

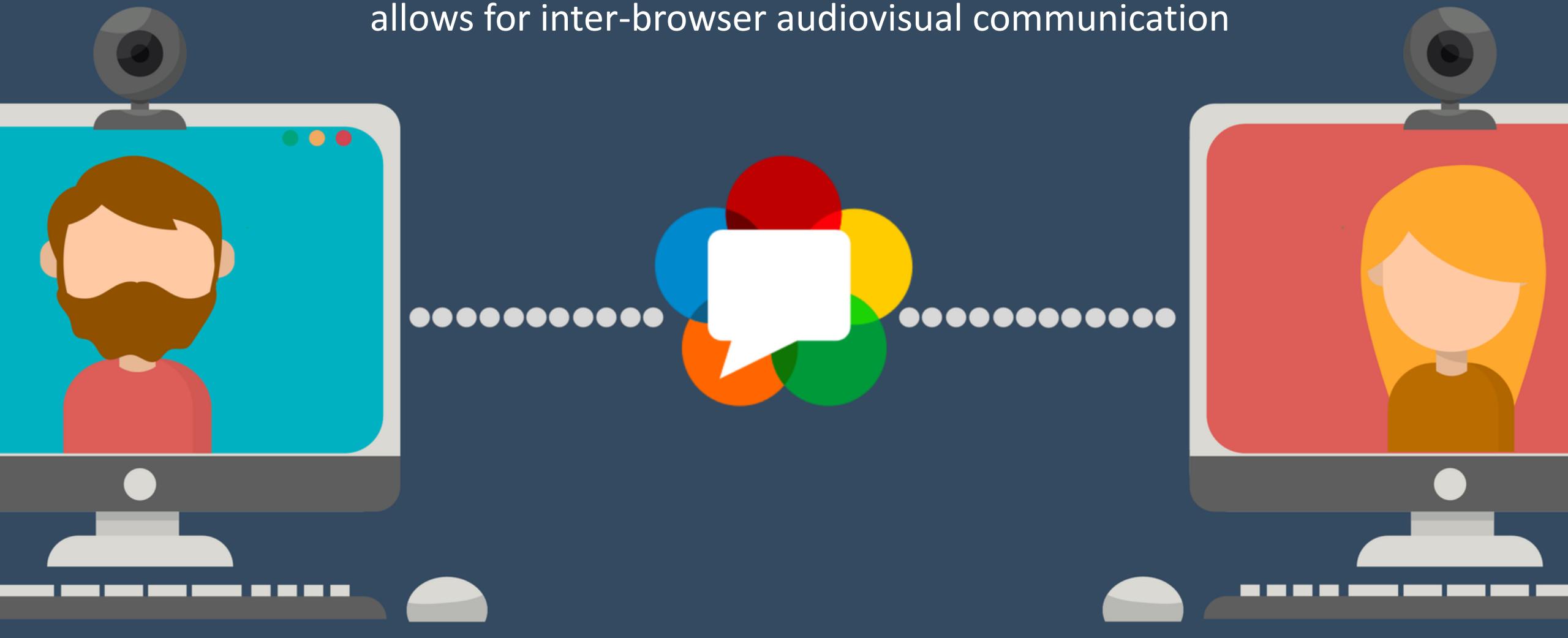
WebRTC

Final Project RSCM

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What is it?

Web Real-Time Communication is an open-source project which allows for inter-browser audiovisual communication



