

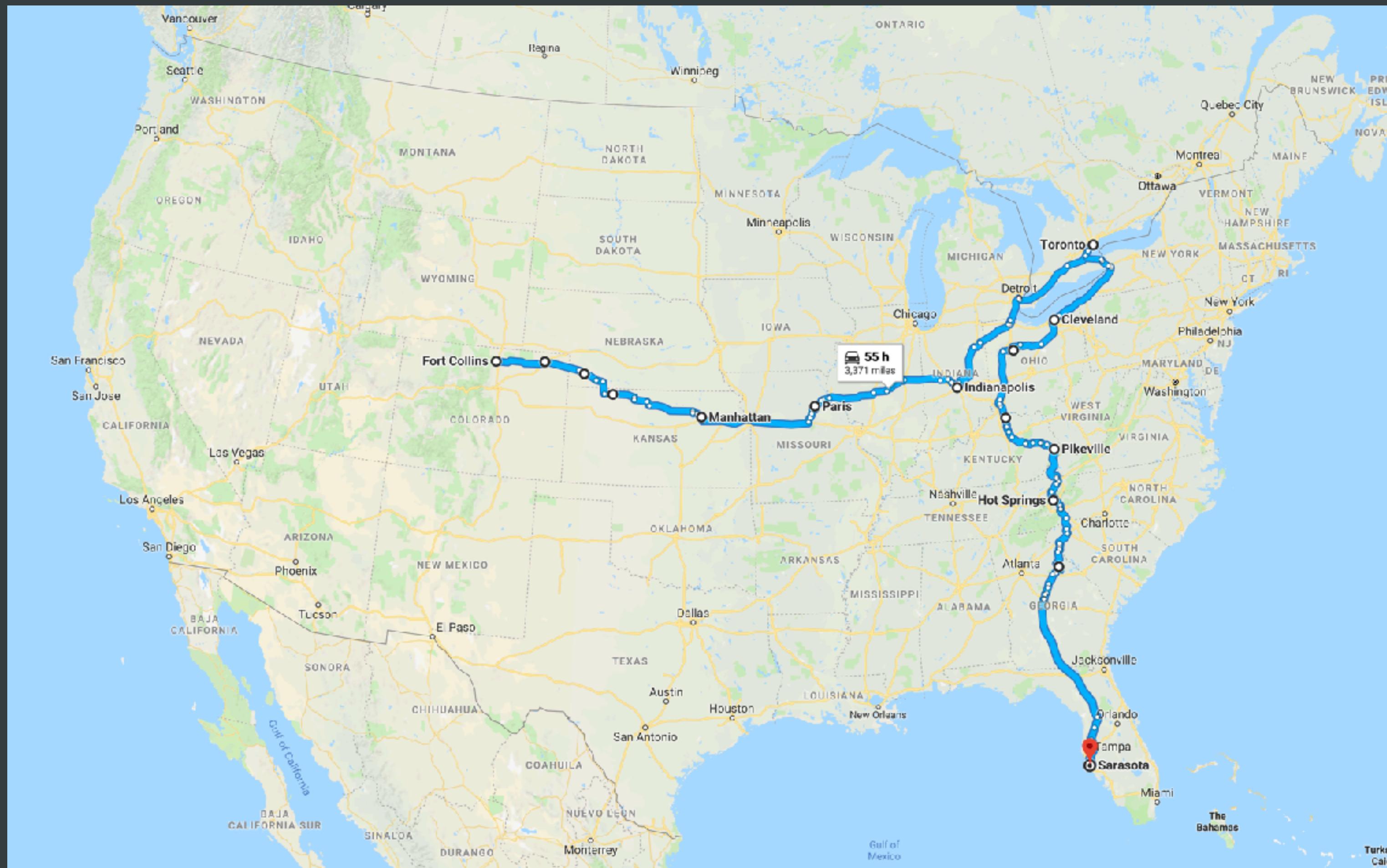
“To see what others cannot... you must climb the mountain”

Intro to Load Testing

About Me

- Director of Professional Services at NodeSource
- Fell in ❤️ with JavaScript in the 90s
- Involved with Node.js since 2009
- Twitter: [_nw_](#)
- Github: [nw](#)

Going existential for a moment



Why Load Test?

Why?

- Time is Money
- Faster === Better Experience
- Better Experience === Improved Conversion

Show me the Money!



