Introducing the WebRTC APIs

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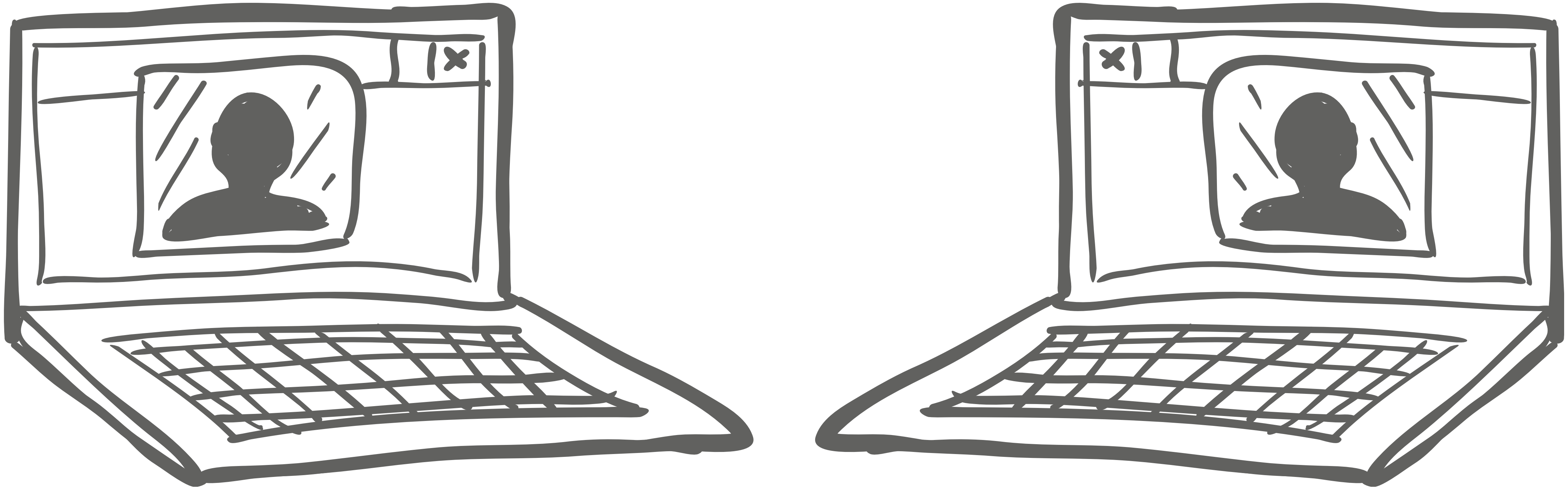
@lisamarienyc

pluralsight
hardcore developer training

Videoconferencing is Hard.



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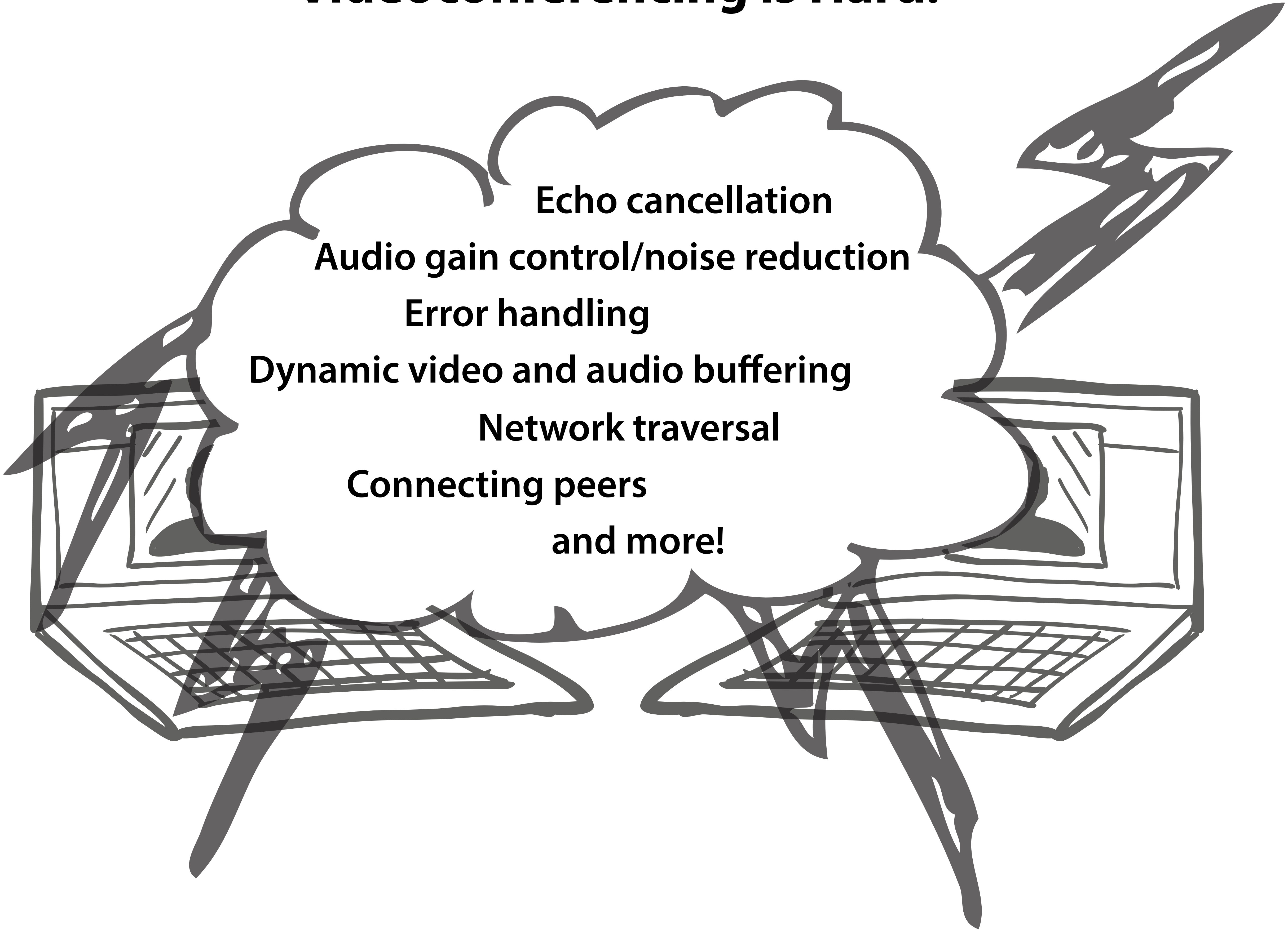

Echo cancellation

Audio gain control/noise reduction

Error handling

Dynamic video and audio buffering

Network traversal

Connecting peers

and more!

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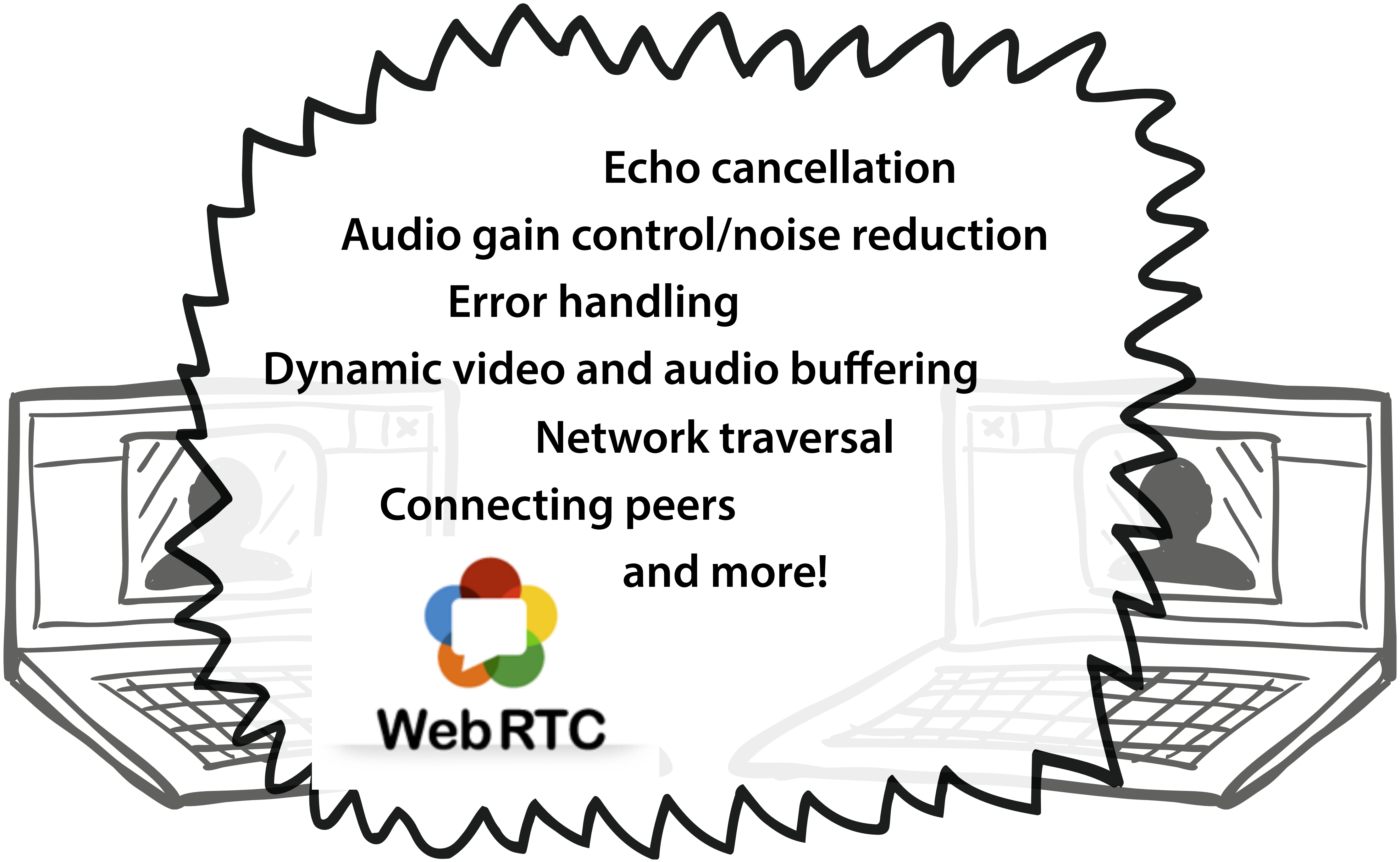