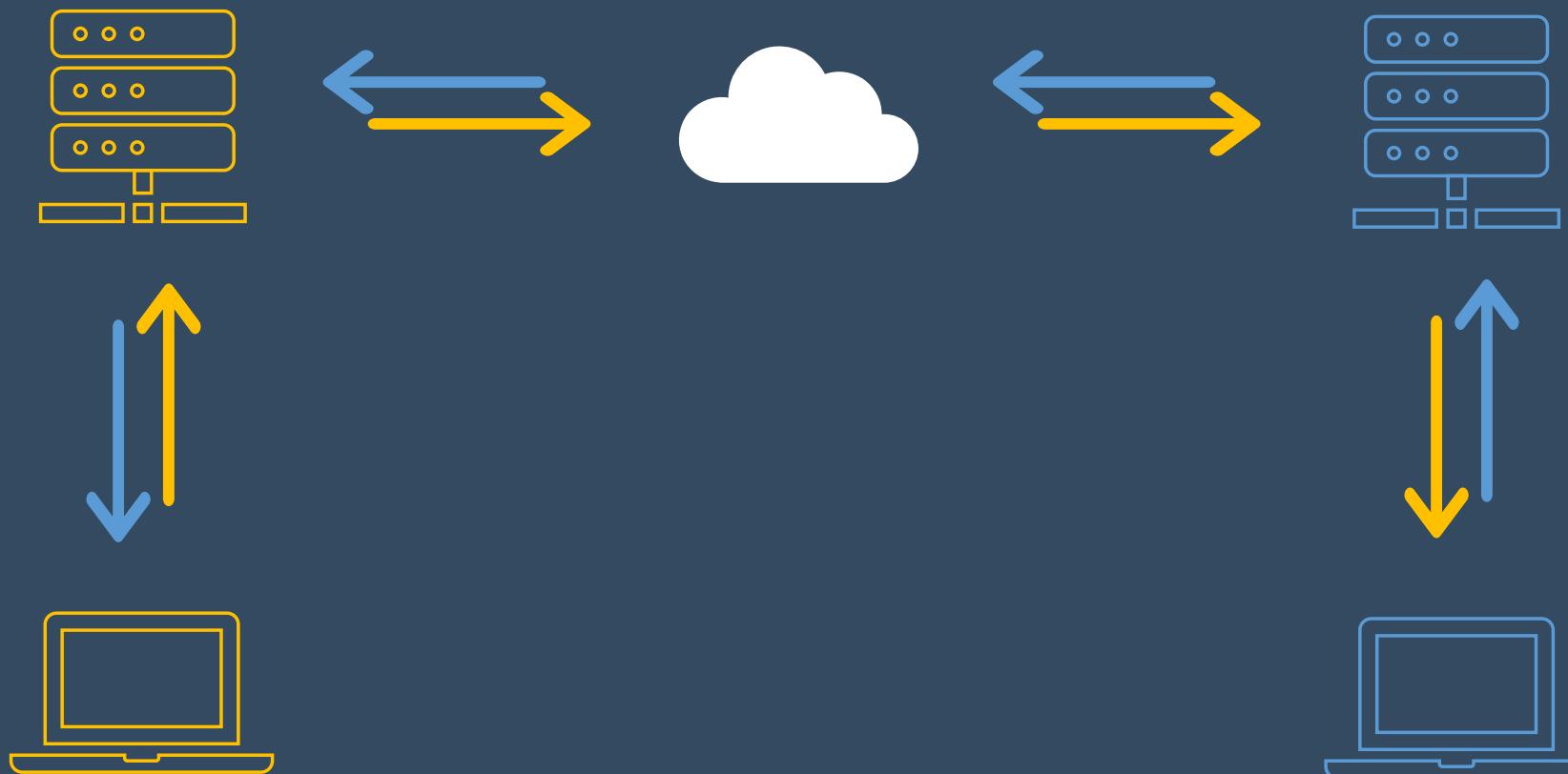
How did it start?

- GIPS
- On2
- 2010 - acquisition
- 2011 - project
- IETF, W3C, WHATWG
- Implementation
 - Ericsson
- 2011 - Chrome
- 2013 - Firefox
- Android
- 2014 - Opera
- 2017 - Edge



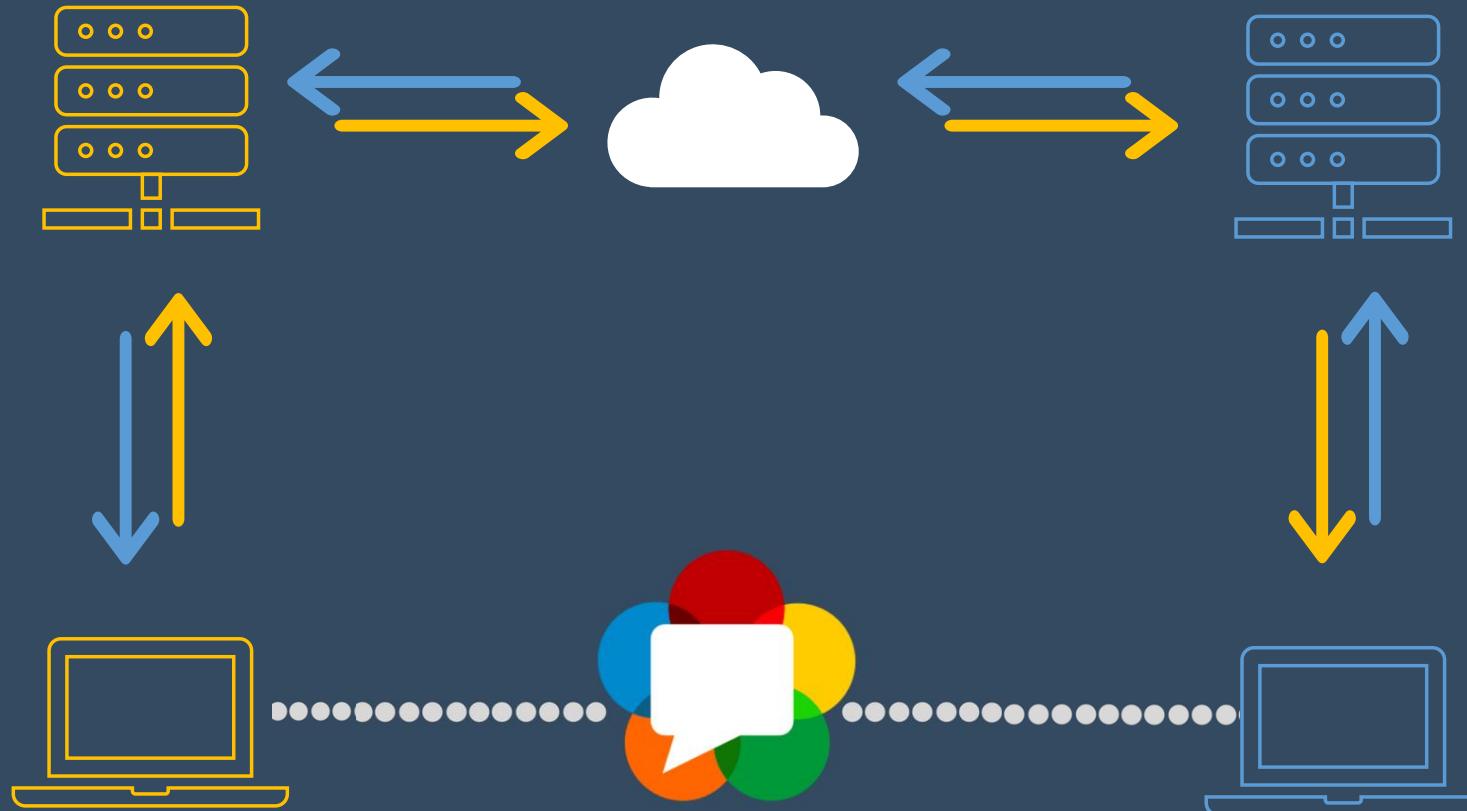
How does it work?

