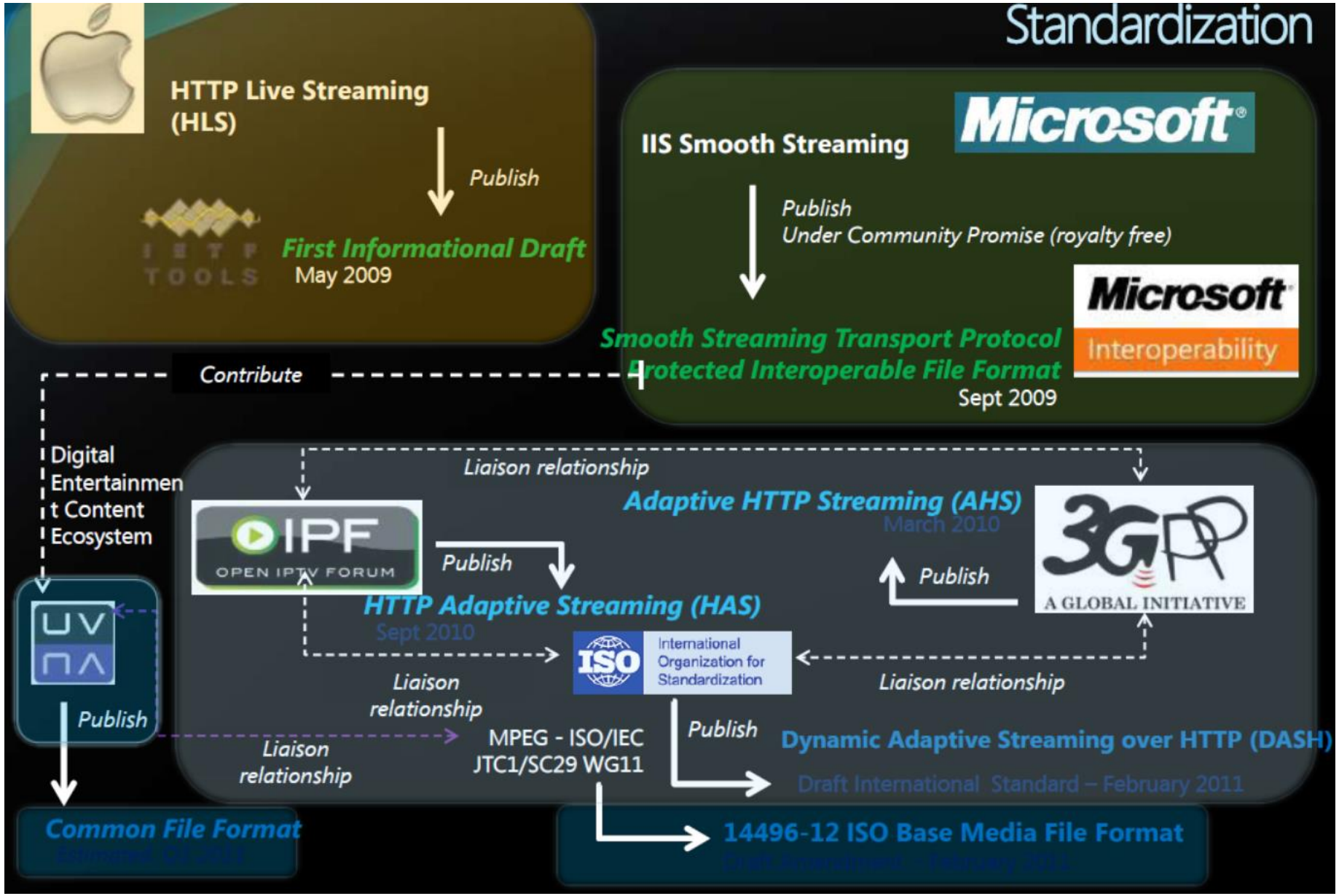
Media Presentation Description (MPD) Data Model

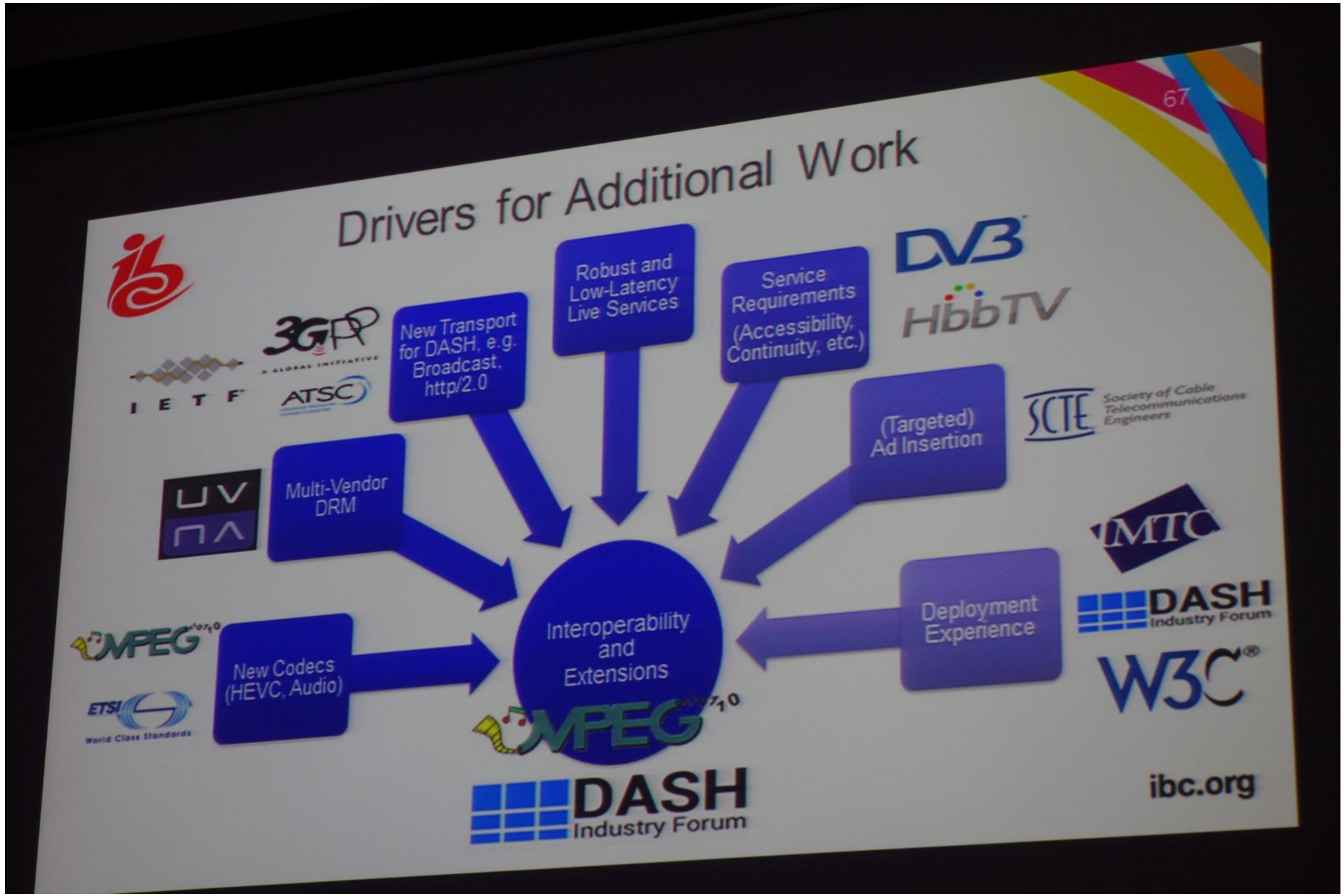
- MPD describes accessible Segments and corresponding timing



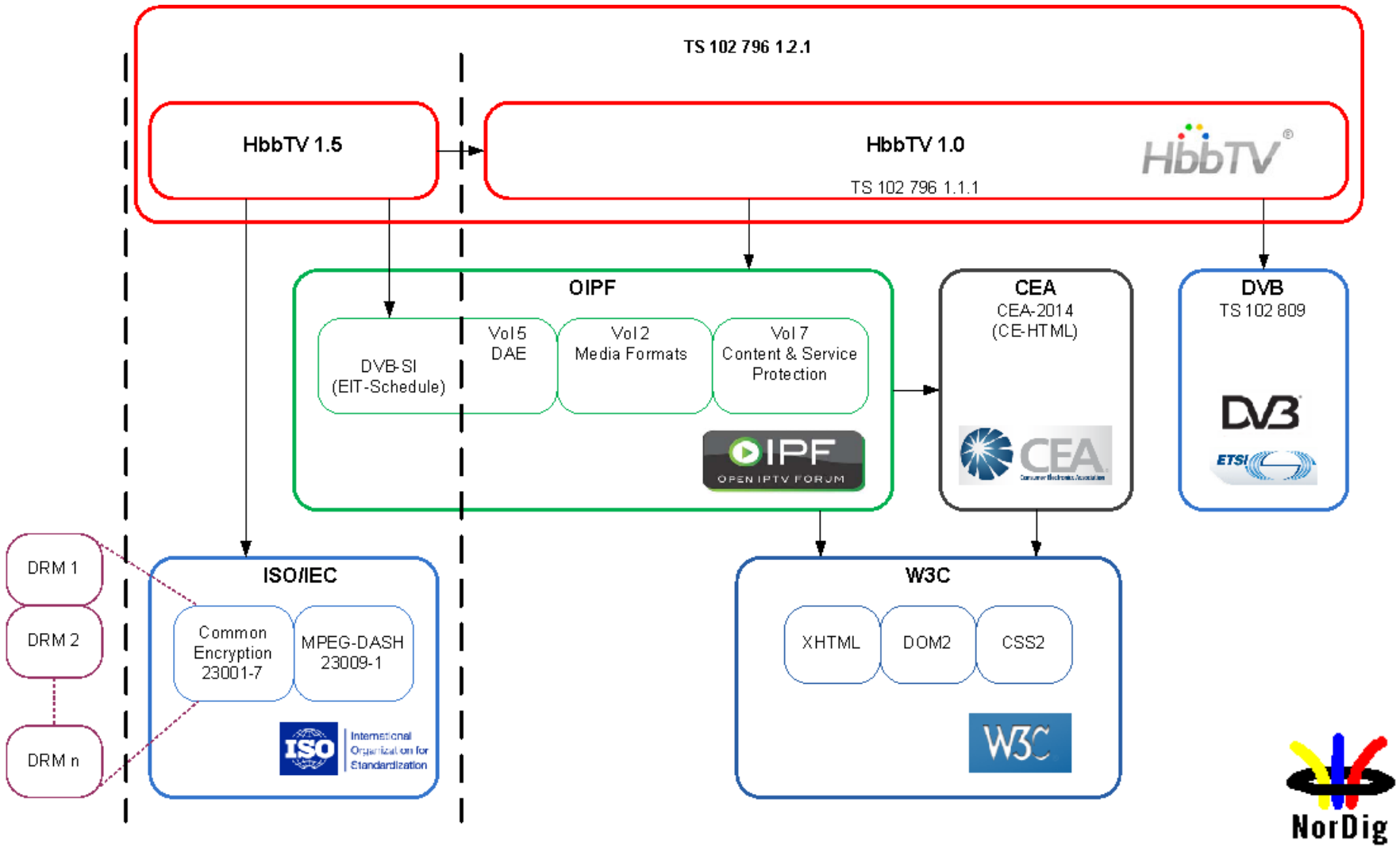
DASH – Format war ended?




