APPLICATIONS OF HTTP: STREAMING VIDEO AND MPEG-DASH

George Porter
Feb 1, 2022
ATTRIBUTION

• These slides are released under an Attribution-NonCommercial-ShareAlike 3.0 Unported (CC BY-NC-SA 3.0) Creative Commons license

• These slides incorporate material from:
  • The Blender Foundation (blender.org)
Open-source movies:
Blender.org and Caminandes.com

Open Projects

Open Movies

Spring (2019)
Spring is the story of a shepherd girl and her dog, who face ancient spirits in order to continue the cycle of life. This poetic and visually stunning short film was written and animated by the Spanish animators Jordi and Vicent Llado.

Agent 327: Operation Barbershop (2017)
Agent 327 is investigating a clue that leads him to a barbershop in Amsterdam. Little he knows that he is being tailed by mercenary Boris Kibris...

Caminandes: Llamigos (2016)
The third episode of the Caminandes series is about Koro the Llama and a pesky but very cute penguin.

Production started in November 2015, release was in
DEMO: CAMINANDES LLAMIGOS (2.5 MINUTES)
DEMO: CAMINANDES LLAMIGOS
OPEN-SOURCE MOVIES
OPEN-SOURCE MOVIES
LOSSY IMAGE COMPRESSION
BITRATES

Quality = 100  
Quality = 50  
Quality = 10  
Quality = 5

Less Compression  
More Compression
Example
I-FRAMES, B-FRAMES, P-FRAMES, GOPS
These sections are identical

New image content
MPD (MEDIA PRESENTATION DESCRIPTION) FILES

- Media Presentation Description
  - Period ID = 1
    - start = 0 seconds
  - Period ID = 2
    - start = 60 seconds
  - Period ID = 3
    - start = 120 seconds

- Period ID = 2
  - start = 60 seconds
    - Adaptation set 0
    - Adaptation set 1
    - Adaptation set 2

- Adaptation set 1
  - Representation 1
    - 5 Mbps
  - Representation 2
    - 2 Mbps
  - Representation 3
    - 500 kbps
  - Representation 4
    - trick mode

- Representation 2
  - 2 Mbytes

- Segment info
  - duration = 60 seconds
    - Initialization segment
      - http://ex.com/il.mp4
    - Media segment 1
      - start = 0 seconds
      - http://ex.com/v1.mp4
    - Media segment 2
      - start = 15 seconds
      - http://ex.com/v2.mp4
    - Media segment 3
      - start = 30 seconds
      - http://ex.com/v3.mp4
    - Media segment 4
      - start = 45 seconds
      - http://ex.com/v4.mp4
MPEG-DASH AND HTTP SERVERS
DEMO

Tracing HTTP requests related to an MPEG-DASH stream
UC San Diego