Real time communication without WebRTC



How does it work?

Real time communication *with* WebRTC

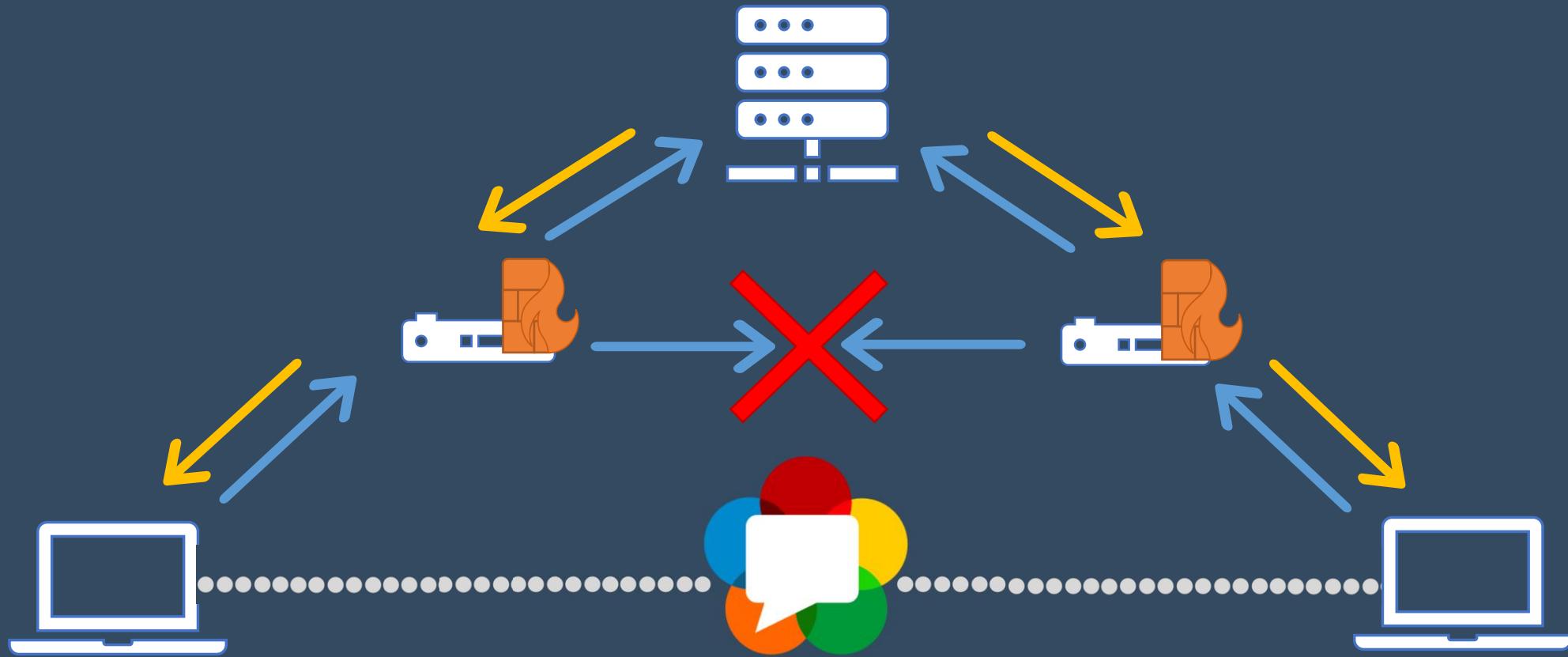


- *Signaling*
 - HTTP
 - WebSocket
- In each endpoint:
 - *RTCPeerConnection()*
 - *RTCDataChannel()*
 - *getUserMedia()*
- *Direct Channel* without server interference

How does it work?

