Hitchhikers Guide To Modern Enterprise JavaScript

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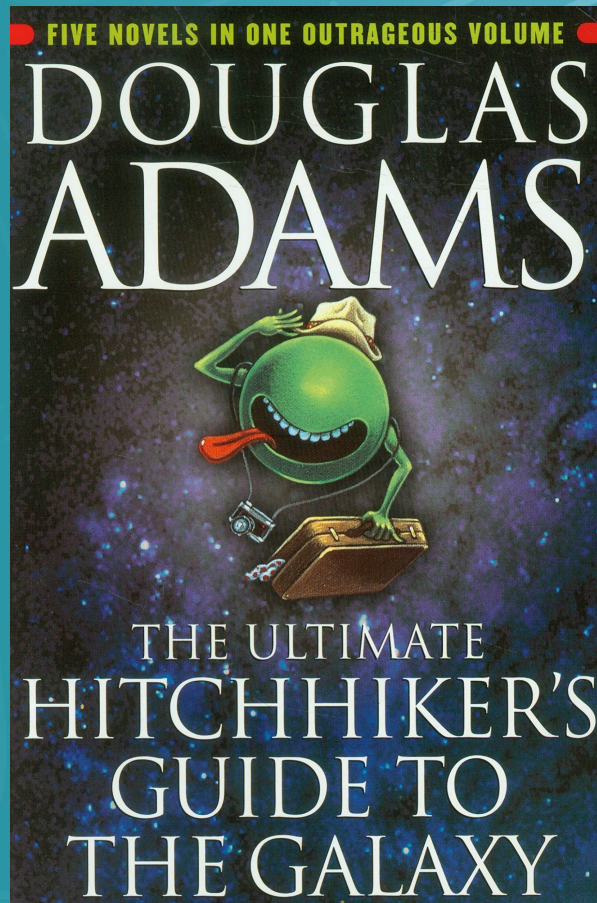
Citation: Adams, D. (1980). The hitchhiker's guide to the galaxy. New York: Harmony Books.

DON'T PANIC

Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient. Node.js' package ecosystem, npm, is the largest ecosystem of open source libraries in the world.

https://nodejs.org/
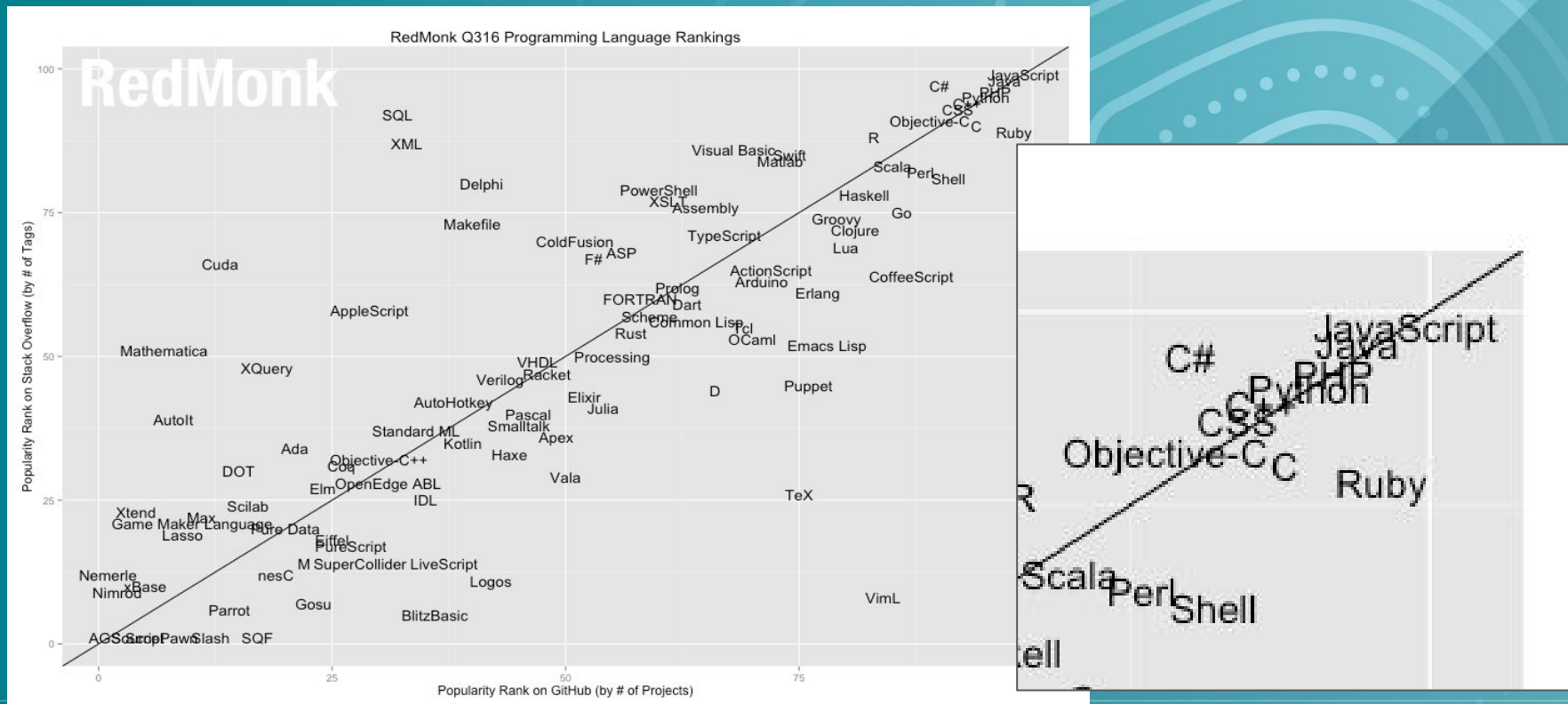
A Trilogy in Five Parts