- 5s latency reduction = 7-12% increased conversion

Show me the Money!



- Every 1s latency reduction =
~2% increase in conversion

Show me the Money!



- 2.2s reduction in average latency = 15.4 increase in download conversion

Slower or Partial Outage

- 1hr of downtime = \$21k revenue lost
- 1hr of slowdown = \$4k revenue lost

** TRAC Research - Bojan Simic

But!

But....

- Slowdowns are 10x more likely than downtime
- Twice as much revenue lost to slowdowns

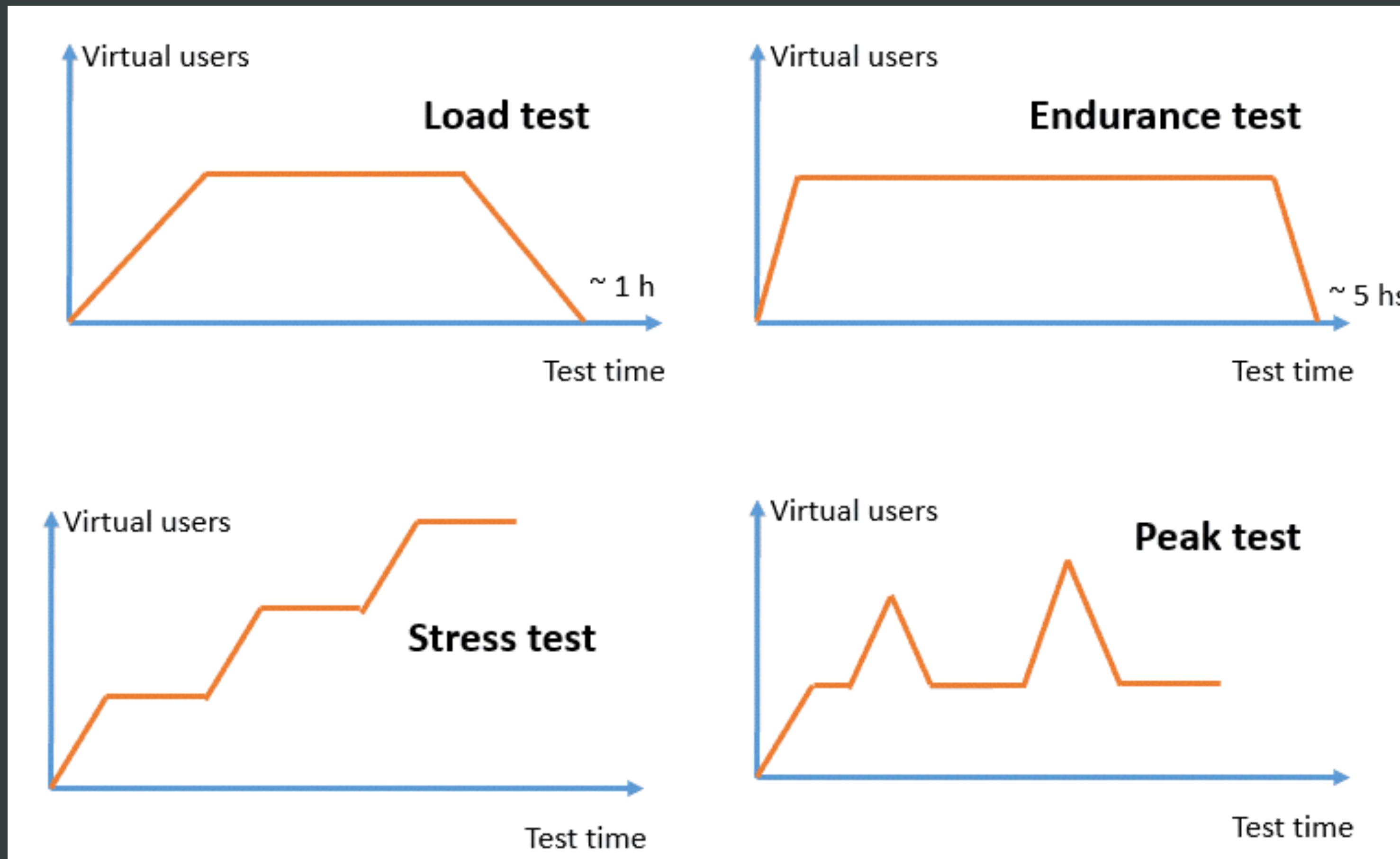
More Reasons

More Reasons

- Finding Errors
- Stability - Avoid midnight phone calls
- Deeper understanding - Knowing how the code works. Making you a better developer

How to Load Test

Types of Tests



Why K6?



