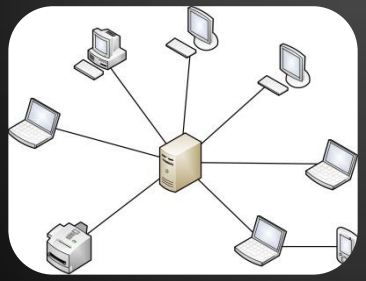
Telerik Academy

Introduction to NodeJS



What is the fuzz all about?

Telerik Software Academy

Learning & Development Team

http://academy.telerik.com

Telerik Academy

Table of Contents

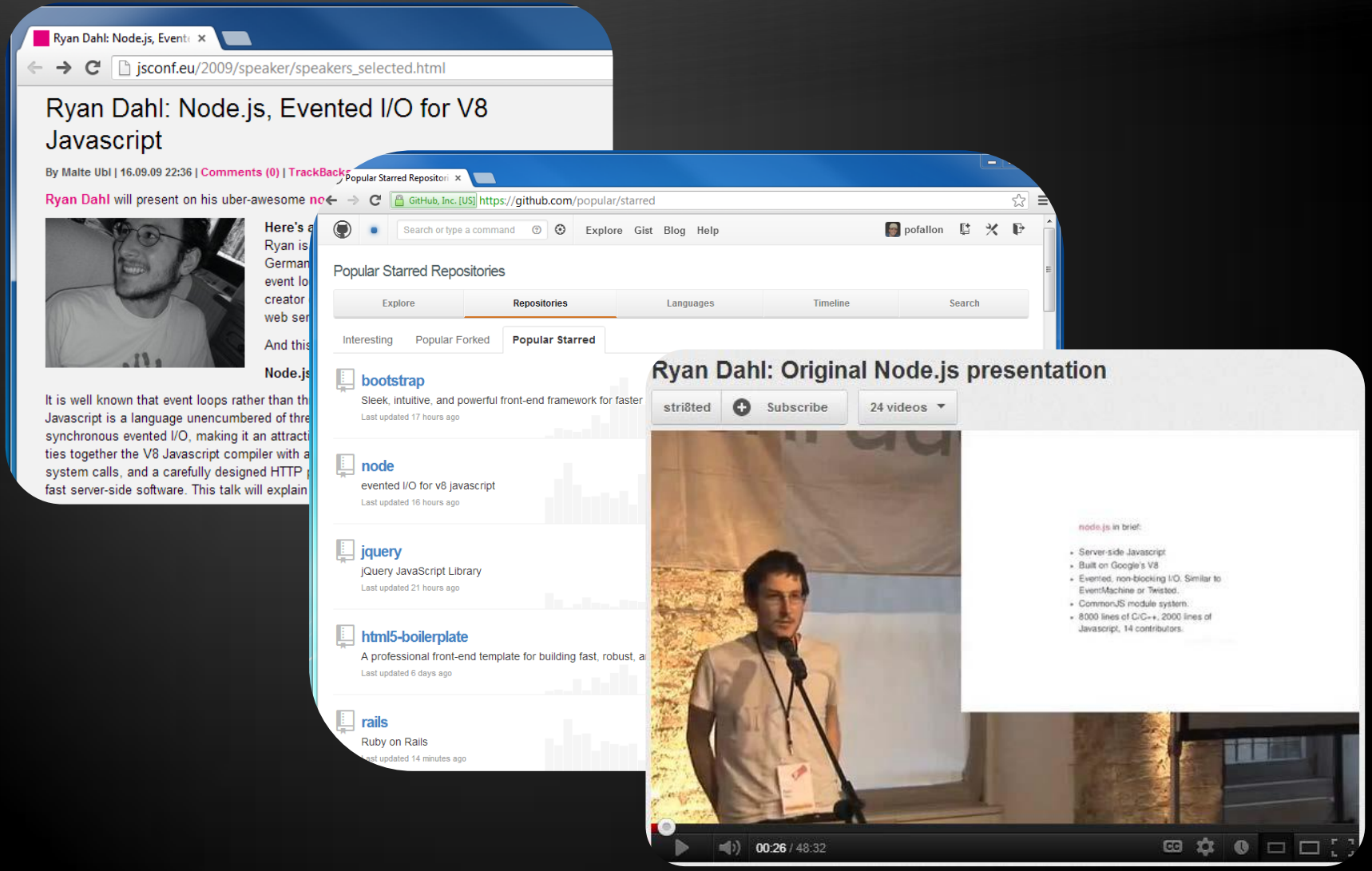
Telerik Academy

Overview of NodeJS

Telerik Academy

Overview of NodeJS

- Background



Why NodeJS

- Node is written in JavaScript
  - One language on the server and the client
- Full control of the server
- Asynchronous and fast (callback oriented)

