

WebRTC

From Zero to Hero



OSCAL, 15.05.2016

Gabriel Mičko





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About me

Gabriel Mičko

DoclerHolding Front-end Developer Specialist
Mozilla Tech Speaker, Volunteer



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mozilla



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Plugin free video conferencing in the browser

mozilla

WebRTC

Web Real-Time Communication

- **Voice calling, Video chat, P2P File sharing**
- ~~internal or external Plugin~~
- meant to be rich, high-quality
- browser, mobile platforms, and IoT devices
- UDP transport layer
- Secure (DTLS)



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WebRTC demo



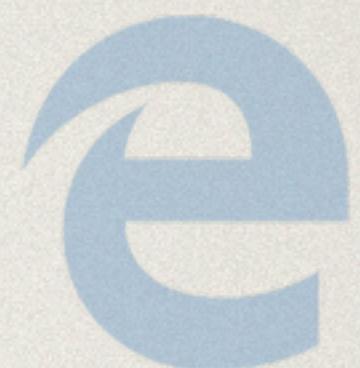
Who uses WebRTC

+10M Active users

- Facebook
- WhatsApp
- Hangout (P2P)

- Firefox Hello
- Appear.in
- Talky.io

Desktop browser support



Microsoft - WebRTC

WebRTC – Object RTC API Supported ^

Enables mobile endpoints to talk to servers and web browsers with Real-Time Communications (ORTC) capabilities via native and simple JavaScript APIs.

Unprefixed version: Microsoft Edge build 10547+

 Working draft or equivalent


[See detailed browser support](#)

 776 Votes

WebRTC – WebRTC v1.0 API In Development ^

Real-time communication in the browser. See also "Web RTC - Object RTC API".

 WebPlatform  Working draft or equivalent


[See detailed browser support](#)

 3346 Votes

<https://dev.windows.com/en-us/microsoft-edge/platform/status/webrtcwebrtcv10api/>

Mobile browser support



Apple - They were hiring



Justin Uberti
@juberti

Apple job posting for #webrtc:
jobs.apple.com/search?job=434 ...

RETWEETS LIKES

26 **25**



6:49 PM - 21 Feb 2016

Mac OSX - IOS Safari

Build native WebRTC apps that communicate with browser that supports the WebRTC standard, such as Chrome, Firefox and Bowser.

- focused on mobile platforms
- free and Open-Source
- cross-platform (IOS, Mac OS X, Android)

<http://openwebrtc.org>



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WebRTC code for developers

...but before



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WebRTC API

Session Description Protocol

- Dating back to 90's
- String-based business card
- Audio and video codecs
- Network lookup
- Computer data weight
- Easy transportation

```
<key>=<value>|n
```

WebRTC API

getUserMedia, which allows a web browser to access the camera and microphone and to capture media

RTCPeerConnection, which sets up audio and video calls

WebRTC API

RTCSessionDescription, SDP generated by
RTCPeerConnection

RTCIceCandidate provides information
where the data is going to be exchanged

RTCDataChannel, which allows a browser to
share data peer-to-peer

What is ...

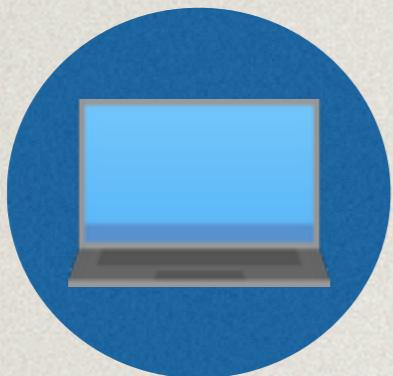
STUN, service for detecting your public IP