Standardization
HTTP Live Streaming (HLS)
Publish
First Informational Draft
May 2009
IETF TOOLS
IIS Smooth Streaming
Microsoft
Publish
Under Community Promise (royalty free)
Smooth Streaming Transport Protocol
Protected Interoperable File Format
Sept 2009
Microsoft
Interoperability
Contribute
Digital Entertainment Content Ecosystem
Liaison relationship
Adaptive HTTP Streaming (AHS)
March 2010
IPF
OPEN IPTV FORUM
Publish
HTTP Adaptive Streaming (HAS)
Sept 2010
Publish
3GPP
A GLOBAL INITIATIVE
UV
ISO
International Organization for Standardization
Liaison relationship
Liaison relationship
Liaison relationship
Publish
Publish
MPEG - ISO/IEC JTC1/SC29 WG11
Dynamic Adaptive Streaming over HTTP (DASH)
Draft International Standard – February 2011
Common File Format
14496-12 ISO Base Media File Format

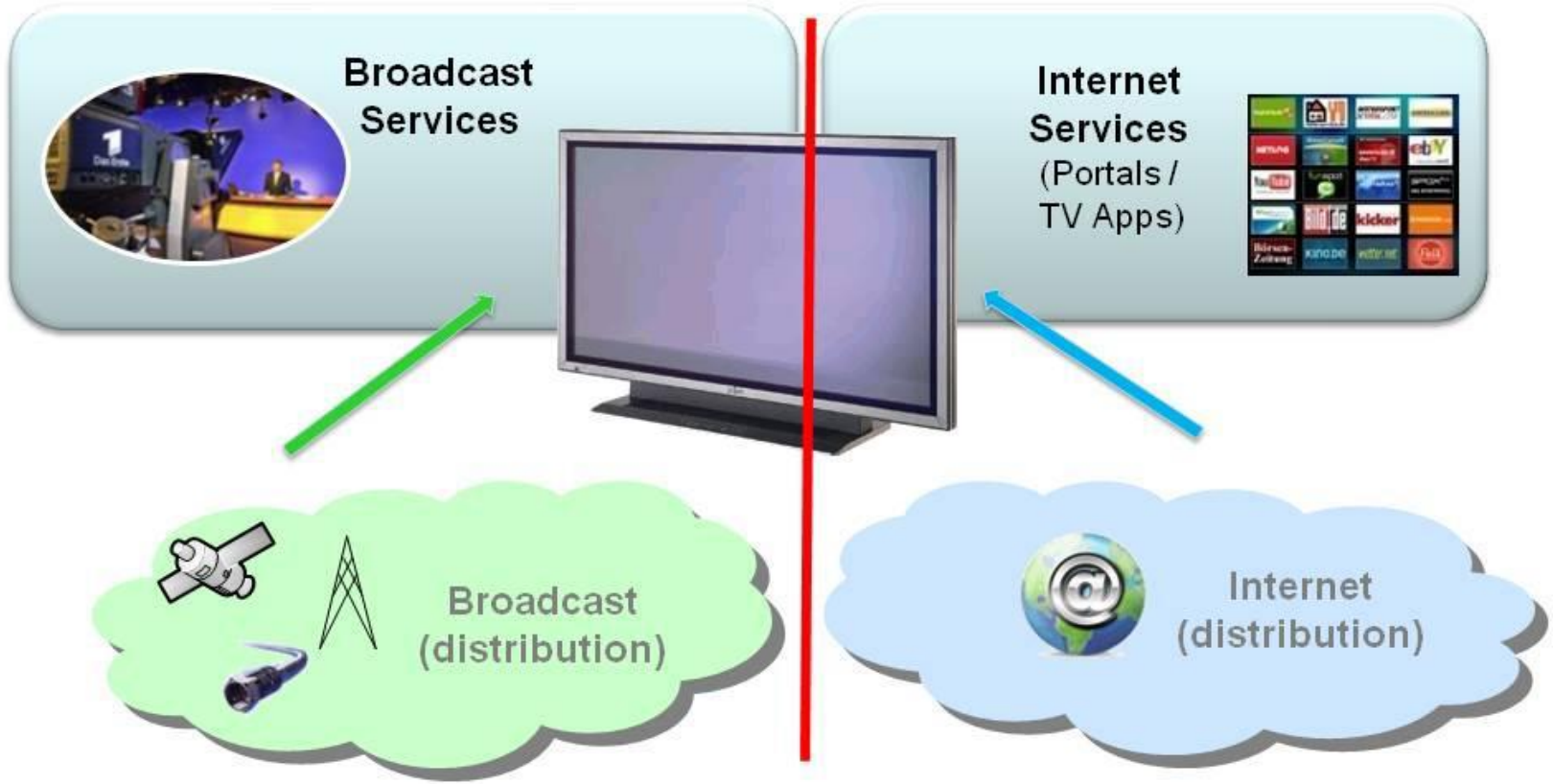

67
Drivers for Additional Work
New Transport for DASH, e.g. Broadcast, http/2.0
Robust and Low-Latency Live Services
Service Requirements (Accessibility, Continuity, etc.)
(Targeted) Ad Insertion
Multi-Vendor DRM
New Codecs (HEVC, Audio)
Deployment Experience
Interoperability and Extensions
DVB
HbbTV
3GPP
A GLOBAL INITIATIVE
IETF
ATSC
SCTE
Society of Cable Telecommunications Engineers
UV
MTC
DASH Industry Forum
W3C
MPEG
ETSI
World Class Standards
DASH Industry Forum
ibc.org

HbbTV 1.5 uses MPEG-DASH



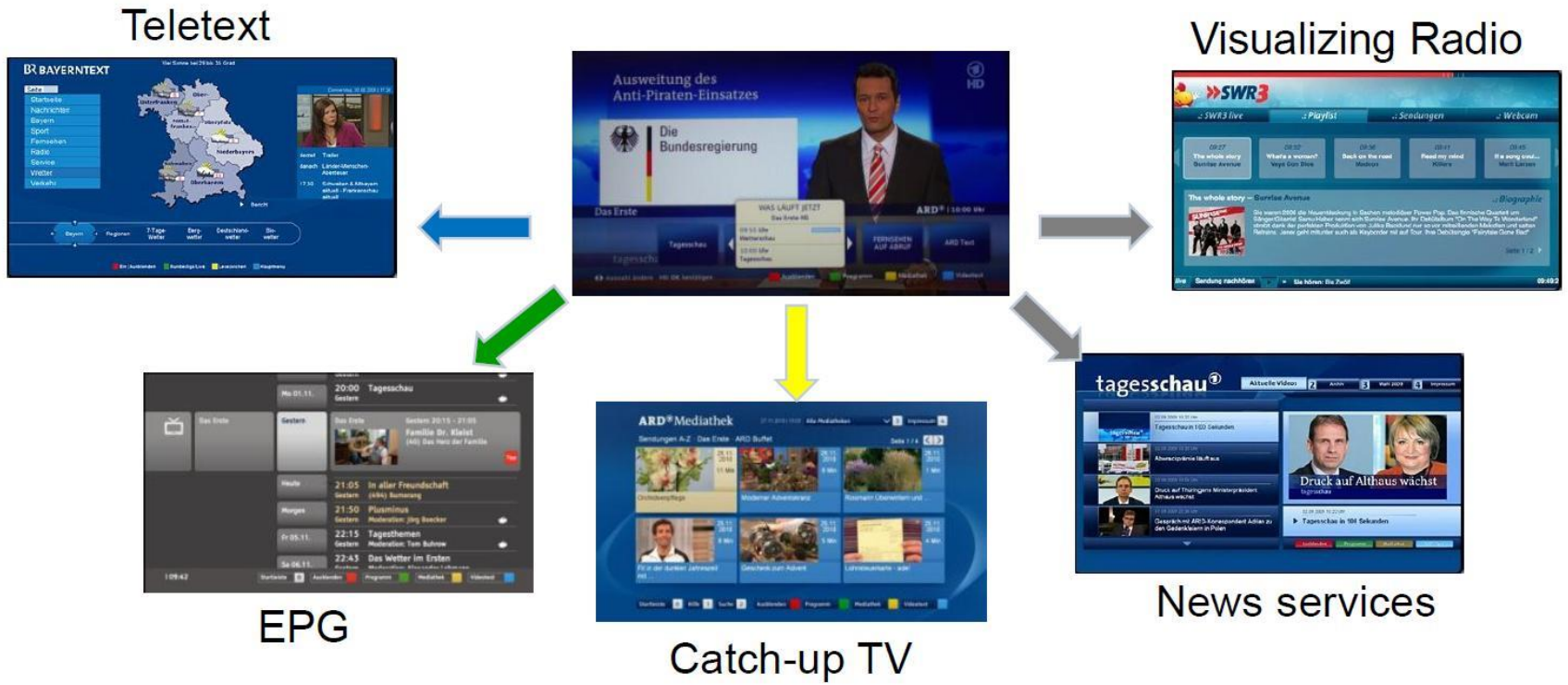
NorDig

From Connected TV to .....