Number of iterations	Node.js	PHP
100	2.00	0.14
10'000	3.00	10.53
1'000'000	15.00	1119.24
10'000'000	143.00	10621.46
1'000'000'000	11118.00	1036272.19

Telerik Academy

Building Blocks & Installation

- NodeJS
  - libuv – high-performance event I/O library
  - V8 – Google Chrome's JavaScript engine
  - JavaScript -> C++
- Installation
  - http://nodejs.org/
  - Run Command Prompt (cmd)
  - Type "node" and run it

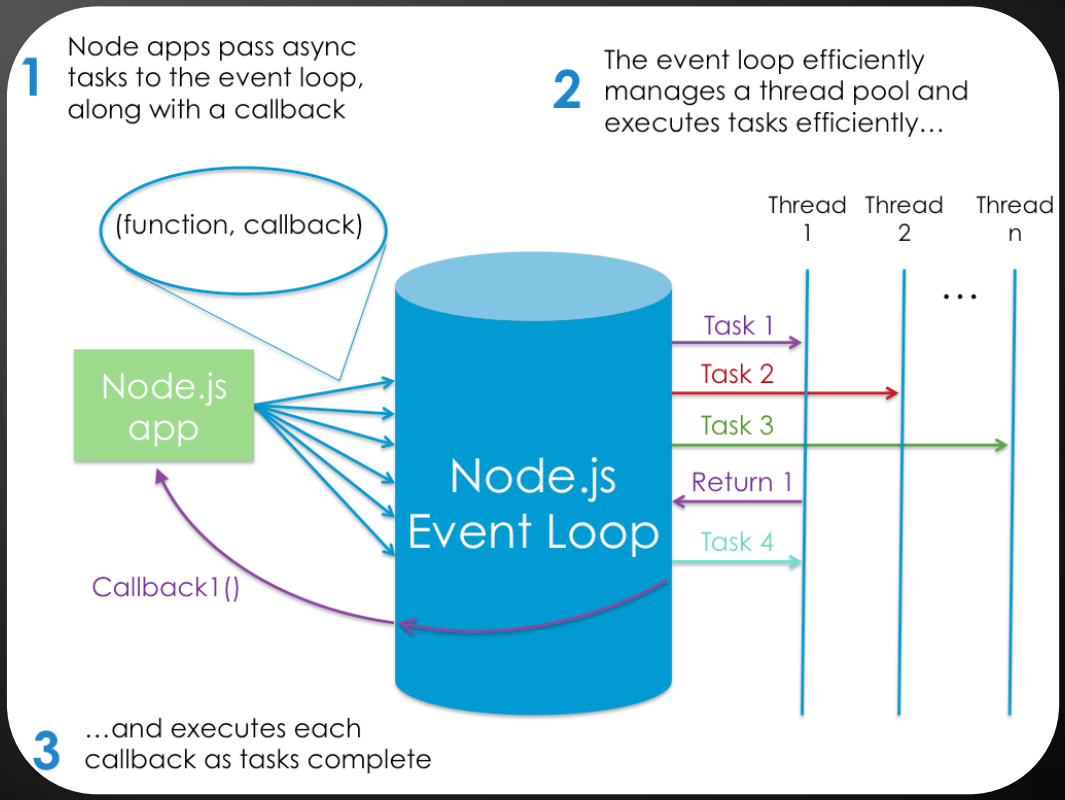
Telerik Academy

Developing IDEs

- IDEs
  - JetBrains WebStorm
  - Sublime Text 2/3
  - Cloud9

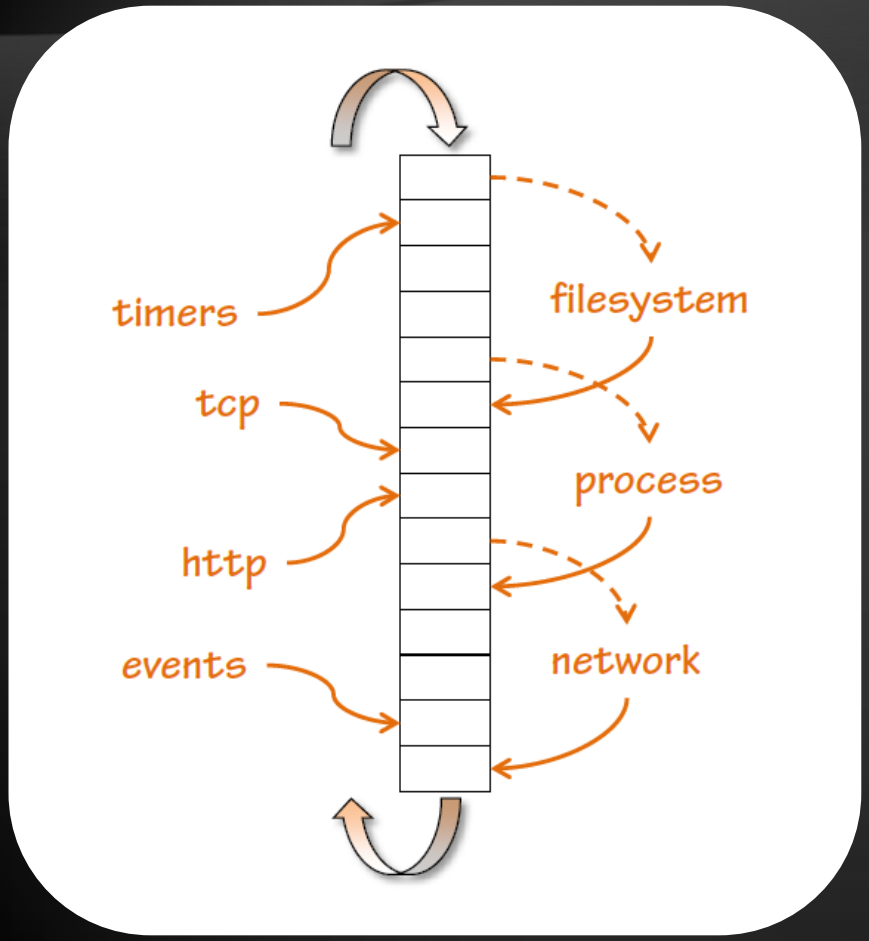
Telerik Academy

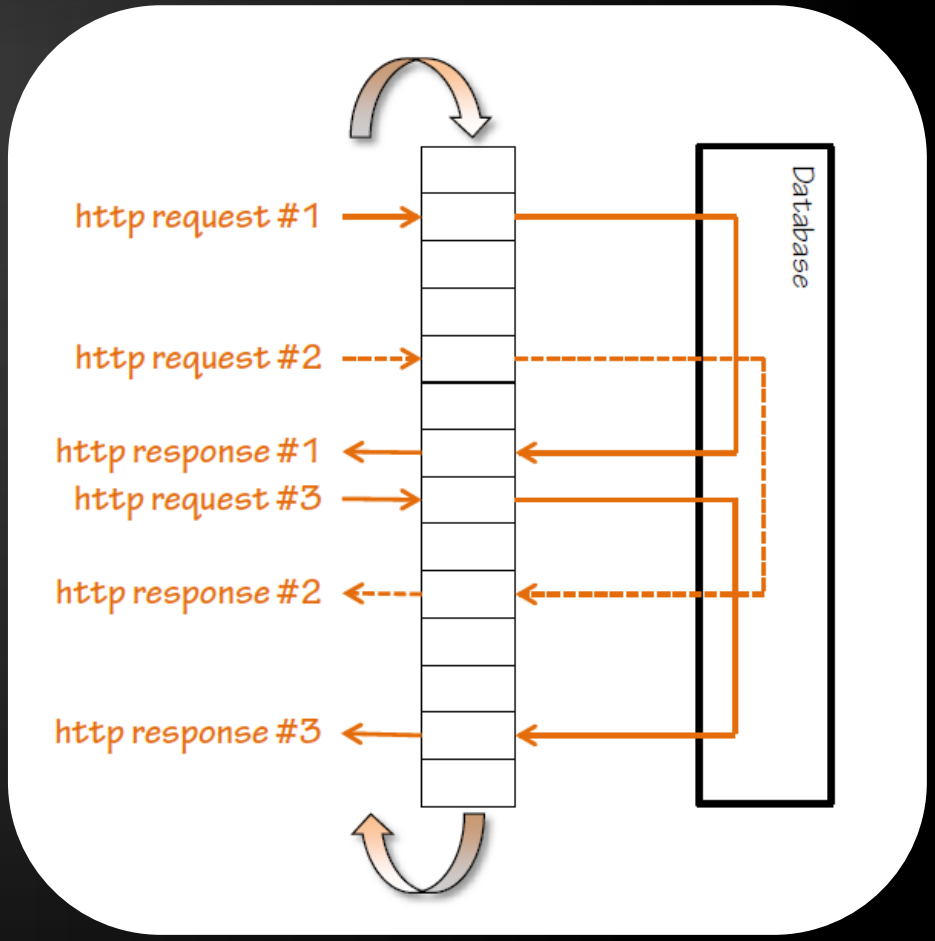
The Event Loop



Telerik Academy

The Event Loop





Asynchronous Code

- Standard way

```
var conn = getDbConnection(connectionString);
var stmt = conn.createStatement();
var results = stmt.executeQuery(sqlQuery);
for (var i=0; i<results.length; i++) {
    // print results[i];
}
```

- Callback approach

```
getDbConnection(connectionString, function(err, conn) {
   conn.createStatement(function(err, stmt) {
      var results = stmt.executeQuery(sqlQuery);
      results.on('row', function(result) {
         // print result
      });
   });
});
```

Asynchronous Code

- Convention
  - Callback is last parameter in the async call
  - Error is first parameter in the callback

```
var handleResults = function(error, results) {
    // if error is undefined…
