



# BATC Streamer

## Realtime Streaming after Flash

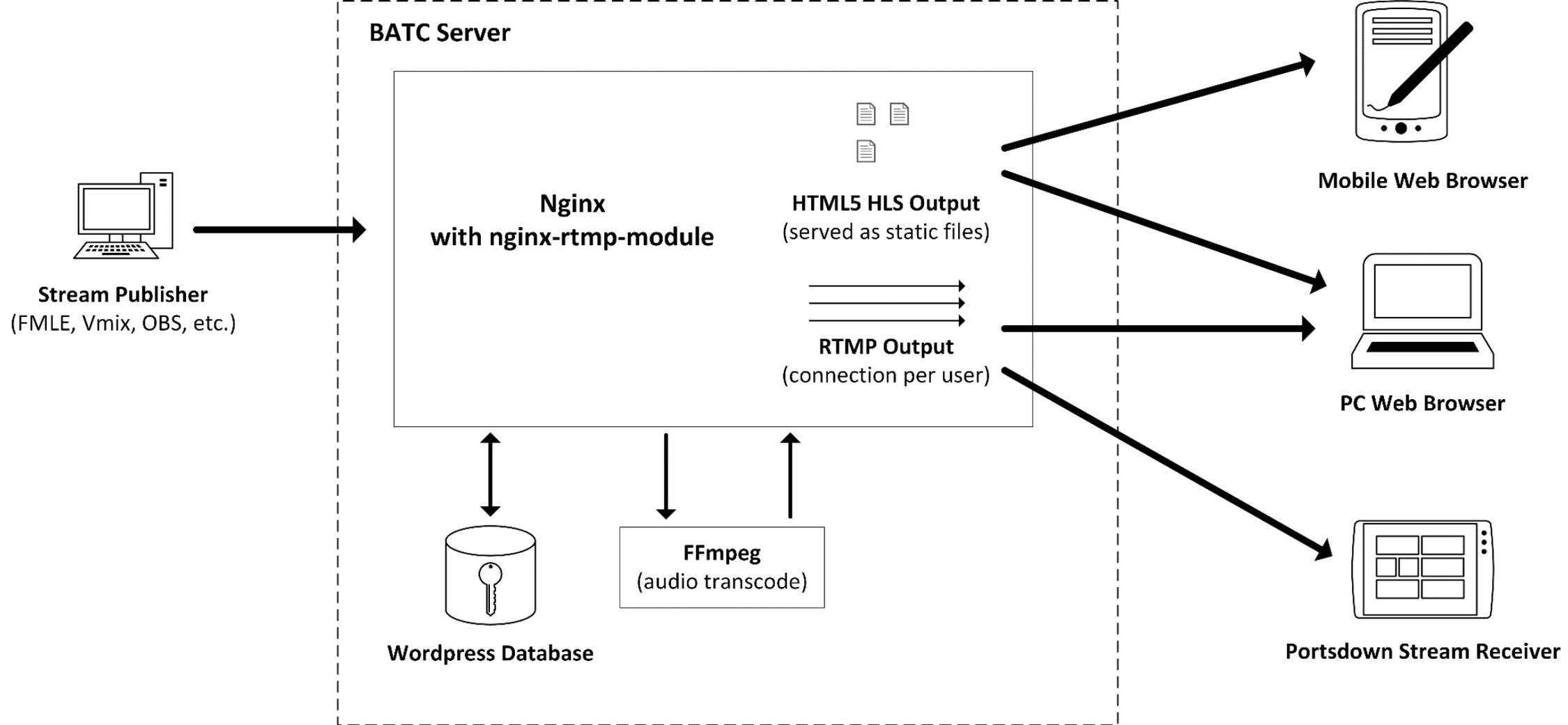
**Phil Crump MODNY**



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# Current Streamer Architecture





# Flash (RTMP) vs HTML5 (HLS)

## Flash (RTMP)

- RTMP is the protocol, developed by Adobe and primarily implemented client-side in Flash.
- Flash implementation gives support for a wide range of video/audio codecs.
- Uses a TCP connection per client.
- Very little inherent delay
  - Clients implement some buffer, e.g. VLC 2000ms default, 500ms on BATC.
- Proprietary to Adobe.



# Flash (RTMP) vs HTML5 (HLS)

## HTML5 (HLS)

- ‘HTML5 Video Streaming’ covers a number of protocols, we’re using HLS (HTTP Live Streaming)
- A buffer of MPEG-TS segments in files is maintained on the server, and a ‘playlist’ file used to inform browsers of the latest filenames.
  - BATC uses 5x 5-second segments
  - Youtube / others use more – Gives better reliability but more delay!
- Each client only has to connect for as long as it needs to download next segment – scales up to thousands of viewers better!