Crossing *NATs* and *firewalls*

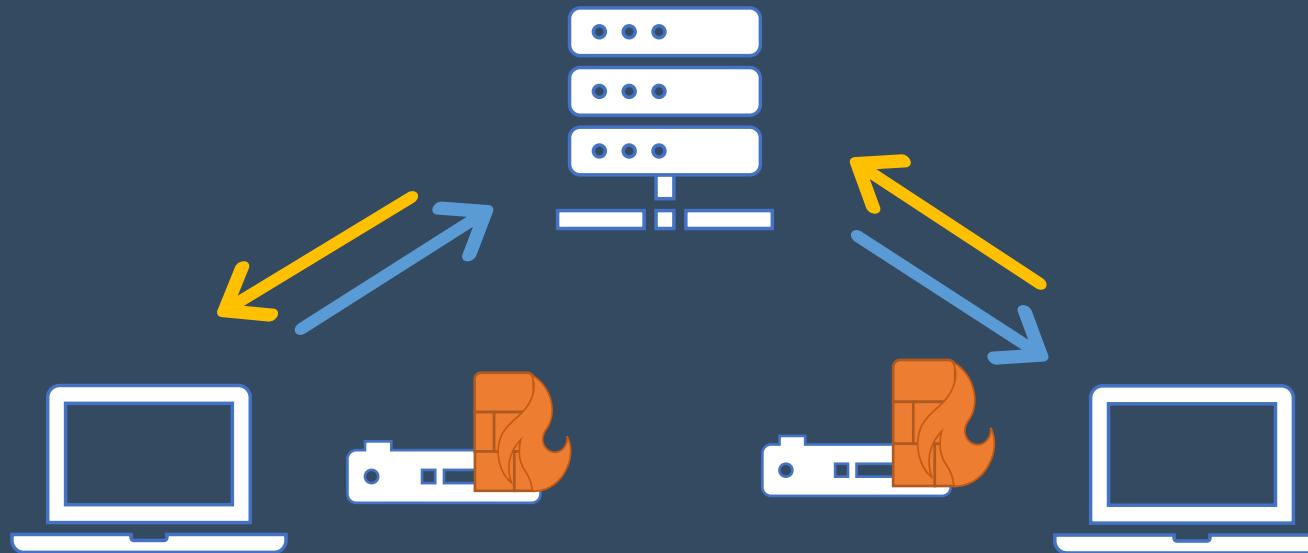
The most common methods are with the use of *STUN* and *TURN* servers



How does it work?

Crossing *NATs* e *firewalls*

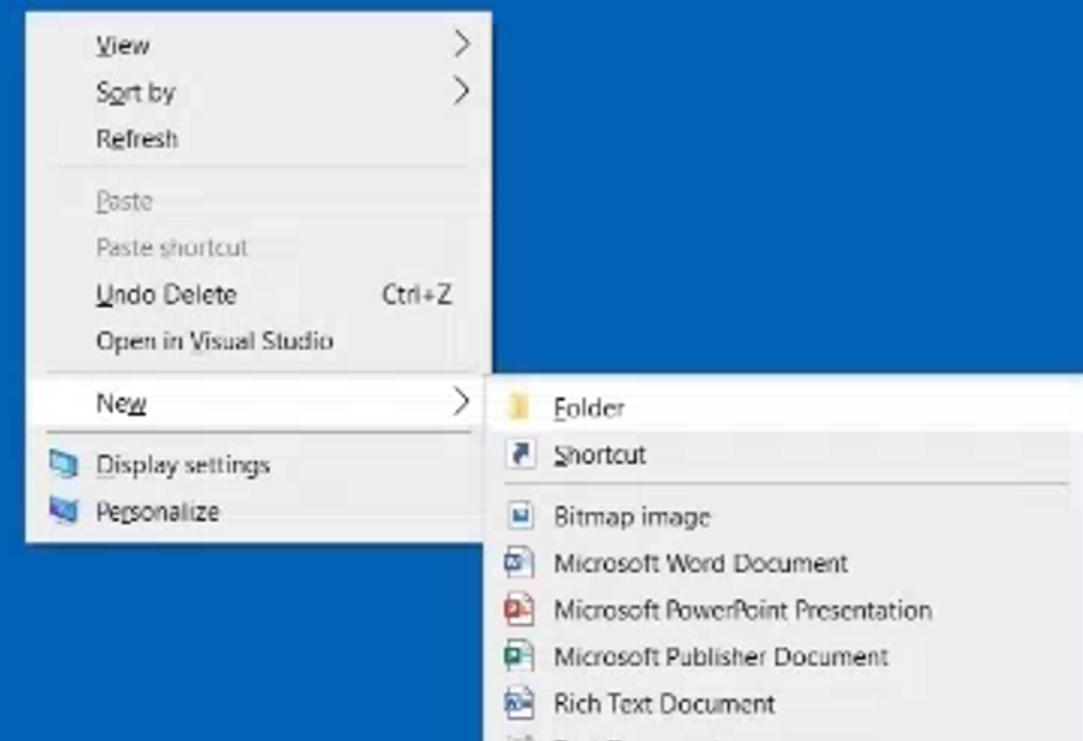
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Recycle Bin

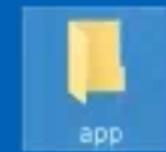
How to implement?