1. History, Growth, and Market

2. Industry, Foundations, Players

3. Ecosystem, Community, Contributions

4. Architecture, Versions, Dependencies

5. Pros, Cons, & Node @ Red Hat

History, Growth, and Market
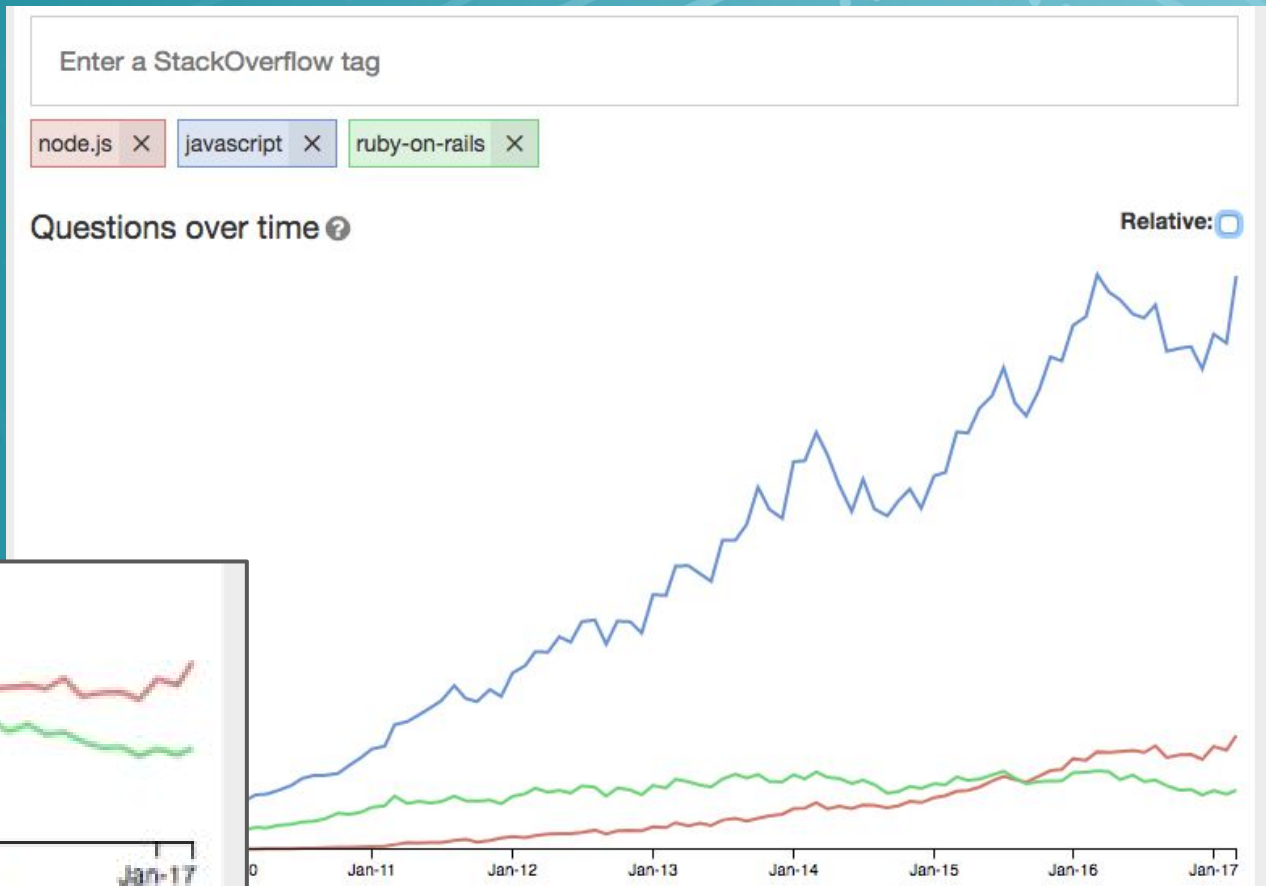
A Brief History

