

NodeJS

Async Programming and Server-side Javascript

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Interface Development

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TODAY'S TALK IS...

What is NodeJS?

Non-blocking (event loop) vs blocking (threads)

NodeJS Architecture Overview

What is Asynchronous programming?

Where does NodeJS fit into our architecture?

Is it ready for Blast Radius?

NodeJS Community

How to get started with NodeJS with a few steps

Resources

Questions

WHAT IS NODEJS?

Server side Javascript platform

Built on top of Google V8 Javascript engine

Evented, non-blocking I/O: EventMachine (Ruby), Twisted (Python)

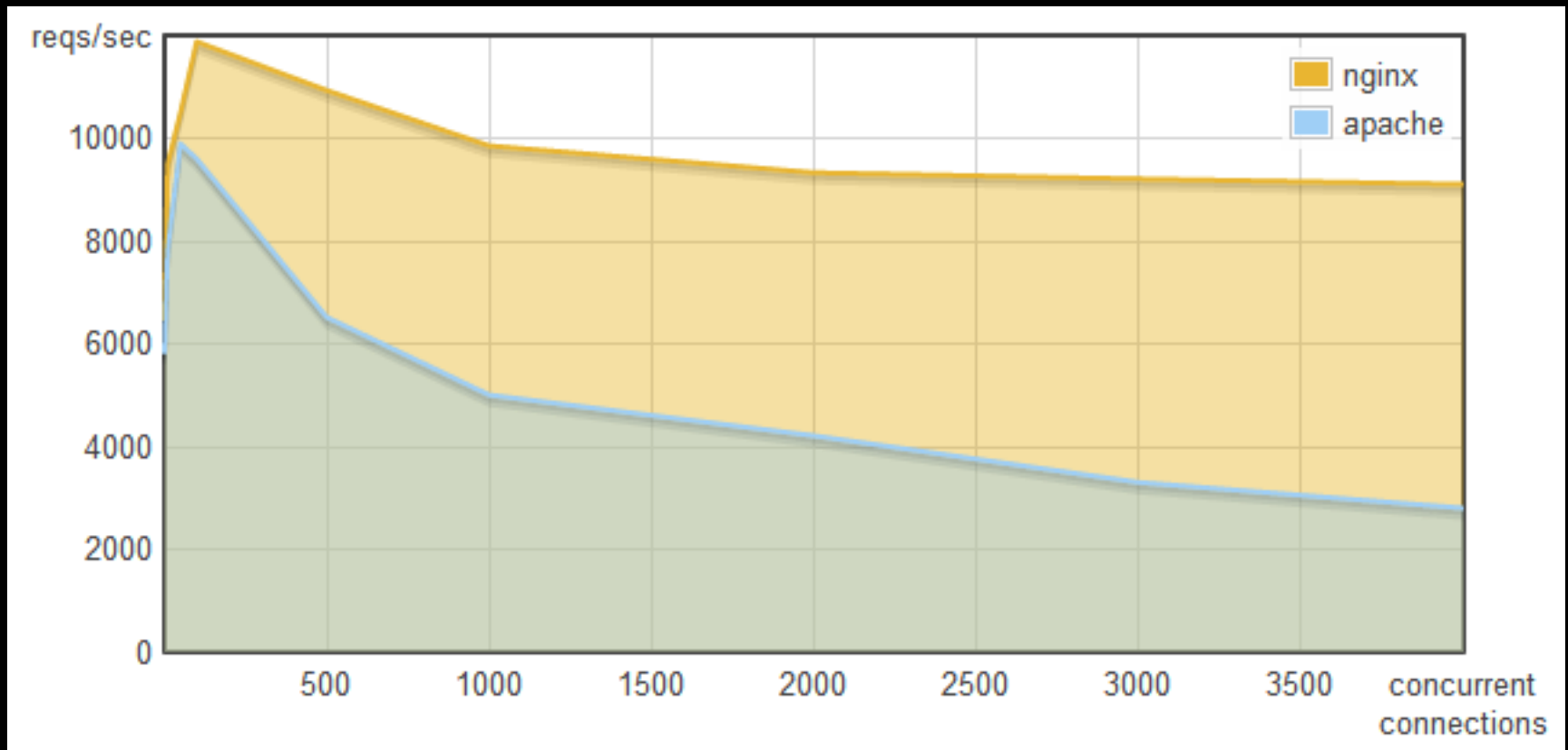
Gets compiled down to Machine code (V8)

