npm

and the future of JavaScript

Read these slides on your device:
https://slides.com/seldo/npm-future-of-javascript-qcon

QCon SF, 2018-11-05
Who is this guy?

Laurie Voss
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

Rolling weekly downloads of npm packages
JavaScript is enormously popular.
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.
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
Security has become central to npm Inc.
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
npm Organizations

Private packages and security for teams
npm Enterprise

A full-featured private registry for your company.
npm Security is worth paying for
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
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

Date

- Express
- Webpack
Frameworks never die; they only fade away.
React

60% of npm users say they use React

Major FE frameworks, share of registry

- React
- Preact
- Vue
- Ember
- Angular 1
- Angular 2-6
- Angular
- Backbone
Angular

Major FE frameworks, share of registry
Angryler

Angular is seeing fewer downloads,
please don't yell at me about it.
Ember

The comeback kid
Vue

The next big thing?
The React ecosystem
React is a triumph of modular design
Flux

React ecosystem, share of registry

Date

React
React Router
Redux
RxJS
MobX
Apollo
Relay
Flux
Preact
Redux

React ecosystem, share of registry

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

Date
React Hooks

Coming soon to a repo near you
GraphQL

GraphQL libraries

Date

- Apollo
- Relay
RxJS

Get Hannah to explain!

React ecosystem, share of registry
Back-end frameworks

There is only Express
Koa

Back-end frameworks, share of registry
Next.js

Back-end frameworks, share of registry
Team B / Team A
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?!
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
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

Use a testing framework: 58% (least experienced), 87% (most experienced)
Use a linter: 75% (least experienced), 90% (most experienced)
Perform code reviews: 50% (least experienced), 79% (most experienced)
Have code audits: 9% (least experienced), 26% (most experienced)
Automated scans for security flaws: 27% (least experienced), 53% (most experienced)
Security is associated with experience

Developers who use some form of security analysis on code

By level of experience with JavaScript

- Least experienced (<1 year)
  - No: 42%
  - Yes: 58%
- Most experienced (10+ years)
  - No: 15%
  - Yes: 85%
Part 3: the future of JavaScript
Learning from history:
nothing last forever

jQuery, we hardly knew ye.
Ill-advised prediction

Learn GraphQL
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

Ill-advised prediction

Bundling and transpiling are hard to get rid of
Transpilation is bad news for JavaScript
Node + JavaScript: merge or die
The best framework is always the one with the most users.
Ill-advised prediction

Use React

Popularity and growth of web frameworks, 2016-2017
Libraries either die or transcend

- Backbone died
- jQuery is part of every browser
Standards bodies are bad at inventing things
Make JSX part of JavaScript
We already did and it was called E4X
Can React transcend?

npm install react-color
What about that slowdown in React?
Can React components hit critical mass?
Frameworks adopting React would force browsers to act
What about web components?

Web components would be great if they worked but they don't, yet.
Don't @ me.
We can raise the web to a new level
Don't be afraid

Web developers will always have a job
A bigger web is a better web
npm is for the web
The future looks fun
The web will remain under construction
We can do this
npm ❤️ you

Now would be a good time to follow me on Twitter

🐦 @seldo

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