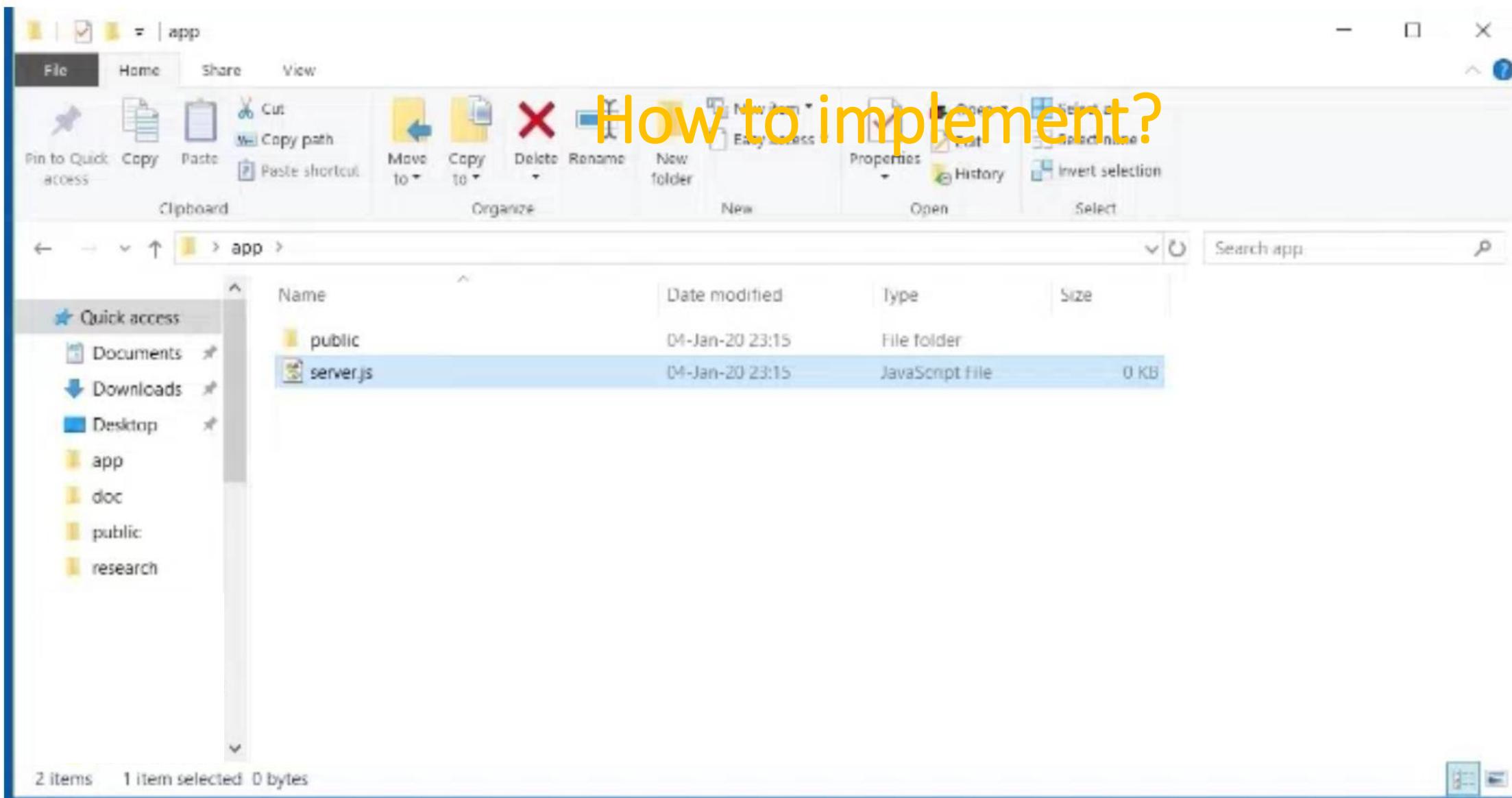


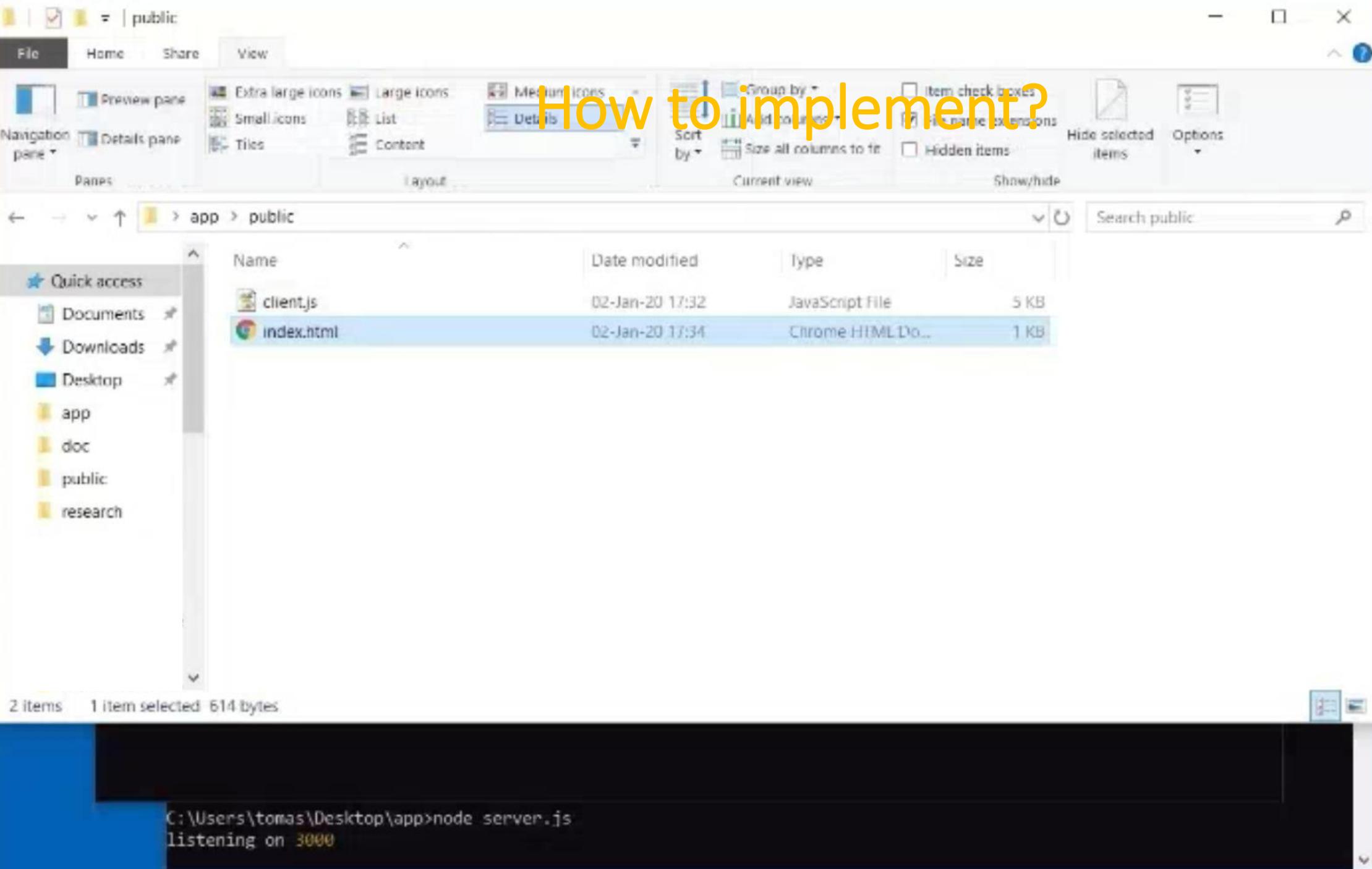


Recycle Bin

How to implement?







npm

Microsoft Windows [Version 10.0.18362.535]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\name>cd C:\Users\name\Desktop\app

C:\Users\name\Desktop\app>npm init -y

Wrote to C:\Users\name\Desktop\app\package.json:

```
{  
  "name": "app",  
  "version": "1.0.0",  
  "description": "",  
  "main": "server.js",  
  "scripts": {  
    "test": "echo \\"Error: no test specified\\" && exit 1",  
    "start": "node server.js"  
  },  
  "keywords": [],  
  "author": "",  
  "license": "ISC"  
}
```

C:\Users\name\Desktop\app>npm install -S express@4.15.4 socket.io@2.0.3

npm WARN deprecated uws@9.14.0: New code is available at github.com/uNetworking/uWebSockets.js

[redacted].....\extract:socket.io-client: sill extract socket.io client@~2.0.2 extracted to C:\Users\name\Desktop\app\node_modules\socket.io-client

npm notice created a lockfile as package-lock.json. You should commit this file.
npm WARN app@1.0.0 No description
npm WARN app@1.0.0 No repository field.

+ socket.io@2.0.3
+ express@4.15.4
added 82 packages from 55 contributors and audited 173 packages in 4.265s