TURN, relay between 2 client if the P2P connection fails

<https://github.com/coturn/rfc5766-turn-server/>

WebRTC connection

Gabriel

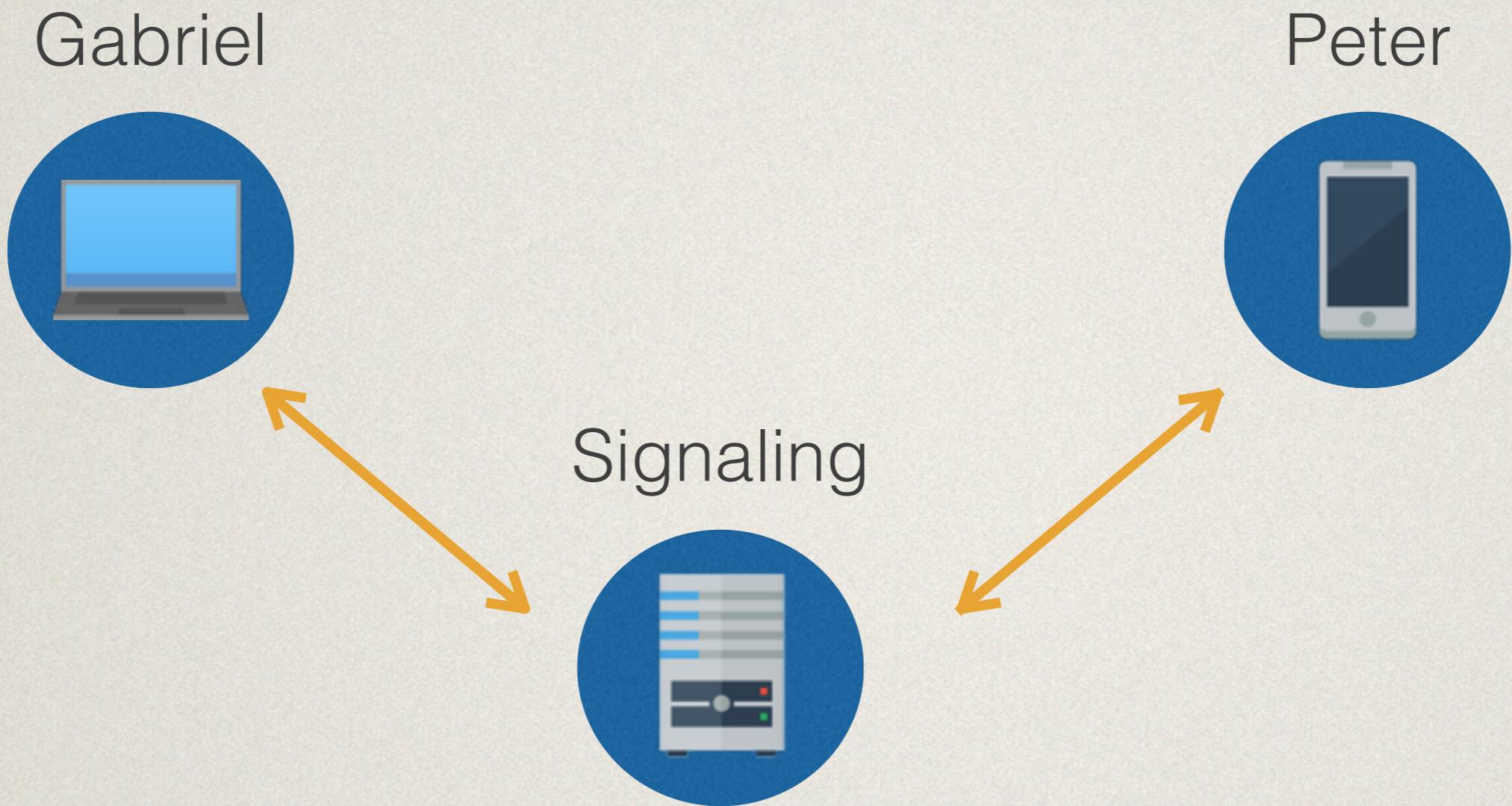


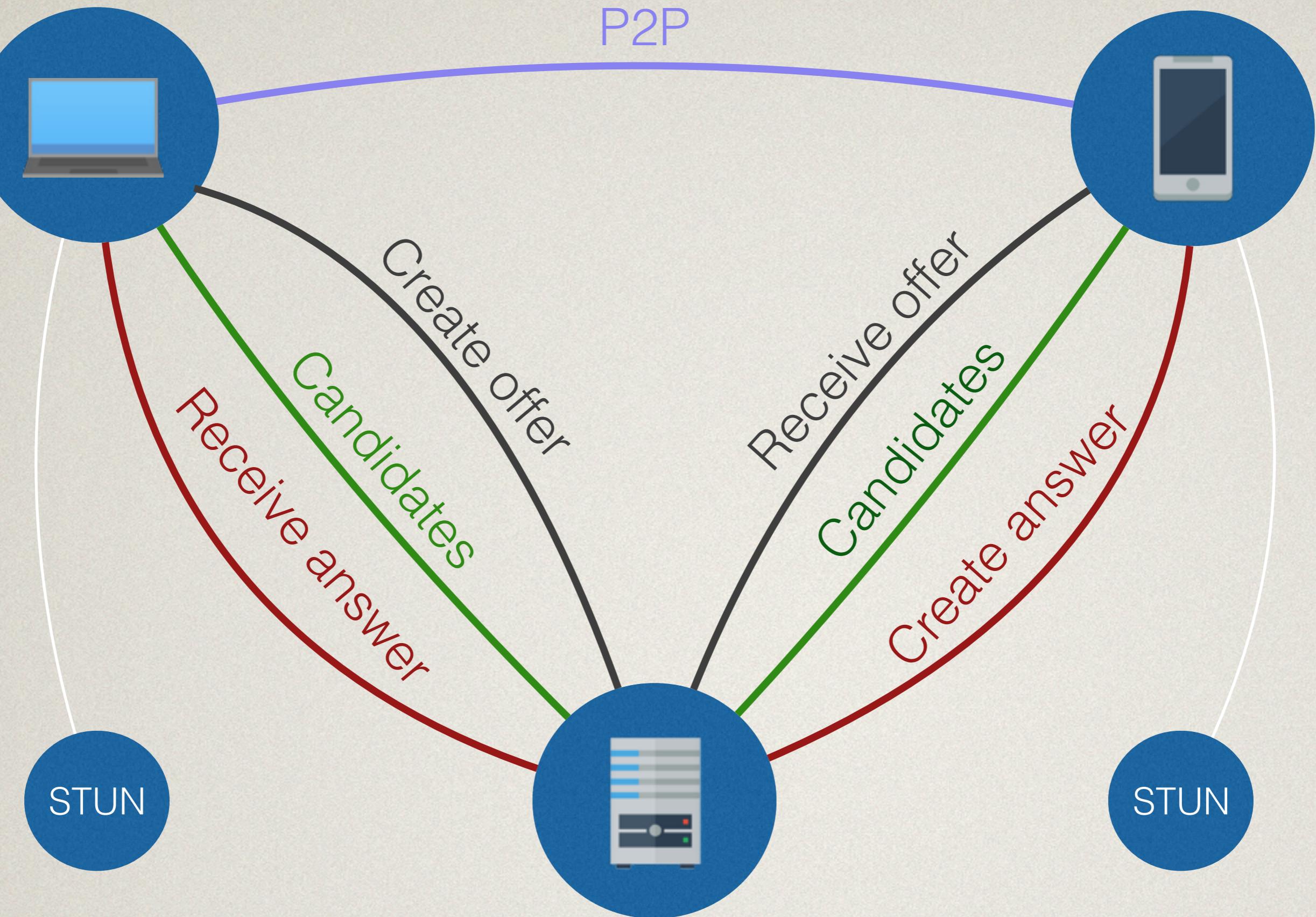
?

Peter



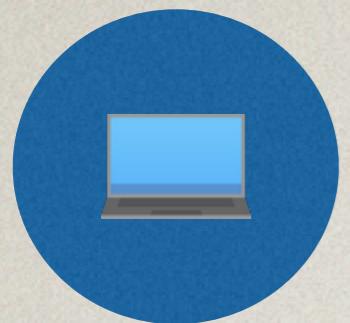
Login to signalling







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new RTCPeerConnection

createOffer

setLocalDescription(offer)

setRemoteDescription(offer)

createAnswer(offer)

setLocalDescription(answer)

setRemoteDescription(answer)