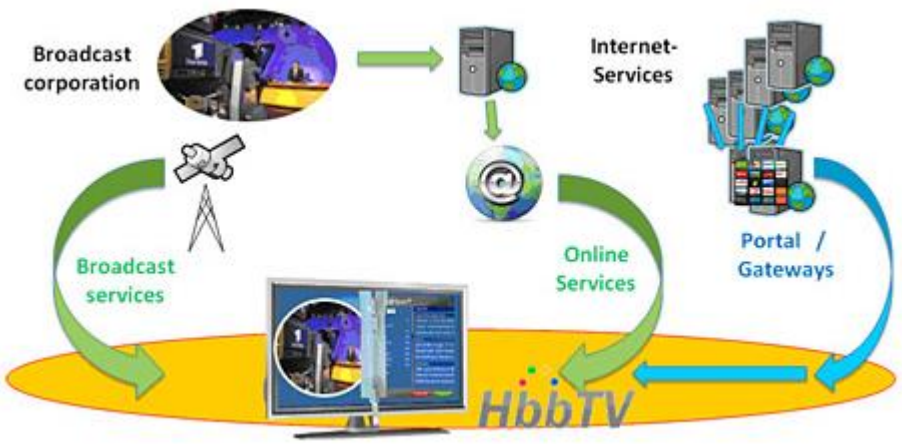


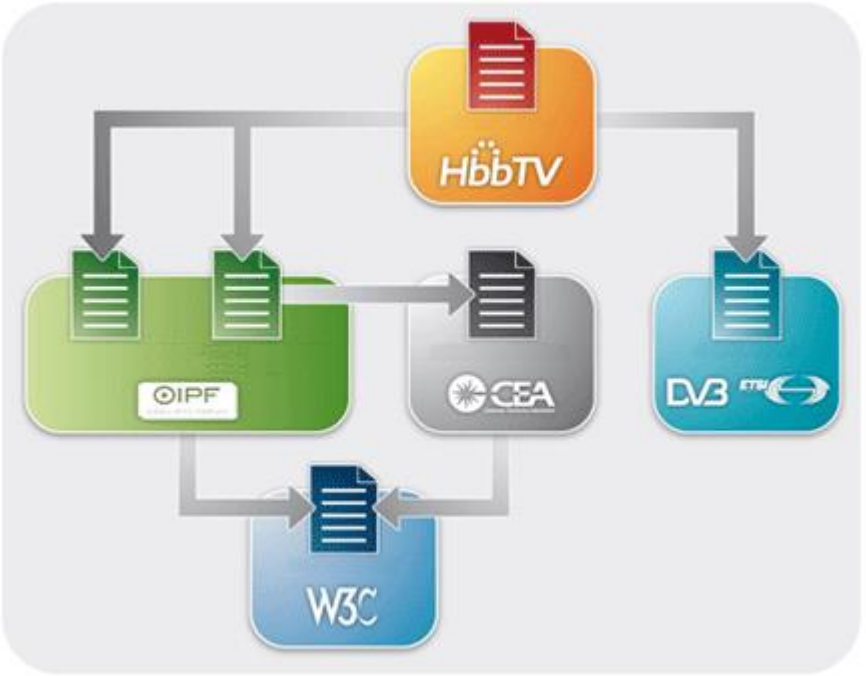
… HbbTV – a new paradigm

HbbTV – Based on known services

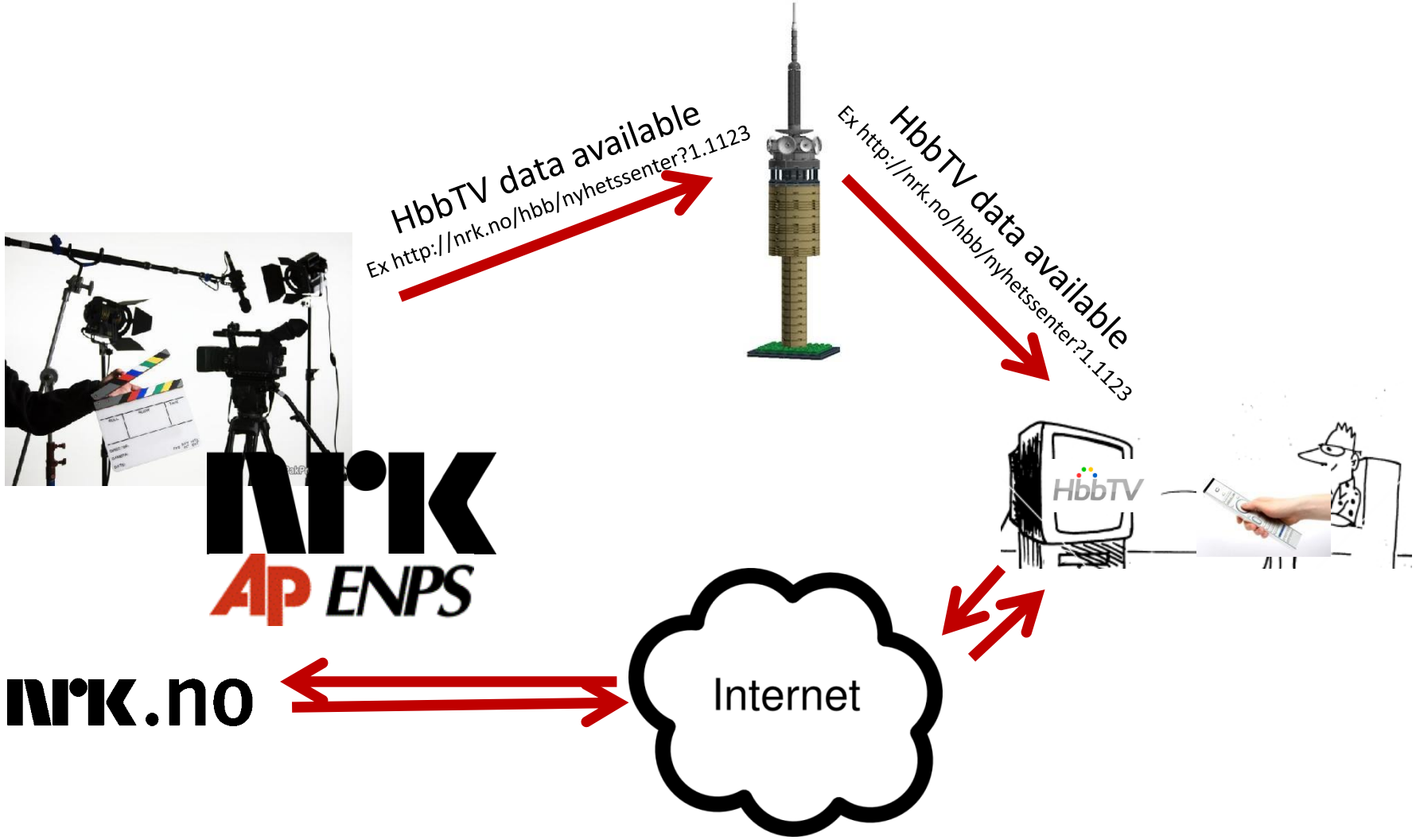


HbbTV – Based on known standards

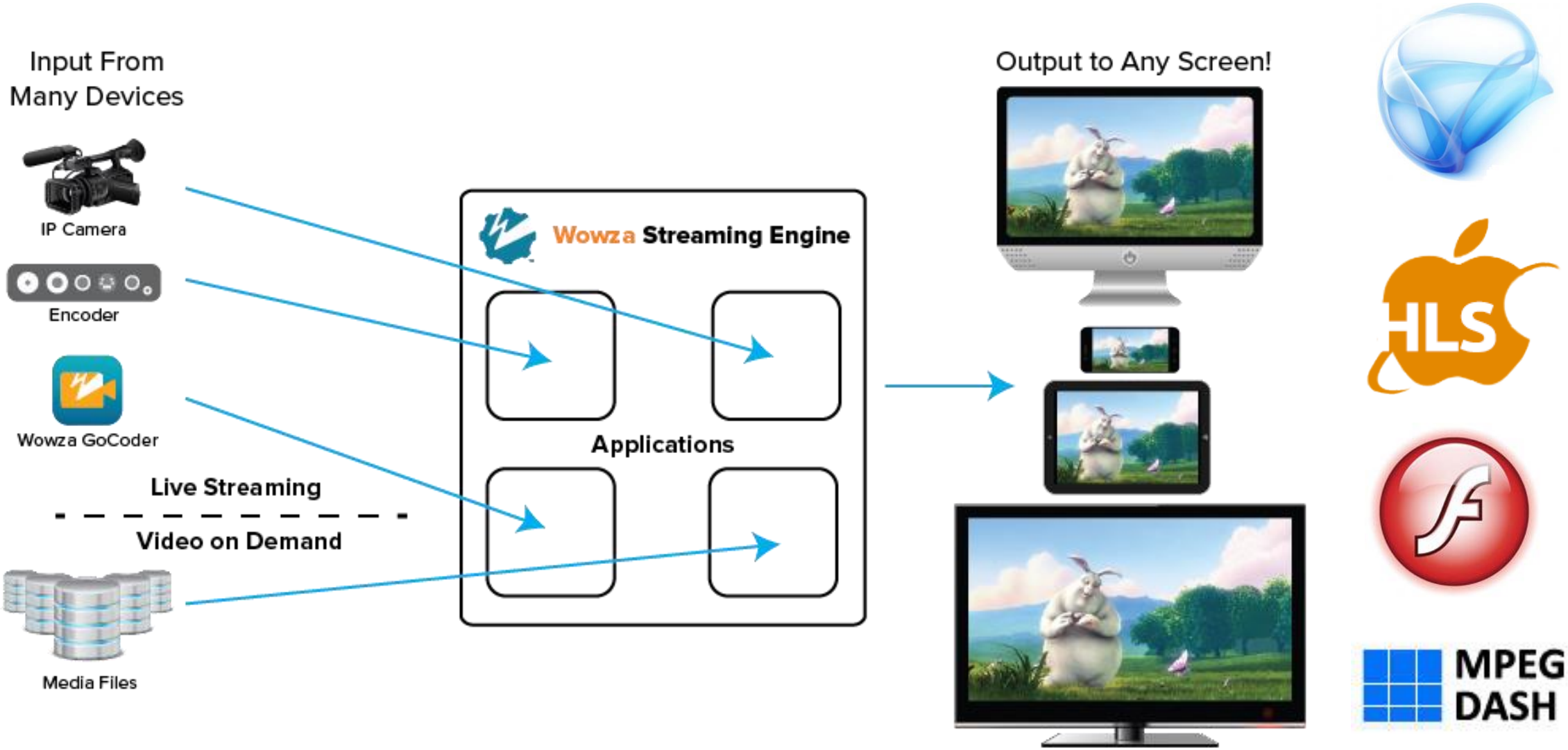




Must carry of signalling – Your site free on TV