Scalable: uses an event loop instead of threads

Easy: uses our beloved Javascript language

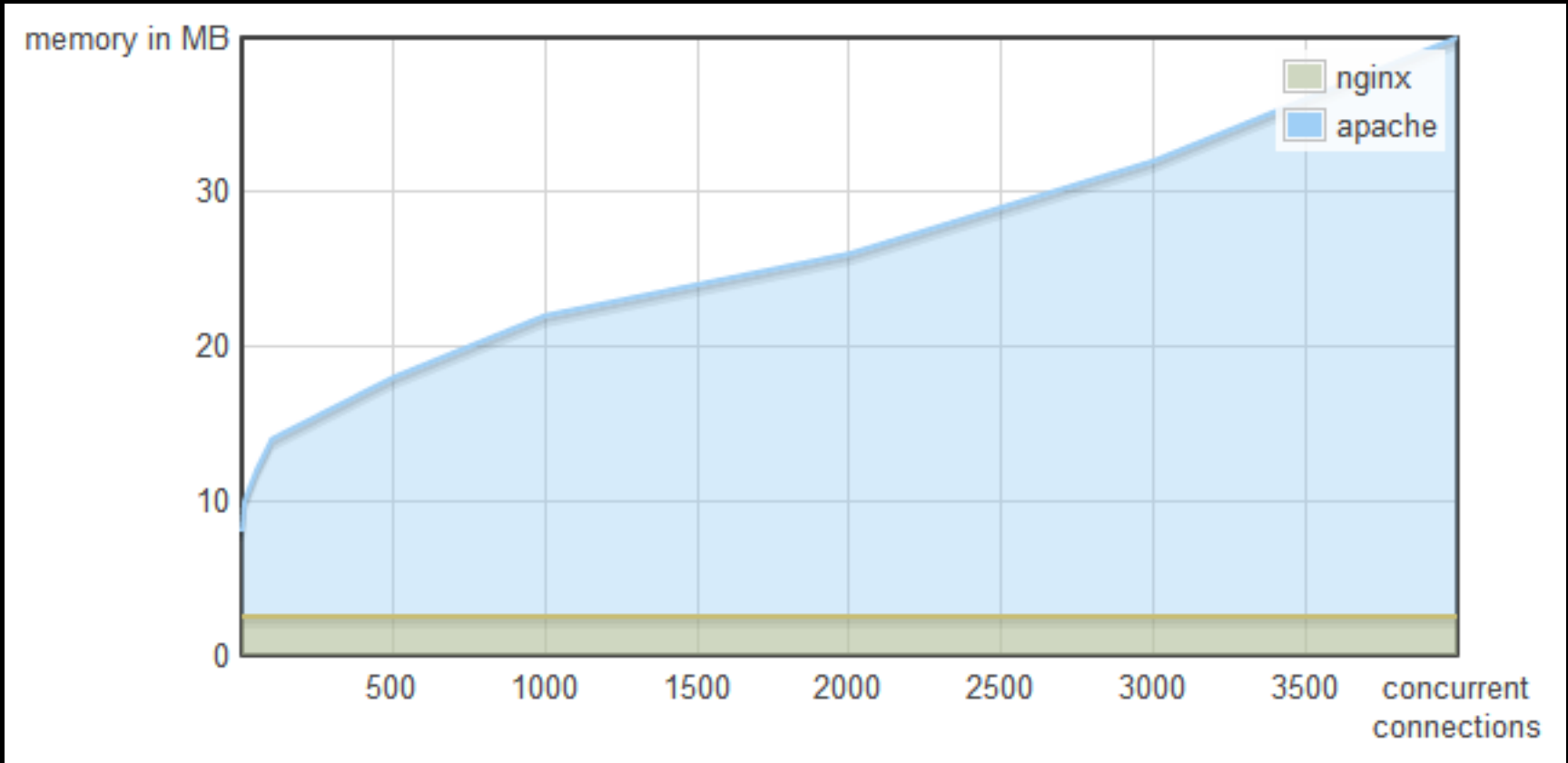
Extensible: uses CommonJS for writing JS modules, allows developers to also write C modules

