DASH and HTTP/2

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**DASH – Dynamic Adaptive Streaming over HTTP**

- **DASH:** Streaming media content over the Internet
  - Defines media description and media segments formats
  - Adaptation and streaming controlled by the client

- **FDH (Full-Duplex HTTP based Protocols)**
  - Core Experiment for taking advantage of bi-directional communication protocols
    - Example: HTTP/2, WebSocket
  - Investigate the use of new features of HTTP/2
    - Example: Server Push
  - Was discussed during MPEG 111 Meeting, Feb. 16–20
    - First working draft was produced
FDH Draft Overview

Goal: reduce streaming latency
- Shorter segments enable lower latency, but induce more requests

How: 1 request for several media segments
- Reduced number of requests
- Reduced media latency for live events

Implementation
- Client requests 1 segment
- Indicates what it would like the server to push
FDH for HTTP/2

Client’s Push Expectation described in new HTTP Header: DASH–PUSH

DASH–PUSH parameters

- **Push–next** $K$ segments
  - DASH–PUSH: push–next; $K=5$
  - Use case: request 1 segment and receive $1+K$ contiguous segments

- **Push–time** $T$ seconds
  - DASH–PUSH: push–next; $T=10$
  - Use case: request 1 segment and receive $T$ seconds of media
Possible Extensions – 1/2

Extensions to DASH–PUSH parameters

- URI list
  - DASH–PUSH: uri-list; seg-1.mp4; seg-2.mp4; seg-3.mp4
  - Simple and generic: applicable to DASH, HTML pages...
  - Use case: request 1 resource and receives several other resources (whose names are known beforehand)

- URI template
  - DASH–PUSH: uri-template; seg-{1}.mp4; 1: 2: 3
  - DASH–PUSH: uri-template; seg-{1}.mp4; { 1 – 3 }
  - DASH–PUSH: uri-template; seg-rep-{1}-{2}.mp4; R1: R2; { 1 – 3 }
  - More compact than listing all URIs
  - Can be powerful (list of values, several template variables...)

- URI wildcard
  - DASH–PUSH: uri-wildcard; text/css
  - May select more than expected
  - Use case: receives all the resource corresponding to a given type
Can target other headers

- Header value
  - DASH-PUSH: header; Range; 501-1000; 1001-1500
  - Similar to URI list, but for other headers
  - Could be extended to support templates
Conclusion

- Current design is DASH specific
- It can be extended to a more generic design
  - Is it useful outside of DASH?

- Any recommendation?