- 2009 - Originally written by Ryan Dahl, sponsored by Joyent

- 2010 - Node Package Manager (NPM) introduced

- 2011 - MicroSoft and Joyent release native windows support

- 2014 - io.js fork created by the community due to differences in governance

- 2015 - Neutral Node.js Foundation created as part of the Linux Foundation

- 2015 - Red Hat joins Node.js Foundation as a Platinum Member

RedMonk Programming Language Ranking

Source: http://sogrady-media.redmonk.com/sogrady/files/2016/07/lang.rank_.Q316.plot-WM.png

Stackoverflow
- JavaScript
- Node.js
- Ruby

Enter a StackOverflow tag

node.js ✕   javascript ✕   ruby-on-rails ✕

Questions over time ❓

Relative: ☐

Jan-14   Jan-15   Jan-16   Jan-17

Jan-11   Jan-12   Jan-13   Jan-14   Jan-15   Jan-16   Jan-17

Source: http://sotagtrends.com/?tags=[node.js,ruby-on-rails]&relative=false

That's Great, So It's the New Ruby?

Remember charts like this?
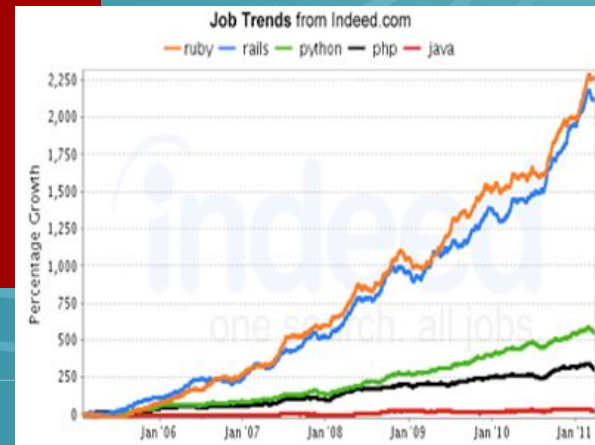
Transformational Market Impact & Revolution