K6 Features

- Great Support (os x, linux, windows)
- Tests are in ES6 JavaScript
- Metrics and Checks
- Power Features (SSL, cookies, web sockets, debugging, File Uploads, HAR, api and more!)

Basic Examples

```
# Run a single VU, once.  
k6 run script.js
```

```
# Run a single VU, 10 times.  
k6 run -i 10 script.js
```

```
# Run 5 VUs, splitting 10 iterations between them.  
k6 run -u 5 -i 10 script.js
```

```
# Run 5 VUs for 10s.  
k6 run -u 5 -d 10s script.js
```

```
# Ramp VUs from 0 to 100 over 10s, stay there for 60s, then 10s down to 0.  
k6 run -u 0 -s 10s:100 -s 60s -s 10s:0
```

```
# Send metrics to an influxdb server  
k6 run -o influxdb=http://1.2.3.4:8086/k6
```

Sample Script

```
import http from 'k6/http'
import { sleep } from 'k6'

export let options = {
  stages: [
    { duration: '30s', target: 25 },
    { duration: '1m', target: 100 }
  ],
  noConnectionReuse: true
}

export default function () {
  http.get(`http://${__ENV.BACKEND}/`)
  sleep(0.75)
}
```

Grouping and Checking

```
import http from 'k6/http'
import { check, group } from 'k6'

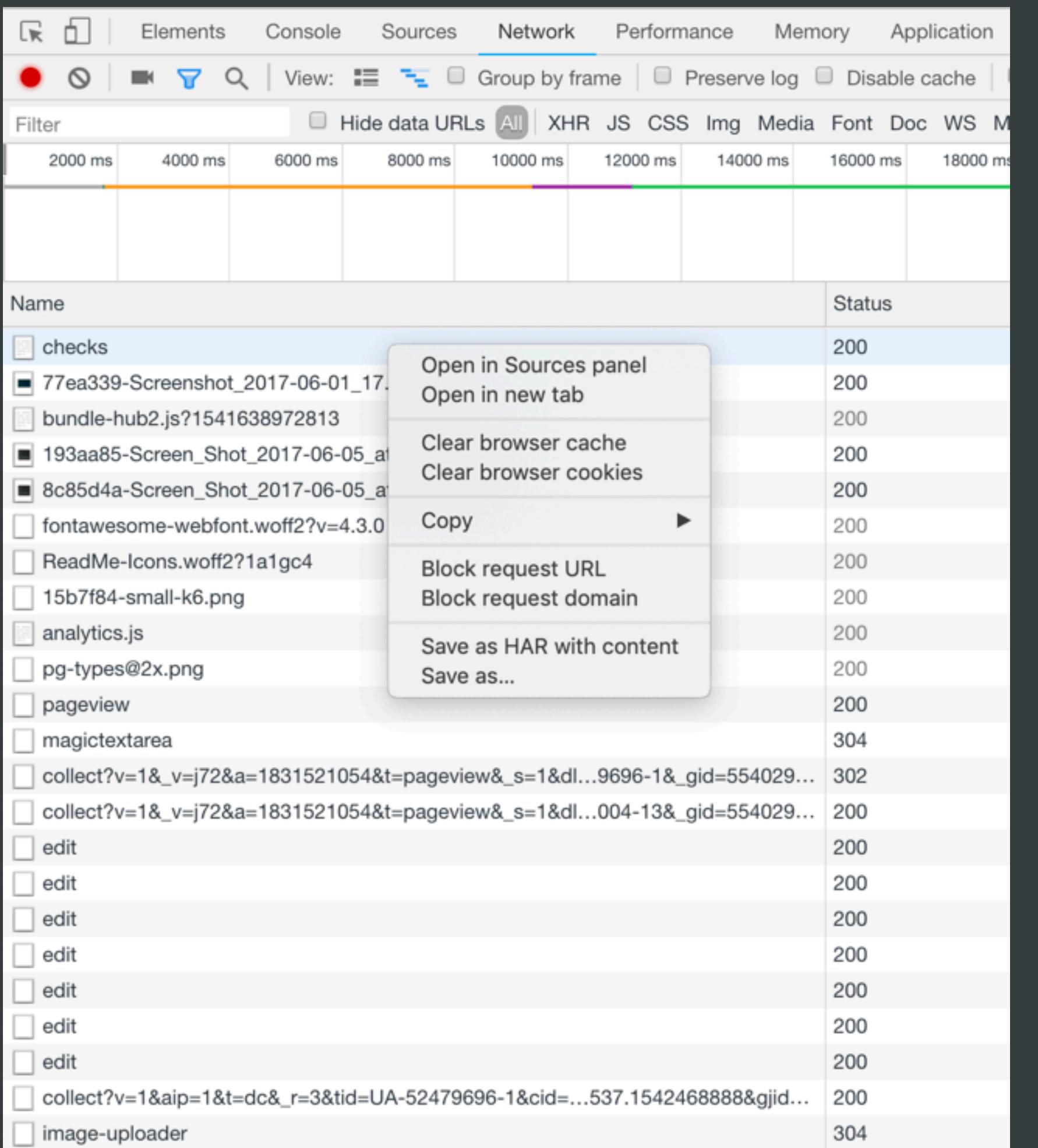
let endpoint = 'http://localhost:8080'

export default function () {
  group('login workflow', function () {
    let token = null

    group('POST /login', function () {
      let res = http.post(`#${endpoint}/login`, { adminId: 'test' })
      let body = JSON.parse(res.body)
      token = body.token

      check(res, {
        'status was ok': (r) => r.status === 200,
        'has a token': (r) => !!body.token,
        'request duration': (r) => r.timings.duration < 200
      })
    })
  })
}
```

