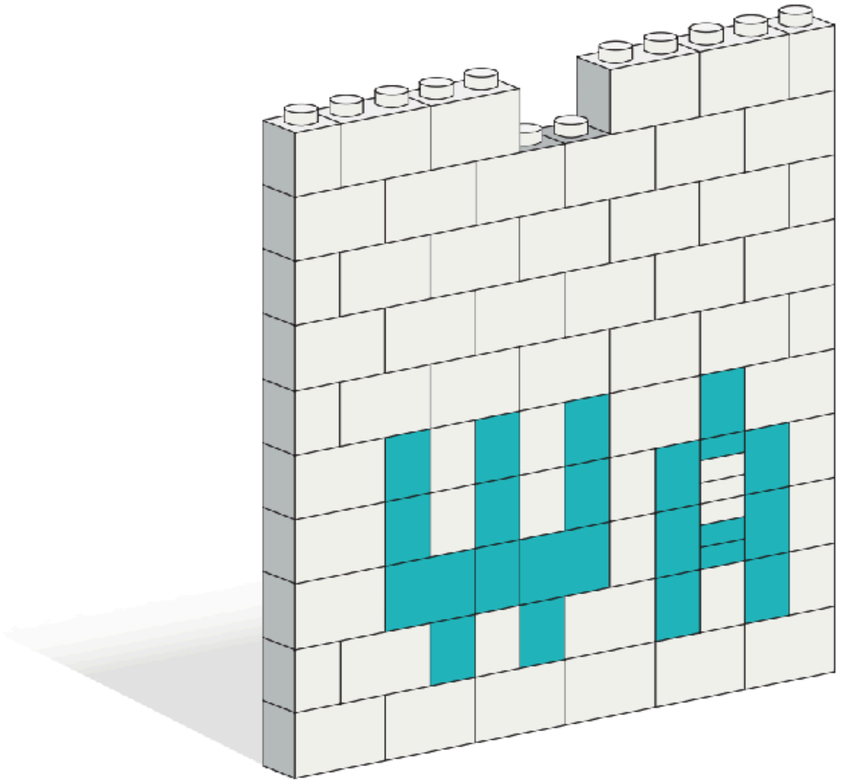
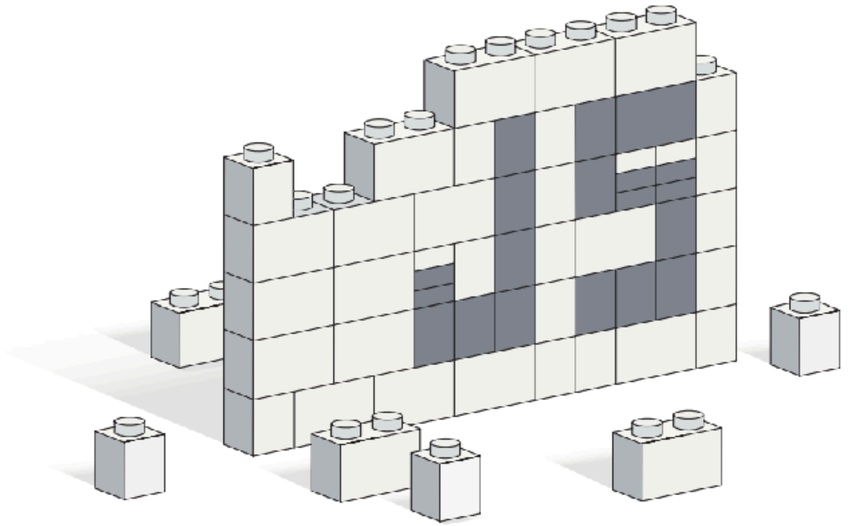


