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**SUMMIT**

# NODE.JS FOR BUILDING MODERN APPLICATIONS

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# ABOUT NODE.JS

# WHAT IS NODE.JS?



- JavaScript based servers side app development platform
- Built on top of Google's V8 JavaScript Engine
- Over 300,000 Node.js modules
- Open source and community driven
  - Node.js foundation
  - Mission: enable widespread adoption and help accelerate development of Node.js and other related modules

# WHAT IS NODE.JS?

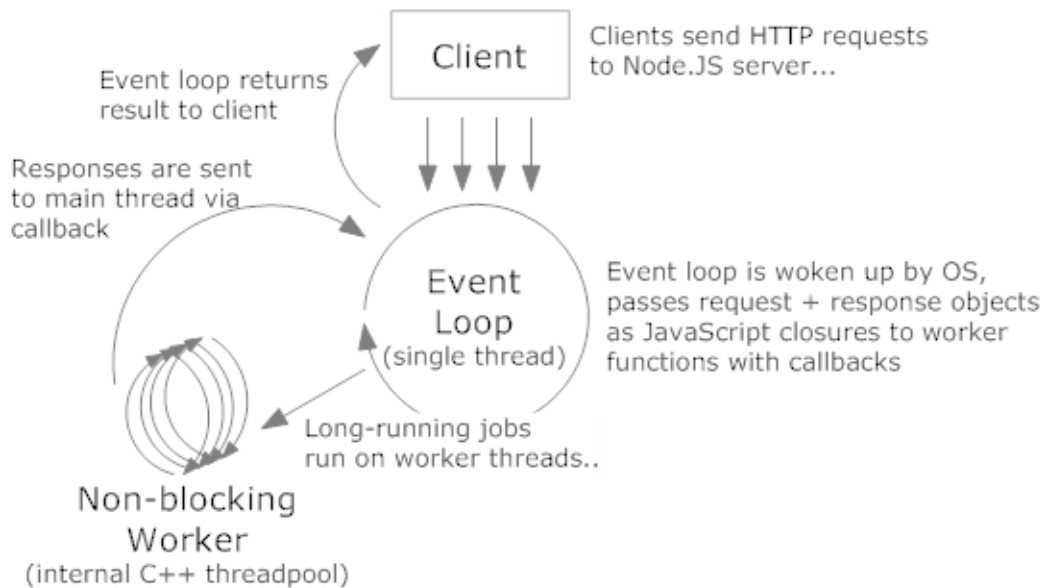


- Asynchronous / Event-Driven
  - Allows applications to scale, serve multiple simultaneous connections, by efficiently using CPU cycles and without requiring more memory.
- Fast Code Execution
  - JavaScript code is compiled into native code, native code is executed rather than interpreting the JavaScript at runtime.
- Highly Scalable

# WHAT IS NODE.JS?



## Node.JS Processing Model



# WHAT IS NODE.JS?



- Faster application development cycles
- Allows for full stack development using JavaScript for both front and back ends
- Lower hardware resource usage due to asynchronous nature
- Support for integration with various backend systems and protocols
- Exponential growth in the usage of the platform (Web, IOT, Robotics and for Tooling)

# WHY NODE.JS WAS DEVELOPED?



- Address challenges when using existing web servers for building concurrency into the platform
- Simplify the development of applications that can support concurrency
  - Without getting deep into threads

# MODERN APPS



# MODERN APPS

What are these?

- Low latency
- Highly concurrent
- Support Microservices
- Faster/Shorter development cycles
- Support DevOps
- Built around a container platform (OCP)

# SUPPORTING ECOSYSTEM

What are these?

- Node.js packages  
[www.npmjs.com](http://www.npmjs.com)
- Frameworks
  - Express.js
  - Hapi
  - Koa
  - +Others
- Testing
  - Mocha
  - Chai
  - Sinon.JS
  - Node Inspector



# REFERENCE ARCHITECTURE

## MEAN STACK

### Web

- Angular JS

### Mobile

- Hybrid
- Native (iOS/Android)

### Middleware

- Node.js
- Redis (Caching)
- MongoDB (persistence)

### Backend

- Any other system (Authentication,..)



# WHO IS USING NODE.JS



Walmart 



Microsoft



YAHOO!