EVENT LOOP VS THREADS (part 1)



Requests per second drop as concurrent connections rise

EVENT LOOP VS THREADS (part 2)



Evented I/O single-threaded, does not create new threads
Apache is one thread per connection!

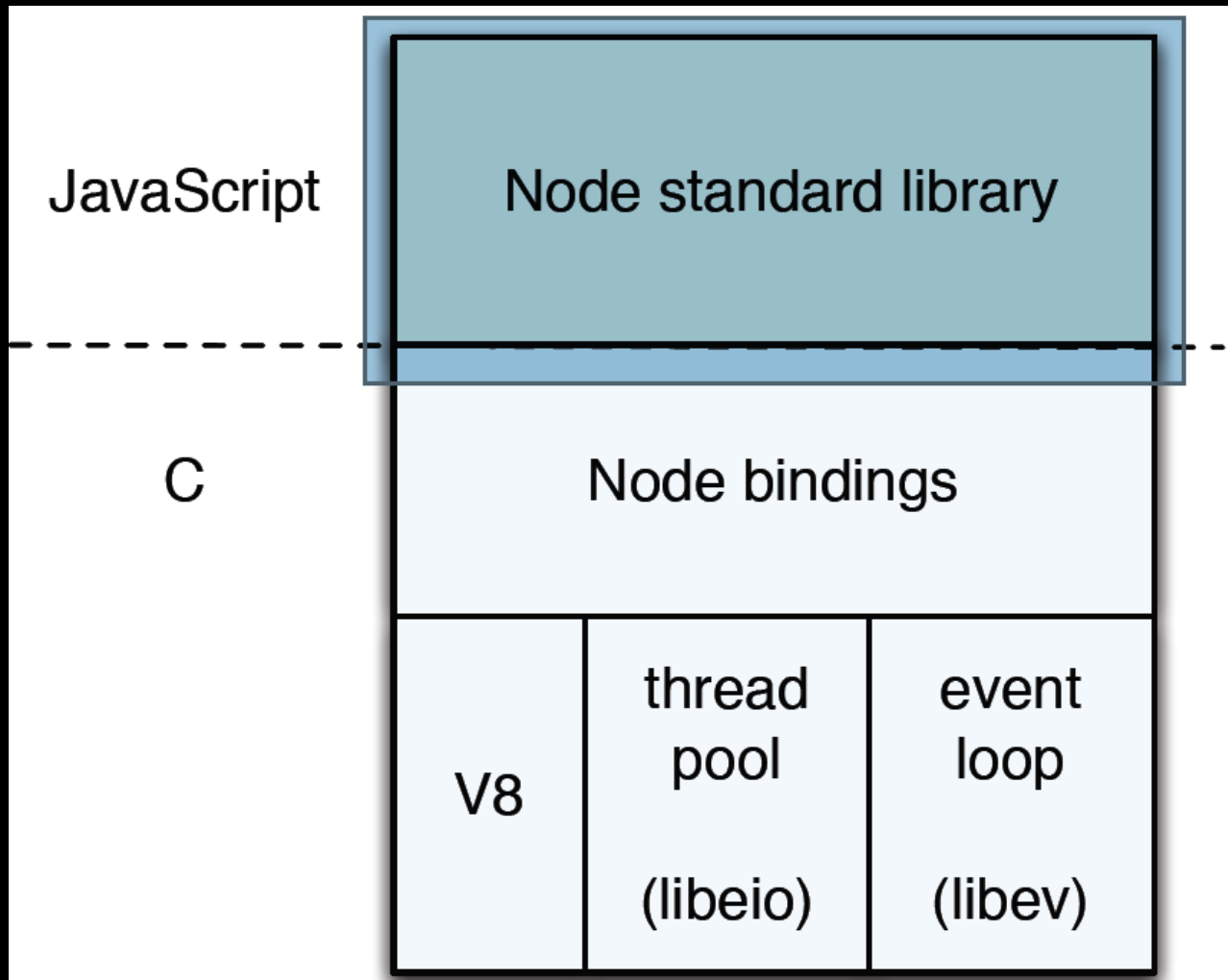
JS + Event Loop + Server Side = ???