# WebAssembly

## and the death of JavaScript?

@ColinEberhardt

JavaScript
Brendan Eich
1995
10 days



# ActiveX

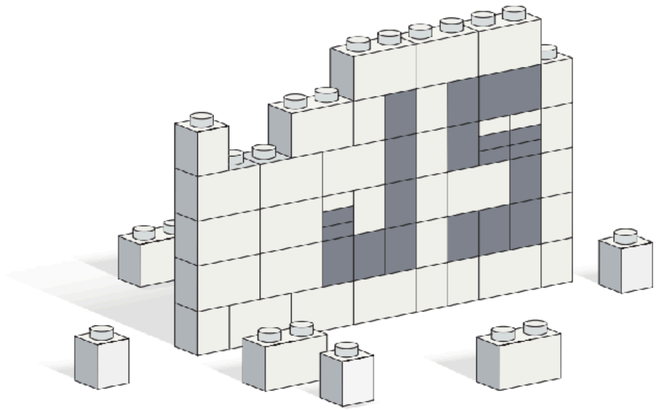
# Flash

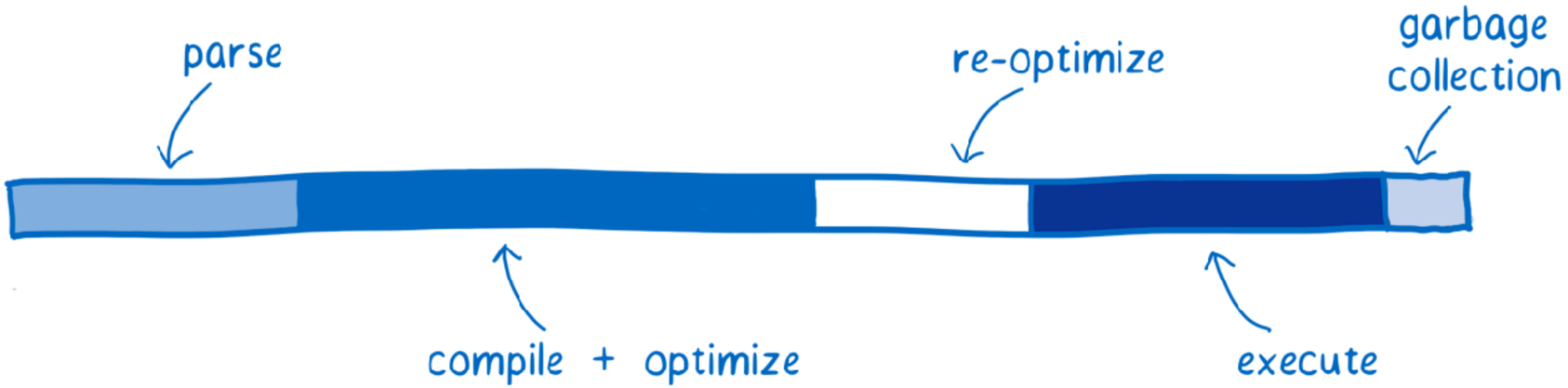
# Silverlight

# Dart

# 2018, JavaScript
# … still

# We are writing a *lot* of JavaScript

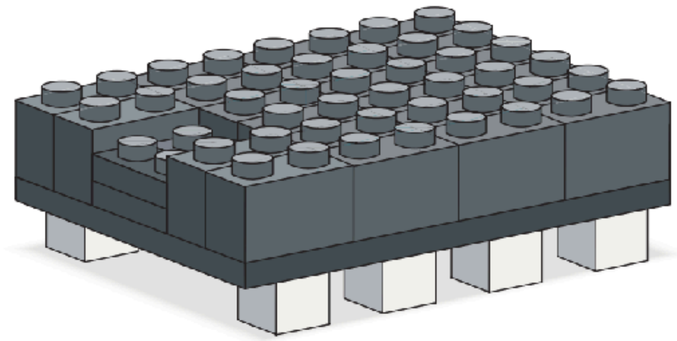


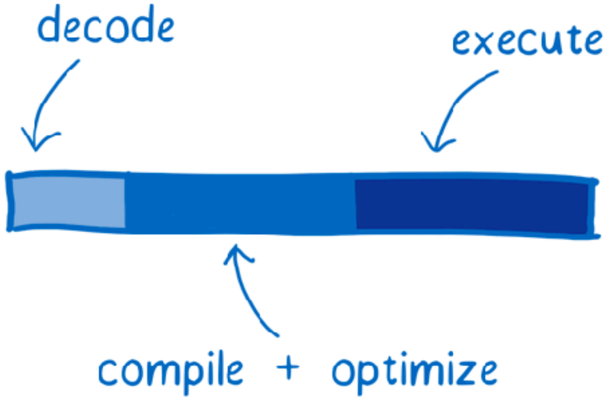

parse
re-optimize
garbage collection
compile + optimize
execute

*" the Web has become the most ubiquitous application platform ever, and yet by historical accident the only natively supported programming language for that platform is JavaScript! "*