found 10 vulnerabilities (5 low, 2 moderate, 3 high)
run 'npm audit fix' to fix them, or 'npm audit' for details

C:\Users\name\Desktop\app>npm audit fix
npm WARN app@1.0.0 No description
npm WARN app@1.0.0 No repository field.

end! express@4.17.1
added 8 packages from 10 contributors, removed 3 packages and updated 15 packages in 1.456s
fixed 10 of 10 vulnerabilities in 173 scanned packages

C:\Users\name\Desktop\app>localhost 3000
'localhost' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\name\Desktop\app>node server.js
'server.js' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\name\Desktop\app>node server.js
listening on 3000

How to implement?

Command Prompt - ngrok http localhost:3000

(Ctrl+C to quit)

ngrok by @inconshreveable

Session Status

online

Session Expires

7 hours, 59 minutes

Update

update available (version 2.3.35, Ctrl-U to update)

Version

2.3.29

Region

United States (us)

Web Interface

http://127.0.0.1:4040

Forwarding

http://b0a8e0b9.ngrok.io -> http://localhost:3000

Forwarding

https://b0a8e0b9.ngrok.io -> http://localhost:3000

Connections

	ttl	opn	rt1	rt5	p50	p90
--	-----	-----	-----	-----	-----	-----

	0	0	0.00	0.00	0.00	0.00
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How to implement?