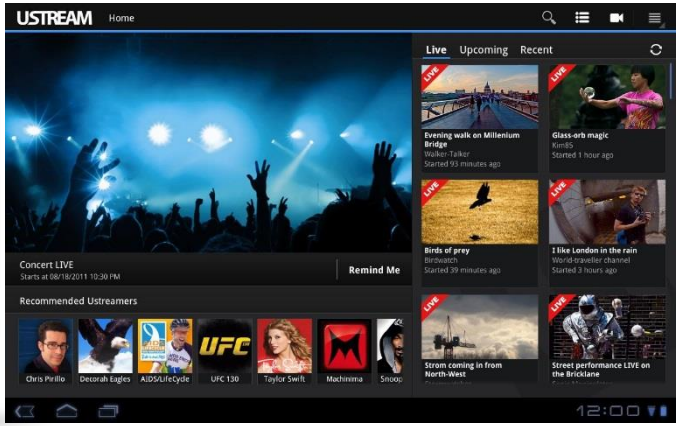


Wowza streaming engine (server)



Streaming alternatives – from smartphone

USTREAM



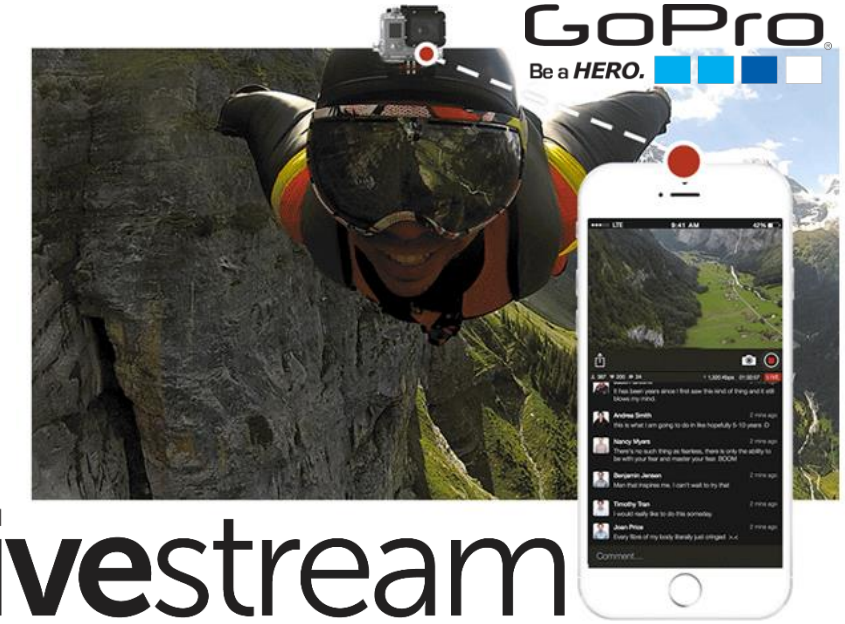
Open distribution:

Wowza GoCoder

Wowza Streaming Engine

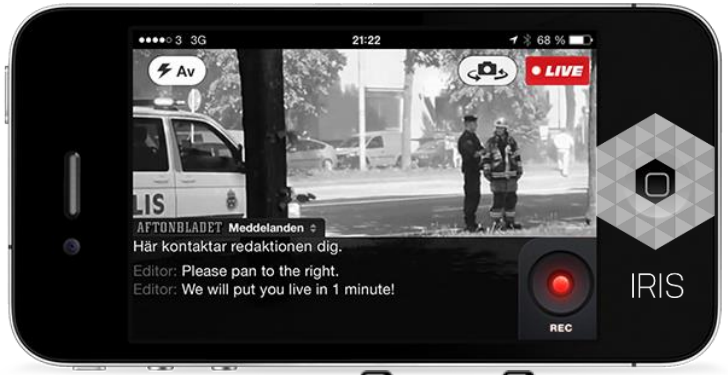
With talkback: make.tv

GoPro
Be a HERO.