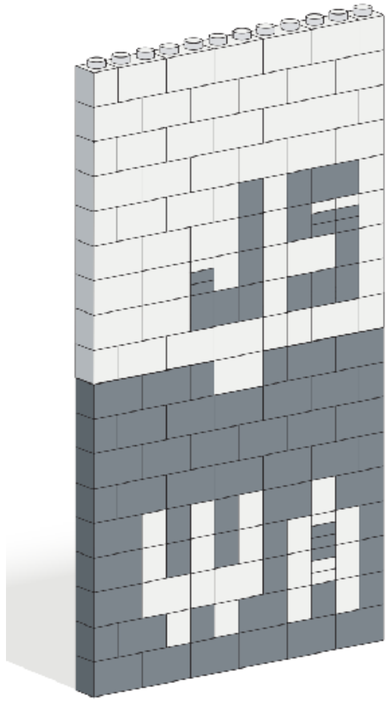

# WEBASSEMBLY

*" WebAssembly or wasm is a new portable, size- and load-time-efficient format suitable for compilation to the web. "*




decode
execute
compile + optimize

```
00000000: 0061 736d 0100 0000 0107 0160 027d 7f01  .asm.......`.}..
00000010: 7d03 0201 0004 0401 7000 0005 0301 0001  }.......p.......
00000020: 0712 0206 6d65 6d6f 7279 0200 0570 6f77  ....memory...pow
00000030: 6572 0000 0a33 0131 0101 7d02 4020 0141  er...3.1..}.@ .A
00000040: 0248 0d00 2001 417f 6a21 0120 0021 0203  .H.. .A.j!. .!..
00000050: 4020 0220 0094 2102 2001 417f 6a22 010d  @ . ..!. .A.j"..
00000060: 000b 2002 0f0b 2000 0b                   .. ... ..
```



```
// read the binary into a buffer
const fs = require("fs");
const buf = fs.readFileSync("./add.wasm");

// create a wasm module
const wasmModule = new WebAssembly.Module(new Uint8Array(buf));

// construct an instance of the module
const wasmInstance = new WebAssembly.Instance(wasmModule);

// invoke the exported function
const result = wasmInstance.exports.power(2, 3)
console.log(result);
```

