Workshop on Adaptive Media Transport

January 9 and 10th, 2014 – Cisco Systems, San Jose, CA

Basic Logistics Information

Location	Cisco Systems, Building SJC-O 1st Floor, Chess Conference Room 10 West Tasman Dr. San Jose, CA 95134		
Times	Jan. 9th, 08:30-21:00, Jan. 10th, 08:30-18:30		
Contacts	Filomena Pereira (Logistics)	+1 408 828-3732	fpereira@cisco.com
	Dave Oran (Co-chair)	+1 978 764-1176	oran@cisco.com
	Ali C. Begen (Co-chair)	+1 408 332-2276	abegen@cisco.com
Web Site	http://www.employees.org/~acbegen/abr_workshop_2014 User: abr, password: abr2014		
Email List	abr_workshop_2014@external.cisco.com		

Agenda for Day 1 – January 9th

8:30-9:00 Breakfast (Provided at the venue)

9:00-10:30 Introductions and Keynote

9:00-9:10	Dave Oran, Cisco **Workshop purpose, goals, ground rules, agenda overview**	
9:10-9:30	All **Introductions, brief interest statements**	
9:30-10:30	Jaime Miles, Time Warner Cable **Evolution of Video at Time Warner Cable**	

10:30-11:00 Coffee Break

11:00-13:00 Talks: Role of the Network

11:00-11:30	Bill Ver Steeg, Cisco **ABR in a CBR World**	
11:30-12:00	Giuseppe Cofano, Politecnico di Bari **Optimizing The Interplay between Video Content Distribution Actors**	
12:00-12:30	Alon Bernstein, Cisco **Cable Networks Video Delivery Update**	
12:30-13:00	Fred Baker, Cisco	

Bufferbloat, TCP and ABR Video

13:00-14:00 Lunch (Provided at the venue)

14:00-16:00 Talks: Transport-Layer Aspects

14:00-14:45 Josh Gahm, Cisco

Probe and Adapt: Rate Adaptation for HTTP Video Streaming at Scale

14:45-15:30 Will Law, Akamai

Will Browser-Based P2P Distribution Become the De-Facto Standard for Highly Scalable Live and VoD OTT Transmission?

15:30-16:00 Daniel Havey, UC Santa Barbara

TCP Instrumentation and Latency under Load

16:00-16:30 Coffee Break

16:30-17:30 Talks: Quality-Based Streaming

16:30-17:00 Zhi Li, Cisco

Streaming Video over HTTP with Consistent Quality

17:00-17:30 Ozgur Oyman, Intel

DASH Enhancements via Quality-Aware Streaming

17:30-18:30 Discussion: Who Should Stabilize Quality?

Chair: Carsten Griwodz, Simula Research Lab

(Carsten will start with a short talk and then moderate an open discussion among the audience)

DASH, by design, stabilizes video quality for several seconds and avoids packet loss, overcoming two issues that reduce visual quality. In the long term, though, quality must change because resource availability varies, and without adaptation, visual quality would either stay very low or hiccups would occur. When several DASH streams compete for a bandwidth bottleneck that allows only some of them to maintain a higher quality, then the competition for bandwidth share starts anew with each segment. Several mechanisms suppress fluctuations: long-term estimation at the client side, server-side shaping, congestion window capping, flow control re-writing, AQM strategies, congestion window recovery, etc. Is it worthwhile to push the deployment of any of the approaches that are more intrusive than end-to-end application-layer decision making?

18:30-19:00 Free Time and Drive to Giovanni's Pizza

19:00-21:00 Dinner
Giovanni's Pizza

Address: 1127 N Lawrence Expressway & Lakehaven, North of 101
Sunnyvale, CA 94089
Telephone: (408) 734-4221
URL: http://www.giovannisnypizza.com/

Agenda for Day 2 – January 10th

8:30-9:00 Breakfast (Provided at the venue)

9:00-10:30 Talks: Linear TV Services

9:00-9:45	Kent Walker, Qualcomm **DASH for ATSC 3.0 Profile Related Topics**
9:45-10:30	Thomas Stockhammer, Nomor Research **Replicating Linear TV Services with DASH - A Must, a Dream or an Opportunity?**

10:30-11:30 Discussion: Challenges and Wishlist for Content and Service Providers

Chair: Jeff Goldberg, Cisco

(Jeff will start with a list of questions to content and service providers, and then moderate an open discussion among the participants)

Adaptive bitrate video is widely used to distribute video to phones and tablets, especially for VoD programming, but most of TV uses traditional broadcast whether it be via satellite, terrestrial (especially in Europe and Korea) or cable. What are the key issues stopping adaptive bitrate Video to become more widespread and how can we mitigate them?

11:30-11:45 Coffee Break

11:45-12:45 Talks: Multi-Screen Delivery

11:45-12:15	Jeff Goldberg, Cisco **Multi-Screen Video Entertainment Use Cases, Challenges and Possible Solutions**
12:15-12:45	Mustafa Yildiz, Turk Telekom **Converging Multiple Video Systems into a Multiscreen TV Platform: Multiscreen Enablement Program**

12:45-13:30 Lunch (Provided at the venue)

13:30-14:30 Discussion: HTML5 Players

Chair: Mark Watson, Netflix

(Mark will start with a short talk and then moderate an open discussion among the audience)

HTML5 is the future of browser-based adaptive video streaming. However the standards are no further than W3C Candidate Recommendation maturity level and initial implementations are only now becoming available. This talk will describe the new HTML components that enable adaptive streaming in browsers. The functional split between browser and Javascript adaptive streaming code implies constraints on the design of adaptive streaming algorithms, as compared with native implementations. Consideration of these constraints, as compared with state-of-the-art native algorithms, can inform future requirements for browser APIs.

14:30-15:00 Talks: Quality of Experience

14:30-15:00	Faisal Siddiqi, Conviva **Sharing QoE Global Data for the Greater Good**

15:00-16:00 Discussion: Establishing an Industry Reference Model and Standard API for Device Streaming QoE Control Module

Chairs: Aditya Ganjam and Jibin Zhan, Conviva

(Aditya and Jibin will start with a short talk and then moderate an open discussion among the audience)

There are two key trends in industry: proliferation of devices for viewing video and the demand for consistent analytics and optimal QoE control across all devices. How to accommodate both trends and continue to improve QoE optimization algorithms? We believe this is an urgent need to establish an industry-wide reference architectural of client device software stack and standard APIs to support (i) QoE analytics, (ii) audience analytics, (iii) external logic to control the bitrate switching logic, and (iv) mid-stream switching to different resources (servers or CDNs).

16:00-16:30 Coffee Break

16:30-18:00 Talks: Proxies, Caches and Performance Issues

16:30-17:00	Saamer Akhshabi, Georgia Tech **Caching in HTTP Adaptive Streaming: Friend or Foe**
17:00-17:30	Roger Zimmermann, National U. of Singapore **Live MPEG-DASH Streaming from iOS and Optimized Proxy Caching**
17:30-18:00	Te-Yuan Huang, Stanford University **Using the Buffer to Avoid Rebuffers: Evidence from a Large Video Streaming Service**

18:00-18:30 Discussion: Future of Multi-CDN, CDN Federation and ISP-CDN Architecture

Chair: Aditya Ganjam, Conviva

(Aditya will start with a short talk and then moderate an open discussion among the audience)

Multi-CDN is becoming more prominent with multiple products in the market from basic load-balancers to more intelligent policy and quality aware decision platforms. What is the expected trend over the next two years?

18:30 END