Industry, Foundations, Players

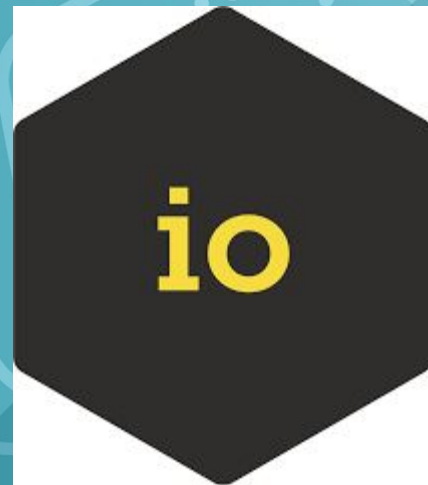# Node.js Foundation Members

Road To Foundation

Created/Sponsored
Node.js since 2009 - 2010

Road To Foundation

Community Fork of Node.js in 2014

Road To Foundation
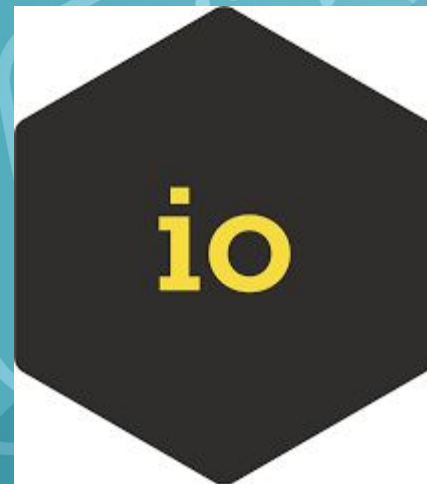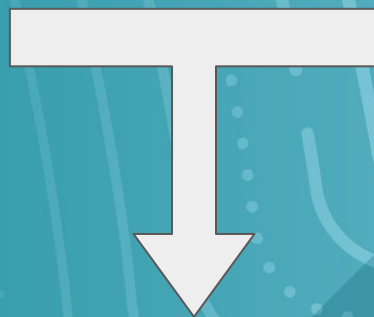
Related Foundations

JavaScript Foundation Members

PLATINUM MEMBERS

SILVER MEMBERS
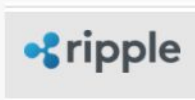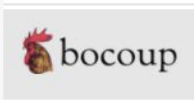
ASSOCIATE MEMBERS

Ecosystem, Community, Contributions

ec·o·sys·tem

/ˈēkōˌsistəm/

noun ECOLOGY

a biological community of interacting organisms and their physical environment.

- (in general use) a complex network or interconnected system.
  "Silicon Valley's entrepreneurial ecosystem"

Ecosystem

- Node Core

- Express.js

- Node Package Manager [NPM]

- Honorable Mention

  - Angular.js

  - MongoDB

Node Core Github

nodejs / **node**

👁 Watch ▾ | 2,205   ★ Star | 34,451   ⑂ Fork | 6,584

‹› Code   ⊘ Issues **731**   ⑂ Pull requests **327**   ▥ Projects **5**   ▤ Wiki   ⋏ Pulse   ᴉᴉᴵ Graphs

Node.js JavaScript runtime ✨🐢🚀✨   https://nodejs.org

nodejs   javascript   node   js   runtime   mit   linux   macos   windows

⏱ **17,310** commits   ⑂ **130** branches   🏷 **425** releases   👥 **1,339** contributors

Branch: **master** ▾ | New pull request   Create new file | Upload files | Find file | **Clone or download** ▾

Express.js

Minimal and flexible Node.js web application framework

Stats

305,949 downloads in the last day

2,572,185 downloads in the last week

11,045,605 downloads in the last month

📖 **expressjs / express**

| 👁 Watch ▾ | 1,642 | ★ Star | 31,535 | 🍴 Fork | 5,697 |

| <> Code | ⓘ Issues 94 | Pull requests 43 | 📋 Projects 0 | 📖 Wiki | ∿ Pulse | 📊 Graphs |

Fast, unopinionated, minimalist web framework for node. https://expressjs.com

`javascript` `nodejs` `express` `server`

| ⏱ **5,367** commits | ⌥ **13** branches | 🏷 **267** releases | 👥 **205** contributors | ⚖ MIT |

redhat.