# PSPDFKit for Web using WebAssembly ✅

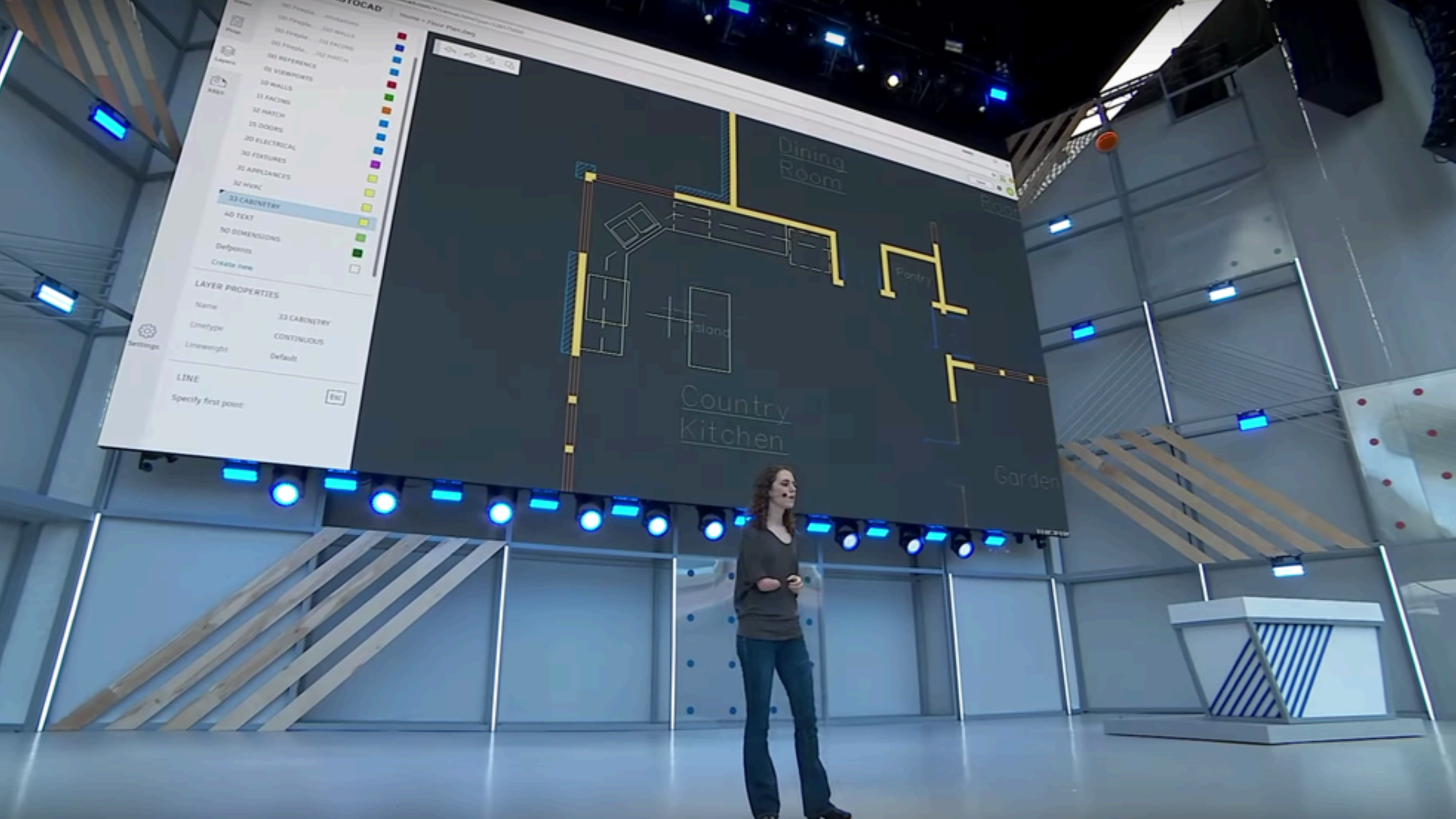

## PSPDFKit for Web
Demo

Hello!

This is a sample PDF document that showcases the functionality and rendering of PSPDFKit for Web, our JavaScript-based PDF SDK. If you have any additional questions regarding PSPDFKit for Web or our other SDK products, please get in touch!

— the PSPDFKit Team

Scroll down for more!


Dining Room
Pantry
Island
Country Kitchen
Garden
LAYER PROPERTIES
Name
33 CABINETRY
Linetype
CONTINUOUS
Lineweight
Default
LINE
Specify first point:
Esc