livestream

Tieline Report IT live + decoder



skype +TalkShow decoder

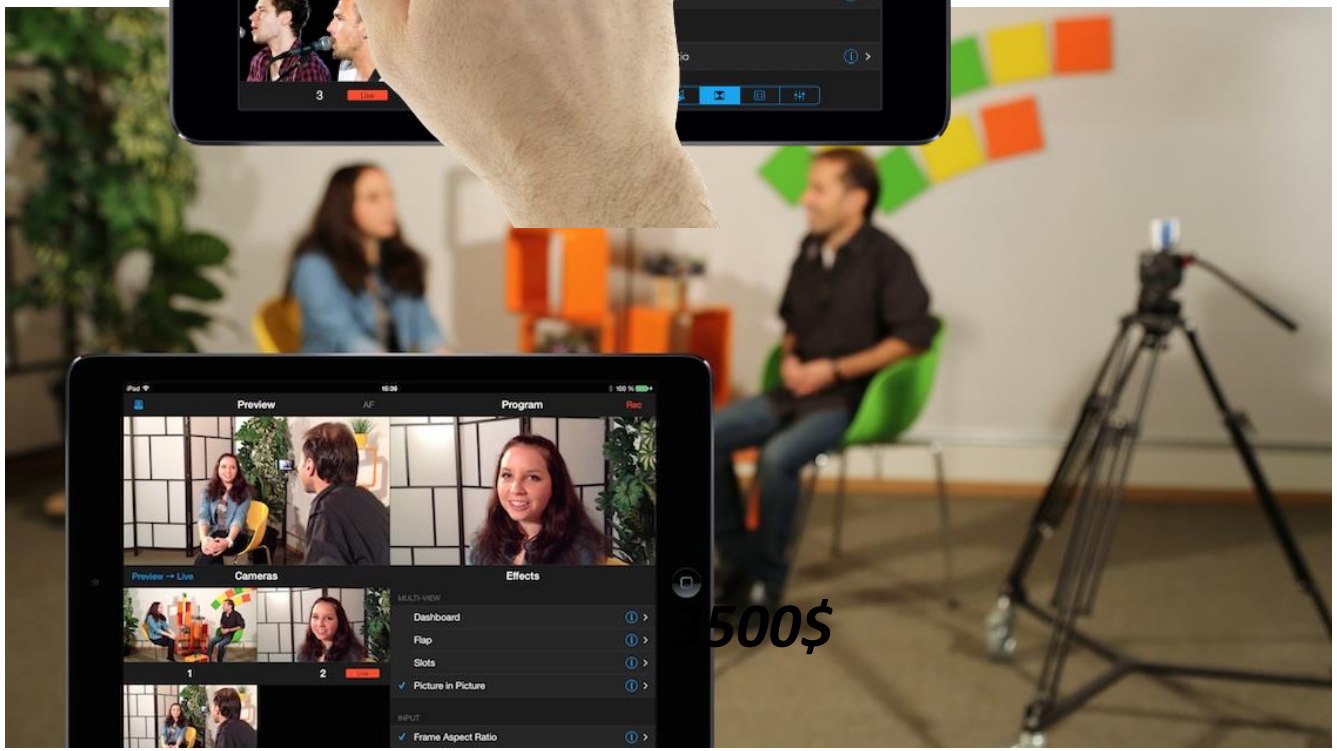
bambuser

Multicam on smartphone + livestream

150$ mōtrr Galileo™

20-49/month

YouTube



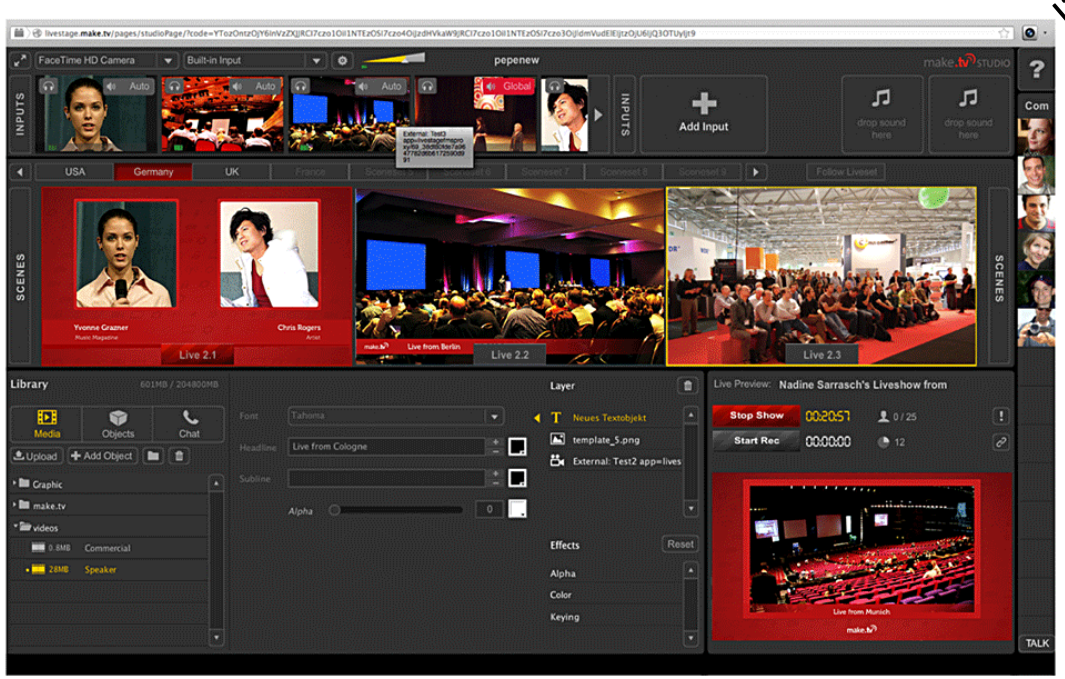
7-11

RecoLive

500$

Video from smartphone & web based editing

make.tv Studio

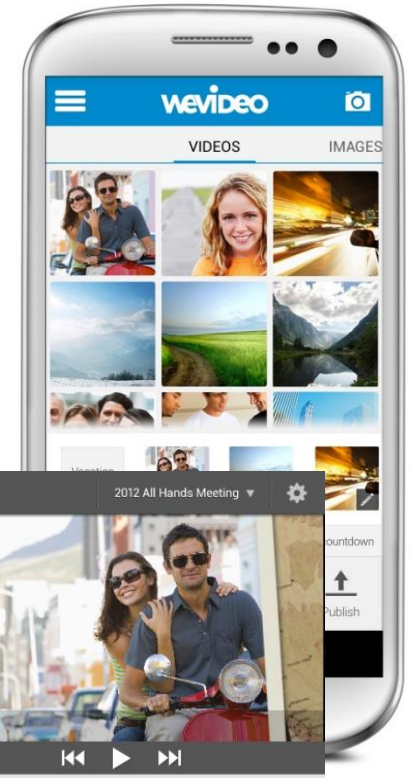


live

live

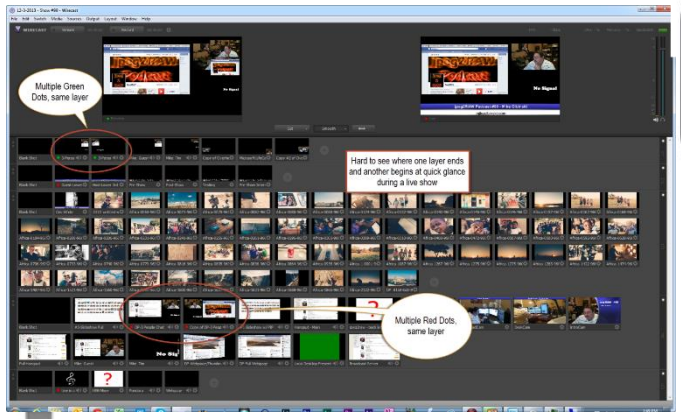
live

clip



Streaming & mix alternatives – from laptop

USTREAM PRODUCER



Telestream
Wirecast
Live Streaming Production Studio

Google+

Hangouts

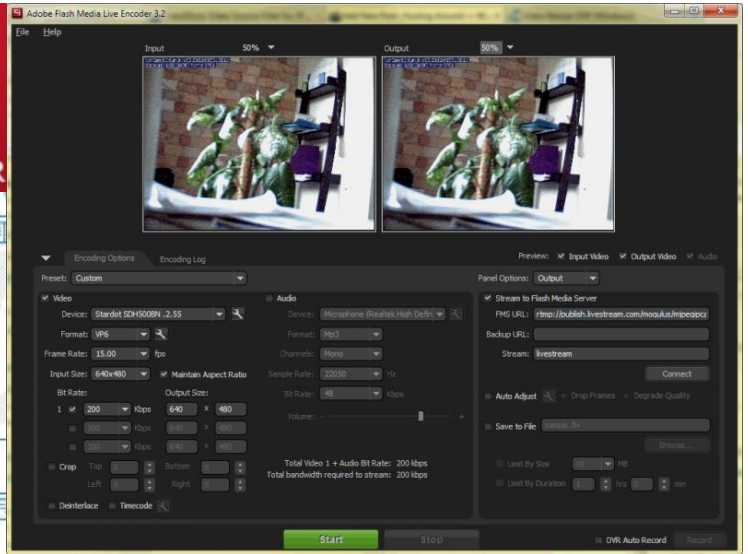
ON AIR

YouTube

ADOBE® FLASH® MEDIA LIVE ENCODER

YouTube for Nonprofits

Akamai
CONTENT DELIVERY NETWORK



Streaming & mix alternatives – from desktop

vMix

150$ + PC

BoinxTV
Live
Production
Studio
for Mac

FS1
Dein Fernsehen.

500$ + MAC

Streaming & mix alternatives – from portable

TriCaster Mini

NewTek™

11000$

vMix GO

8000$ - 12000$

Streaming alternatives – from ultraportable

INTEGRATION WITH:
livestream USTREAM YouTube

TERADEK

VidiU

500-700

using the StreamingVideoProvider online video platform

Akamai

YouTube

Cloud Recording

Local Recording (USB 3.0 External Drive)

EzeCaster Pro

Multi-Bitrate HD Live Streaming Video Encoder

1200$

Free Open Broadcast Encoder & Opencaster

Make your own TV channel!

-OBE low delay encoder for contribution with FEC
-OBE H264 MPEG2 TS encoder for DVB distribution
-OpenCaster to insert Hybrid TV signalling
(HbbTV –> Link to community webpage on TV)

Encoder with cellular bonding - example

LU200

7000$

LU200 Pouch

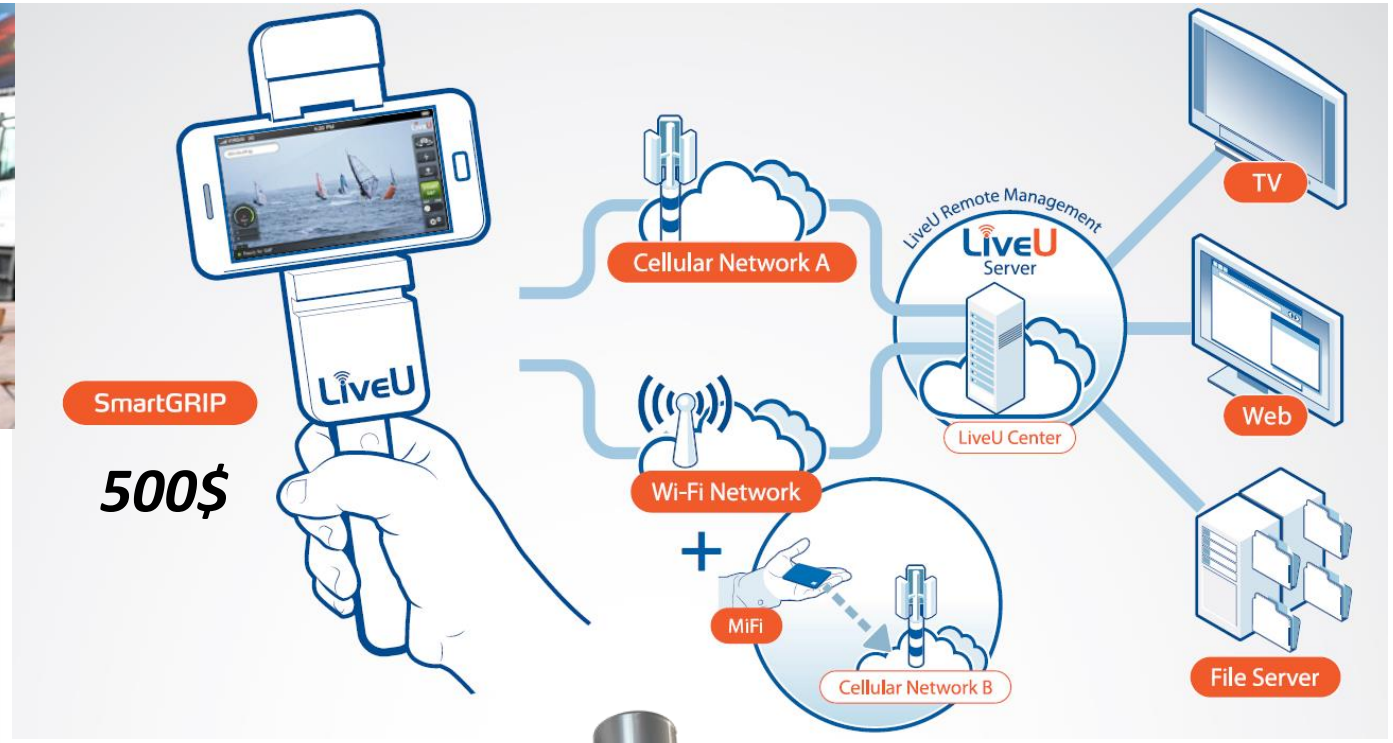
Mini Form Factor

Camera Mount

Encoder with cellular bonding /RF link (drone)