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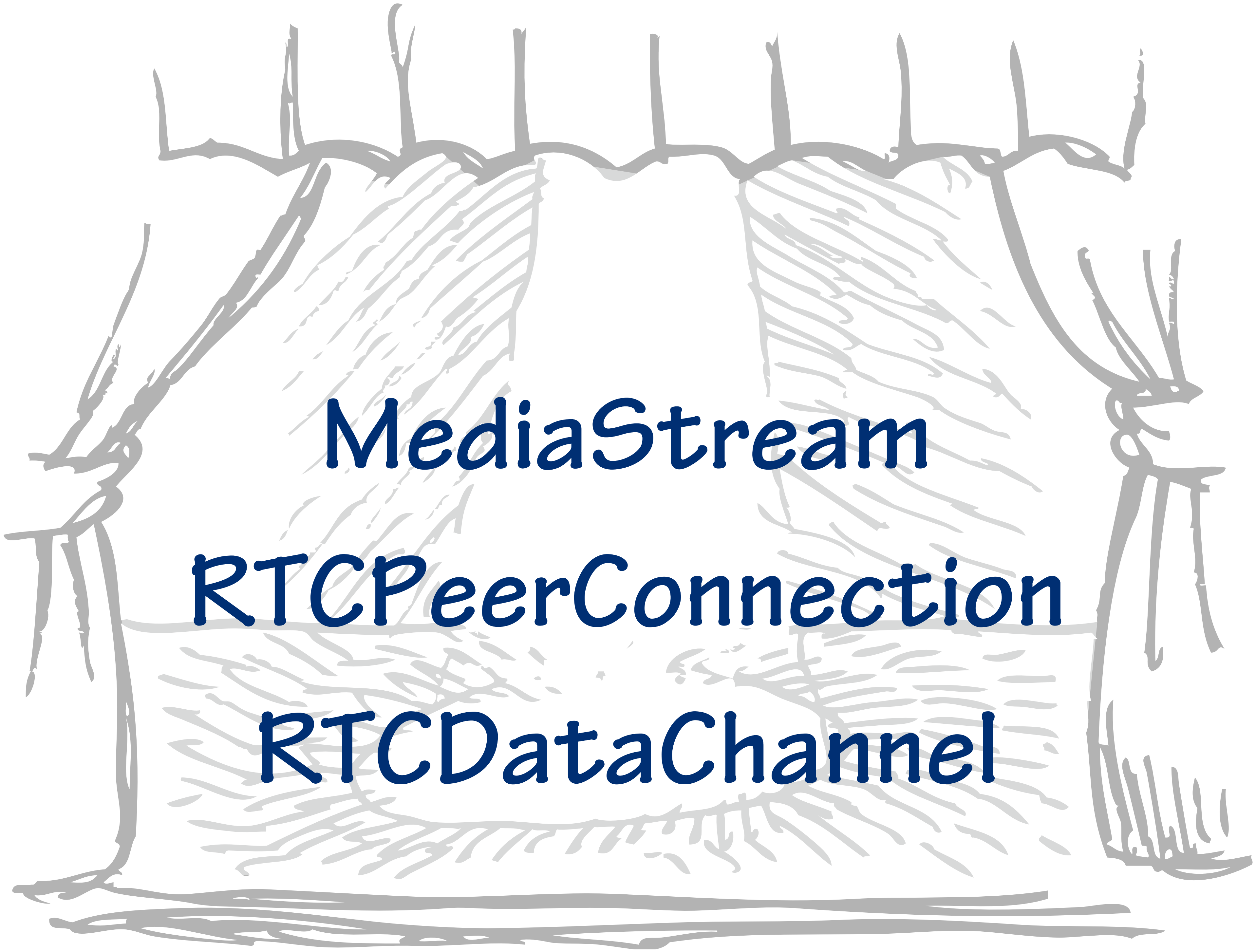
WebRTC

Ladies and Gentlemen, The WebRTC APIs:



MediaStream

RTCPeerConnection

RTCDataChannel

04-02

The MediaStream API

The MediaStream API

getUserMedia()

The MediaStream API

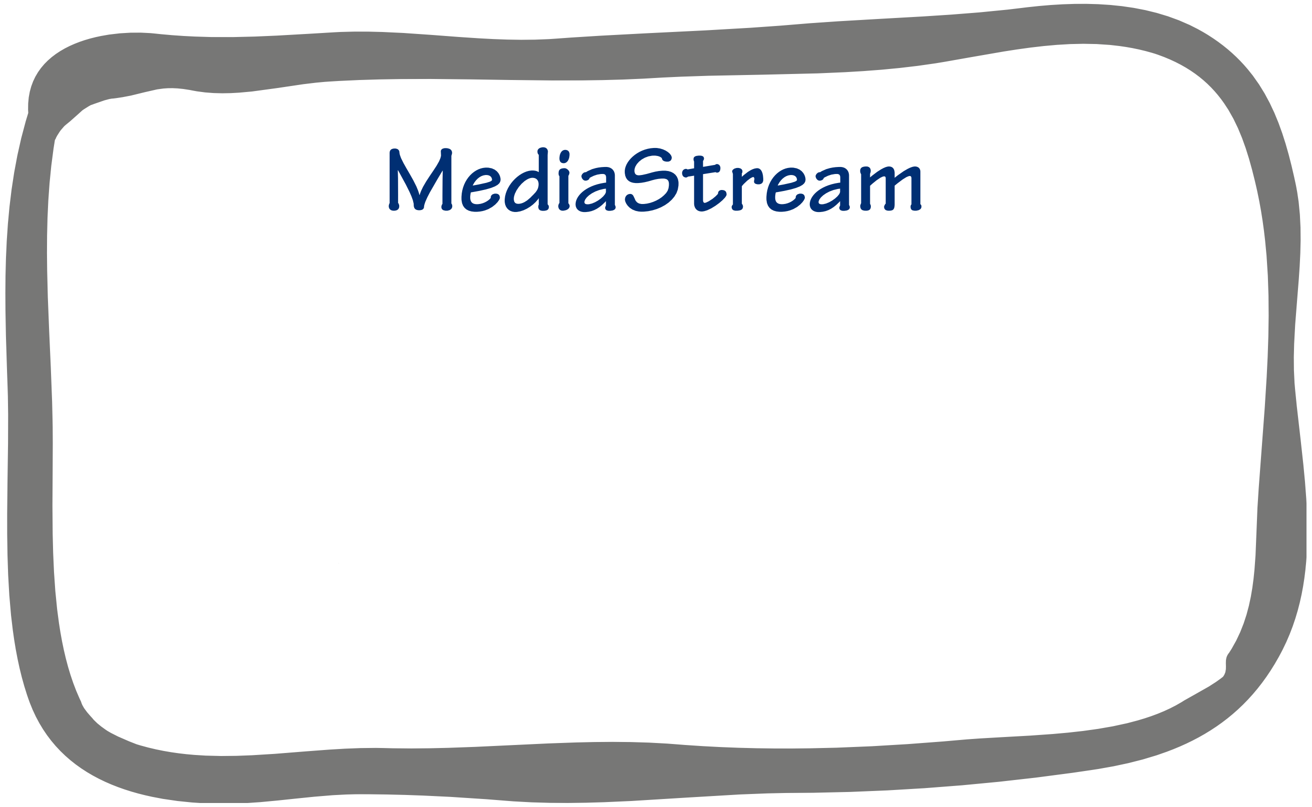
getUserMedia()

