Identifying Real-World Options for Live Streaming Playback

by Robert Reinhardt

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The tech world at large believes that we’re ready for a Flash-less world, and that HTML5 has had plenty of time to play catch up and surpass Flash capabilities. In this session, learn which transport technologies from HTTP, WebRTC, RTSP, and even RTMP work best, when to use them, and where to put your development dollars for maximum return.
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what does “real world” mean?
“real world” means:

- There is an option available *today* in the tech stack.
- The cost of the technology stack is viable.
some statistics:

- 81% of internet and mobile audiences watched more live video in 2016 than in 2015
- Breaking news makes up 56% of most-watched live content, with conferences and speakers tied with concerts and festivals in second place at 43%
- 78% of online audiences are already watching video on Facebook Live

Source: “62 Must-Know Live Video Streaming Statistics”, Caroline Golum, LiveStream
some statistics:

- 100% of my clients are using RTMP and HLS to stream content.
- 100% of my clients don’t like using Flash and don’t believe there’s a cost effective solution to replace it.

*Source: Me.*
Real-World Options for Live Streaming Playback

HTTP Streaming (HLS/DASH):

- **Benefits:**
  - Broadly available across tech stack (encoder/server/player)
  - Cost effective for most business cases

- **Drawbacks:**
  - Prone to high latency times (10 to 30 seconds)
  - Limited mostly to one-to-many broadcasts
Real-World Options for Live Streaming Playback

WebRTC:

- **Benefits:**
  - Available as an option for Flash-disabled browsers
  - Utilizes native APIs in browsers

- **Drawbacks:**
  - Lack of wide browser adoption
  - Only a draft/working specification
  - Codec compatibility between publisher/subscriber
RTSP:

Benefits:
- Available in some layers of tech stack (encoder/server)
- Very low latency
- Available in IP cameras

Drawbacks:
- No browser support
- Firewall / port access issues
RTMP:

- **Benefits:**
  - Primary protocol for software/hardware encoders
  - Very low latency
  - Available in Flash-enabled browsers

- **Drawbacks:**
  - Not available across the tech stack, especially browsers
  - Port / firewall restrictions
Problems with Two-Way A/V:

- **Codecs:**
  - Different native encoders/decoders (VP8/9 vs H.264)
  - Solution? Transcode on the fly?

- **Latency:**
  - Real-time communication needs to be fast
  - Solution? Reduce roundtrip time (P2P)
Meet the replacements:

- TokBox/OpenTok (WebRTC, P2p)
- Twilio (WebRTC, P2P)
- Peer5 (WebRTC, P2P)
- PhenixP2P (Proprietary RT, P2P)
Build Your Own:

- WebRTC libraries (webrtc.org)
- Wowza Streaming Engine (wowza.com)
- Red5 Pro (red5pro.com)
thank you.
Robert Reinhardt, Founder, videoRx.com

- **Inventor:** Developer, video solutions architect for multi-screen delivery
- **Writer:** original *Flash Bible* series, *Video for Flash Studio Techniques*
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