setIceCandidate

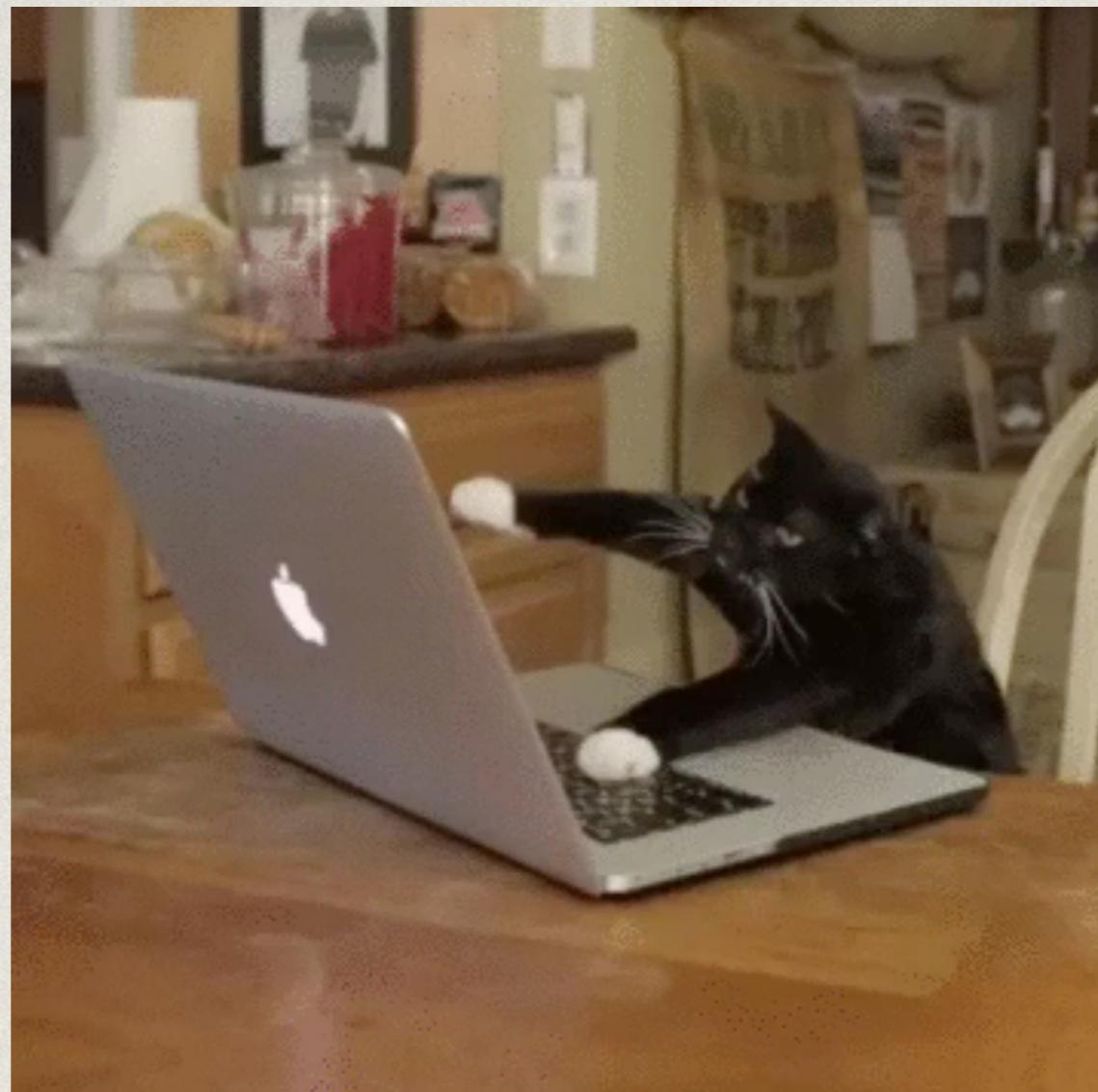
Signalling is for sharing

- RTCPeerConnection offer
- RTCPeerConnection answer
- ICE candidates

Let's code



Huh ...



Polyfill Adapter.js



The logo consists of the word "Adapter" in a large, dark gray sans-serif font, followed by "JS" in a smaller, teal sans-serif font.

<https://github.com/Temasys/AdapterJS>



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WEBTORRENT

Streaming torrent client for node & the browser

<https://webtorrent.io/>

<https://github.com/feross/webtorrent>



<http://google.com/starwars>



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WebVR & WebRTC

ProxyControls shares events from input devices (keyboard, gamepad, etc.) with a remote device. While viewing a WebVR site on your phone.

ProxyControls.js
BETA

<https://proxy-controls.donmccurdy.com/demo>

WebRTC Multipoint control unit



<https://jitsi.org/Main/Download>
<https://janus.conf.meetecho.com/>
<http://lynckia.com/>

Alliance for Open Media

Focusing on developing next generation media formats, codecs and technologies in the public interest.