MediaElement

RTCPeerConnection

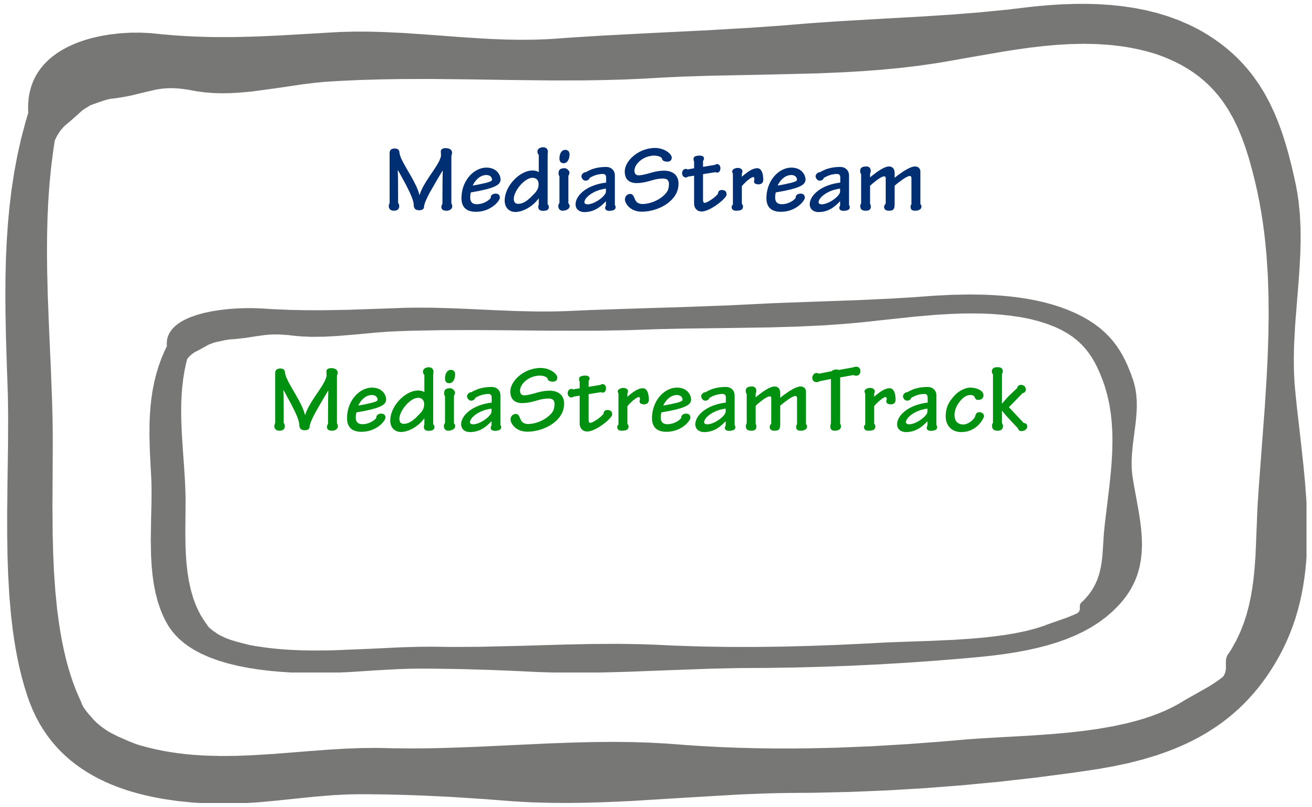
http://localhost:8888/webrtc/ps-webrtc-apis/ps-webrtc-mediastream.html

A MediaStream Object



MediaStream

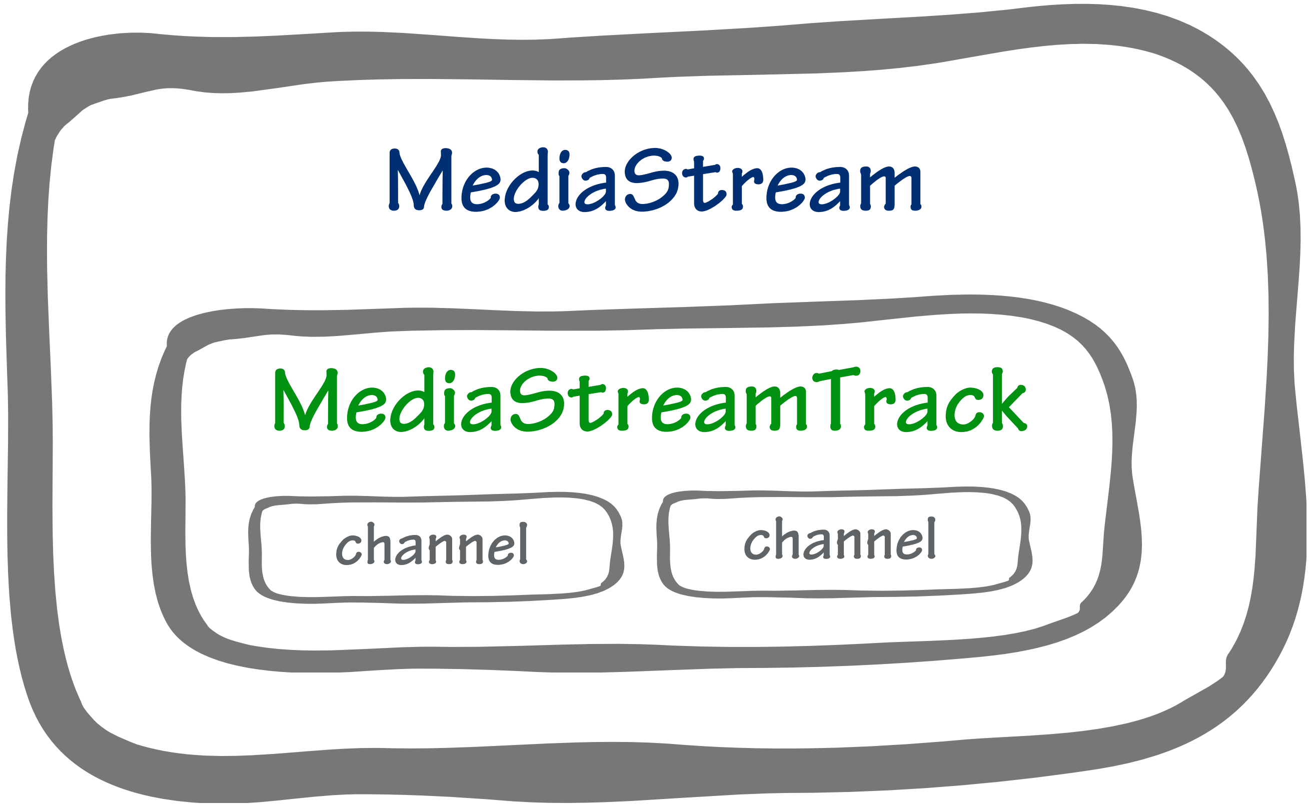
A MediaStream Object



MediaStream

MediaStreamTrack

A MediaStream Object



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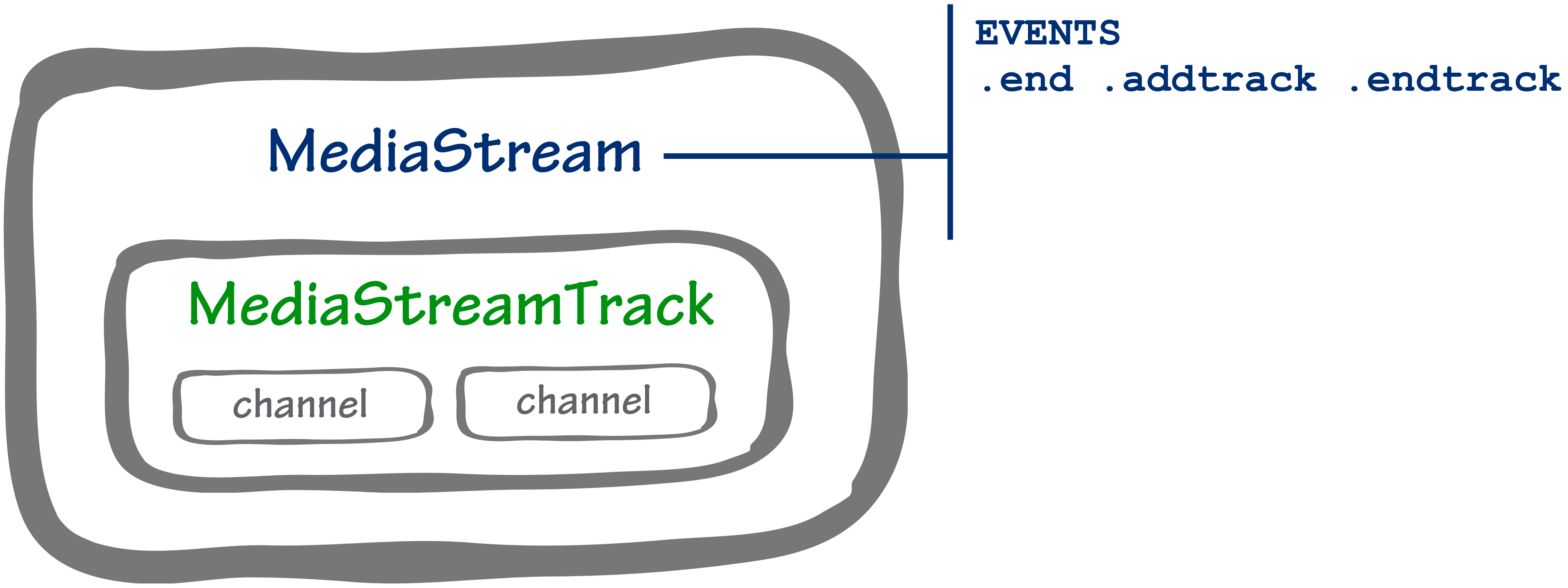

