Curtsy Web

http://html5labs.com/cu-rtc-web/cu-rtc-web.htm

Do you think that’s air you’re breathing?

- PeerConnection is…

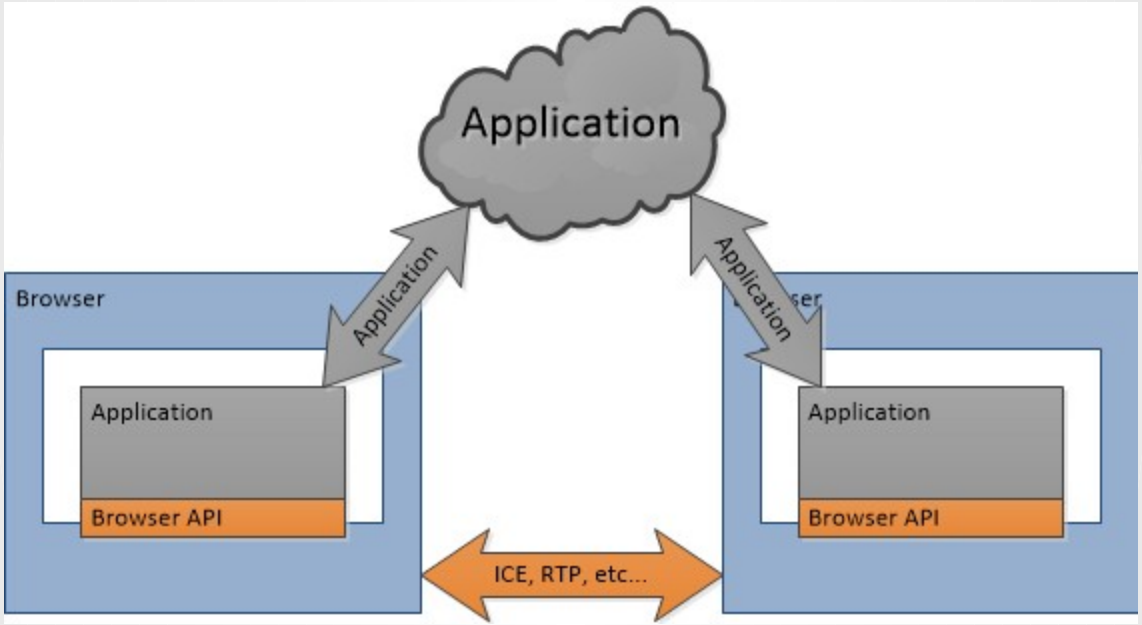
- RFC 3264, except with provisional and final answers
- …and with some application tweaking
- ICE, except with trickle candidates
- …and continuing consent checks
- DTLS-SRTP, except with identity assertions
- RTP, except for multiplexing
- …and the data channel
- + New congestion control