- Enough, lets go to standard
- Open
- Works for the web
- Fits to any modem, device and bandwidth
- Capable of streaming high quality real-time video

Amazon | Netflix | Microsoft | Intel | Cisco (Thor) | Mozilla (Daala) | Google (VP9)

<http://aomedia.org/>



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Object RTC

2015 -



<http://ortc.org>

News around WebRTC

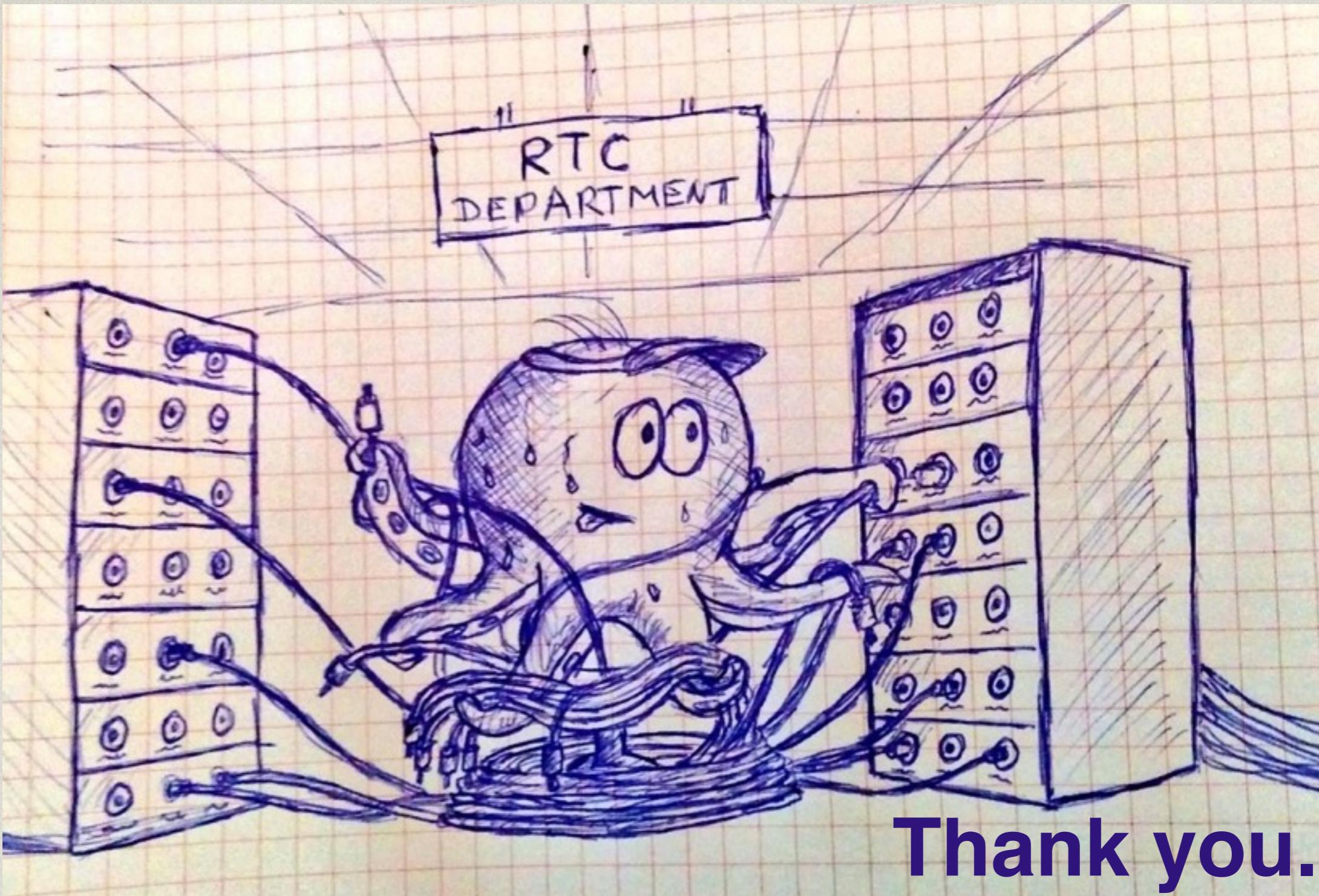
- Canvas as the source of video stream
- Screen sharing
- Simulcast support
- ICE restart
- Full duplex audio across all platforms



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Is WebRTC ready yet?

<http://iswebrtcreadyyet.com/>
<http://realtimeweekly.co/> (#118)
<https://webrtcweekly.com>
<http://www.webrtc.org/>



Thank you.



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Questions?

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