and the future of JavaScript
Who is this guy?

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COO & co-founder, npm Inc.
@seldo
This talk is about you
Three parts:

1. What you should know about npm
2. What npm knows about you
3. The future of JavaScript
Part 1: what you should know about npm

npm is popular
JavaScript is enormously popular.

Top 5 languages on GitHub by number of pull requests opened:

- **JavaScript**: 2.3M
- **Python**: 1M
- **Java**: 986K
- **Ruby**: 870K
- **PHP**: 559K
Who's using npm?

- All 50 of the Fortune 50  (we checked!)
- All 50 of the 50 biggest banks
- All 50 of the 50 biggest tech companies
- All 500 of the Fortune 500
JavaScript is the most important programming language in the world.
npm is the package manager for all JavaScript.

The JavaScript I write runs on...

- Browsers: 93%
- Servers: 70%
- Mobile devices: 44%
- IoT/robotics: 6%
But npm is especially for web developers
97% of the code in a modern web app comes from npm
npm is super fast now

Why not destroy the conference wifi by upgrading right now?

```
npm install npm -g
```
Is npm faster than Yarn?
npm 6
locks by default
npm ci will double the speed of your builds

You can use

  npm ci

anywhere you used to use

  npm install

and it will be twice as fast
npm Security
A bunch of new features
npm 6 has 2FA: two-factor auth

Secure your npm account in 30 seconds:
http://go.npm.me/2fa
npm Quick Audits

Just run npm install!
npm Quick Audit stats

4 million scans per week

Percentage of modules downloaded with vulnerabilities

- Total: 51%
- High: 37%
- Critical: 11%

Yikes!
npm audit

Just run in your current project:

    npm audit

Learn more:

http://go.npm.me/audits
npm audit fix

Just run in your current project:

  npm audit fix

or

  npm audit fix --force

for the adventurous
Use npm because npm is safer than Yarn

BREAKING NEWS: Company recommends own product.

A user journey from Yarn back to npm:
https://mixmax.com/blog/to-yarn-and-back-again-npm

Yarn to npm migration tool:
https://npm.im/deyarn
npm is a company that sells good and services that you will find useful
Part 2:
What npm knows about you

- 1.5 billion log events per day
- 16,000+ survey responses
Part 2A: demographics

Please stand up!
(If you can't stand up, raise a hand)
Sit down if you don't match the description.
Stay standing if you

use npm
Stay standing if you
write JavaScript that runs in browsers
Stay standing if you write JavaScript at work.
Stay standing if you are concerned about security of open source code
Stay standing if you mostly taught yourself JavaScript
Stay standing if you also write PHP or Java sometimes
Stay standing if you work at a company that isn't considered a "tech company"
Stay standing if you started using npm less than 2 years ago
Stay standing if you use webpack
Stay standing if you

use babel
Stay standing if you work on a React app
Stay standing if you use TypeScript
So we know some stuff about you
npm users don't always write JavaScript

What languages do you use in addition to JavaScript?

- Java: 30%
- PHP: 30%
- Python: 30%
- C#: 19%
- Go: 10%
- C++: 10%
- Ruby: 9%
- C: 5%
- Swift: 5%
- Rust: 3%
The programming language you pick is determined by the libraries available.

Devs pick JavaScript because of npm

- Libraries available: 67%
- Productivity: 57%
- Language features: 46%
- Satisfaction: 43%
- Reduced costs: 35%
- Easier hiring: 35%
- Fast onboarding: 33%
- App performance: 25%
- Don't get to choose: 15%
npm users are concerned about security

- 77% are concerned
- 52% said current tools aren't adequate
npm Enterprise can help your security
Part 2B:
the tools we use
I am about to make you angry with graphs
Growth in context

Rolling weekly downloads of npm packages
Everything in npm grows
Share of registry