Node Package Manager

- **BDFL sponsored via npmjs Inc.**
- **Originally in 2010 to Node**
- **Easy to use, with personal stats**
- **Includes tech outside of Node**
- **Grown very quickly in popularity**

```
$ npm init
```

```
$ npm install express
```

Did I mention it's BIG?
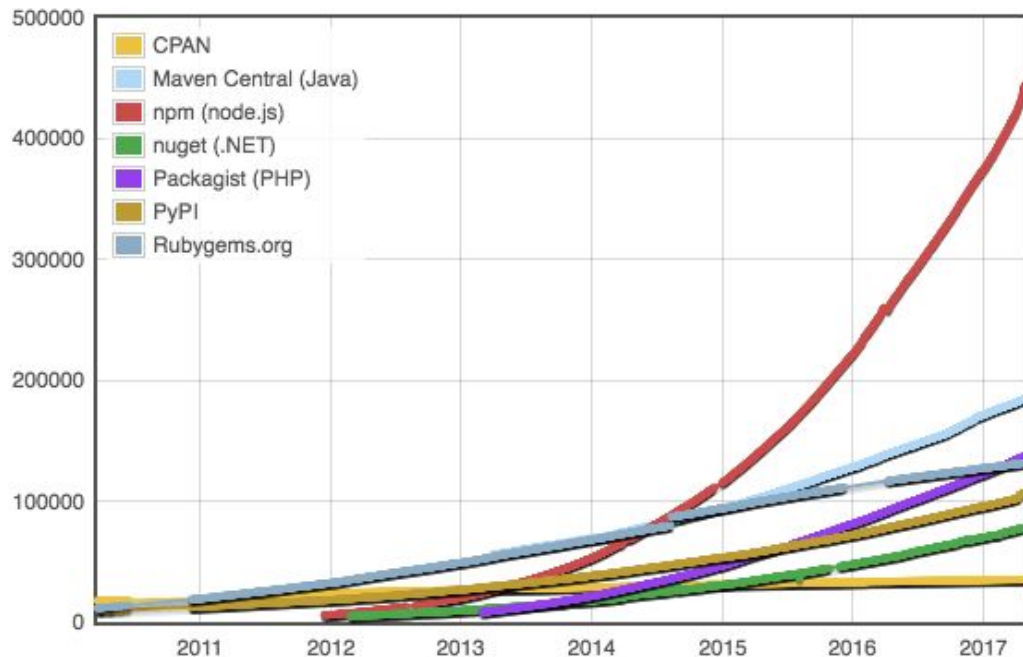
Architecture, Versions, & Dependencies

Node Core Architecture

Application/Modules (JS)