?

NodeJS!

- Many people know Javascript. Single-threaded.
- Many Javascript developers are familiar with closures, anonymous functions, and passing callbacks
- Simple, well documented API
- Huge community
 - MVC frameworks being developed (Djangode, josi)
 - Database connectors being developed
 - Async MySQL, MongoDB, CouchDB, SQLite
 - Testing frameworks (JSpec [BDD], expresso [TDD])
 - Gfx libraries (ImageMagick, GD, OpenGL, video)
 - TCP/IP (HTTP, HTTPS, gzip, FTP)
 - ...tons more!

NodeJS Architecture Overview



Writing blocking code

```
//writing blocking code  
var results = DB.query('select * from users');  
//what does it do here when we're fetching from db?  
//blocking !  
for(var i = 0; i < results.length; i++) {  
    //do something with results  
    console.log(results[i].firstName);  
}
```

Writing non-blocking code

```
//writing non-blocking code in NodeJS

DB.query('select * from users', function (results) {

    //process users here

    //invoked when the query completes

});

doWorkOne();

doWorkTwo();

doWorkThree();

doWorkFour();
```

Asynchronous Programming

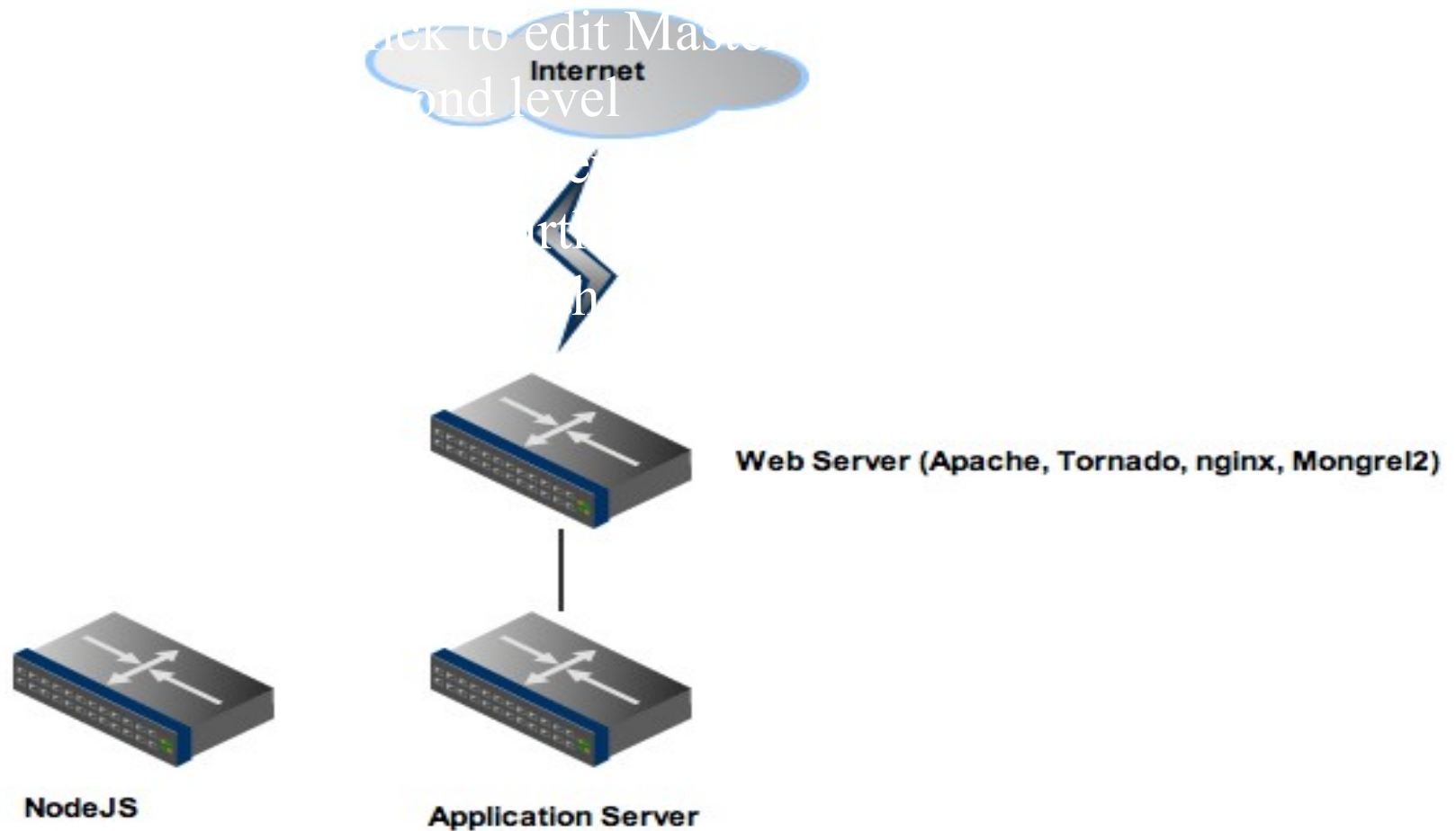
//looks very familiar to how we bind events in jQuery...

```
$('#button').click(function() {  
    //invoked when the user clicks the button  
    //do something in here  
});
```