HAR support



The screenshot shows the Network tab in the Chrome DevTools interface. A context menu is open over a row in the table, with the 'Save as HAR with content' option highlighted.

Name	Status
checks	200
77ea339-Screenshot_2017-06-01_17...	200
bundle-hub2.js?1541638972813	200
193aa85-Screen_Shot_2017-06-05_a...	200
8c85d4a-Screen_Shot_2017-06-05_a...	200
fontawesome-webfont.woff2?v=4.3.0	200
ReadMe-Icons.woff2?1a1gc4	200
15b7f84-small-k6.png	200
analytics.js	200
pg-types@2x.png	200
pageview	200
magictextarea	304
collect?v=1&_v=j72&a=1831521054&t=pageview&_s=1&dl...9696-1&_gid=554029...	302
collect?v=1&_v=j72&a=1831521054&t=pageview&_s=1&dl...004-13&_gid=554029...	200
edit	200
collect?v=1&aip=1&t=dc&_r=3&tid=UA-52479696-1&cid=...537.1542468888&gid...	200
image-uploader	304

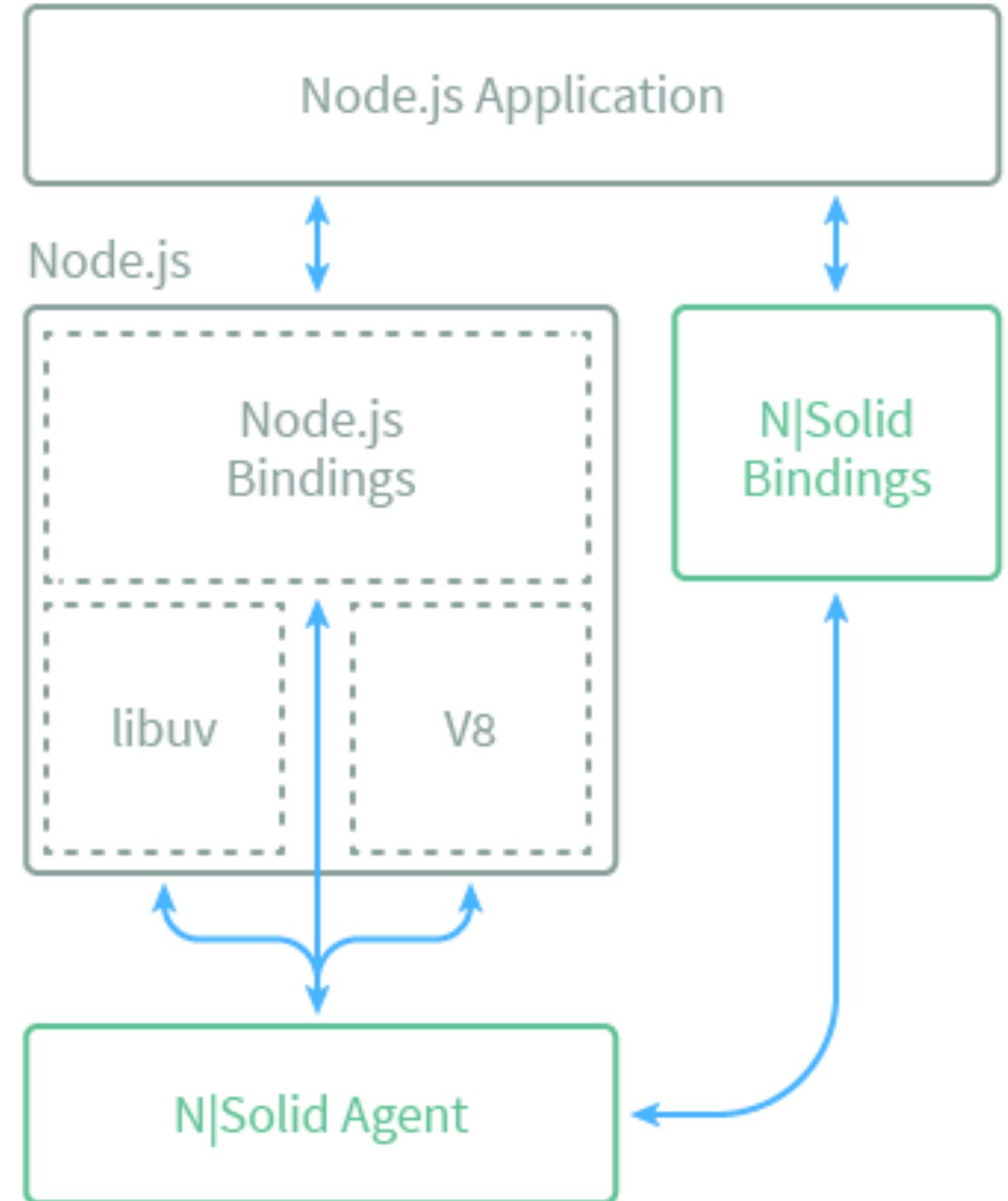
```
k6 convert sample.har > sample.js
```