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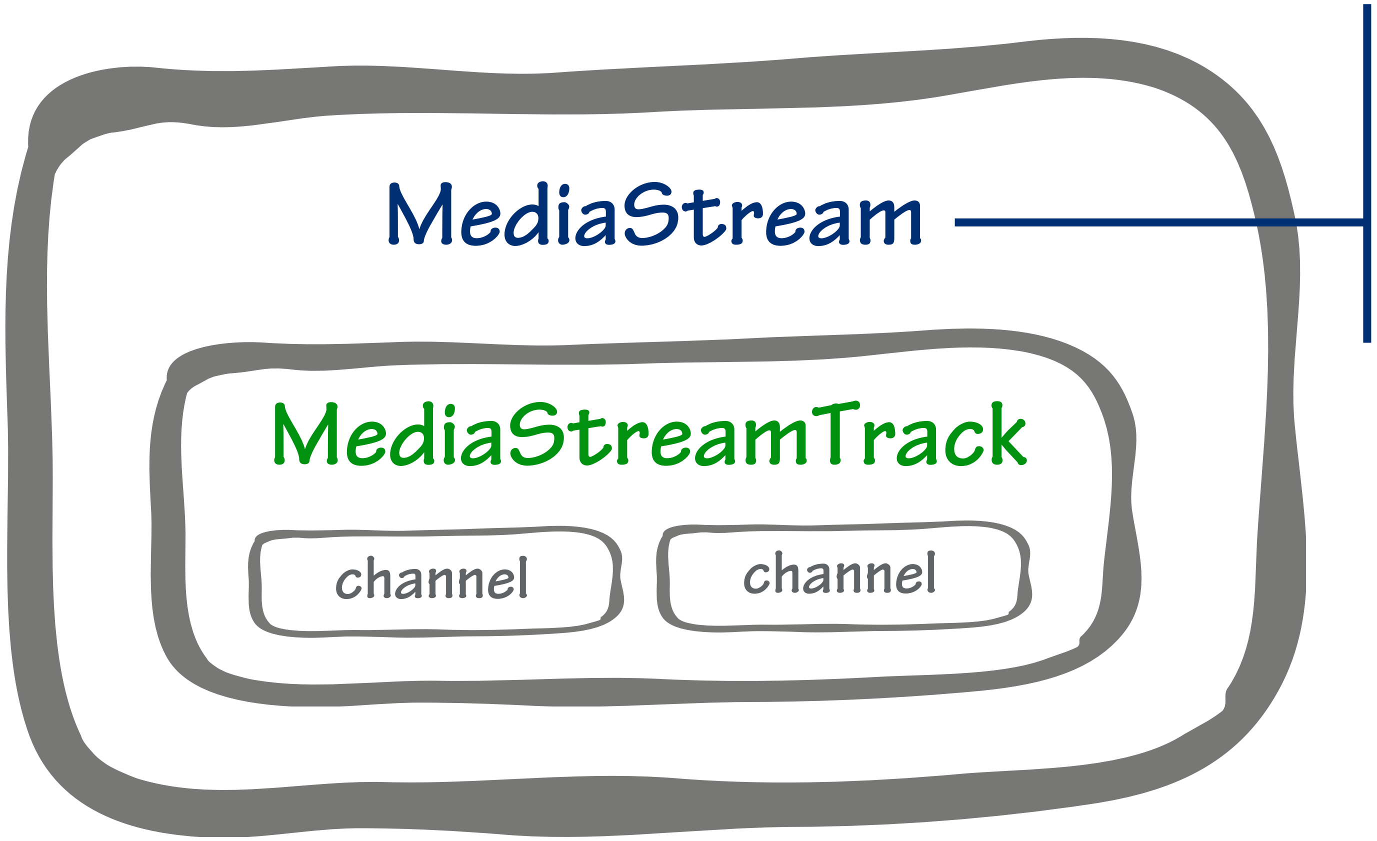