C/C++ Binding

Addons

V8

libuv

c-ares

crypto

http

zlib

Source: https://arenli.com/architecture-of-node-js-internal-codebase-57cd8376b71f
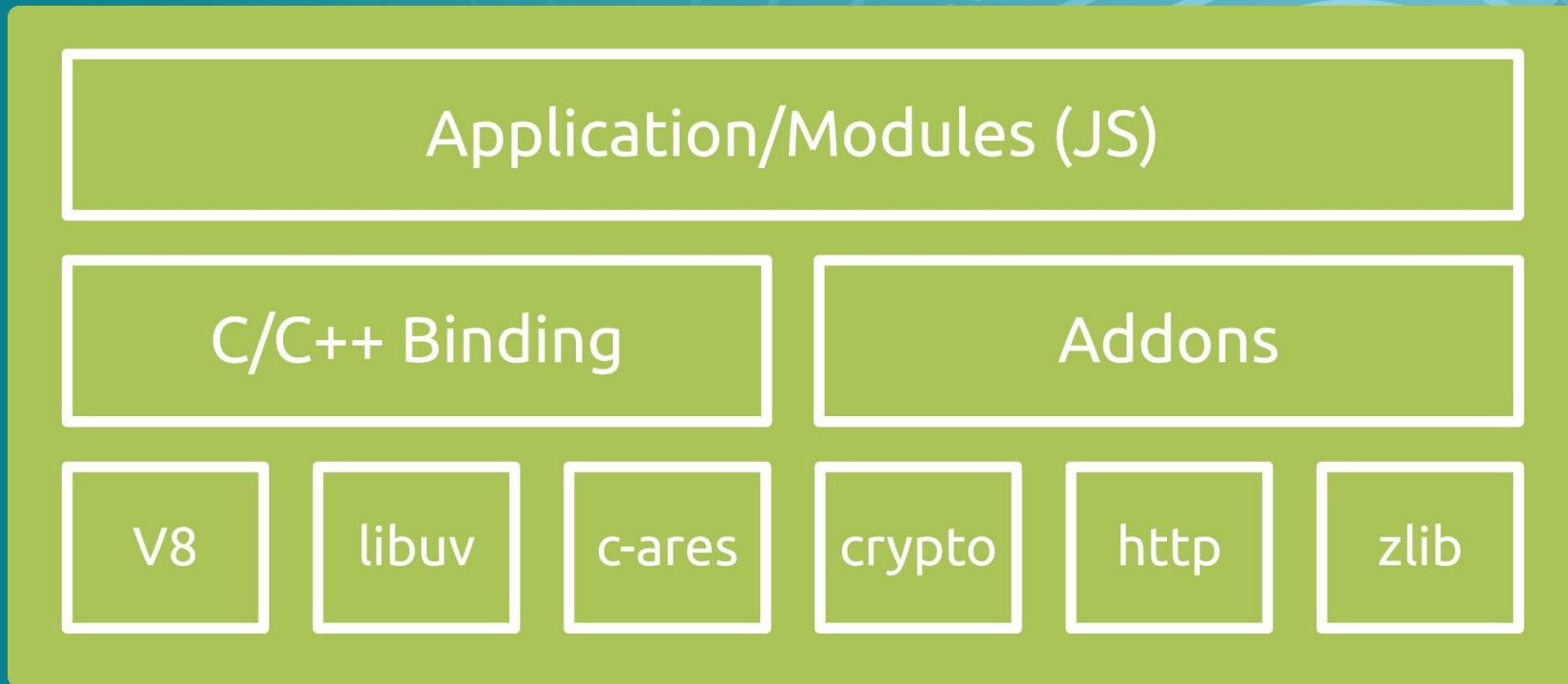
Application/Modules (JS)

- **Actual JavaScript Code**
- **Node Core Modules**
- **Downloaded NPM Modules**
- **Your own application code**

redhat

V8

Open Source C++ JavaScript Engine by Google

libuv

Open Source C project
Provides cross platform async event loop

C/C++ Binding

Various glue code and add-ons
Provides JS to C/C++ bridges

Source: https://arenli.com/architecture-of-node-js-internal-codebase-57cd8376b71f

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The different versions...

Node.js Core Versions

- Node.js v0.10.X
- Node.js v0.11.X
- Node.js v0.12.X
- Node.js v4.0.X
- Node.js v5.0.X
- Node.js v6.0.X
- Etc…

Why the jump to v4?
- io.js v1.0.X
- io.js v2.0.X
- io.js v3.0.X

Node.js Long Term Support (LTS) Release Schedule

	Apr 2015	Aug 2015	Oct 2015	Apr 2016	Oct 2016	Apr 2017	Oct 2017	Apr 2018

Master — UNSTABLE

Node.js 4 — CURRENT / ACTIVE LTS / MAINTENANCE

Node.js 5 — CURRENT — Jun 2016

Node.js 6 — CURRENT / ACTIVE LTS / MAINT.