Encoder with cellular bonding - alternatives

12000$



500$

TERADEK BOND

3500$+1900$

MOBILE VIEWPOINT MobileViewpoint

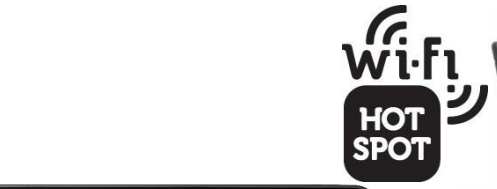
HEVC High Effecieny Video Coding

3000-10000

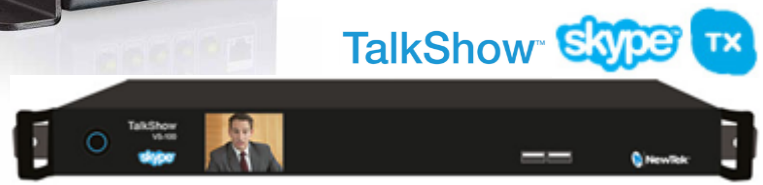
Cellular bonding and KA-band backup

OB and cables:

Smartphones and no cables:



3500$



Edit on apple smartphone - iMovie

IMOVIE

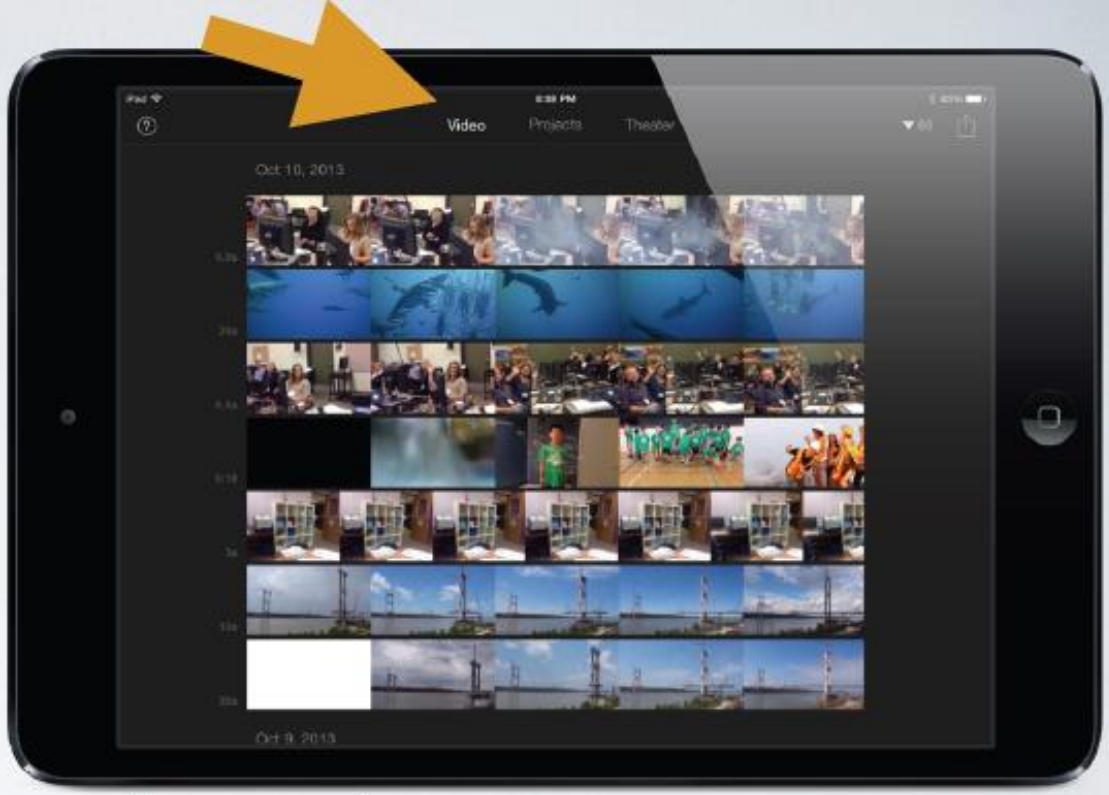
teachingwithipad.org

HELP AT ANY TIME

- Press the ? For onscreen tips at any time in any feature turn it off again by pressing it again

VIDEO TAB

- Browse video clips
- Select favourites before you start a project



- To browse quickly by date: Scroll up or down.
- To expand a clip for easier viewing: Tap the clip.
- To preview a video clip: Tap the clip, then tap the Play button .
- To play a video clip at half-speed: Tap the clip, then tap the Slow button .
- Tap again to return to normal speed.
- To play a clip at double-speed: Tap the clip, then tap the Fast button
- Tap the heart to add to favourites.

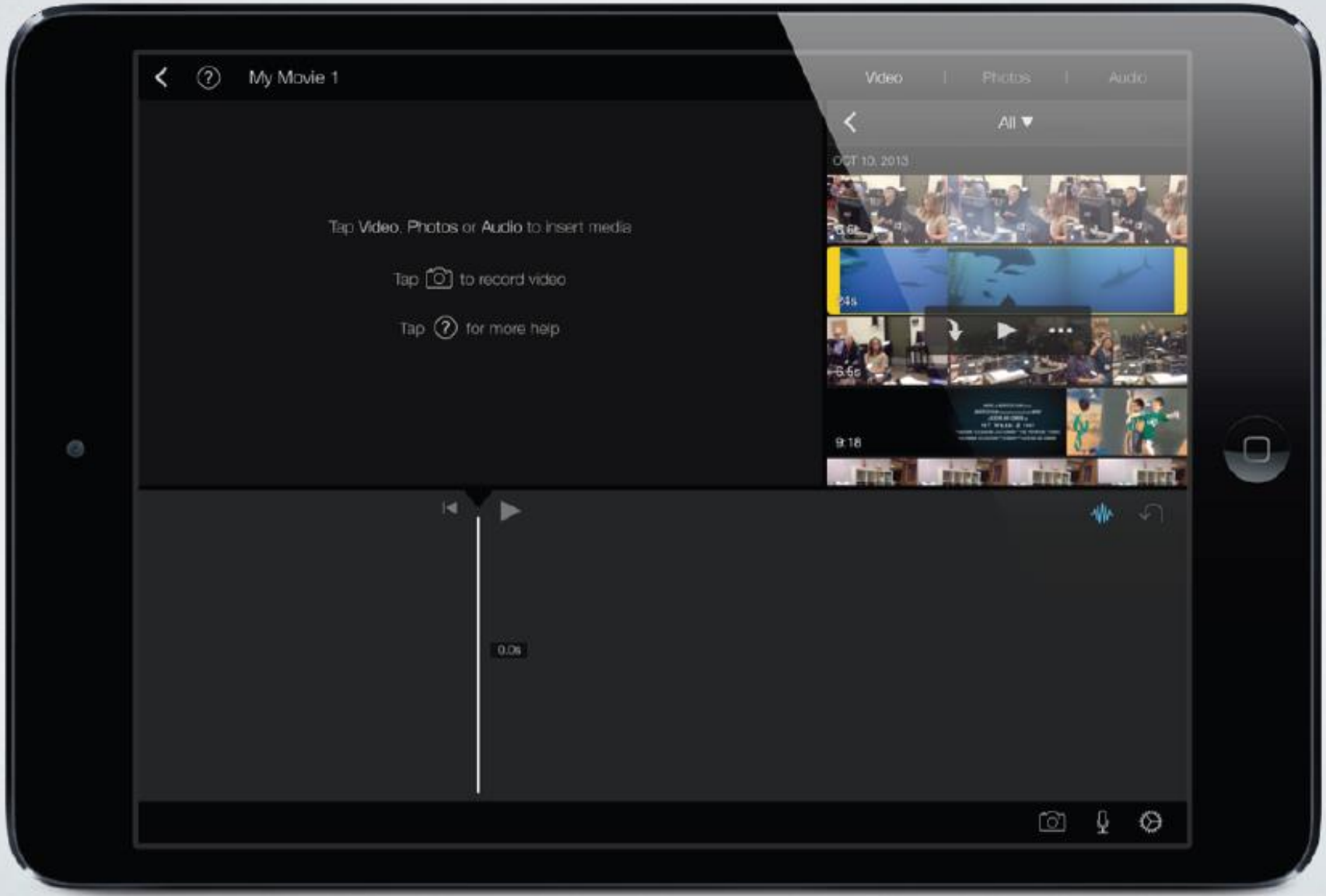
PROJECTS

- Select and open a project you've been working on
- Tap the + to start a new project
- Select movie to start a new movie project

SELECT A THEME

- iMovie themes coordinate screen titles, transitions and music
- You can change a theme at any time

MY MOVIE


My Movie 1
Tap Video, Photos or Audio to insert media
Tap to record video
Tap for more help
Video
Photos
Audio
All
OCT 10, 2013
24s
5.5s
9:18
0.0s


My Movie 1
Tap Video, Photos or Audio to insert media
Tap to record video
Tap for more help
Viewing Window
Video
Photos
Audio
All
OCT 10, 2013
Media Window
24s
6.5s
9:18
Tools
0.0
Storyboard

