Survey of WebRTC based P2P Streaming

draft-huang-ppsp-p2p-webrtc-survey-00

PPSP WG
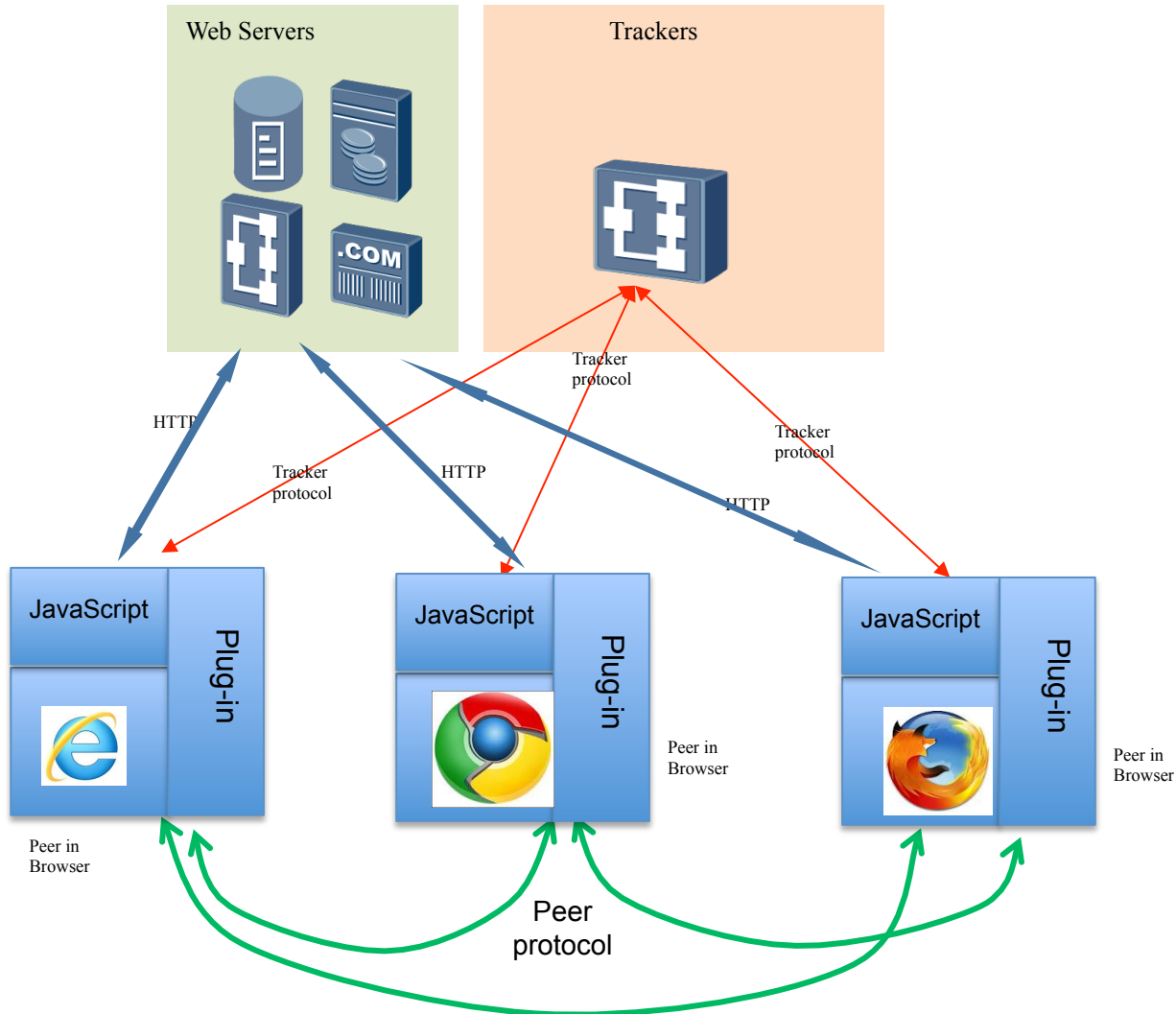
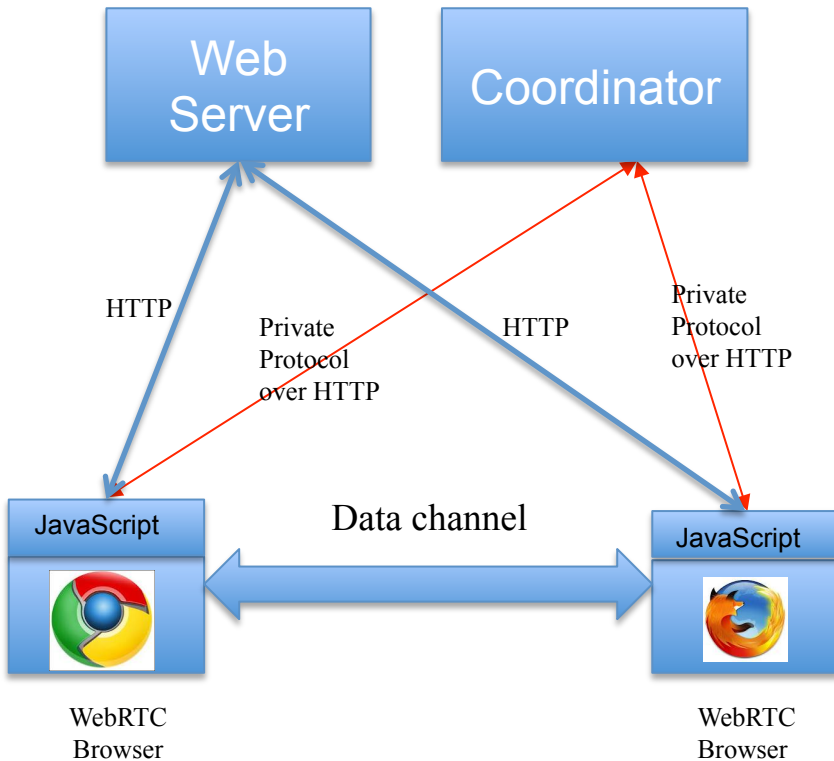IETF 89 London