Node.js 7 — CURRENT — Jun 2017

Node.js 8 — CURRENT / ACTIVE LTS

Source: https://github.com/nodejs/LTS
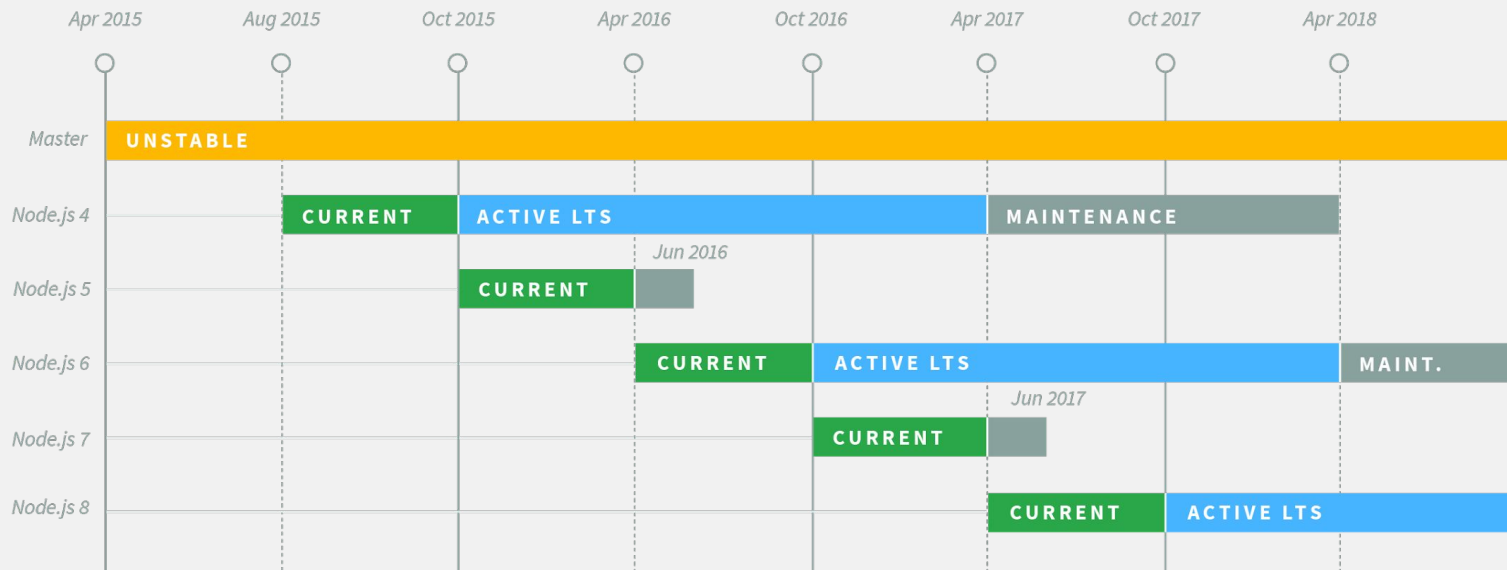
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Pros, Cons, & Node @ Red Hat

Pros

Cons

Event based asynchronous,
non-blocking I/O

Single threaded

redhat.

Pros

Cons

Easy to learn

Hard to master

Pros

Cons

Same language
Client & Server

Expertise, separation,
developers

redhat.

Pros

Cons

Huge, passionate, active community

Fast moving ecosystem that can be a challenge to stay on top of

Pros

Cons

Massive module system

Massive module system

The day 11 lines of code broke the internet….


```
leftpad.js          ●    package.json      ×
1  module.exports = leftpad;
2  function leftpad (str, len, ch) {
3    str = String(str);
4    var i = -1;
5    if (!ch && ch !== 0) ch = ' ';
6    len = len - str.length;
7    while (++i < len) {
8      str = ch + str;
9    }
10   return str;
11 }
```


Source: http://nodejsreactions.tumblr.com/   redhat.

So What Should You Do?

Node.js @ Red Hat

Do you know where your Towel is?

Various Product/Community Libraries

RHEL/Fedora/Software Collections

OpenShift & OpenShift.io

OpenShift Application Runtimes

Mobile

Product and Community Libraries

RHEL/Fedora/Software Collections

```
$ sudo dnf install nodejs
```

- Fedora
  - Fedora 18+ (NPM Fedora 24+)
  - Maintained by community with Red Hat
- RHEL
  - Supported via Red Hat Software Collections

```
# On RHEL, enable RHSCL repository for you system:
$ sudo yum-config-manager --enable rhel-server-rhscl-7-rpms
$ sudo yum install rh-nodejs4
```

redhat.