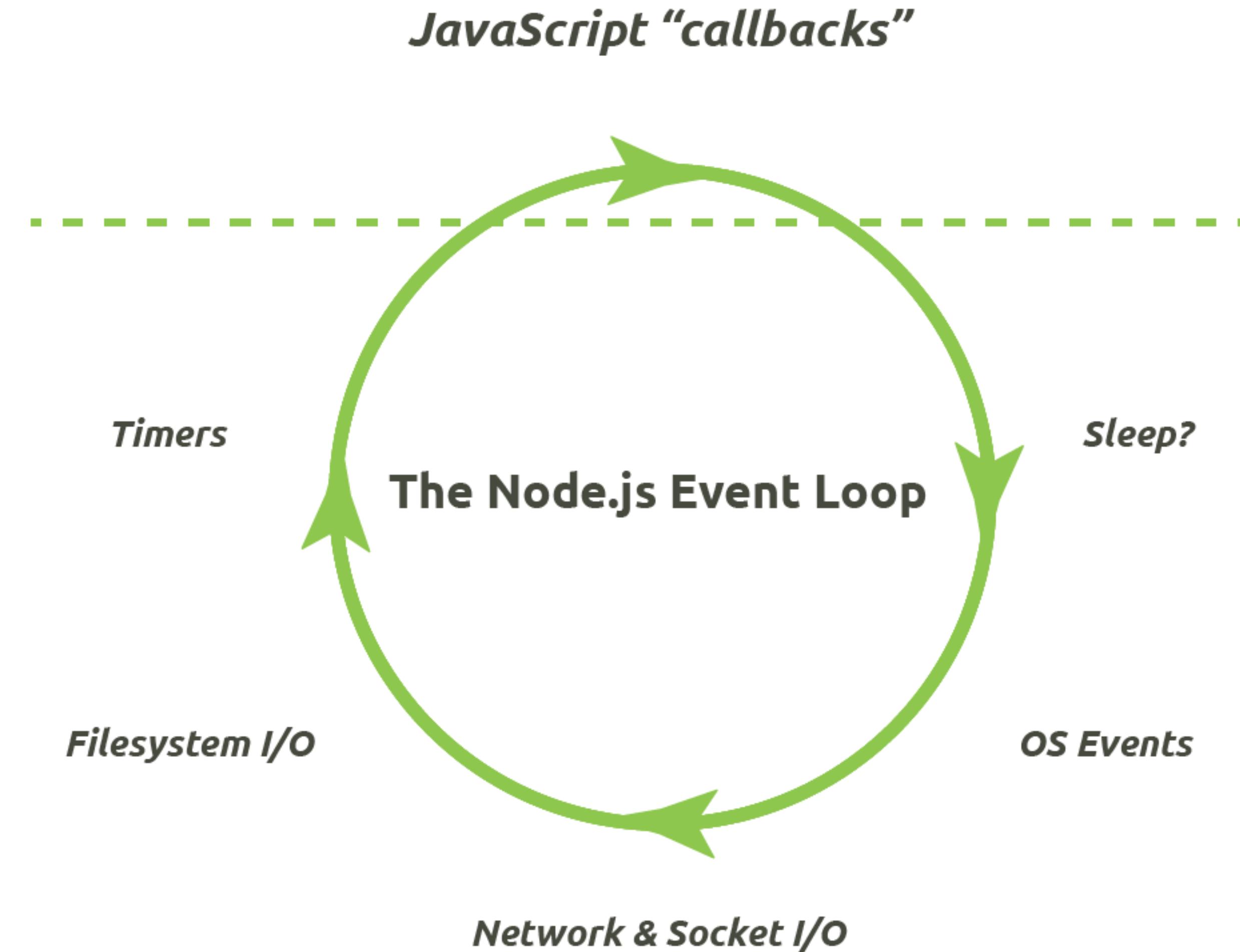
NODESOURCE®
N|Solid Runtime

No Code Modification Required

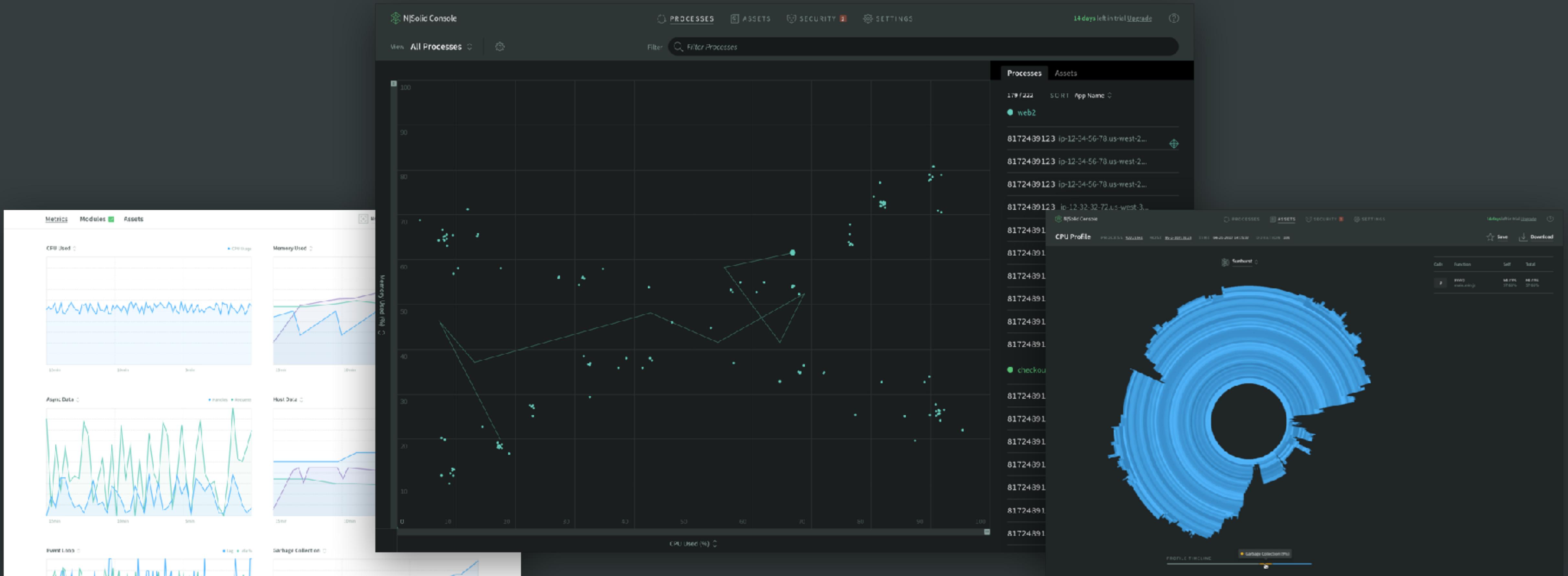
- Drop-in replacement for Node.js
- 100% compatible, no code changes
- Extremely low performance impact
- Versions based on Node 6, 8 & 10 LTS



