Hitchhikers Guide To Modern Enterprise JavaScript

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WildFly Swarm

AeroGear

FEEDHENRY™

Weld

RichFaces

Java Community Process

SeamFramework.org

W3C®
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

Stackoverflow
- JavaScript
- Node.js
- Ruby

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

- Netflix
- Groupon
- Walmart
- LinkedIn
- Uber
- NASA
- PayPal
- eBay
Industry, Foundations, Players
Node.js Foundation Members

Platinum
- IBM
- Intel
- Joyent
- Microsoft
- PayPal
- red hat

Gold
- GoDaddy
- NODESOURCE

Silver
- cars.com
- codefresh
-fnac
- Fidelity
- Google
- Groupon
- line of business
- npm
- RisingStack
- SAP
- Sauce Labs
- snyk
- Sphinx
- StrongLoop
- Yahoo!

YLD
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

IBM  SAMSUNG

SILVER MEMBERS

bocoup  ripple  SAUCELABS  sense tecnic  sitepen  StackPath

ASSOCIATE MEMBERS

UNIVERSITY OF WESTMINSTER
Ecosystem, Community, Contributions
ec·o·sys·tem
/ˈɛkəˌsɪstəm/
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

Node.js JavaScript runtime 🌟 🍁 🌟 Node.js.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

Fast, unopinionated, minimalist web framework for node.  

https://expressjs.com
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?

Module Counts

- CPAN
- Maven Central (Java)
- npm (node.js)
- nuget (.NET)
- Packagist (PHP)
- PyPI
- Rubygems.org

Space is BIG. REALLY BIG.

You just won’t believe how vastly, hugely, mind-bogglingly big it is. - Douglas Adams
Architecture, Versions, & Dependencies
Node Core Architecture

Application/Modules (JS)

C/C++ Binding
- V8
- libuv
- c-ares

Addons
- 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

Source: https://arenli.com/architecture-of-node-js-internal-codebase-57cd8376b71f
Open Source C++ JavaScript Engine by Google

Open Source C project
Provides cross platform async event loop

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

Source: https://arenli.com/architecture-of-node-js-internal-codebase-57cd8376b71f
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
Pros, Cons, & Node @ Red Hat
Pros

Event based asynchronous, non-blocking I/O

Cons

Single threaded
Pros

Easy to learn

Cons

Hard to master
Pros

Same language
Client & Server

Cons

Expertise, separation, developers
Huge, passionate, active community

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

Massive module system
The day 11 lines of code broke the internet....

```javascript
module.exports = leftpad;
function leftpad (str, len, ch) {
    str = String(str);
    var i = -1;
    if (!ch && ch !== 0) ch = ' ';
    len = len - str.length;
    while (++i < len) {
        str = ch + str;
    }
    return str;
}
```
So What Should You Do?
Node.js @ Red Hat

Various Product/Community Libraries
RHEL/Fedora/Software Collections
OpenShift & OpenShift.io
OpenShift Application Runtimes
Mobile

Do you know where your Towel is?
Product and Community Libraries

- Keycloak
- Apache Camel
- Infinispan
- Drools
- Aerogear
- FeedHenry
### RHEL/Fedora/Software Collections

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

```
$ sudo dnf install nodejs
```

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

Certified Frameworks & Components (Maven Artifacts)

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

Runtimes (Container images and Maven Artifacts)

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

Management

- APM
- Metrics

Developer SaaS

- Generators
- IDE
- etc.

OpenShift / XPAAS

- Messaging
- SSO
- IMDG
- API Mgmt
- Logging
- CI/CD
- Service Discovery
- Config.
- Health Check
- Load Balancing
So, What is the Ultimate Answer?