Red Hat Mobile Application Platform

Long time Node based Mobile Platform

Development optimized for Node.js

Increased productivity through Node with performance for scale

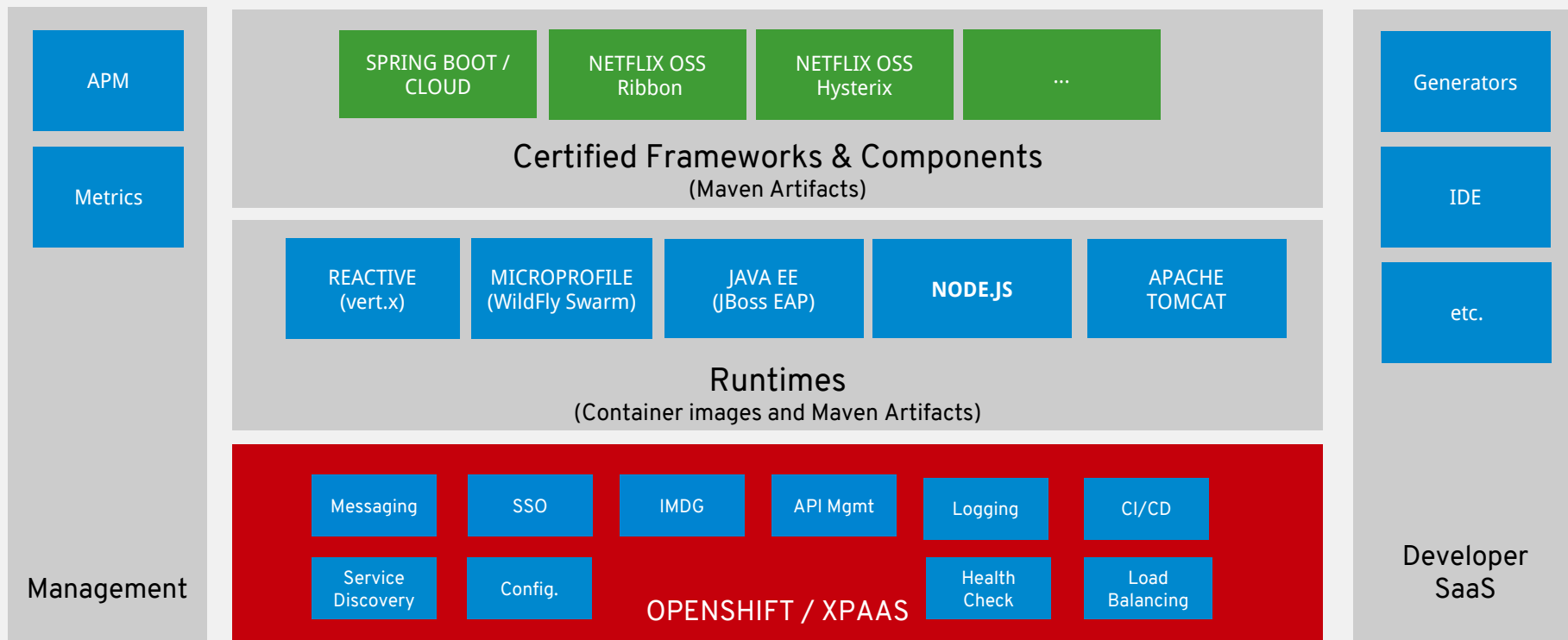Based on Feedhenry OpenSource projects

- Hosted, integrated toolchain
- Planning tools for managing and prioritizing work
- Code editing and debugging tools built on Eclipse Che
- Integrated and automated CI/CD pipelines
- Dashboards and reporting tools

Red Hat OpenShift Application Runtimes

SPRING BOOT / CLOUD	NETFLIX OSS Ribbon	NETFLIX OSS Hysterix	...

Certified Frameworks & Components
(Maven Artifacts)

REACTIVE (vert.x)	MICROPROFILE (WildFly Swarm)	JAVA EE (JBoss EAP)	**NODE.JS**	APACHE TOMCAT

Runtimes
(Container images and Maven Artifacts)

APM

Metrics

Generators

IDE

etc.

Messaging	SSO	IMDG	API Mgmt	Logging	CI/CD
Service Discovery	Config.			Health Check	Load Balancing

OPENSHIFT / XPAAS

Management

Developer SaaS

So, What is the Ultimate Answer?

THANK YOU

g+ plus.google.com/+RedHat

f facebook.com/redhatinc

in linkedin.com/company/red-hat

twitter.com/RedHatNews

youtube.com/user/RedHatVideos

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