DOW JONES

NETFLIX



ebay

 PayPal

SIEMENS

The New York Times

AND MANY MORE

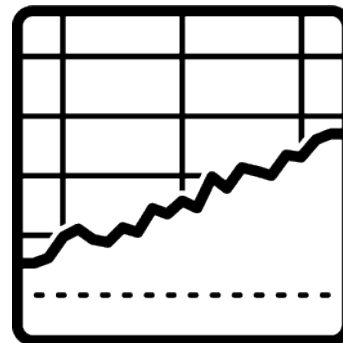
# CONSIDERATIONS IN USING NODE.JS

- **Development skills**
  - JavaScript



# CONSIDERATIONS IN USING NODE.JS

- **Learning curve**
  - There is a learning curve associated with using frameworks and Node.js modules
  - Architecting the applications to leverage the platform capabilities
  - Callback hell



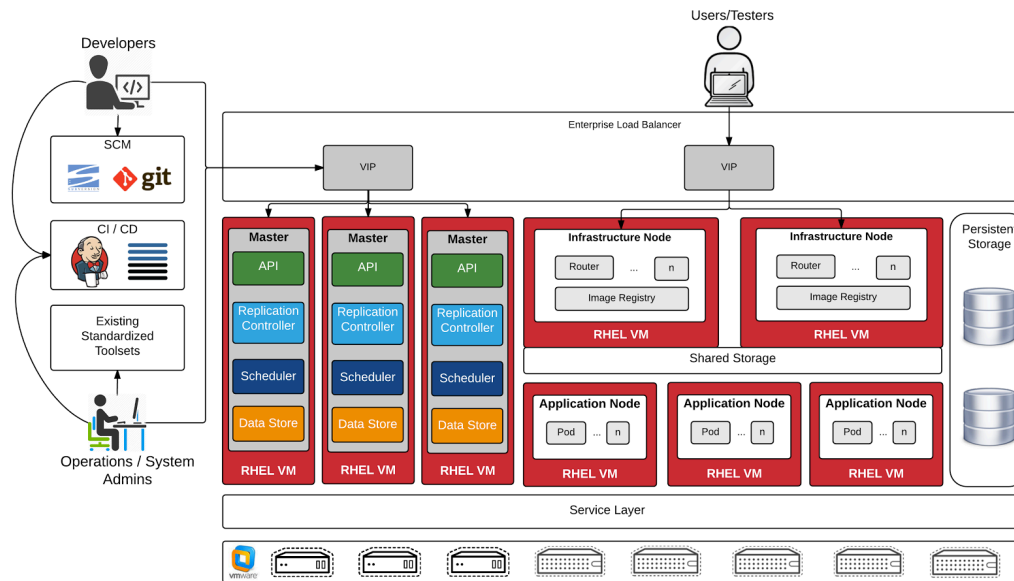
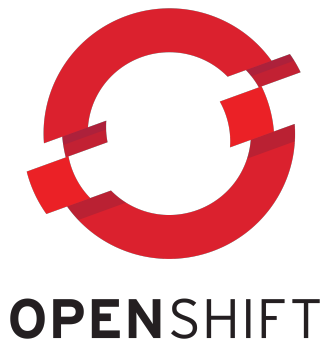
# CONSIDERATIONS IN USING NODE.JS

- **Security**
  - Anyone can publish modules
  - Local repo (Sinopia)
  - Managing module dependencies
    - Shrinkwrap



# CONSIDERATIONS IN USING NODE.JS

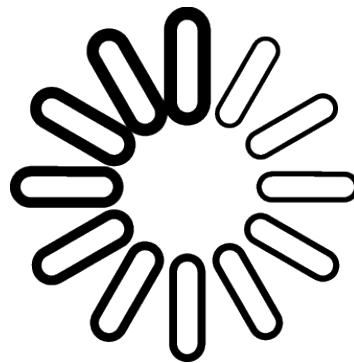
- **DevOps and Microservices**
  - Supporting infrastructure
  - Leveraging OCP
  - Seneca





# CONSIDERATIONS IN USING NODE.JS

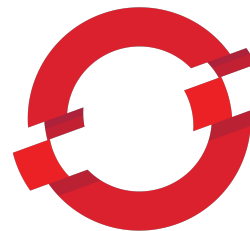
- **Performance**
  - High I/O applications vs CPU intensive applications
  - Add-ons for C/C++