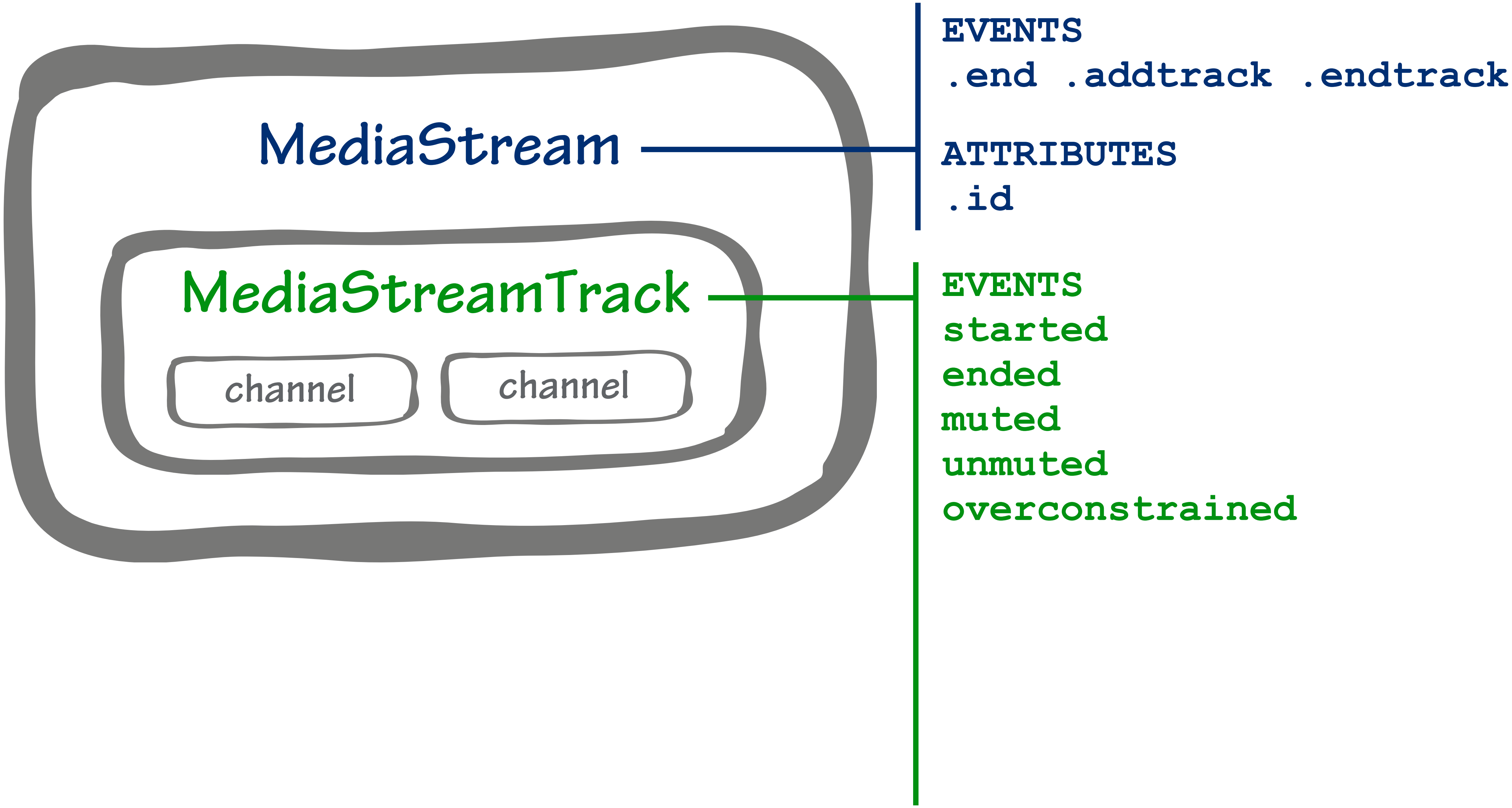
EVENTS

.end .addtrack .endtrack

ATTRIBUTES

.id

A MediaStream Object



EVENTS
.end .addtrack .endtrack

ATTRIBUTES
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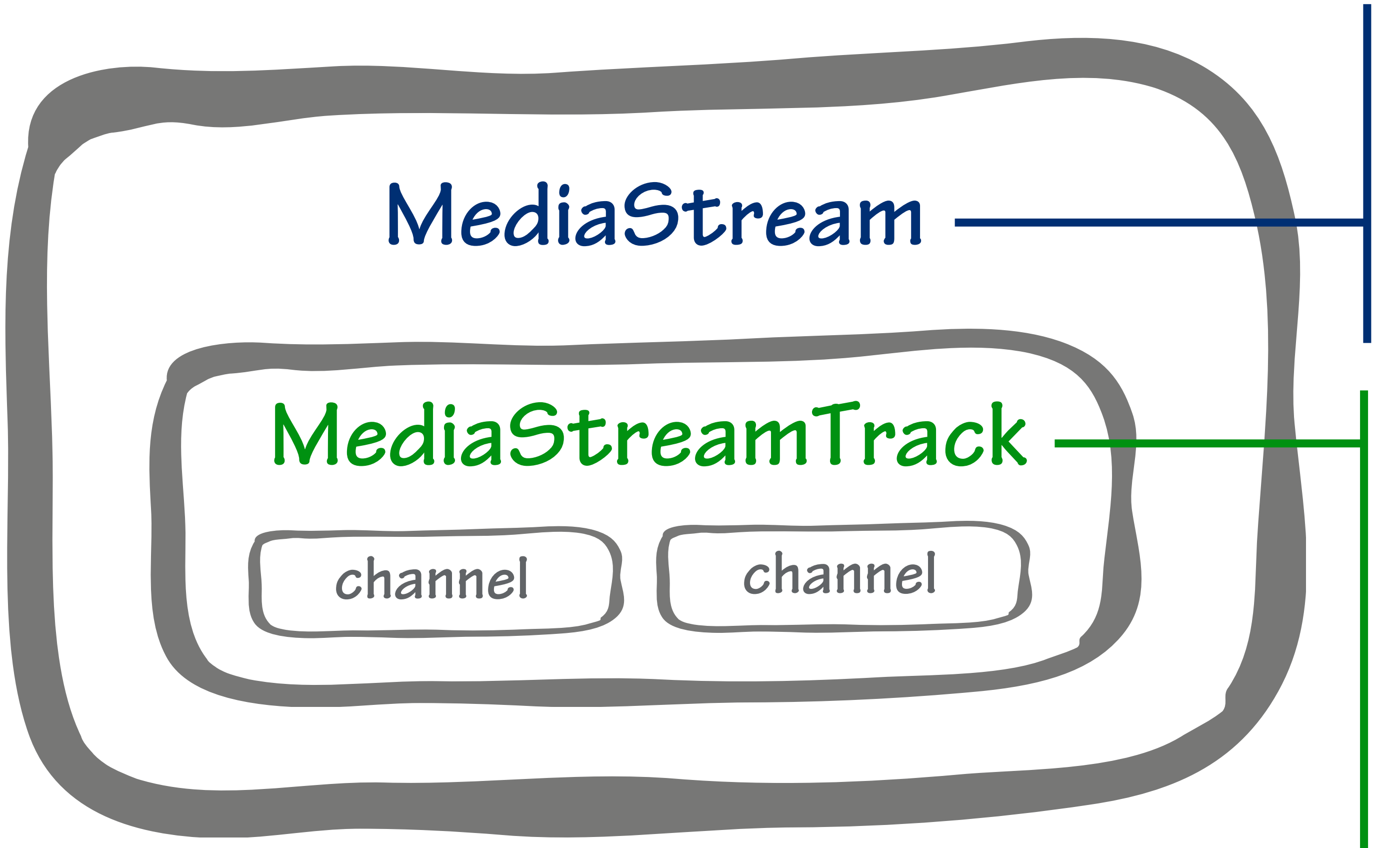
EVENTS
started
ended
muted
unmuted
overconstrained

A MediaStream Object



EVENTS
.end .addtrack .endtrack

ATTRIBUTES
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EVENTS
started
ended
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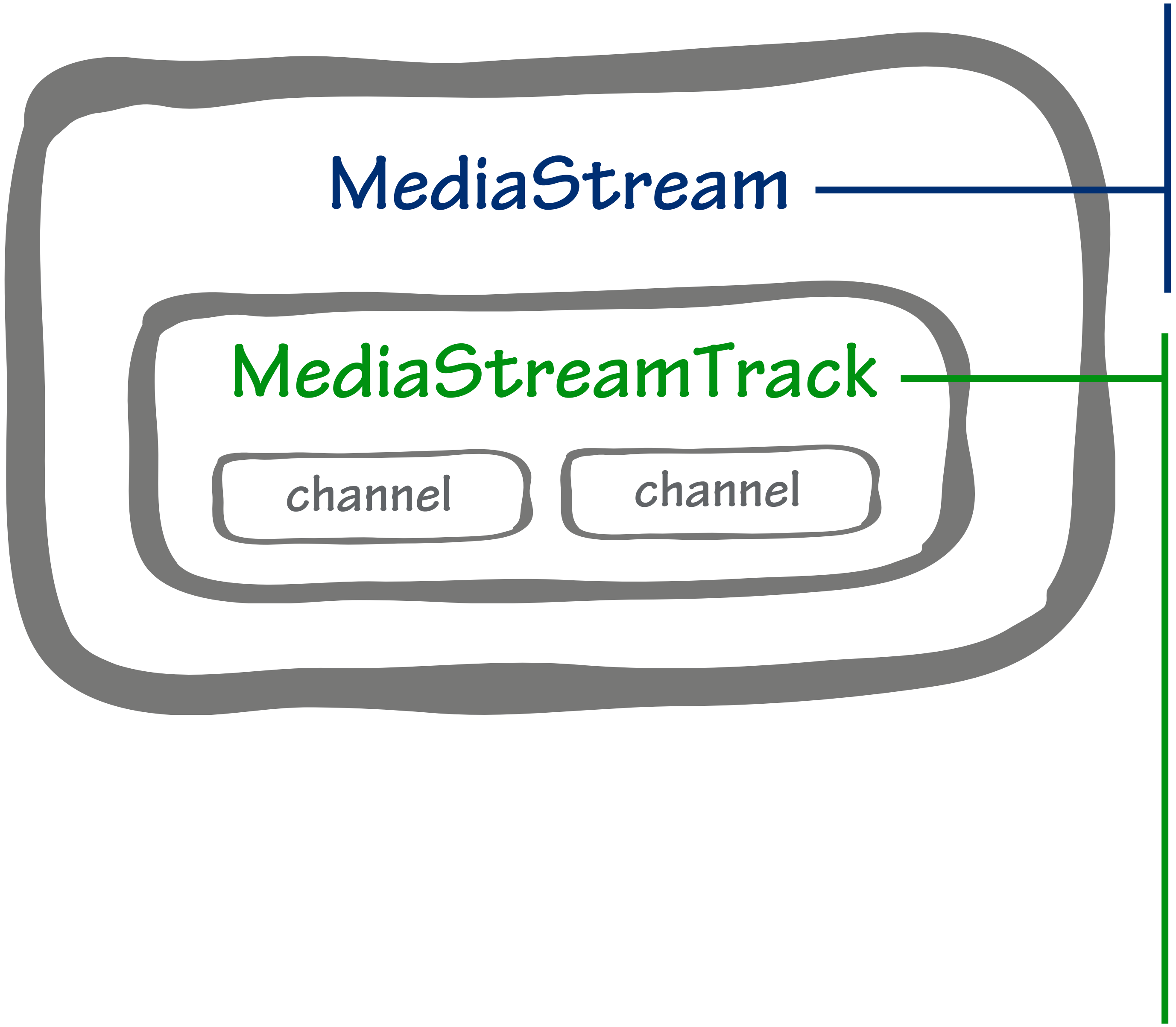
unmuted
overconstrained