# Death of Flash

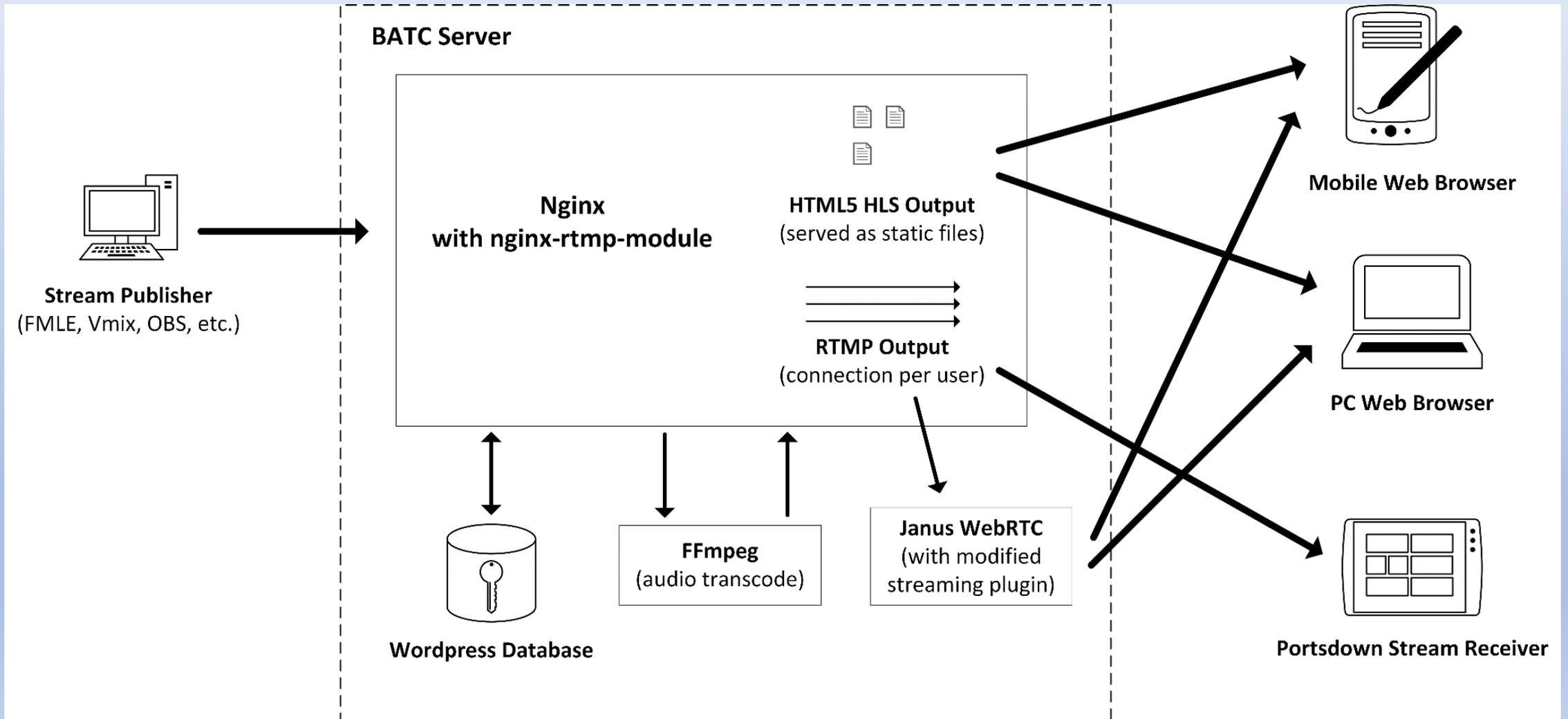
- Adobe dropping support of Flash Player after 2020.
- Chrome to drop support in version 88 (Jan 2021)
- Firefox to drop support in version 84 (mid-Dec 2020)
- Does not mean 'RTMP' itself is end-of-life!
  - Proprietary so browsers have chosen not to implement support, instead focus on new protocols (HLS, DASH, WebRTC)
  - Will still work via VLC or Portsdown Stream Viewer
- Hence need something new for real-time streaming to web browser..



# Replacement: WebRTC

- Web standard development started in 2010/2011.
- Standard entered 'Candidate Recommendation' in ~2017.
- Client-end supported in all major browsers.
  
- Server software mainly designed for bidirectional communications.
- Our current work is using Janus (<https://janus.conf.meetecho.com/> )
  - Open-source
  - Highly extensible and configurable
  - Has a module specifically for Server -> Client streaming.

# New Streamer Architecture





# What does a user need to change?

- From the publishing side – nothing!
  - We'll still be supporting RTMP for upload (as will Youtube / Twitch / others)
  - We already strongly recommend H.264 video codec as that's required for HTML5/HLS.
- Clients – you'll need a not-ancient browser.
  - Not done full testing yet, but roughly:
    - No IE!
    - Edge 15+
    - Firefox 44+
    - Chrome 56+
    - Safari 11

Questions ?



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