

# Workshop: Video Meets Mobile – The 5G Opportunity

August 20/21, 2015

San Diego, CA, United States





Thursday, August 20, 2015

2:00 PM-7:30 PM – 5G Video Workshop in AZ Room ABC

7:45 PM-9:45 PM – Social Event at Karl-Strauss (sponsored by Huawei and DASH-IF)

Friday, August 21, 2015

9:00 AM-1:00 PM – 5G Video Workshop in AZ Room ABC

1:15 PM-2:15 PM – Lunch on AZ Courtyard (sponsored by Qualcomm)

# Program

- 14:00 Welcome and Roll Call
- 14:15 Introduction to 5G (Session Chair (SC): Thomas Stockhammer)
- 15:15 Mobile Video today and in the future (SC: Xin Wang)
- 16:45 Content and Service Providers view on Mobile Video (SC: David Price)
- 18:15 New Formats and their consequences for mobile ecosystem (SC: Thierry Fautier)
- 19:45 Social Event (All)
- 08:30 Mobile Content Distribution (SC: Imed Bouazizi)
- 10:00 Status Standardization Activities Streaming Media (SC: Iraj Sodagar)
- 11:45 New Technologies and Enablers (SC: Yuriy Reznik)
- 12:45 Closing Plenary: Standardization Needs and Next Steps (SC: Thomas Stockhammer)
- 01:15 Lunch (All)

# Session 1:

## Introduction to 5G

- Session Chair: Thomas Stockhammer (Qualcomm), Director Technical Standards
- The session contains three talks on 5G definition, timelines, objectives and relevant aspects for content distribution. The session is tutorial and provide the basic ideas on 5G. Speakers are involved in the early definition of 5G and will provide an overview.

#	Speaker	Company	Title
A	Etienne Chaponniere	Qualcomm	Introduction to 5G
B	Ali Khayrallah	Ericsson	5G Vision
C	Imed Bouazizi	Samsung	5G - Key Enablers and Recent Advances

# Session 2:

## Mobile Video today and in the future

- Session Chair: Xin Wang, Huawei, Head of Multimedia Systems, Corporate Research
- The session is a series of talks followed with a short Q&A and panel discussion.
- This session provides overviews of current mobile video services and viewing experiences today, from a number of perspectives such as mobile network delivery, monetization, monitoring and technology advance, and discuss opportunities and challenges for mobile video in the future.

#	Speaker	Company	Title
A	Chunshan Xiong	Huawei	Challenges and Opportunities in Mobile Video Delivery
B	Kevin Streeter	Adobe	Monetization Opportunities for OTT Video
C	Matthew Shapiro	Conviva	Video Streaming Viewing Experience on Mobile Platform
D	Kumar Subramanian	MediaMelon	Mobile Video as of Today and in the future

# Session 3:

## Content and Service Providers view on Mobile Video

- Session Chair: David Price, Ericsson, VP business development
- The session is a series of talks followed with a short Q&A and panel discussion.
- Mobile video has been on the industry's mind for decades but has had a number of notable false starts including DVB-H and MediaFLO. Now, with sights set on 5G we will finally have enough bandwidth to make video delivery ubiquitous over the next decade. Advances in codecs, content optimization and encoders will continue to help but moves to higher resolutions and richer viewing experiences will be a constant headwind. This panel examines the likely timing and phasing of this transition and looks at what it means for service providers, content aggregators and content delivery technology.

#	Speaker	Company	Title
A	Mark Watson	Netflix	Challenges for on-demand video distribution on Mobile Networks
B	Eric Grab	Neulion, co-CTO	Interactivity on Mobile Video
C	Will Law	Akamai	Content Delivery to Mobile Devices – data from a worldwide CDN
D	Matt White	CableLabs	Multicast ABR
E	Chris Cavigioli	Intel	Wireless and Web Communication

## Session 4:

### New Formats and their consequences for mobile ecosystem

- Session Chair: Thierry Fautier, President of Ultra HD Forum, VP Video Strategy at Harmonic
- The panel is an open discussion on how new video formats such as Ultra HD will impact the 5G Video ecosystem, on existing devices and applications (streaming to phones & tablets) but also upcoming devices and applications such as virtual reality video.

#	Speaker		Company
A	David Price, VP business development	No slides	Ericsson
B	Richard Doherty, standards manager	Dolby and the Future of Mobile Entertainment	Dolby
C	Aytac Biber, product manager	Next frontier for Mobile Video	Qualcomm
D	Mark Watson, head of standards	New formats and mobile	Netflix

# Session 5: Mobile Content Distribution

- Session Chair: Imed Bouazizi, Samsung
- The session is a series of talks followed with a short Q&A and panel discussion.
- This session talks about latest advances and technologies in the mobile content distribution.