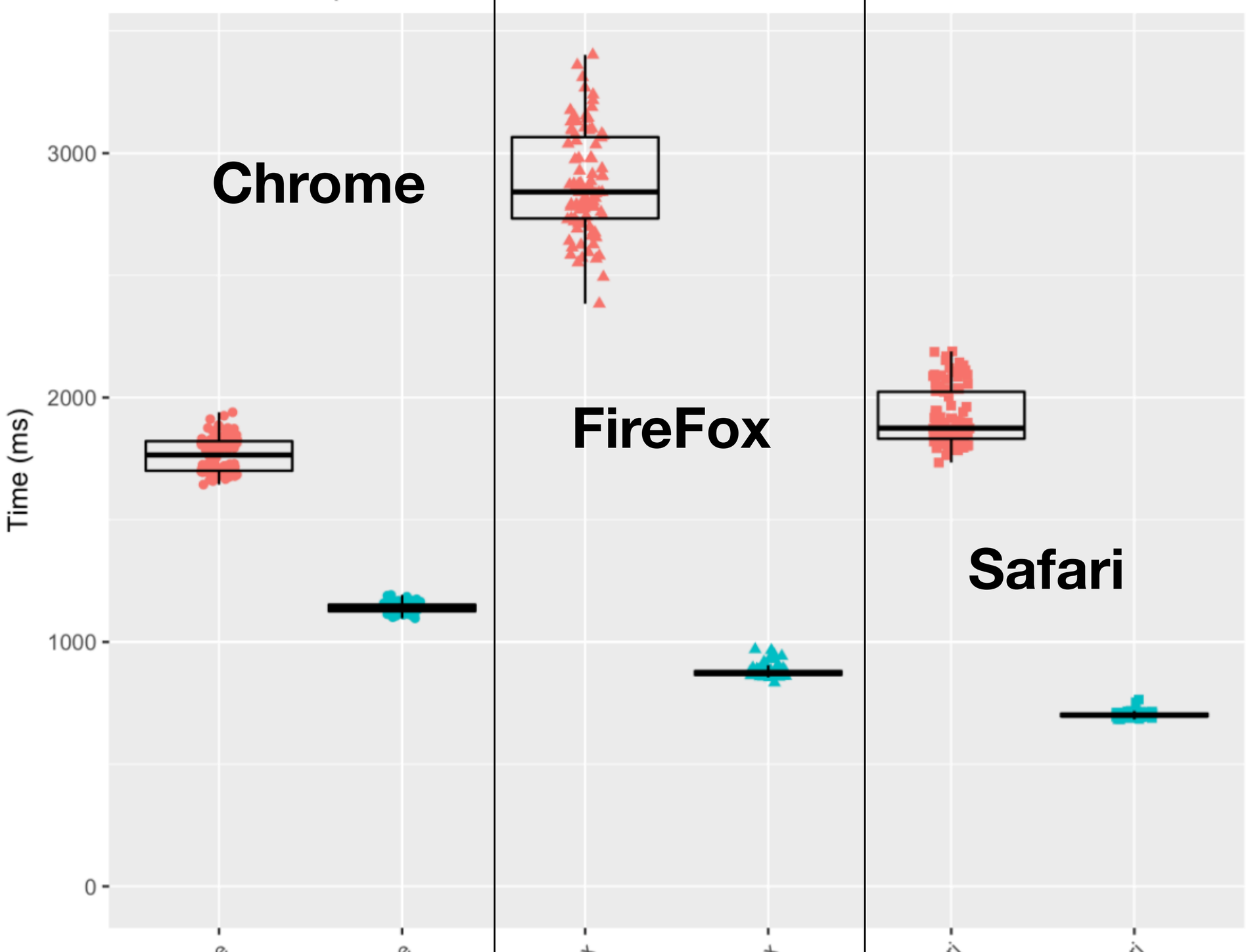
activ FINANCIAL Web API

Tutorials Documentation Playground Examples Source

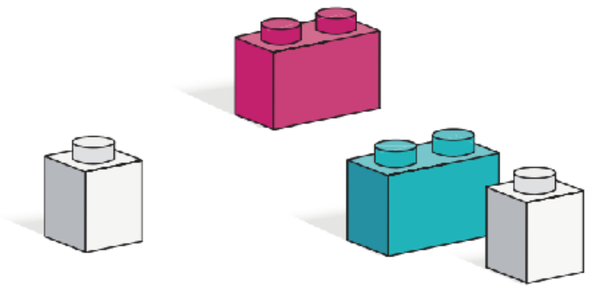
# Option Chain

An option chain demonstrating connectivity, real-time subscriptions to data and traversal of relationships. Open the control panel for stream settings and statistics.