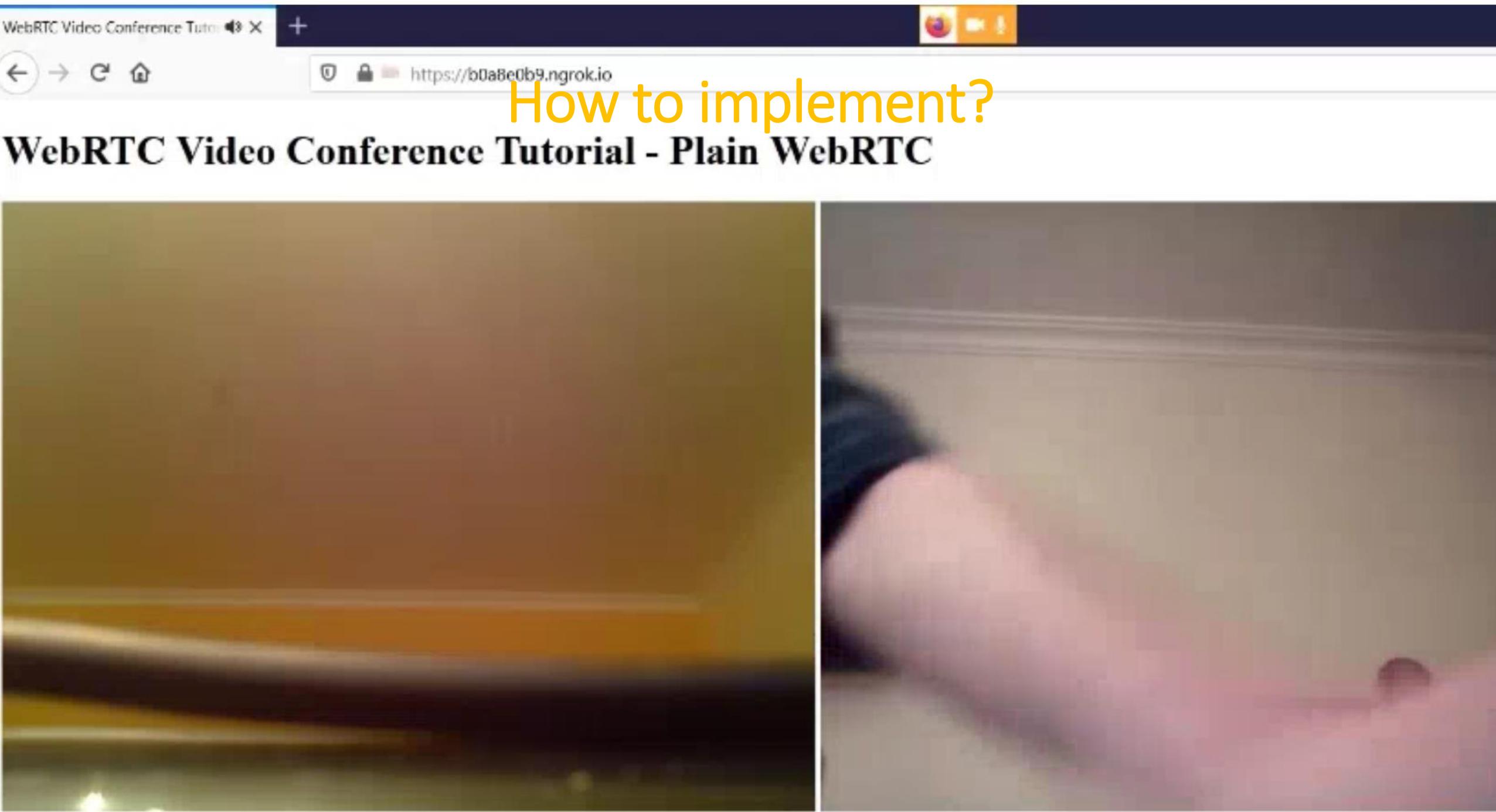


How to implement?

WebRTC Video Conference Tutorial - Plain WebRTC

Type the room number





How to implement?