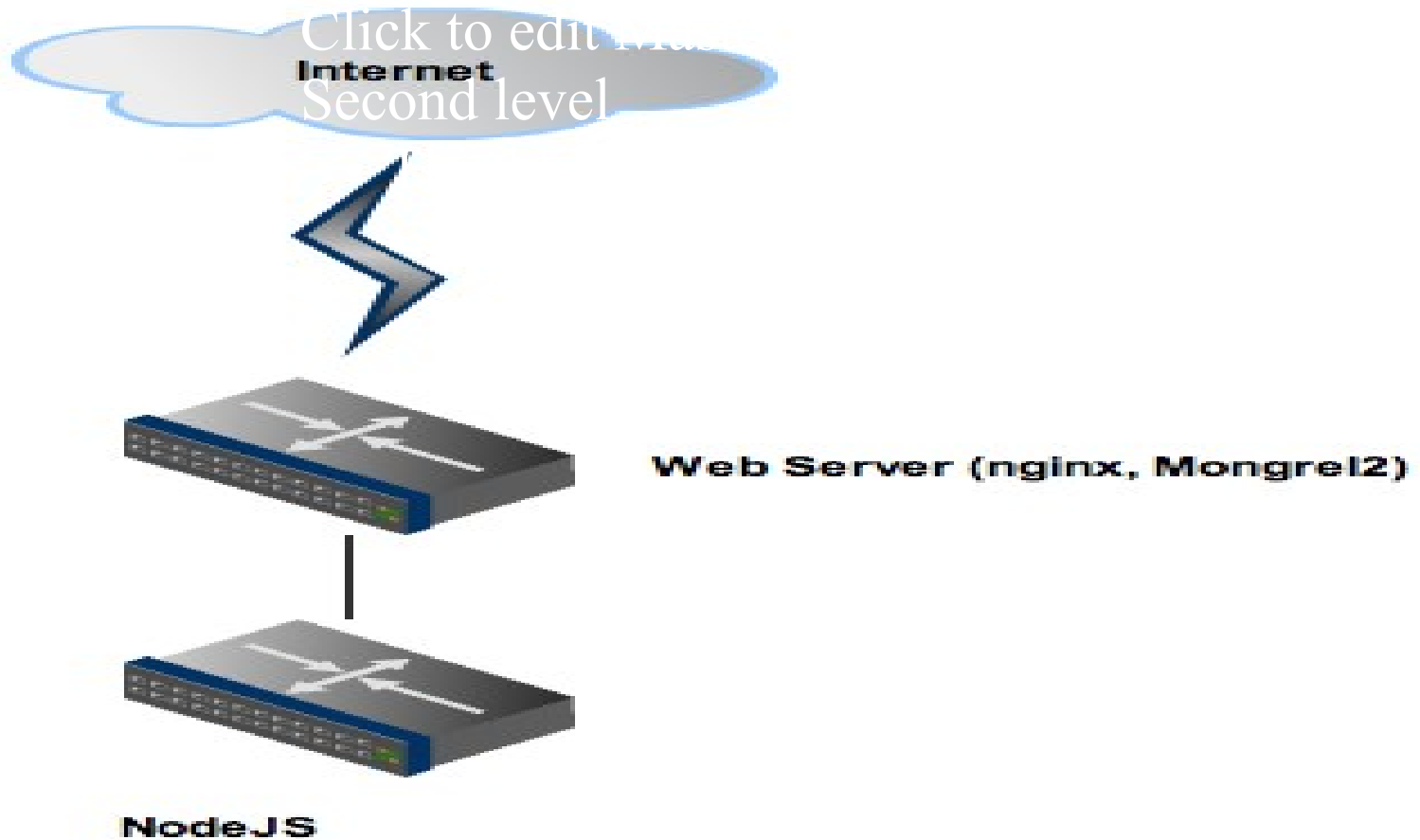
//looks very familiar to how we fetch data from a service in jQuery...

```
$.load('/api/users', function() {  
    //load has been performed  
    //fetch users  
});
```