More SDP

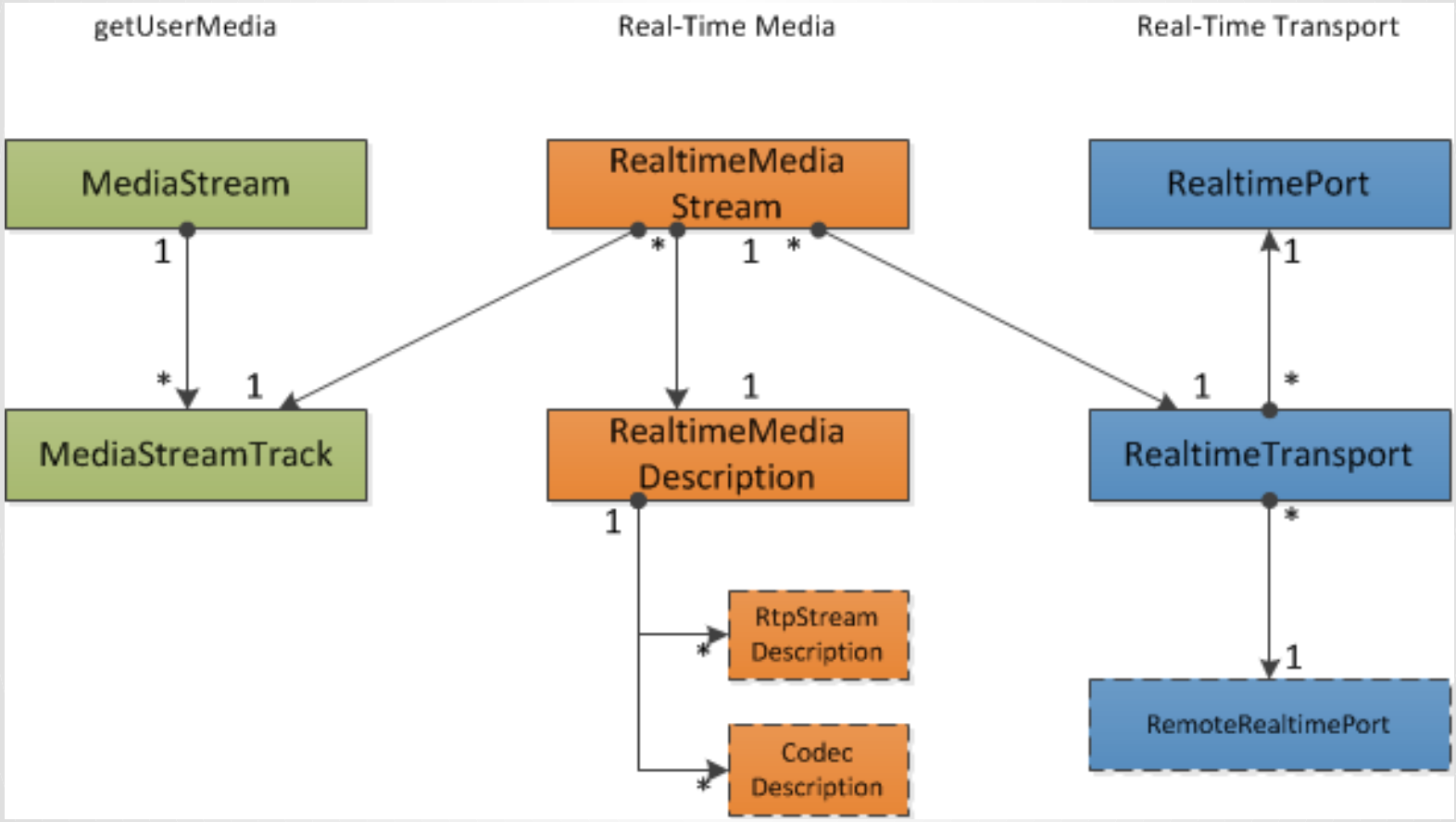
- Media stream ID
- BUNDLE groupings
- IdP assertions (base64 of JSON (of base64 of JSON))
- …and more needed

- What version of SDP will browsers implement?
- What mutations to that SDP will browsers permit?