INSERT MEDIA INTO STORYBOARD

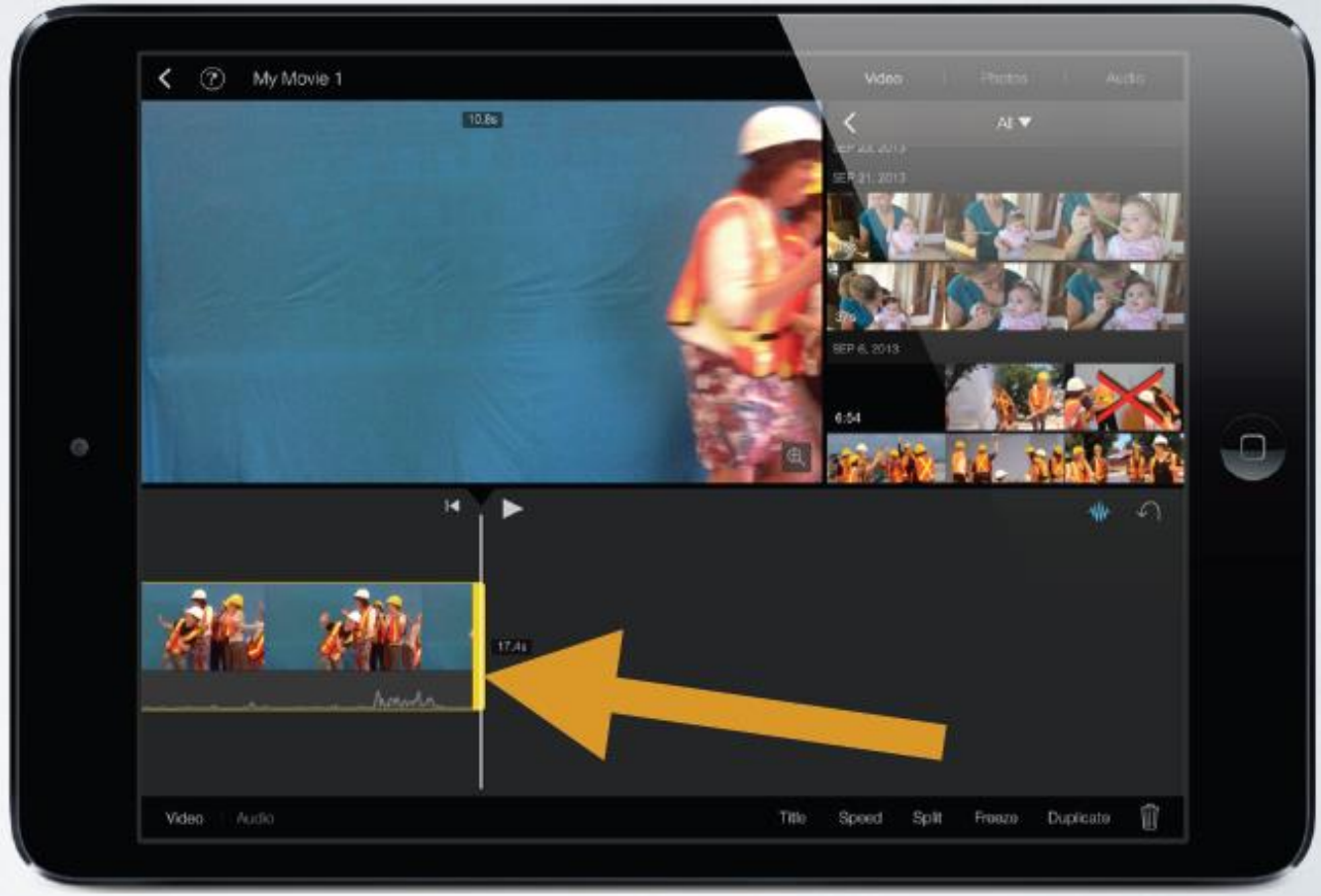
- Select video and photos to insert into your storyboard
- Select from favourites you've chosen prior or directly from your camera roll within the app

MAKE ADJUSTMENTS TO A CLIP

- Tap on a clip in the storyboard and you can choose from video and audio effects
- Audio effects include volume and splitting
- Video effects: titles, speed, trim, split, freeze and duplicate

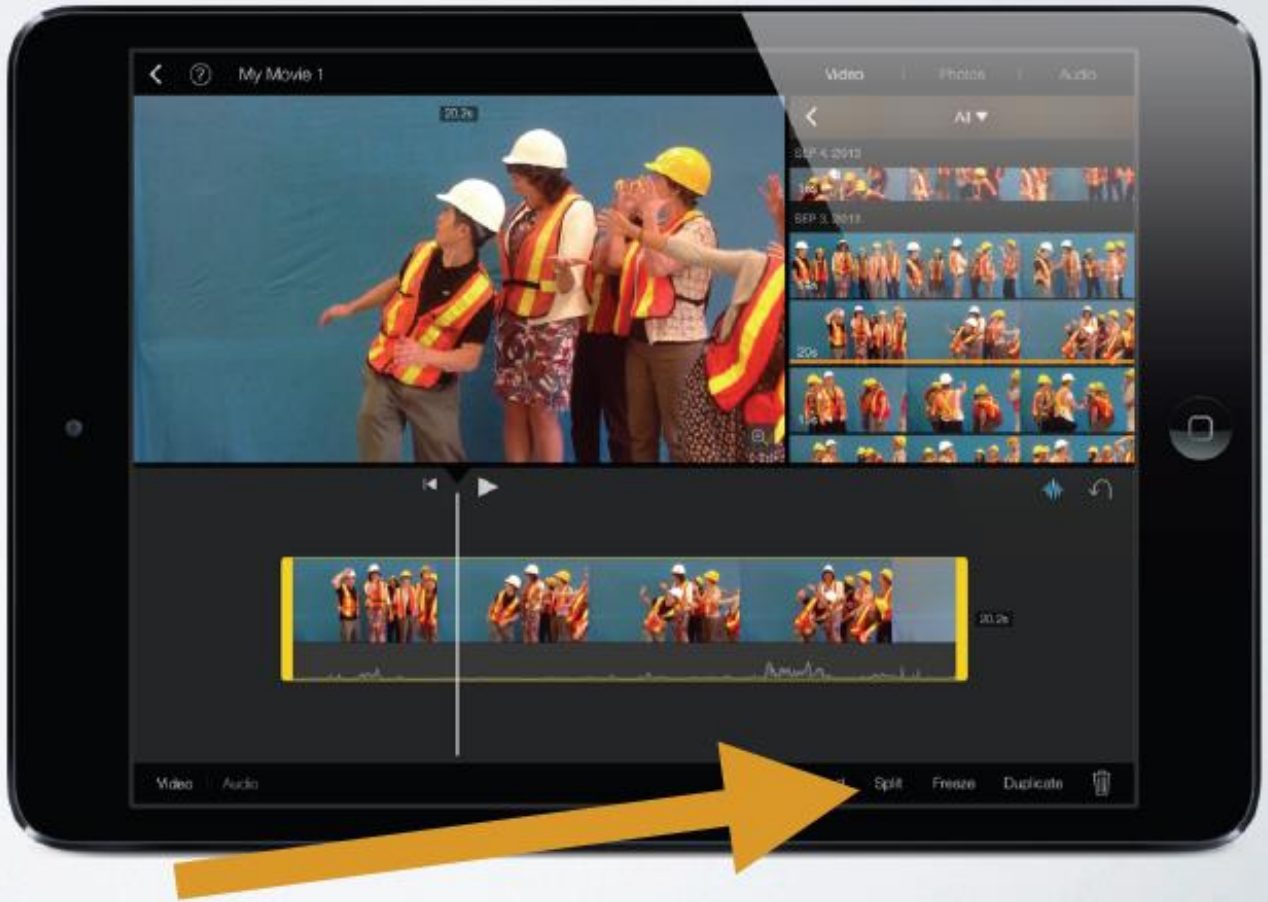
TO TRIM A CLIP

- Much like the original iMovie you can drag the begging or end of a clip to trim its length
- Grab the yellow bar on the side and trim to the length desired



