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Node JS

The programming language which we use to write a program at client side is JavaScript which runs on the browser, on other hand the language which allows us to do programming at server side is Node JS (JavaScript). Although JavaScript and node js are different but basic modules are written in JavaScript.

Node js has a predefined library which has various javascript module inside it, that makes programming easy at server side. Node JS based on the Google "V8" engine implementation.

When it comes to building a web server, there are two approaches to deal with the multiple concurrent connection request. One of them is traditional approach of using threads to handle the connection requests, as followed by many web servers. The second approach is to use single non-blocking thread along with event loops. Node uses certain non-blocking libraries to support the Event-loop approach. This basically provides the interface required to interact with the database or file system in an event-driven approach. The request and response from the file system or the database is handled in a non-blocking manner. Instead of waiting for the request to be processed and result to be returned node performs other task. For example, when a

request is send to the file system, rather than waiting for harddisk to retrive it, Node is notified when it has the access. This is game as handling an event in DOM such as onclick.

Like most new technology technologies, it's not that easy to deploy Node on existing hosts. If you have a shared web hosting, you can't simply upload a Node app and expect it work. VPS and dedicated servers are better positioned you can install Node on them. Even easier is to use a scalable service like Heroku, which is completely free to developed developes your site on- you only need to pay when you need more resources. I gave an example of using Heroku before when we used it to create Facebook fangate, but it can be used for Node too. On the other hand, it's very easy to install Node locally onto your windows, mac, Linux PC and begin developing immediately →

Single page applications, i/o bound applications, Data Intensive Real Time Applications (DIRT) are the few of many areas where we use Node.JS.

Node JS

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Javascript is a just client-side programming language that runs in the browser. but the node js is way to of running Javascript on server. Node is an interface to the v8- Javascript runtime - Super fast JavaScript interpreter which is used to in chrome browser. JavaScript works on server side only. i.e. when you submit the form or upload the a file it se hits servers at any event so after to many sites when are loaded Javascript becomes slower to overcome this issue Node Js helps JavaScript. It works as server & handles issues of not being slower.

A core concept of node is asynchronous functions so everything runs in the background. Most of the scripting languages to waits on same page untill it completes the task and here is the performance problem comes. Node overcomes it in a such way that the w function which wants to rest work can wait & the anot app moves on. This makes thousand of users and run on same server.

We know that programming concurrency is hard & has some risk to it, but Node overcomes all these threats. & this offers remarkable performance. It also, helps in to reduce complexity for application developer.

The request from server is

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from user is handled in non-blocking manner. Instead of waiting for the request to be processed & the results to be retured, Node performs other works. As we have various functions in javascript, we these functions are used by Node to do more tasks at the same time.

The I/O bound applications are the best suited for Node JS. Also Data streaming applications are the another applications where Node JS finds the application.

23/03/2016

TEJAL U LOKARE

Node.js

Node.js is a very powerful JavaScript-based framework/platform built on Google chrome's Javascript V8 Engine. It is used to develop I/O intensive web applications like video streaming sites, single-page applications, & other web applications. Node.js is open source, completely free, & used by thousands of developers around the world.

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

It is an open source, cross-platform runtime environment for developing server-side & networking applications. Node.js applications are written in JavaScript & can be run within the Node.js runtime on OS X, Microsoft Windows & Linux. Node.js also provides a rich library of various JavaScript modules which simplifies the development of web applications using Node.js to a great extent.

There are some of the important features that make Node.js the first choice of software architects. First one is Asynchronous & Event Driven. All APIs of Node.js library are asynchronous that is non-blocking. It essentially means a Node.js based server never waits for an API to return data. Server moves to next

API after calling it & a notification mechanism of Events of Node.js helps the server to get a response from the previous API call.

Second feature is being built on Google chrome's V8 JavaScript Engine, Node.js library is very fast in code execution.

Third feature is it is single Threaded but Highly scalable. Node.js uses a single threaded model with event looping. Event mechanism helps the server to respond in a non-blocking way & makes the server highly scalable as opposed to traditional servers which create limited threads to handle requests. Node.js uses a single threaded program & the same program can provide service to a much larger number of requests than traditional servers like Apache HTTP servers.

Fourth feature is No Buffering. Node.js applications never buffer any data. These applications simply output the data in chunks.

Sushmit Vishwakarma.

- Node.js is a complete software platform for scalable server-side and networking applications.

- It is open-source, freeware and freely available under the MIT license.
It comes bundled with a Javascript interpreter.
It runs on Linux, windows, Mac OS & most other major operating system.
Although Node.js is not a Javascript framework many of its basic modules are written in Javascript. and developers can write new modules in Javascript
The Runtime environment interprets Javascript using Google's V8 Javascript
It was created by Ryan Dahl in 2009. to revolutionize web applications.
inspired by Ruby Mongrel web Server.
First version was released in 2011. It was only available for Linux platform.
In 2012 Complete Rewrite of central libraries was done. In 2014 v0.10.26 was released and after several improvements finalized to v1.0

It was Huge Success amongst companies like Microsoft, PayPal, ebay, Yahoo, the New York Times etc.

Node.js establishes realtime, two way connections and provides interactive features which

are encapsulated within Flash or Java Applets.

It works on Chrome's V8 Javascript runtime for easily building fast, scalable network applications. It 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.

There are 2 major components, Main Core written in C and C++. Modules such as Libuv library and V8 runtime engine also written in C++.

All the requests are handled by the Main Single Thread. The API is written in Javascript. Node bindings allow for server operations. Libuv responsible for both asynchronous I/O & event loop.

V8 engine is Just in time compiler, and consists of compiler, optimizer and garbage collector. Libuv contains fixed-size thread pool. It is heavily influenced by architecture of Unix operating system.

Node.js operates on a single thread, using non-blocking I/O calls, allowing it to support ten of thousands of concurrent connections without incurring cost of thread context switching. A downside of this single threaded approach is that Node.js doesn't allow vertical scaling by increasing the no. of CPU cores of the machine it is running on without using an additional module such as cluster.

Node J.S.

Node.js is a server side platform built on Google Chrome's JavaScript Engine. It was developed by Ryan Dahl in 2009 & its latest version is v0.10.36

Node.js is a platform built on Chrome's JavaScript runtime for easily building fast & scalable network applications. Node.js uses event-driven, non-blocking I/O model that makes it lightweight & efficient, perfect for realtime applications.

Node.js is open source, cross platform runtime environment for developing server side & networking applications. Node.js applications are written in java script, & can be run within Node.js runtime on OS X, Microsoft windows & Linux. Node.js also provides a rich library of various JavaScript modules which simplifies the development of web application using Node.js to great extent.

★ Features of Node.js.

1) Asynchronous & Event Driven.
API's of Node.js library are asynchronous. i.e. ~~they do not~~ server never waits for an API to return data.

2) Very fast.
Being built on Google chrome's V8 JavaScript

Engine, Node.js library is very fast in code execution.

3) Single Threaded but Highly Scalable -

Node.js uses a single threaded model with event looping. Event mechanism helps the server to respond in a non-blocking way & makes server highly scalable.

4) No buffering -

Node.js applications never buffer any data. These applications simply output the data in chunks.

5) Licence - Node.js is released under the MIT licence.

* Companies using Node.js -

eBay, General Electrics, GoDaddy, Microsoft, Uber, Yahoo!

* Where to use Node.js ?

1) I/O bound Applications
2) Data streaming Applications
3) Data intensive Real time Applications
4) JSON APIs based Applications
5) Single Page Applications