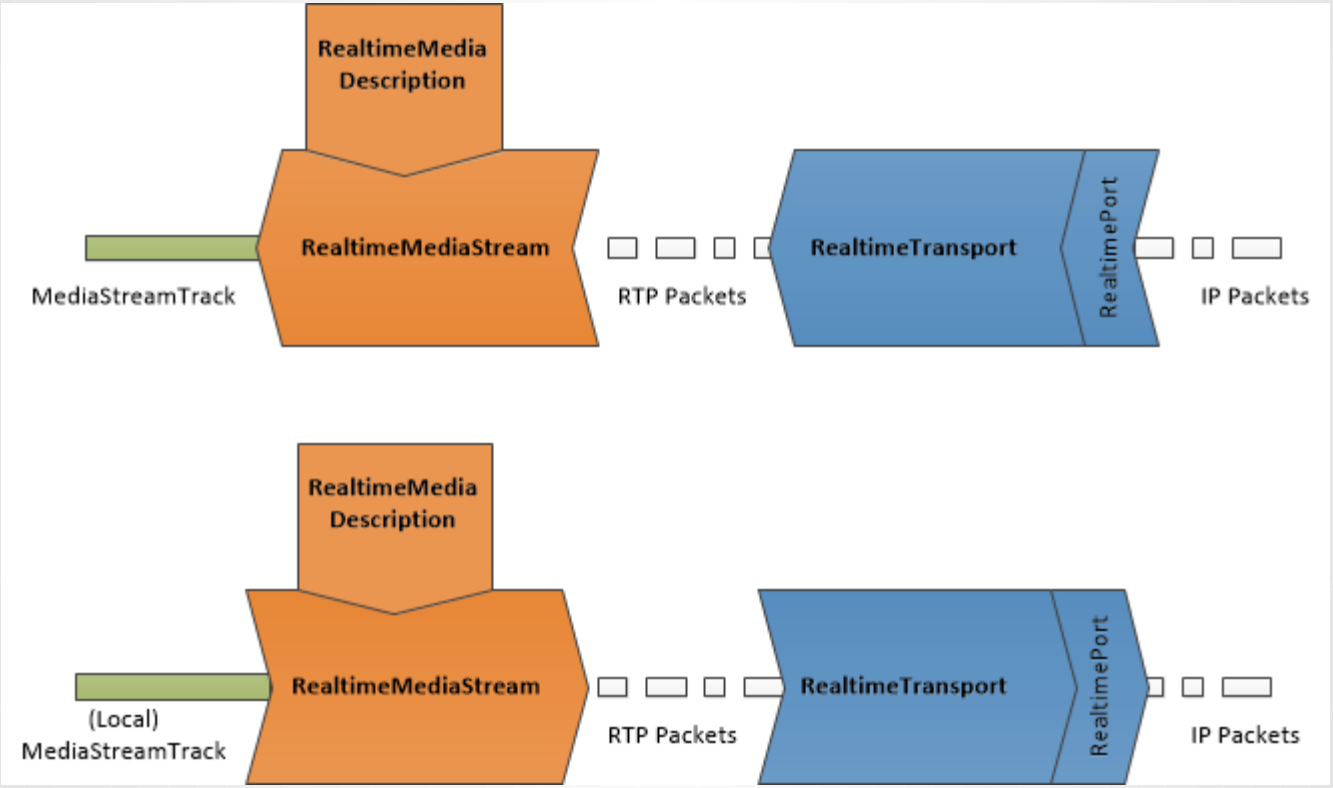
API, not protocol



Architecture



Operation


RealtimeMedia Description
RealtimeMediaStream
MediaStreamTrack
RTP Packets
RealtimeTransport
RealtimePort
IP Packets
RealtimeMedia Description
RealtimeMediaStream
(Local) MediaStreamTrack
RTP Packets
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RealtimePort
IP Packets

RealtimePort

- A **local transport endpoint**
- IP + port + username fragment + password
- …for host and relay candidates
- STUN checking for liveness and **consent**
- …and for server and peer reflexive addresses
- Everything needed for ICE
- …or not-ICE (plain ol’ NAT traversal)
- …or just talking to a media source or sink

RealtimeTransport

- A secured **UDP flow**
- Binds local RealtimePort to some remote analogue
- Adds SRTP (SDES or DTLS key negotiation)
- Handles ongoing consent checking
- Provides feedback on bandwidth (and congestion)

RealtimeMediaStream

- A **unidirectional flow of media**
- ...as RTP packets
- Connects MediaStreamTrack to a RealtimeTransport
- ...uses a RealtimeMediaDescription
- Manages updates to
- ...transport
- ...codec
- ...stream bandwidth and priority

RealtimeMediaDescription

- Describes how to turn abstract MediaStreamTrack
- …into a concrete RTP packet stream
- Describes semantics of each packet type
- Provides stream identification
- Sets available RTP and RTCP features
- Provides a **simple negotiation** feature (update ≡ ∩)

Data Channel

- Not included in the proposal
- Could use RealtimeTransport directly
- Wouldn’t be affected by all that media rubbish

DTMF

- Not included in the proposal
- A MediaStream(Track) problem

Shorthand

- RealtimePort ≈ Candidate
- RealtimeTransport ≈ UDP Flow w/Security
- RealtimeMediaStream ≈ RTP stream
- RealtimeMediaDescription ≈ SDP m= line[1]†‡*

- Testing of connection liveness
- Are MediaStreams mutable?
- Provide congestion feedback API for flows
- Serialization of duplicated tracks
- Rollback of offers
- Programmatic description of described streams
- Learning of network change events
- Learn what ICE candidates are in use
- Pausing and muting of streams
- Description of state/behavior is currently incomplete
- Priority allocation
- DTMF onTone event

- Control connection establishment based on certificate
- API for discovering capabilities
- Bandwidth allocation
- Bandwidth estimation feedback
- Expose additional ICE state
- Document how the different state machines interact
- Interoperability with varying ICE and ICE-like agents
- H.264 SVC support
- Set Security Description
- Remove offer/answer
- Split SDP between PeerConnection and MediaStream
- Remove SDP