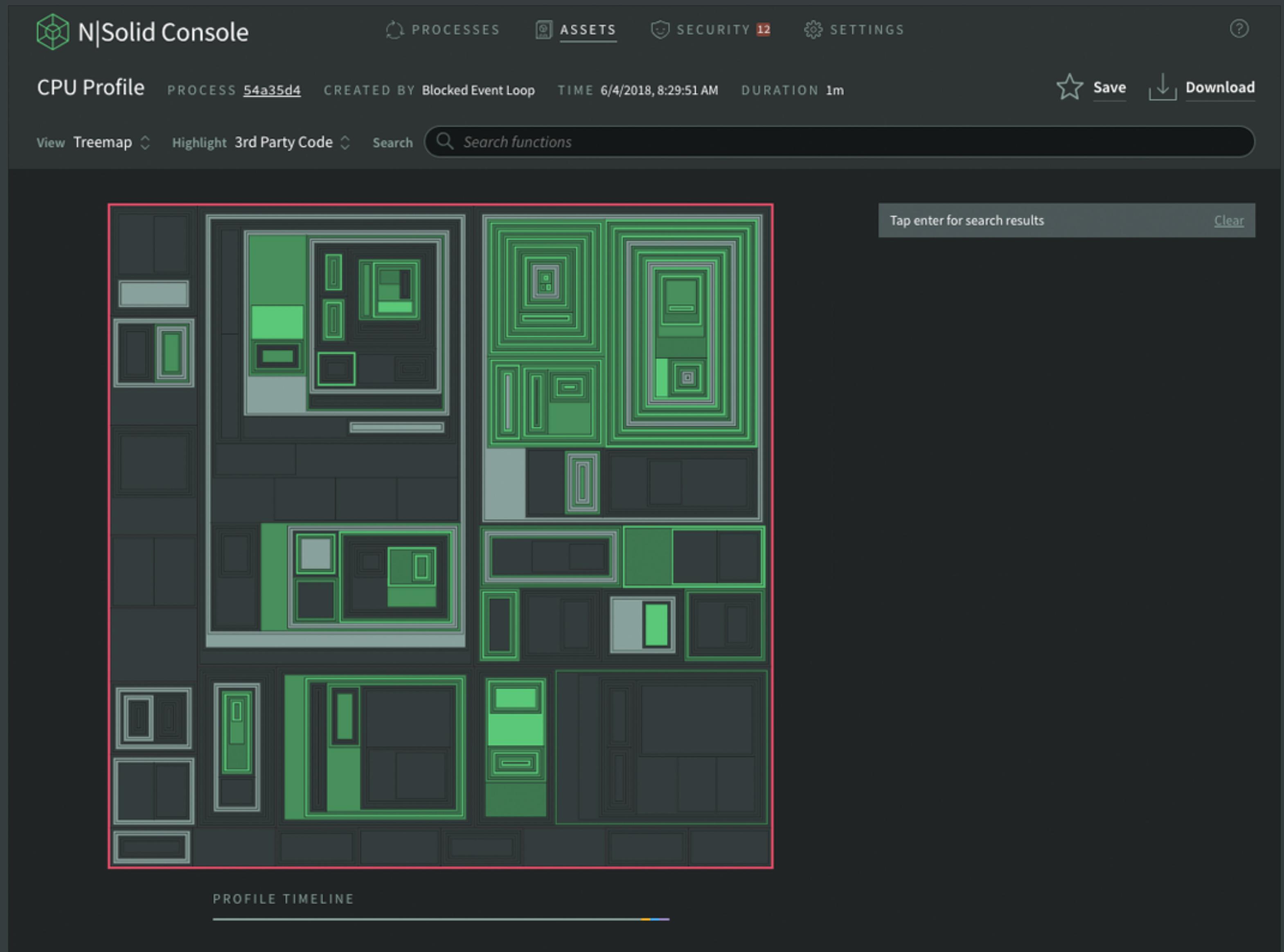
Overview



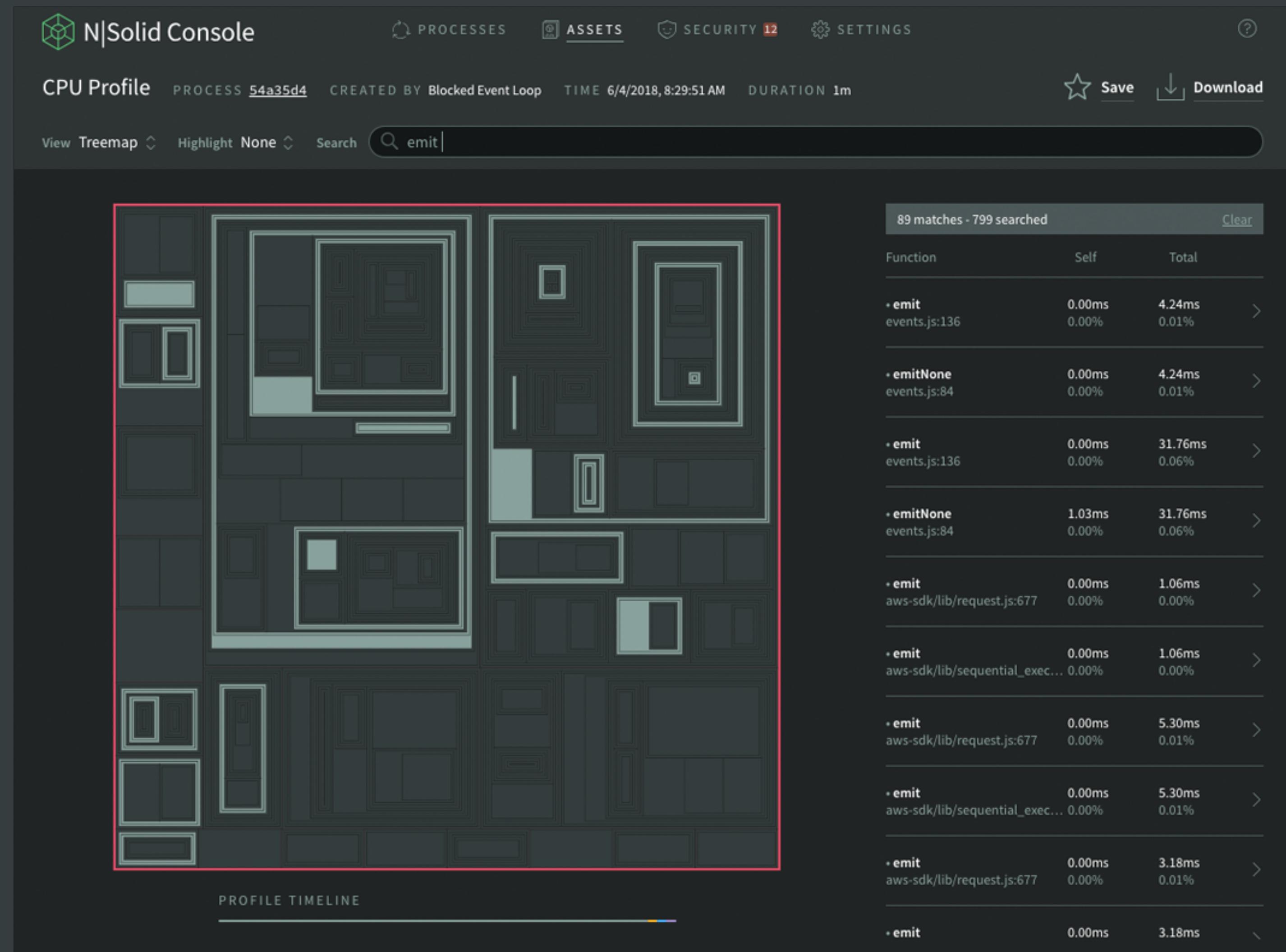
Built for Performance



Code Highlighting



Search Filtering



<https://github.com/nw/2018-jsconf.co>