Rachel Huang, Yunfei Zhang

Goals

- Survey of architecture and communication process of current emerging WebRTC based P2P applications.

- Promote discussion of the possibility of incorporating P2P streaming into WebRTC.

Traditional Web Based P2P Streaming Applications
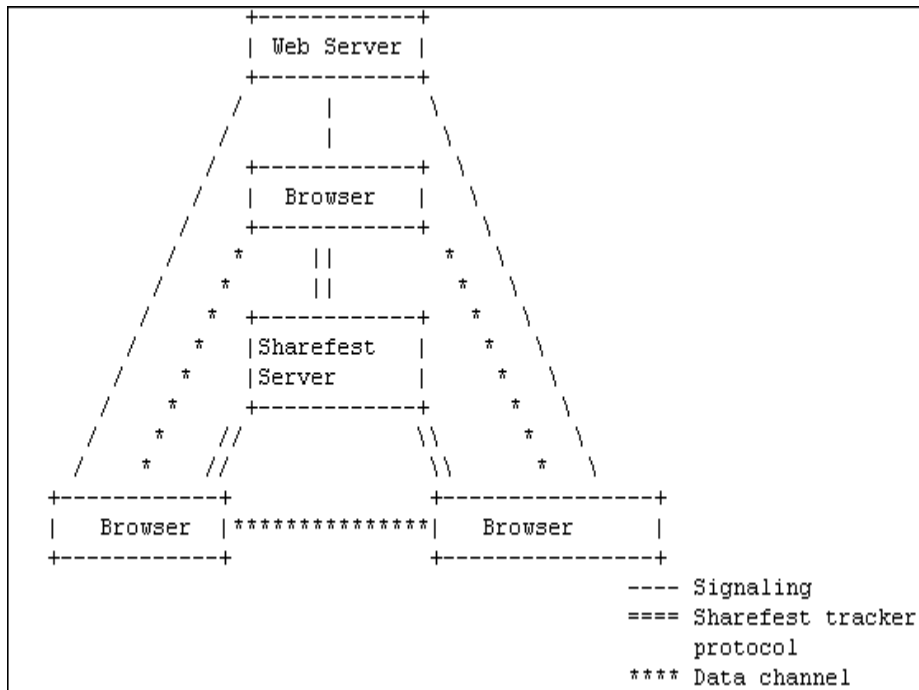
SwarmCDN and Peer CDN

Usage	Content distribution for web site owners
Communication between endpoint and coordinator	Proprietary protocol
Communication between endpoints	Data channel of WebRTC
Characteristic	Not P2P streaming, No slice.
browsers	Only Chrome and FireFox support data channel