STATES
.readyState

A MediaStream Object



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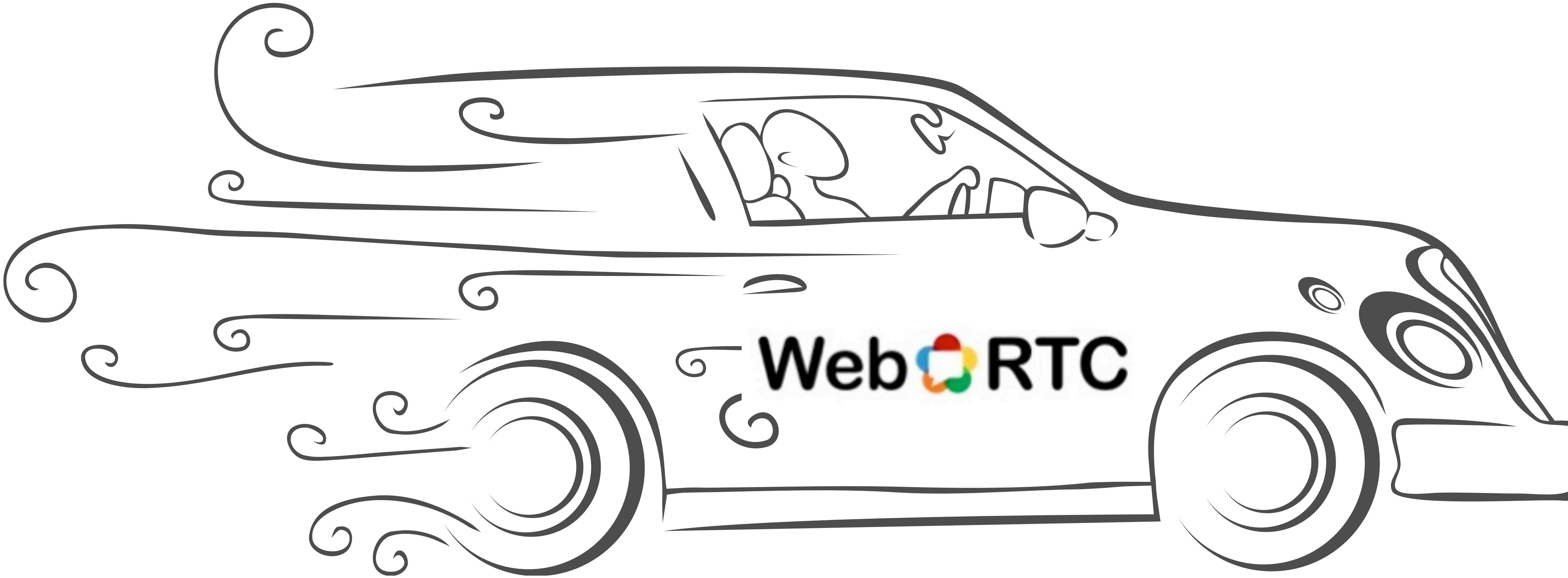
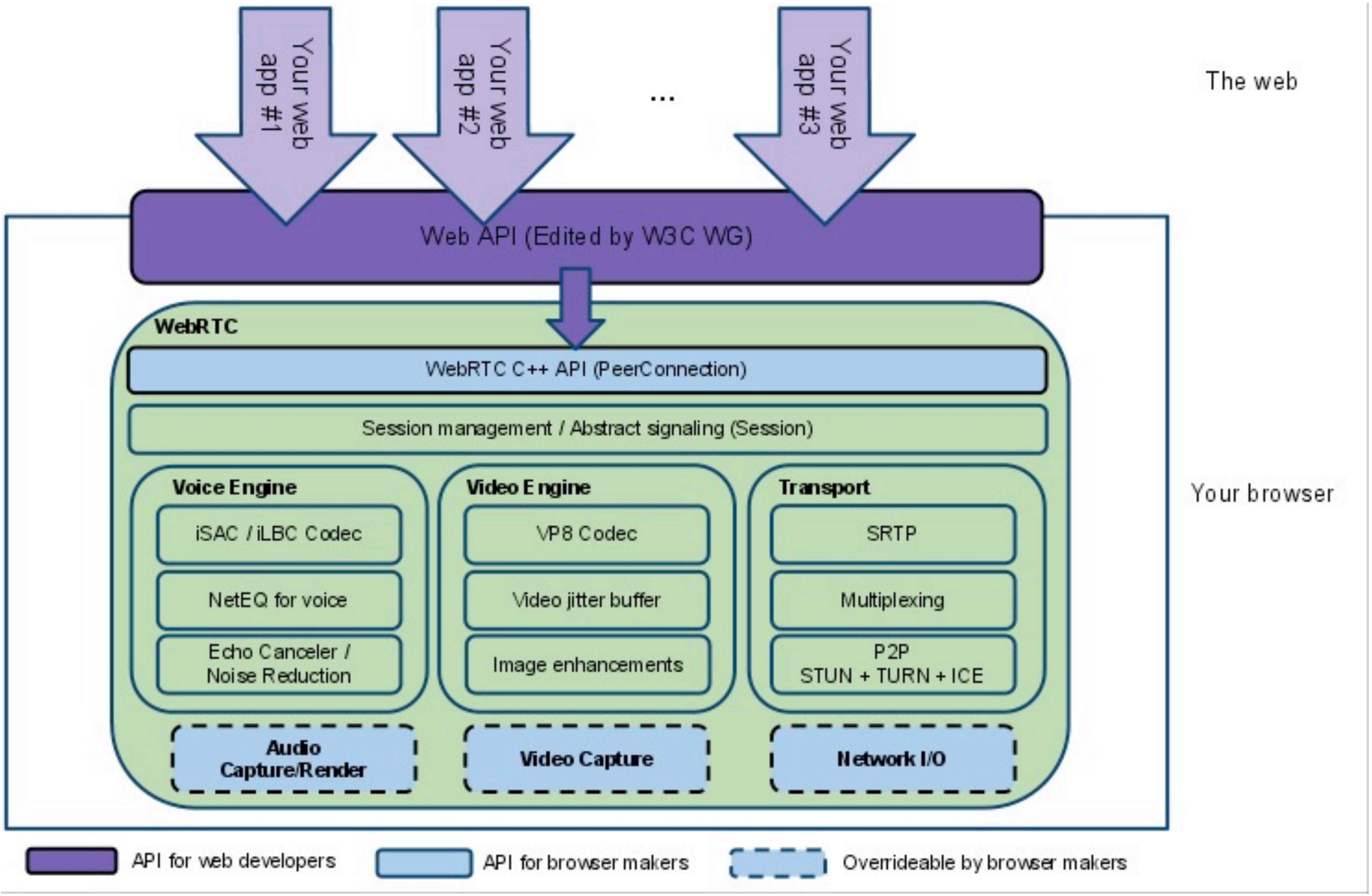
04-03