Express vs Webpack

- Express
- Webpack

Date


0.0000% 0.5000% 1.0000% 1.5000%
Front end frameworks

Major FE frameworks, share of registry
Frameworks never die; they only fade away.
React

60% of npm users say they use React
Angular

Major FE frameworks, share of registry

- React
- Preact
- Vue
- Ember
- Angular 1
- Angular 2-6
- Angular
- Backbone
Angular is seeing fewer downloads, please don't yell at me about it.
Ember

The comeback kid

Major FE frameworks, share of registry
Vue

The next big thing?
The React ecosystem

React ecosystem, share of registry

Date
React Router

React ecosystem, share of registry

- React
- React Router
- Redux
- RxJS
- MobX
- Apollo
- Relay
- Flux
- Preact

Date

React is a triumph of modular design
Flux
Redux

React ecosystem, share of registry

- React
- React Router
- Redux
- RxJS
- MobX
- Apollo
- Relay
- Preact

Date
Back-end frameworks

There is only Express
Koa

Back-end frameworks, share of registry

Koa  Hapi  Next  Sails
Next.js

Back-end frameworks, share of registry

Koa  Hapi  Next  Sails
Team A / Team B
Tooling
What tools do we use?

- Web frameworks: 85%
- Transpilers: 74%
- Linters: 69%
- Bundlers: 67%
- CSS preprocessors: 58%
- Testing frameworks: 58%
Transpilers

- Babel: 65%
- TypeScript: 46%
- CoffeeScript: 5%
- Elm: 3%
- ClojureScript: 2%
46% of npm users are using TypeScript

Say what?!

Source: npm user survey, 2017/2018
Linters

- ESLint: 72%
- JSLint: 17%
- JSHInt: 15%
- Standard: 7%
- Sonar: 5%
So about ESLint...
The ESLint Credentials Harvester
npm Security
in action

😊
Take JavaScript security seriously
Testing

- Mocha: 50%
- Jasmine: 33%
- none: 21%
- Jest: 19%
- QUnit: 5%
- Tape: 5%
Splitting developers by experience

Are you concerned whether the OSS you use is secure?

By answer to "How long have you been using JavaScript?"
Best practices come with experience

Development practices of JavaScript developers by experience

<table>
<thead>
<tr>
<th>Practice</th>
<th>Least experienced (&lt; 1 year)</th>
<th>Most experienced (10+ years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use a testing framework</td>
<td>58%</td>
<td>87%</td>
</tr>
<tr>
<td>Use a linter</td>
<td>75%</td>
<td>90%</td>
</tr>
<tr>
<td>Perform code reviews</td>
<td>50%</td>
<td>79%</td>
</tr>
<tr>
<td>Have code audits</td>
<td>9%</td>
<td>26%</td>
</tr>
<tr>
<td>Automated scans for security flaws</td>
<td>27%</td>
<td>53%</td>
</tr>
</tbody>
</table>
Security is associated with experience.
Part 3: the future of JavaScript
Learning from history:
nothing last forever
jQuery, we hardly knew ye.
Ill-advised prediction

Use React

Popularity and growth of web frameworks, 2016-2017
If people start re-using React modules, React will live forever.
What about web components?

Web components would be great if they worked but they don't, yet. Don't @ me.
What about that slowdown in React?
The best framework is always the one with the most users.
Ill-advised prediction

Learn GraphQL
Ill-advised prediction

You will be bundling, transpiling and linting for quite some time
Ill-advised prediction

Use TypeScript
What happens to npm in the future?
npm is not only JavaScript and it hasn't been for some time
WASM is coming
WASM is already here

JavaScript's position as the language of the web is not guaranteed
Mandatory transpilation is a code smell
Node + JavaScript: merge or die
npm is for the web
The future looks fun
The web will remain under construction
We can do this together
npm ❤️ you

Now would be a good time to follow me on Twitter

🐦 @seldo

These slides are available right now

https://slides.com/seldo/npm-future-of-javascript