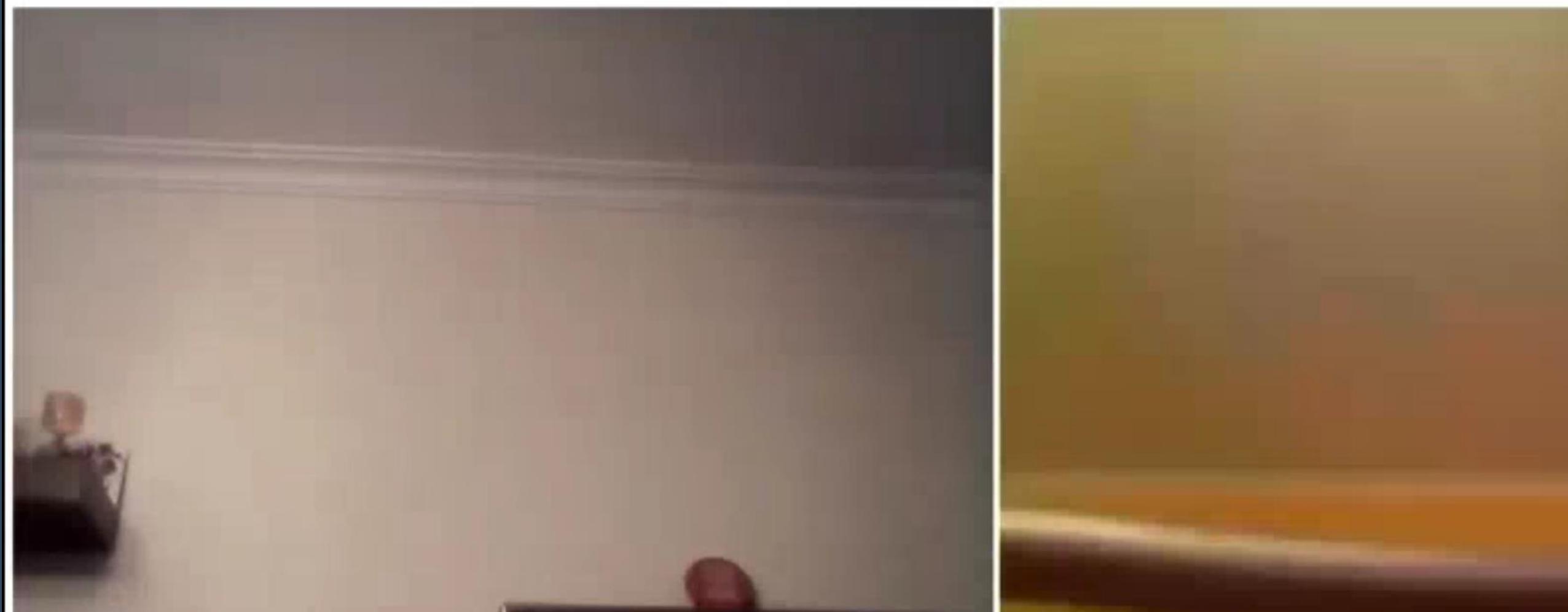
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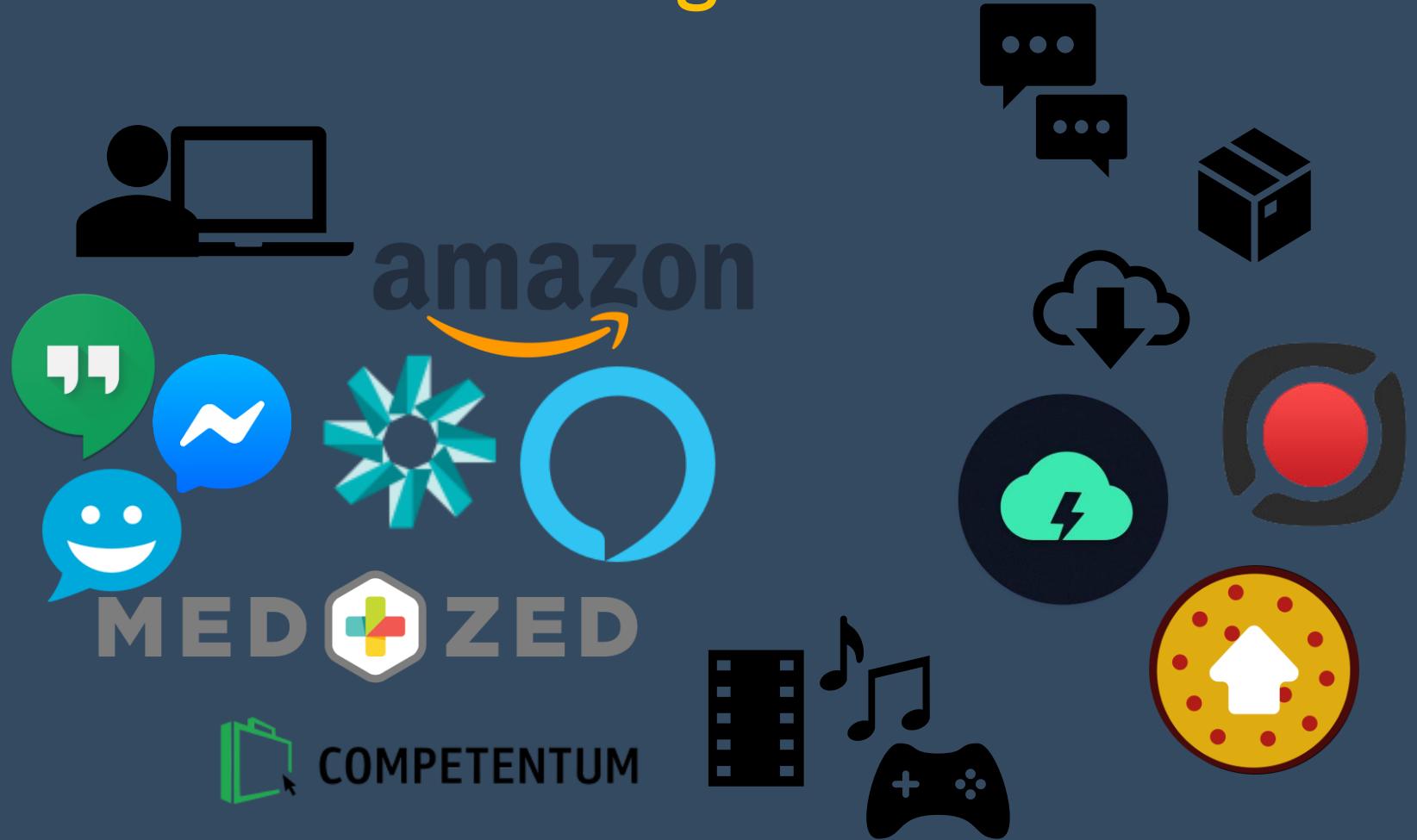


How to implement?

WebRTC Video Conference Tutorial - Plain WebRTC



How is it evolving?



*Companies offering WebRTC tools

*Companies offering products that use WebRTC technology in all sorts of industries

How is it evolving?



AT&T

ORACLE



Google

CISCO



Microsoft



IBM

*Major players using WebRTC tech

How is it evolving?



*Usage and valuation rapidly growing