Sharefest

```
                +------------+
                | Web Server |
                +------------+
               /      |      \
              /       |       \
             /   +------------+ \
            /    |  Browser   |  \
           /     +------------+   \
          /   *      ||      *     \
         /   *       ||       *     \
        /   *   +------------+   *   \
       /   *    |Sharefest   |    *   \
      /   *     |Server      |     *   \
     /   *      +------------+      *   \
    /   *      //            \\      *   \
   /   *      //              \\      *   \
  +------------+**************+----------------+
  |  Browser   |**************|  Browser       |
  +------------+              +----------------+

                          ---- Signaling
                          ==== Sharefest tracker
                               protocol
                          **** Data channel
```
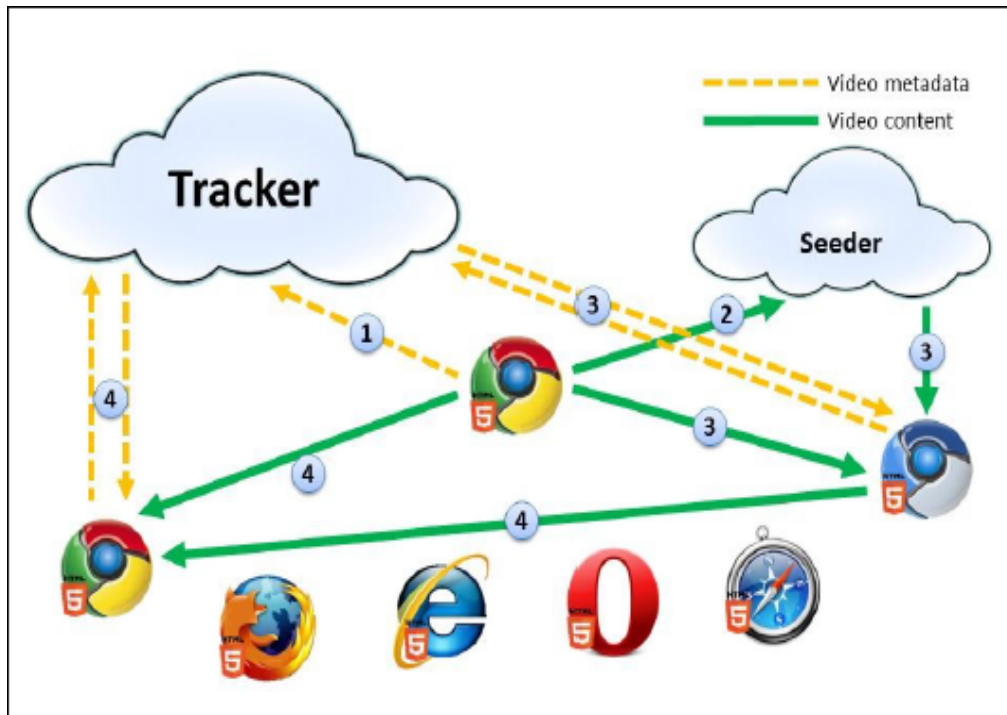
Usage	File sharing
Communication between endpoint and coordinator	Private protocol
Communication between endpoints	Data channel of WebRTC
Characteristic	Not P2P streaming, just for file transfering. Supporting slicing.
Available browsers	Only Chrome and FireFox support data channel

P2P Media Streaming with HTML5 and WebRTC
- An Experiment from Aalto University

Usage	VoD service
Communication between endpoint and coordinator	tracker protocol
Communication between endpoints	Data channel of WebRTC
Characteristic	P2P streaming. Similar to BitTorrent architecture.
Available browsers	Only Chrome and FireFox support data channel

Summary

- Current commercial WebRTC based P2P applications are not P2P streaming related.

- Obviously, web applications supporting P2P streaming without plug-ins are more and more appealing, since technologies are ready.

- The current scope of RTCWEB only points to conversational applications not streaming systems.

Discussions

- Should we incorporate P2P streaming in RTCWEB scenarios?
    - How to support P2P algorithms? (JavaScript can support them or not?)
    - Do we need WebRTC browsers to support the tracker protocol?
        - If no, does the tracker protocol need to do some changes?
    - Do we need WebRTC browsers to support the peer protocol? (data channel already supported)
        - If no, does the peer protocol need to do some changes?
    - Any security or performance issues ? e.g., content integrity protection.

THANK YOU !