    // do something with the results
}

getStuff(inputParam, handleResults);
```

Telerik Academy

Asynchronous Code

- For simple uses – anonymous function

```
getStuff(inputParam, function(error, results) {
    // if error is undefined…
    // do something with the results
});
```

- Closures are your friend

```
someOtherFunction(function(err, stuffToGet) {
    var foo = 23;
    getStuff(stuffToGet, function(error, results) {
        // if error is undefined…
        // do something with the results   (and foo)
    });
});
```

- Do not overuse!

Telerik Academy

Asynchronous Code

Live Demo

Telerik Academy

Using Modules

Using Modules

- Modules are used with "require"

```
var first = require('first');
var Second = require('second');
var justPart = require('largeModule').justPart;

var propertyResult = 2 + first.property; // export variable
var functionResult = first.function() * 3; // export function

var second = new Second(); // export object

console.log(justPart()); // export part of object
```

Built-in Modules

- Built-in modules
  - Come with Node
  - Are "require"-ed with string identifier

```
var fs = require('fs');
```

- Commonly used modules
  - fs, http, crypto, os
  - More at http://nodejs.org/api/

Telerik Academy

Built-in Modules

Live Demo

Your Modules

- Each .js file is a different module
  - Are "require"-ed with file system semantics
  - ".js" is not needed in the string

```
var data = require('./data'); // in same directory
var a = require('./other/a'); // in child directory
var b = require('../lib/b'); // in parent directory's child
var justPart = require(‘./data’).part; // just part of module
```

Your Modules

- Variable are exported with module.exports

```
// first.js

var count = 2;
var doIt = function(i, callback) { … }
module.exports.doIt = doIt;
module.exports.someVar = 'result';
```

```
// second.js

var one = require('./first');
one.doIt(23, function (err, result) {
   console.log(result);
});
console.log(one.someVar);
console.log(one.count); // invalid
```

Telerik Academy

Your Modules

Live Demo

Third-Party Modules

- Third-Party Modules
  - Installed from Node Package Manager (NPM)
  - Command: "npm install *mdl_name*"
  - Are "require"-ed with string identifier

```
var request = require('request');
```

- Some modules have command line tools
- Command: "npm install –g *mdl_name*"
  - Example: Express, Mocha

Telerik Academy

Third-Party Modules

Live Demo

Resources

- http://nodejs.org/ - NodeJS official web site
- http://nodejs.org/api/ - API documentation
- http://blog.nodejitsu.com/npm-cheatsheet - NPM documentation
- https://npmjs.org/ - NPM official web site
- https://github.com/felixge/node-style-guide - NodeJS style guide

Telerik Academy

Introduction to NodeJS

http://academy.telerik.com