NodeJS and Your Architecture



NodeJS and Your Architecture



Is NodeJS ready for BR projects?

NOT MATURE – NOT PROVEN – NOT READY!

- No apps out there that show how NodeJS is a great technology choice. There are other mature options!
- Async programming can be very confusing at first when you're not able to block
- Lack of robust debugging tools (compared to Java)
 - Lack of fully tested libraries
 - No Oracle bindings yet

Is NodeJS ready for BR projects?

BUT...

Check out its growing community!

- 63+ Contributors
- 3000+ developers watching github
- 277 forks on github
- 2800+ members in google group

Is NodeJS ready for BR projects?

Projects that are utilizing NodeJS

Dextrose (upcoming JS-based MMO using Aves Engine)

Chompin (mobile app for discovering music)

Tons of great libraries being developed by community

- **MVC frameworks being developed** (Djangode, josi)
- **Database bindings being developed**
- **Async MySQL, MongoDB, CouchDB, SQLite**
- **Testing frameworks** (JSpec [BDD], expresso [TDD])
- **Gfx libraries** (ImageMagick, GD, OpenGL, video)
- **HTTP, HTTPS, gzip, FTP**
- **node-memcached** (memcache)

Soon to be an application server

People working on MVC frameworks like Django (Python), Rails (Ruby), Symfony (PHP)

Rendering a view?

```
<p>${person.name}</p>
```

Getting Started with NodeJS

```
> git clone git://github.com/ry/node.git
```

```
> cd node
```

```
> ./configure
```

```
> make
```

```
> sudo make install
```

```
> vi hello.js (save file with console.log('hello!'))
```

```
> node hello.js
```

```
hello!
```

Resources

- nodejs.org
- Github repository: <http://github.com/ry/node>
- Github wiki: <http://github.com/ry/node/wiki/modules>

Questions?

THE END!

```
(function() {  
    console.log("YOU'RE DONE!");  
    process.kill(process.pid);  
})();
```

TO BE CONTINUED...

node-Blast-Mojo Site Map?

```
myapplication.SiteMap = [  
  { //Jaime Bueza  
    pattern: "/",  
    controllers: [{  
      controller: "myapplication.controller.HomeController",  
      params: {}  
    }]  
  },  
  { //Jaime Bueza  
    pattern: "/registration",  
    controllers: [{  
      controller: "myapplication.controller.RegistrationController",  
      params: {}  
    }]  
  }  
];
```