#	Speaker	Company	Title
A	Will Law	Akamai	New efforts underway at Akamai to improve content distribution over cellular networks
B	Ed Tiongson	Qualcomm	LTE Broadcast
C	Kent Walker	Qualcomm	Broadcaster Directions
D	Kilroy Hughes	Microsoft	Azure Media Service: Cloud Video Delivery
E	Jim Seymour	Cisco	Mobile Video Trends & Study of Real-Time, Delay Sensitive Video over LTE



# Session 6: Status Standardization Activities Streaming Media

- Session Chair: Iraj Sodagar, Microsoft, President of DASH-IF
- The panel is a series of short talks followed with Q&A and panel discussion.
- What are the relevant SDO and consortia doing now and what are their plans for future? In this session, we will hear from experts about the SDO/consortia current work items on video delivery and whether they have any grand vision for future.

#	Speaker	Company	Title
A	Giri Mandyam	Qualcomm	W3C, ATSC and DASH Streaming Media
B	Imed Bouazizi	Samsung	IETF Media-related Activities
C	Per Fröjdh	Ericsson	MPEG Video & File Formats
D	Nan Zhong	Huawei	Mobile Edge Computing: unleashing the value chain
E	Thomas Stockhammer	Qualcomm	3GPP-based content delivery

# Session 7: New Technologies and Enablers

- Session Chair: Yuriy Reznik, InterDigital, Director
- The session is a series of talks followed with a short Q&A and panel discussion.
- The session covers new and emerging technologies with high potential impact on future of multimedia communications. This will include topics such as user-aware processing, AR, VR, ultra-low-delay (tactile) networks, and security aspects.

#	Speaker	Company	Title
A	Yuriy Reznik, Director	InterDigital	User- and environment-aware media delivery
B	Tim Leland, VP Product Management	Qualcomm	Entering a new era of immersive experiences
C	Yago Sanchez, Researcher	Fraunhofer/HHI	Ultra-Low Delay Video: Towards Tactile Internet
D	Kilroy Hughes, Digital Media Architect	Microsoft	Advances in mobile internet security

# Some key messages

- File-based streaming
- HTTPS
- Expectations for Quality keeps growing crazily on mobile
- Quality are multiple dimensions: Video Quality, Streaming, Interactivity, Accessibility → they all should be moved forward to matching levels
- Consistent Throughout much more relevant than peak bandwidth
- Data caps
- UDP, Multicast, Broadcast, Caching and offloading
- Royalties
- What are yours?

# Questions?

- Do we need standards and if so, which ones?
- Is there anything we can take from this event and move forward?
  - How can we get cross-domain information exchange get going?
  - How can we get more communication with MNOs and content providers?
  - If we do a session summarizing the workshop at MWC, would it attract people?
- Is the DASH-IF the right forum to coordinate such activities?

# Feedback from Survey

- 100% of the attendees found the workshop at least good, 80% very good and 30% excellent
- 100% would likely attend a similar event again, with 90% very likely, and 35% extremely likely.
- All participants like the format and the venue with suggestions to add more breaks to encourage and stimulate additional offline discussions.
- The social event was considered being the appropriate format

# Some key takeaways from participants (Survey)

- cross fertilization of different technologies need to do this at MWC as this is the place this belongs have formal liaisons between all the groups interested by 5G Video success.
- 1. HTTPS is coming. It needs to be factored in as default. 2. It's about accessibility, interactivity AND video quality. And, 5G will help on each of those axis's.
- We need standards
- the evolution of 1g,2g,3g,4g,5g and the capacity for mobile video
- challenges in streaming ecosystem and reality.
- Video over 5G is an area with a lot of potential growth. There is a lot of work in both areas and their convergence will be valuable to consumers and most especially wireless operators.
- Trends in the marketplace and with consumers
- Technology advances on many fronts. Video scale still overwhelms anticipated bandwidth available.
- That 5G by itself will not be enough to support next generation video- more compression/ optimization is needed. Concerns about TLS.
- MEC is very relevant Cross layer optimizations are interesting to the service providers
- Content and service providers need to collaborate with network operators, more than ever, in order to deliver the best video experience to consumers over the 5G mobile networks.
- Target timeline and applications for 5G. Current status of Standardization activities for 5G (3GPP, ITU etc)
- The strategy and rollout of mobile video and DASH are important as we migrate from 4G to 5G technologies. It will take a unified effort to deliver the best streaming media experience possible that leverages all the new technologies coming to market including eMBMS

# THANK YOU!

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