# CONSIDERATIONS IN USING NODE.JS

## Scaling of applications

- PM2
- OCP



**OPENSIFT**

# RED HAT AND NODE.JS

# RED HAT & NODE.JS

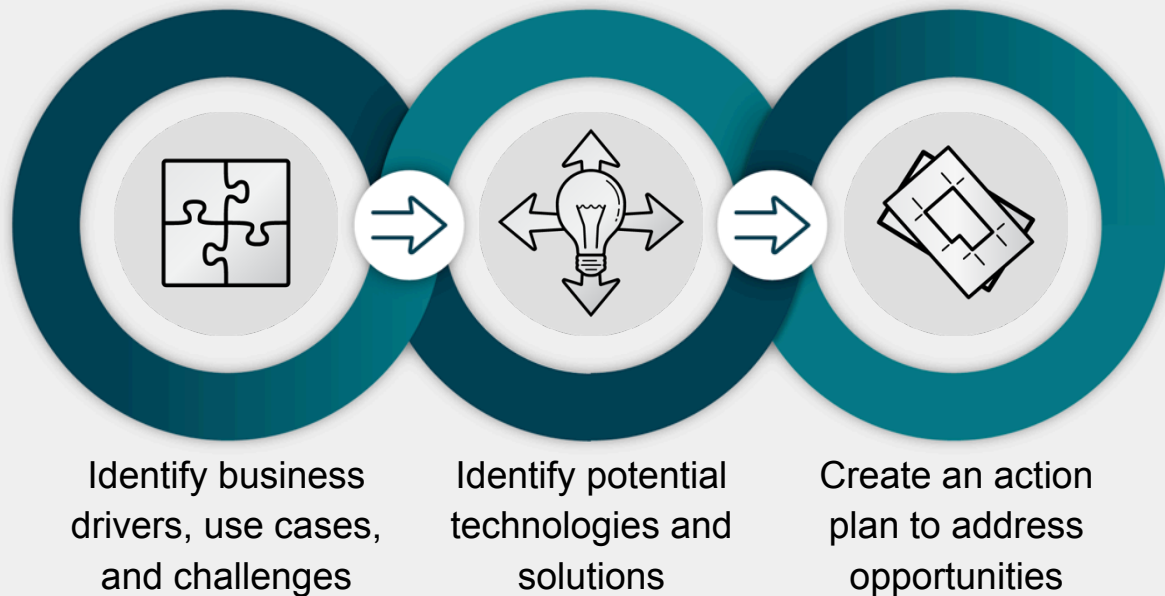
- Platinum member of the Node.js foundation
  - <https://nodejs.org/en/blog/announcements/welcome-redhat/>
- Leveraging the Node.js for over 5 years for building mobile and web applications
  - Has the expertise in helping enterprises deploy Node.js in building next generation mobile and web applications
- Red Hat Mobile Application Platform (RHMAP) is built on top of Node.js and supports developing Node.js based applications
- Helped clients in various sectors in building Node.js based applications
  - Pharmaceuticals
  - Healthcare
  - Engineering
  - Financial
  - Energy

# RED HAT AND NODE.JS

- Best Practices
- Application Architecture and Development
- Security
- Driving Digital Transformation, DevOps, and Microservices
  - OCP
  - Ansible
  - 3 Scale
  - Open Innovation Labs
  - RHMAP

# START WITH DISCOVERY

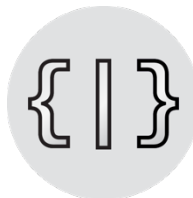
## Node.js Discovery Session



# RED HAT CONSULTING ENTERPRISE



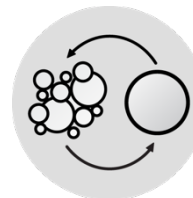
Scale Innovation



Accelerate Application  
Development



Increase Operational  
Efficiency



Enable DevOps



Respond Faster to  
User Needs

## THE RED HAT CONSULTING APPROACH

### DISCOVERY SESSION

Review and capture requirements, processes, workload, and environment details as it pertains to developing Node.js applications.

### WORKSHOPS

Provide target-state design patterns and architecture for a Node.js solution based on Red Hat expertise and help build the roadmap identifying levels of effort and timelines for organizational adoption.

### IMPLEMENTATION

Deploy target Node.js application architecture within client . Develop, test, and deploy target app. Integrate with customer's environment and mentor client organization.

# APPROACH

App Driven

Strategy Driven

Labs Driven

Phase 0

Discovery Session

Phase 1

Node.js Pilot or Smart Start

Microservices  
CoE  
Development  
and Enterprise  
Architecture  
Strategy  
Guidance

Open Innovation  
Labs Residency

Phase 2

Cloud and  
Back-End  
Service  
Development

Full App  
Dev

Node.js Based  
Solution  
Development

Innovation Labs  
Off-ramp to  
Production

Custom  
Consulting



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# THANK YOU



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The logo consists of a red speech bubble shape pointing downwards, containing the text "RED HAT" in a smaller font above "SUMMIT" in a larger, bold font.

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