| Call | | | | | | | Put | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OI | Volume | Change | Last | Bid | Ask | Strike | Bid | Ask | Last | Change | Volume | OI |
| | | | | | | Dec 1, 2017 | | | | | | |
| 59 | | | | 23.80 ↓ | 24.05 ↑ | 150.00 | | 0.02 ↓ | 0.02 | 0.01 | 200 | 798 |
| 17 | | | | 21.20 ↓ | 21.60 ↓ | 152.50 | | 0.02 ↓ | | | | 964 |
| 87 | 4 | -0.10 ↓ | 18.90 ↓ | 18.80 ↑ | 19.10 ↑ | 155.00 | | 0.03 ↓ | | | | 2,098 |
| 332 | | | | 16.35 ↑ | 16.55 ↑ | 157.50 | | 0.01 ↓ | 0.01 | 0.00 | 2 | 1,605 |
| 857 | 1 | -0.22 | 14.15 | 13.85 ↑ | 14.10 ↑ | 160.00 | 0.01 | 0.02 ↓ | 0.02 ↑ | 0.00 ↑ | 84 | 3,933 |
| 665 | 2 | 0.25 | 11.60 | 11.40 ↑ | 11.55 ↑ | 162.50 | 0.03 ↑ | 0.04 ↑ | 0.03 ↑ | -0.01 ↑ | 201 | 4,356 |
| 2,847 | 3,524 | -0.30 ↑ | 8.95 ↑ | 8.90 ↑ | 9.10 ↑ | 165.00 | 0.05 ↑ | 0.06 ↑ | 0.06 ↑ | 0.00 ↑ | 296 | 9,143 |
| 898 | 21 | -0.33 ↓ | 6.40 ↓ | 6.45 ↑ | 6.60 ↓ | 167.50 | 0.09 ↓ | 0.11 ↑ | 0.10 ↑ | 0.00 ↑ | 648 | 5,920 |
| 5,897 | 196 | -0.25 ↑ | 4.15 ↑ | 4.10 ↑ | 4.20 ↑ | 170.00 | 0.20 ↓ | 0.21 ↓ | 0.21 ↓ | -0.01 ↓ | 1,952 | 7,856 |
| 12,536 | 3,258 | -0.17 ↑ | 2.05 ↑ | 2.01 ↑ | 2.04 ↑ | 172.50 | 0.58 ↑ | 0.59 ↑ | 0.58 ↓ | 0.02 ↓ | 3,531 | 9,265 |
| 25,636 | 8,835 | -0.10 ↑ | 0.65 ↑ | 0.63 ↓ | 0.65 ↑ | 175.00 | 1.70 ↑ | 1.71 ↓ | 1.70 ↑ | 0.08 ↑ | 4,116 | 10,876 |
| 19,956 | 1,859 | -0.04 ↓ | 0.15 ↓ | 0.15 ↑ | 0.16 ↑ | 177.50 | 3.65 ↓ | 3.80 ↓ | 3.80 ↓ | 0.25 ↓ | 151 | 8,119 |
| 11,849 | 863 | -0.02 ↓ | 0.04 ↓ | 0.04 ↓ | 0.05 ↓ | 180.00 | 6.05 ↓ | 6.20 ↓ | 5.95 ↓ | -0.05 ↓ | 252 | 338 |
| 4,083 | 600 | -0.01 ↓ | 0.02 ↓ | 0.02 ↑ | 0.03 ↑ | 182.50 | 8.55 ↑ | 8.65 ↑ | 8.35 | -0.45 | 5 | 63 |
| 14,206 | 10 | 0.00 | 0.02 | 0.01 | 0.02 ↓ | 185.00 | 11.00 ↑ | 11.25 ↑ | 11.30 | -3.45 | 8 | 47 |
| 3,390 | 61 | -0.01 | 0.01 | | 0.01 ↓ | 187.50 | 13.35 ↓ | 13.75 ↓ | | | | 0 |
| 2,928 | | | | | 0.02 ↓ | 190.00 | 15.85 ↑ | 16.35 ↓ | | | | 2 |
| 1,066 | | | | | 0.02 ↓ | 192.50 | 18.35 ↓ | 18.80 ↑ | | | | 14 |
| 240 | | | | | 0.01 ↓ | 195.00 | 20.85 ↑ | 21.25 ↑ | | | | 26 |