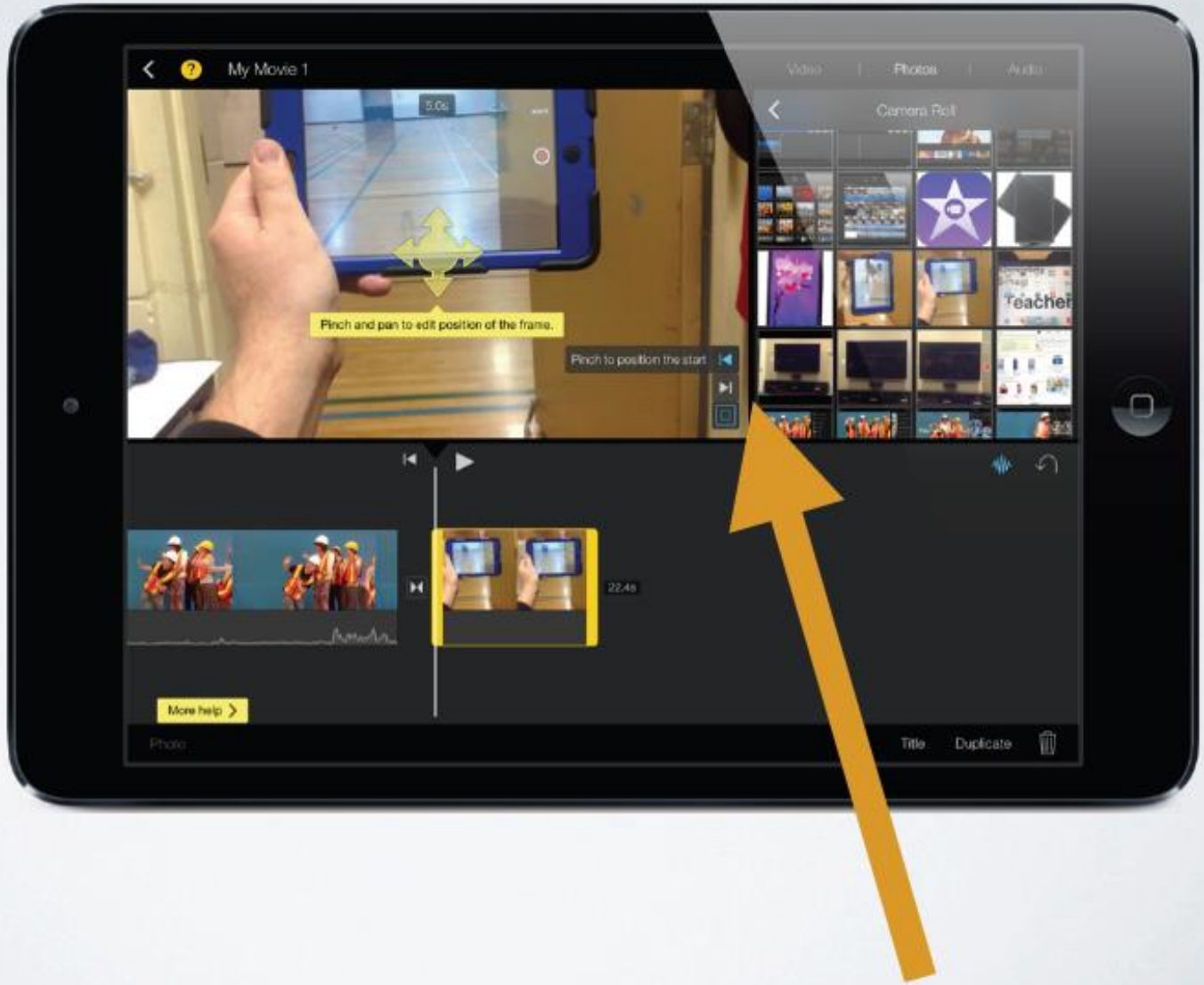
TO A SPLIT A CLIP

- In the original iMovie you had to swipe to cut. Now there is a more precise split button
- Place the play head where you would like to split and press the split button



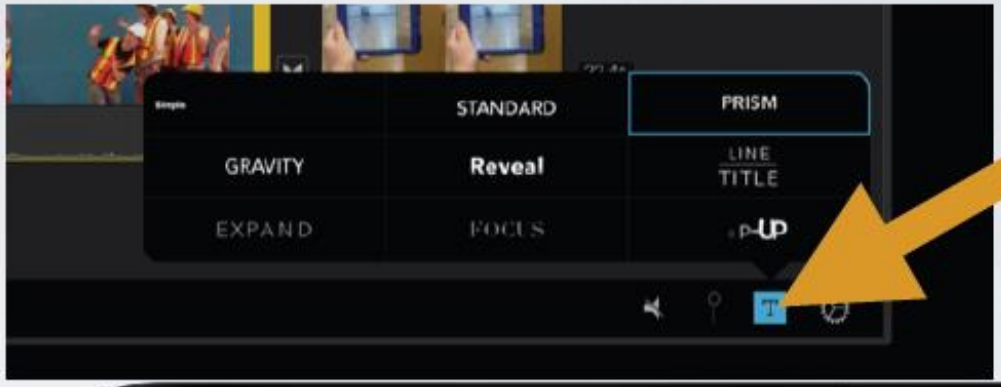
SIMPLER "KEN BURNS EFFECTS"

- Once you select your photo in the story board you can simply adjust the start and end position of the still shot



MULTIPLE TITLE OPTIONS

- Once you've tapped on your video clip and selected video press title
- iMovie 2.0 has multiple options with motion
- Tap the text in the viewing window to edit text



PICTURE IN PICTURE, SPLIT SCREEN & CUTAWAY

- Tap and hold a clip in the media window
- Select the ... (More options) and select desired video effect
- You can trim, split or zoom this effect like you would any other in the storyboard

MULTIPLE AUDIO OPTIONS!

- You can select audio for your movie from the audio tab in the media window
- In iMovie 2.0 you can add multiple songs, trim the beginning and end of a song, fade in and out, even separate audio from a movie clip or speed up and slow down audio

Trim audio

Volume

Fade audio

Adjust audio speed

Edit on apple smartphone - Pinnacle studio

pinnacle


Pad
4:41 PM
Pinnacle Studio
Direct access to support, tutorials and user guide
My Project 2
Apr 25, 2013, 4:39 PM
6:29.29
Launch, edit, rename, delete or duplicate an existing project
My Project 3
Apr 25, 2013, 4:40 PM
10:51.10
Edit and Export in 1080p
Create a new project


Video
My Project
Preview your clips, photos, music, effects and more in the album
Use swipe gestures to navigate or set in/out points on your clips
Events
Albums
Voice over recording directly to the timeline
Zoom in and out with easy pinch gestures


-20
Precision Trimmer
+1
Done
Frame-by-frame trimming accuracy
+1
Dual Previews—See both sides of your trim for creating perfect matchframes
Redesigned precision trimmer with enhanced functionality


Video
My Project
Tap the new speed button to adjust the speed of any video clip!
Events
Albums
62%
Keep length

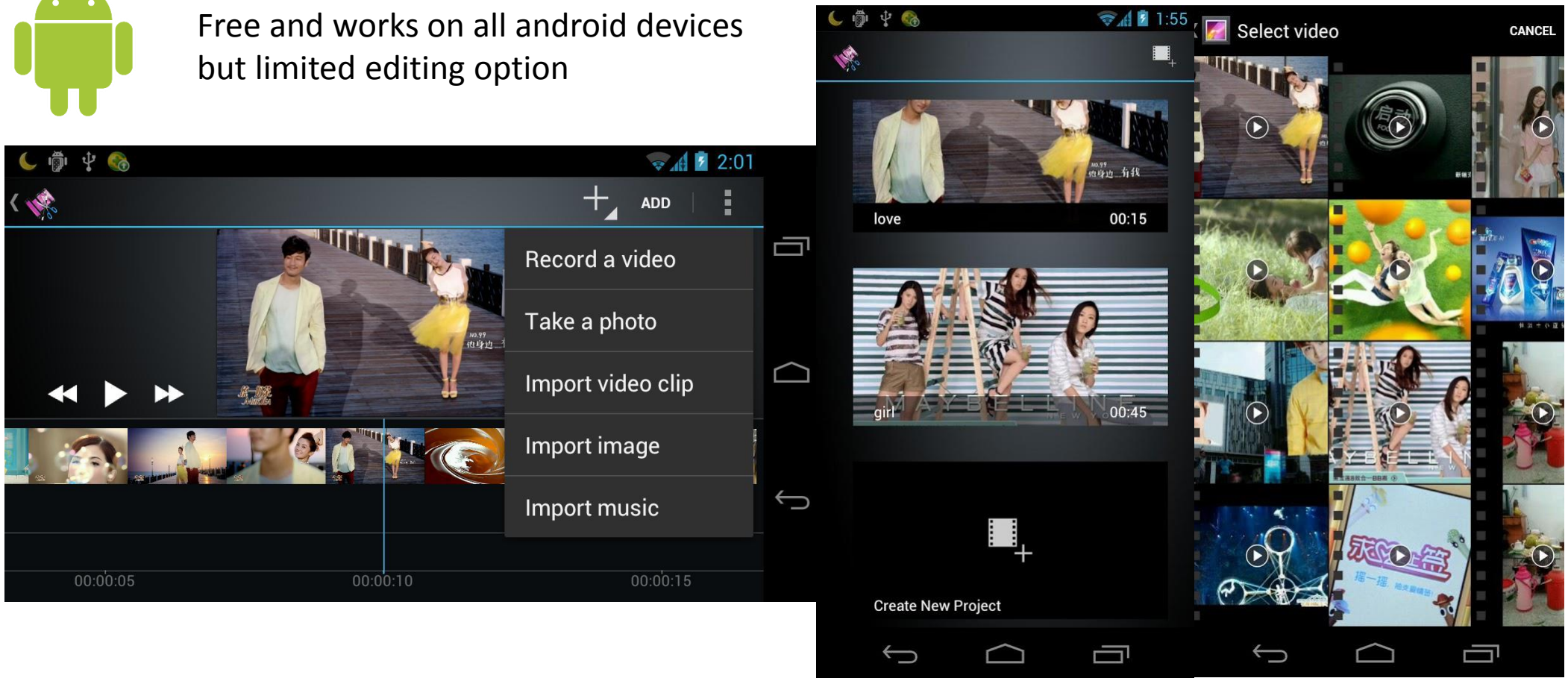

Transitions
Basics
Pushes
Slides
16 amazing video transitions
My Project 2
Preview your project in the window or full screen
Use the Storyboard to easily arrange and reorder your clips
Use the Timeline to edit your clips, photos and music the exact length you want

Edit on android smartphone – Kine Master Pro

Some devices

Edit on android smartphone – Movie Maker

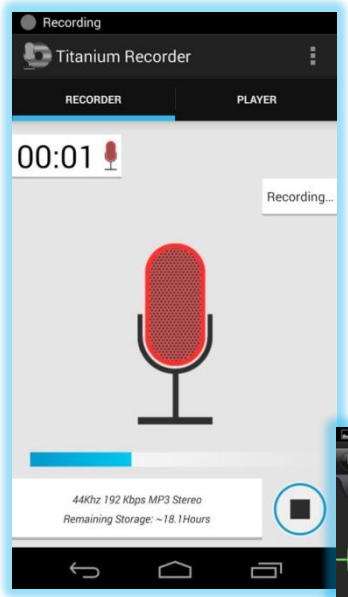
Free and works on all android devices but limited editing option



Audio recording and editing

- Apps are constantly evolving - new ones created.

- Titanium Recorder for simple straightforward recording. It does AAC and MP3 straight out of the box. It's free and has no ads. Ideal for quick recordings and fast uploads (sharing). No editing options though.



- WavePad Audio Editor free is quite handy for recording and editing. The drawback is it does only PCM files out of the box and you have to purchase options (in app) to remove ads 0.73€ and 3.87€ to get additional encoding formats like MP3.