RTCPeerConnection, Under the Hood



RTCPeerConnection, Under the Hood

via www.WebRTC.org

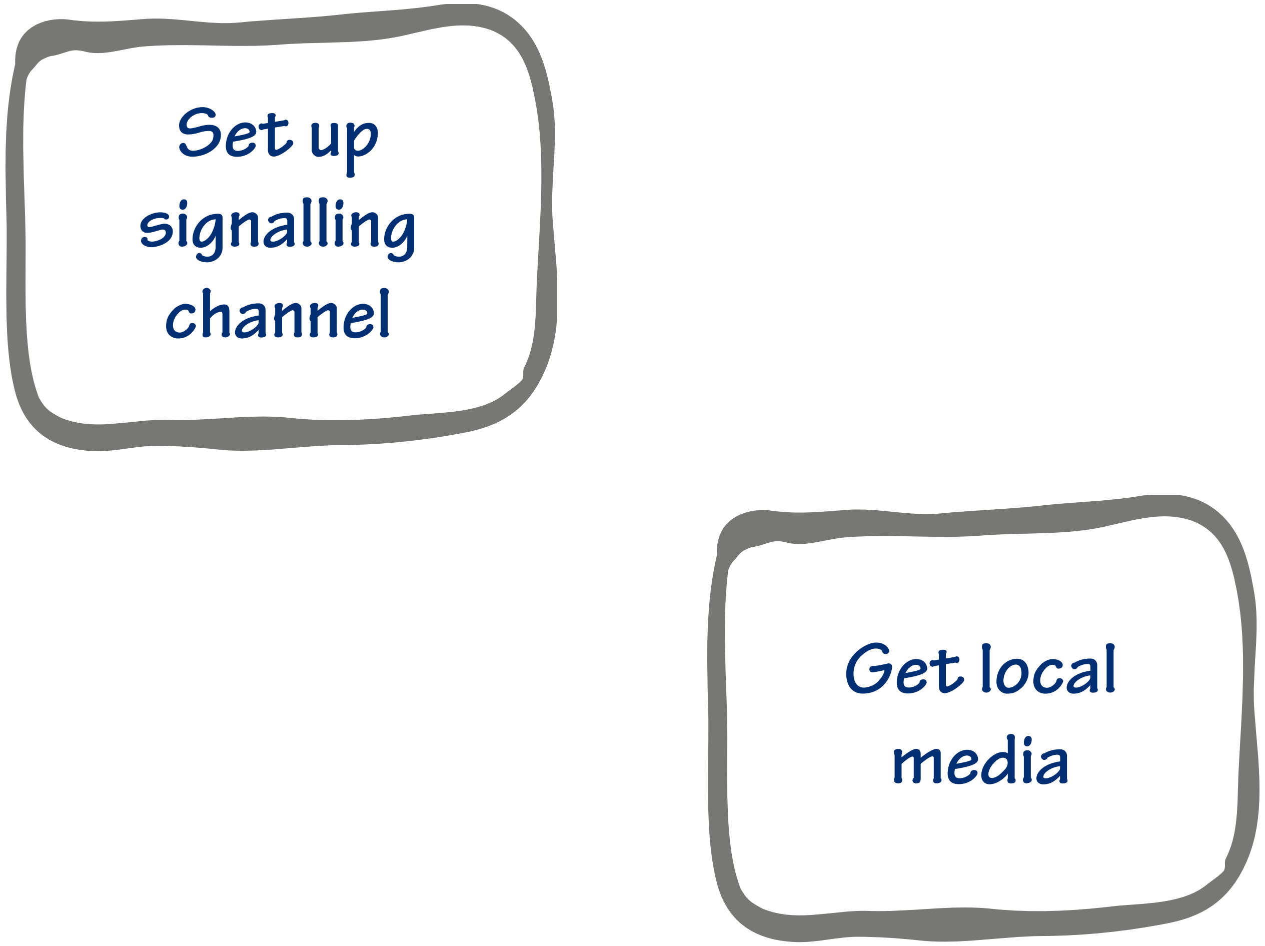


Initiating a Peer Connection

Initiating a Peer Connection

Get local media

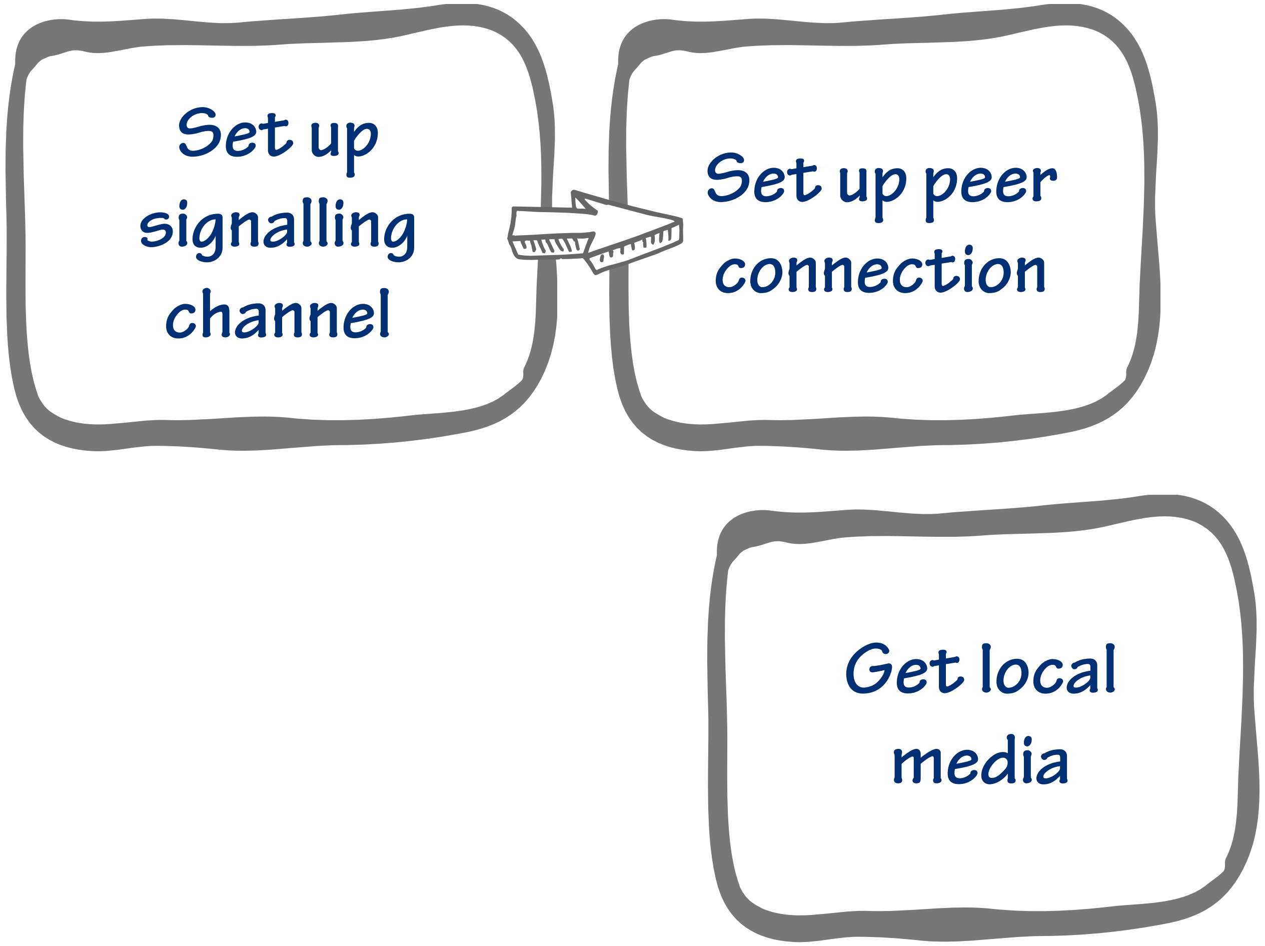
Initiating a Peer Connection



Set up signalling channel

Get local media

Initiating a Peer Connection



Set up signalling channel

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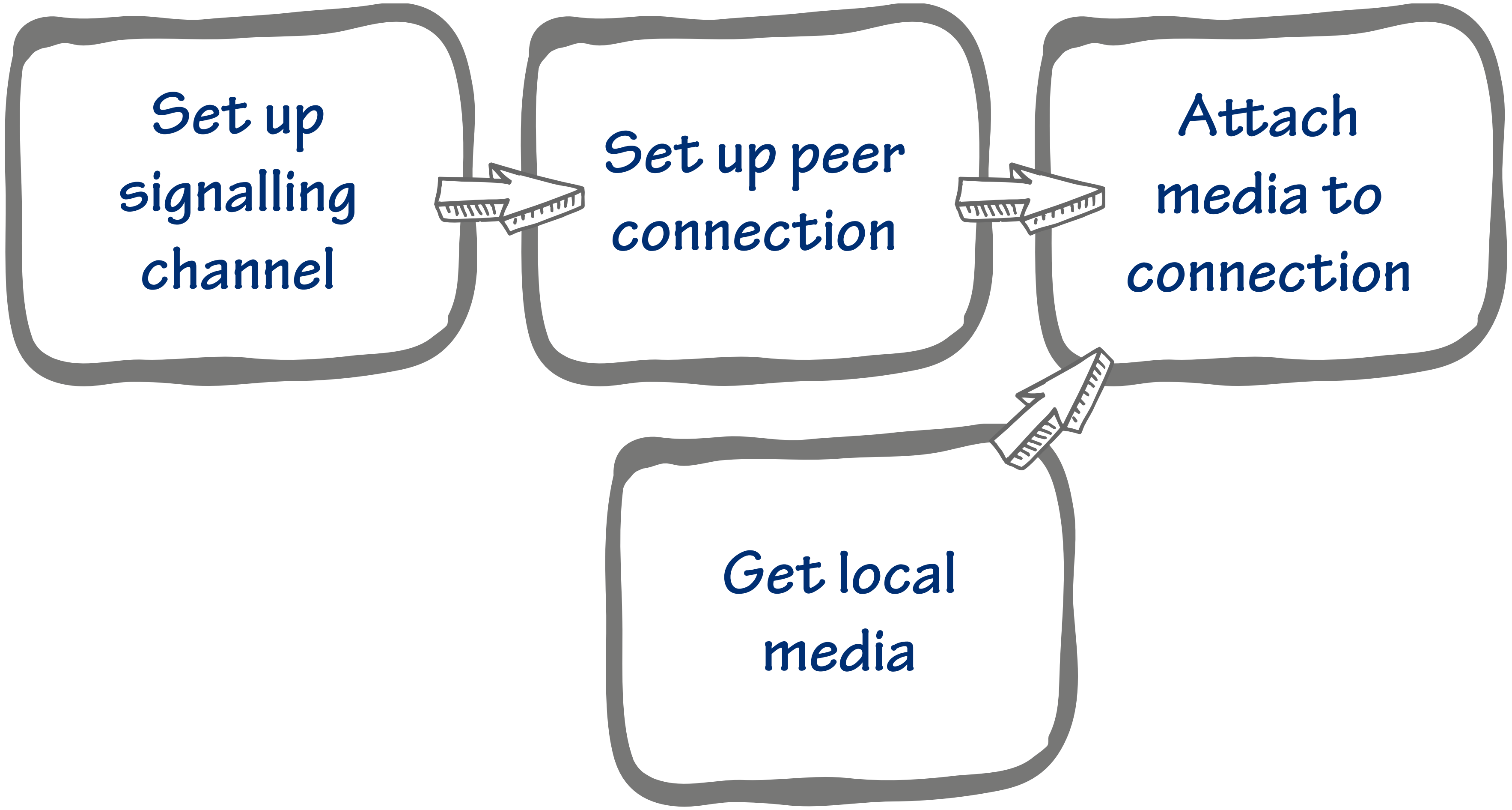
Initiating a Peer Connection



Set up signalling channel

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Attach media to connection

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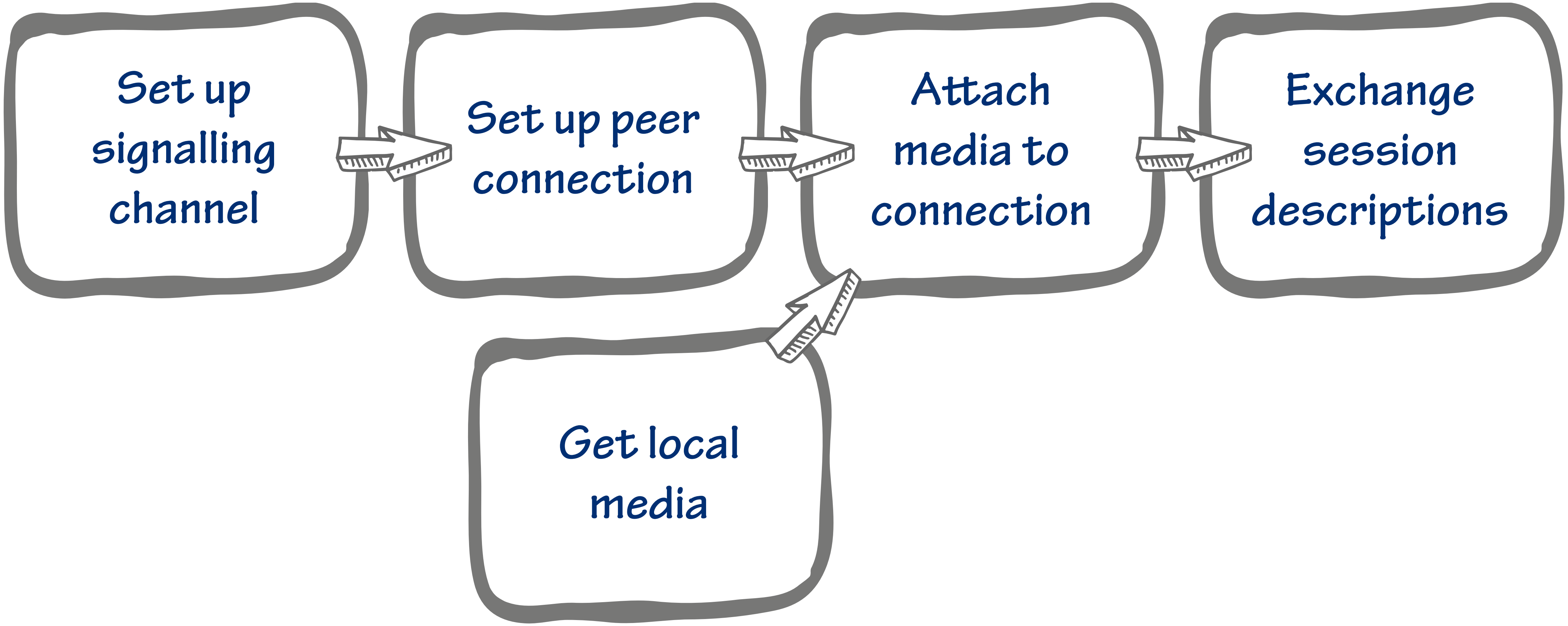
Initiating a Peer Connection