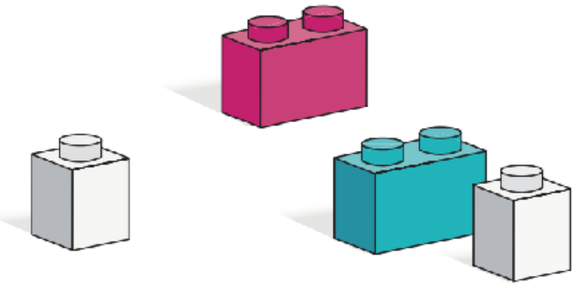

Chrome
FireFox
Safari
Time (ms)
3000
2000
1000
0

# WebAssembly Predictions



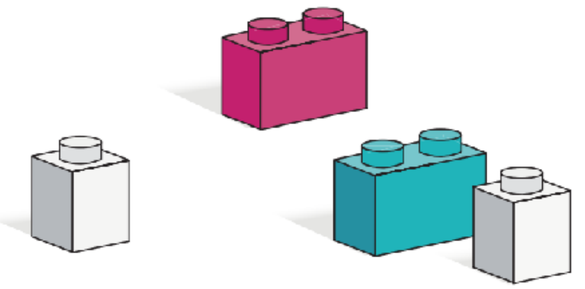
# 2018

- Rust, C, C++ used in production for performance critical, algorithmic tasks
- Java, C#, Typescript lots of creative experiments / POCs
- Threading lands in WebAssembly
- React for Rust



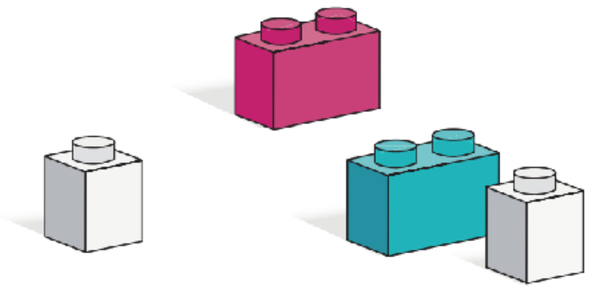
# 2019 - 2020

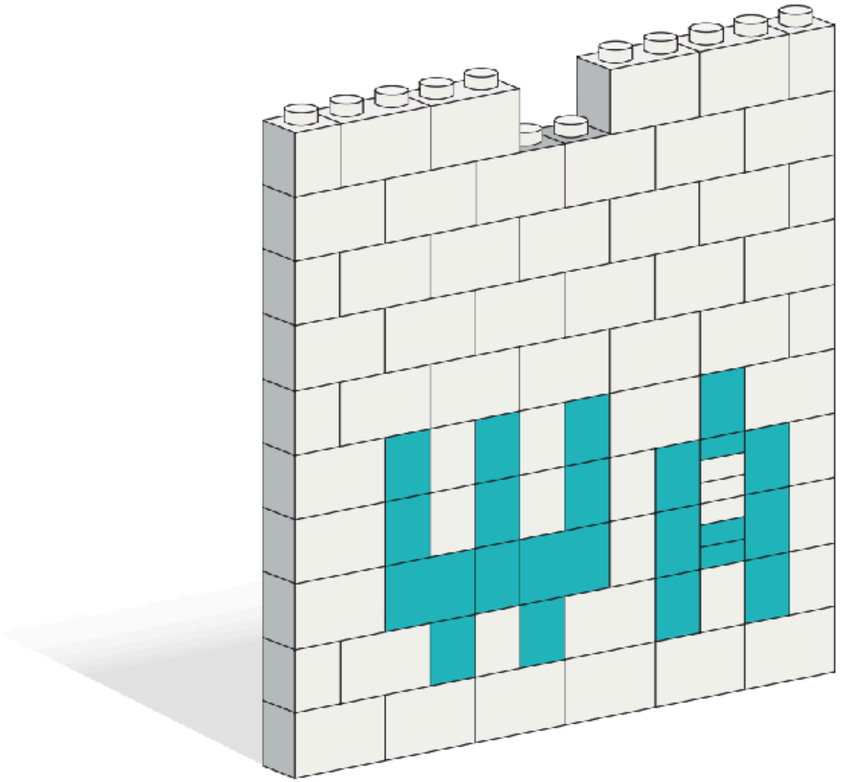
- Java & C# - considered production ready
- Heavyweight productivity apps move to the web
- Another wave of mobile, desktop and server-side UI frameworks will re-target the web - *write one, run everywhere*
- JavaScript’s popularity starts to fall
- Native Android apps die out in favour of PWA & wasm



# 2021 - and beyond

- Windows Store drops support for non-web technologies
- MacOS drops support for non-web technology apps, resulting in a single unified runtime across desktop, web and mobile
- As WebAssembly has replaced JavaScript, a replacement for the DOM emerges





# WebAssembly

## and the death of JavaScript?

@ColinEberhardt