

Node-RED

Flow-based programming for the Internet of Things

What is Node.js?

*“Node.js is a platform built on Chrome's JavaScript runtime for easily building fast and scalable network applications. Node.js uses an **event-driven, non-blocking I/O model** that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.”*

Node.js documentation

What is Flow-based programming?

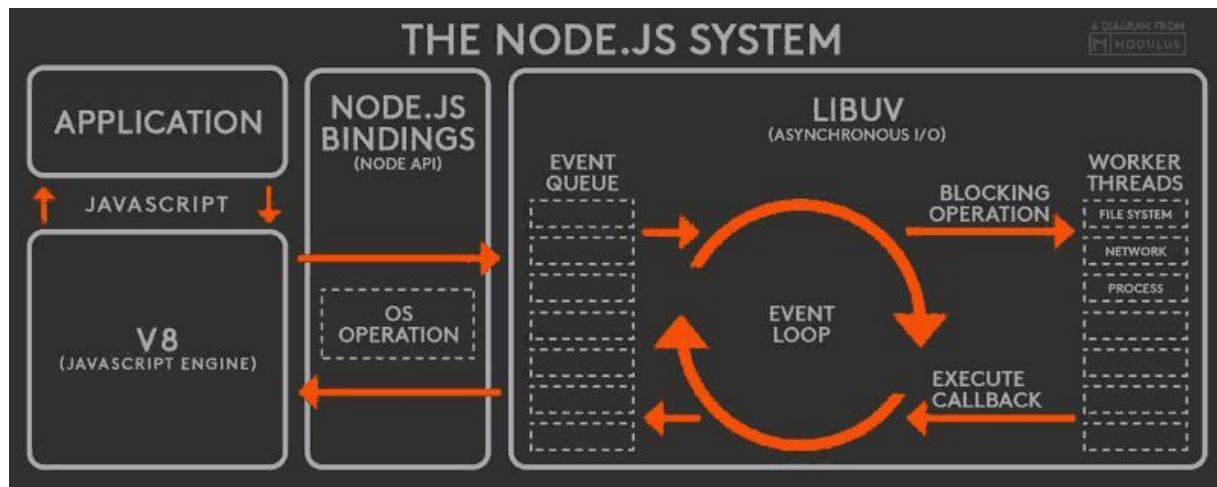
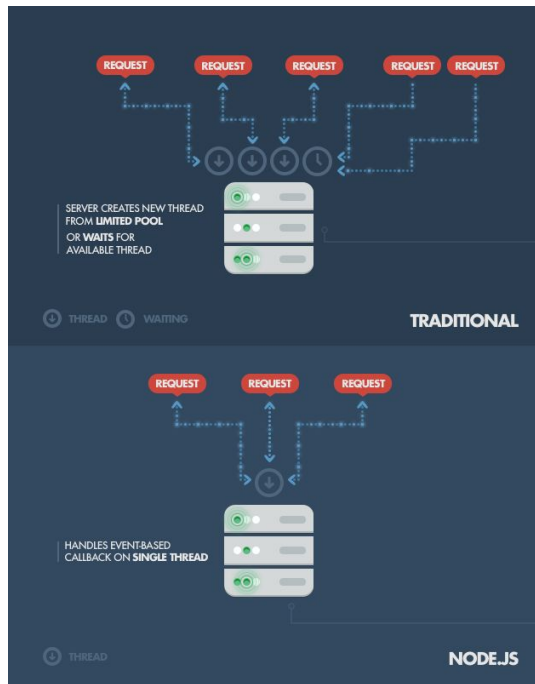
*“In computer programming, **flow-based programming (FBP)** is a programming paradigm that defines applications as networks of "black box" processes, which exchange data across predefined connections by message passing, where the connections are specified externally to the processes.”*

Wikipedia

What is Node-RED?

- “Node-RED is a programming tool for wiring together **hardware devices, APIs and online services** in new and interesting ways.”
- “It provides a **browser-based editor** that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.”
- “The light-weight runtime is **built on Node.js**, taking full advantage of its **event-driven, non-blocking model**. This makes it ideal to run at the edge of the network on low-cost hardware such as the Raspberry Pi as well as in the cloud.”

An Analogy for Node.js



How to install Node-RED?

- Firstly Node.js has to be installed:

```
$ dnf install nodejs
```

- Then Node-RED could be installed:

```
$ npm install node-red
```

How to use Node-RED?

- Run it by typing this address on the browser: <http://localhost:1880>

Raritan Nodes

- Provide you to do basic stuff such as getting sensor value, changing state of a device.
- Except config nodes, 6 distinct nodes have been created so far.
- Some example flows created to show what could be done with Node-RED
- Much more besides are up to your imagination...

How to create a custom node?

1. Create a folder under your Node-RED data directory.
2. Run this command to initialize node package manager:

```
$ npm init
```

3. Create a HTML and a JavaScript file with the same name.
4. Files should have specific content, regarding to the Node-RED documentation.