Set up signalling channel
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Exchange session descriptions
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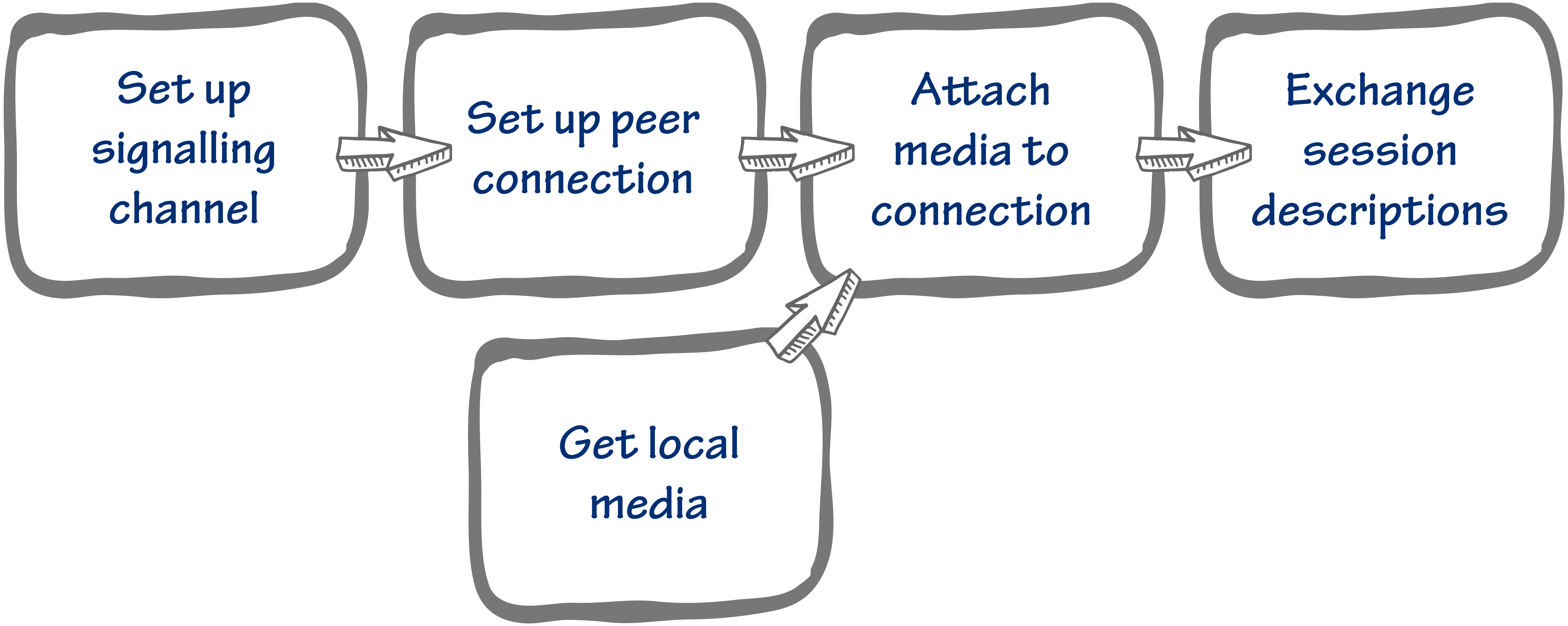
Initiating a Peer Connection



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mediaStream API

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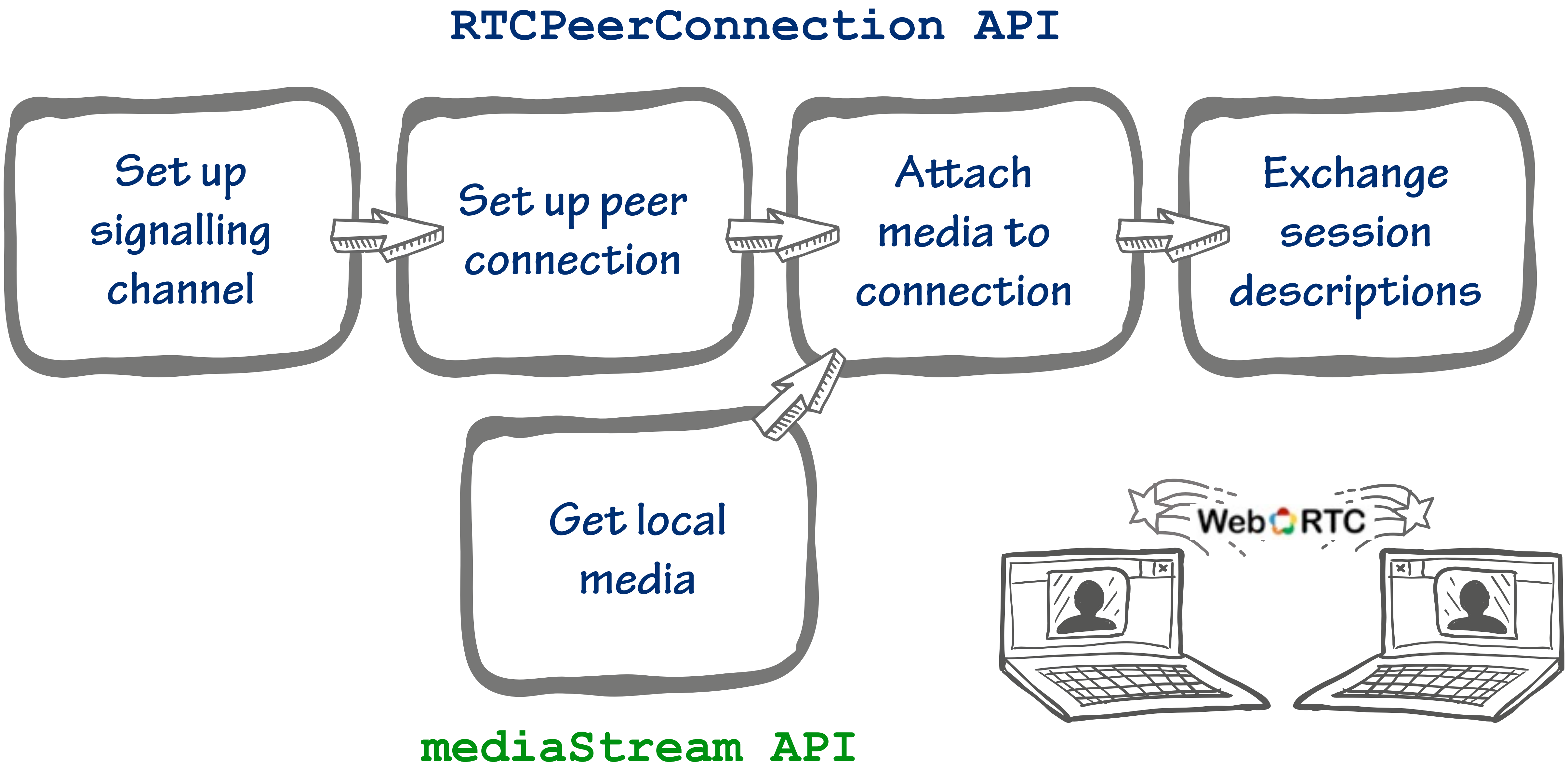

RTCPeerConnection API

Set up signalling channel

Set up peer connection

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http://webrtchacks.com/sdp-anatomy/

Instantiating a RTCPeerConnection Object

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```
myPeerConnection =
    new webkitRTCPeerConnection(config, constraints);
```

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```
myPeerConnection = new webkitRTCPeerConnection(null);
```

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```

```
var config = {"iceServers":[{"url":"stun:stun.1.google.com:19302"},
                            {"url":"stun:stun1.1.google.com:19302"},
                            {"url":"turn:198.76.543.2",
                             "credential":"YourPasswordHere"}]};
```

```
myPeerConnection = new webkitRTCPeerConnection(null);
```

04-04

RTCDataChannel

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  - Multiplayer games
  - Text chat
  - Remote applications
  - File transfer

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- Same API as WebSockets (basically)
- Datagram Transport Layer Security (DTLS)
- Congestion control

File Sharing

File Sharing

http://sharefest.me

Distributed Content Delivery

Distributed Content Delivery

http://peercdn.com

RTCDataChannel API

RTCDataChannel API

```
var datachannel = myPeerConnection.createDataChannel(label);
```

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