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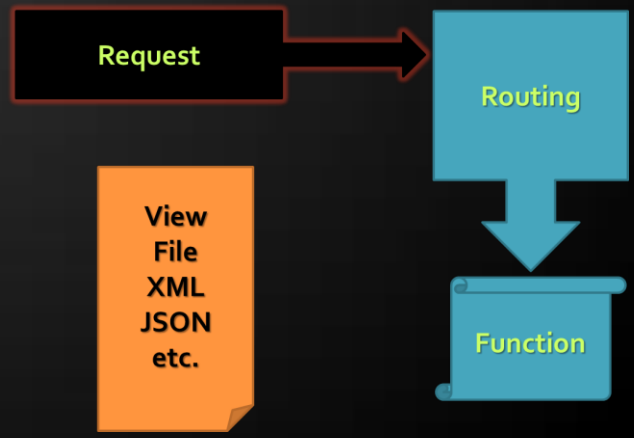
express

High performance, high class web development for Node.js

ExpressJS

Web development with ExpressJS



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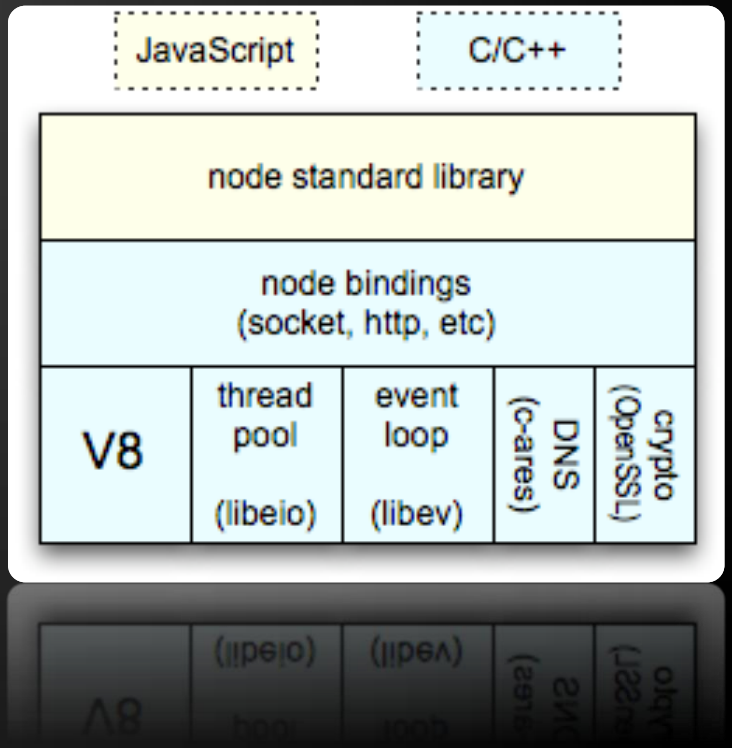
node.js

- Event-Driven, Asynchronous IO, Server-Side JavaScript library in C
- Open Source
- Available on
  - Windows
    - Service
    - Under IIS (iisnode)
  - *nix systems
- As a service
  - Azure
  - Heroku



NodeJS Web Server

- Basic server implementation

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

http.createServer(function(req, res) {
    res.writeHead(200, {
        'Content-Type': 'text/plain'
    }); //return success header

    res.write('My server is running! ^_^'); //response
    res.end(); //finish processing current request
}).listen(1234);
```

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Middleware for NodeJS

- Connect is a middleware framework for node
  - Built on top of node's Http Server
  - http://www.senchalabs.org/connect/

```
$ npm install connect
```

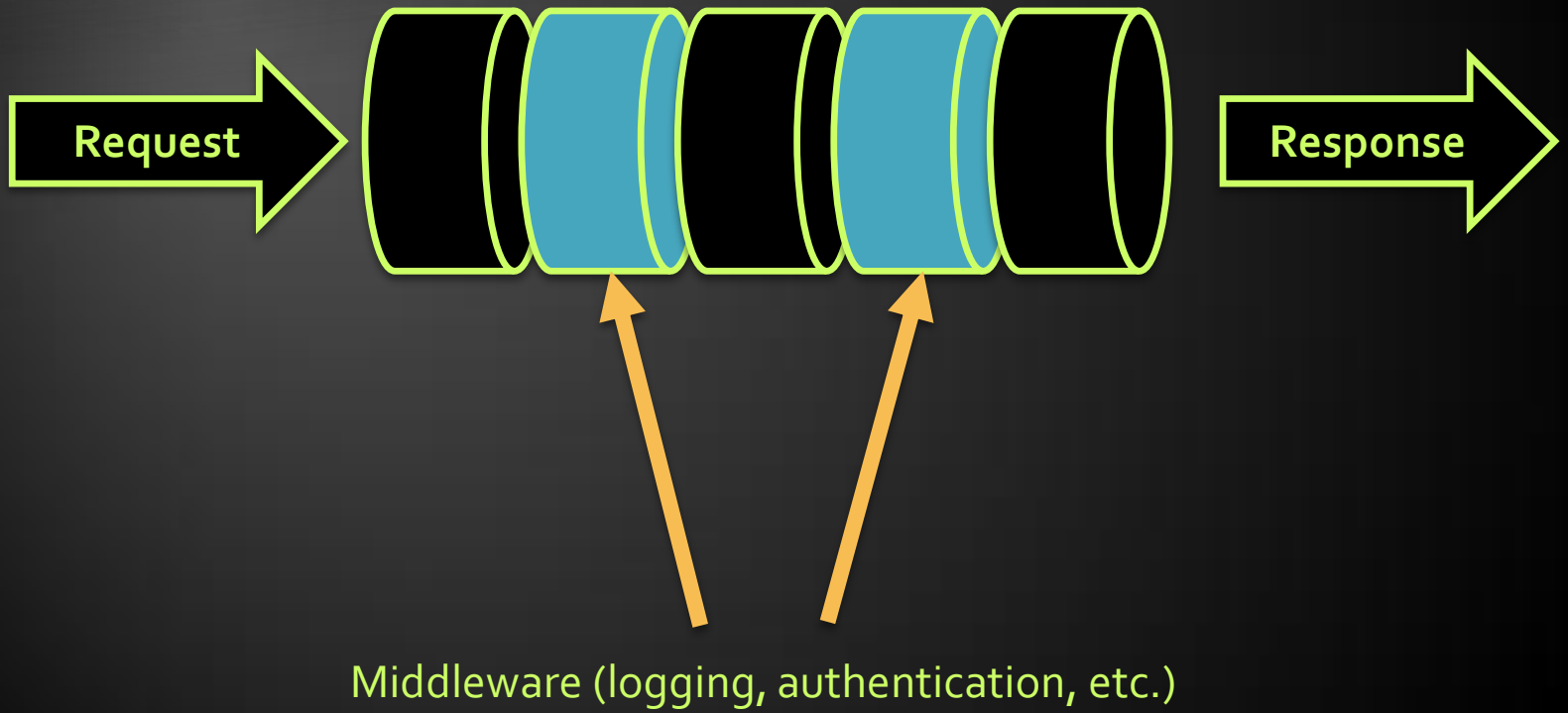
```
var connect = require('connect');

var app = connect()
  .use(connect.logger('dev'))
  .use(connect.static('public'))
  .use(function(req, res){
    res.end('hello world\n');
  })

http.createServer(app).listen(3000);
```

Connect Middleware

- Request Processing Pipeline



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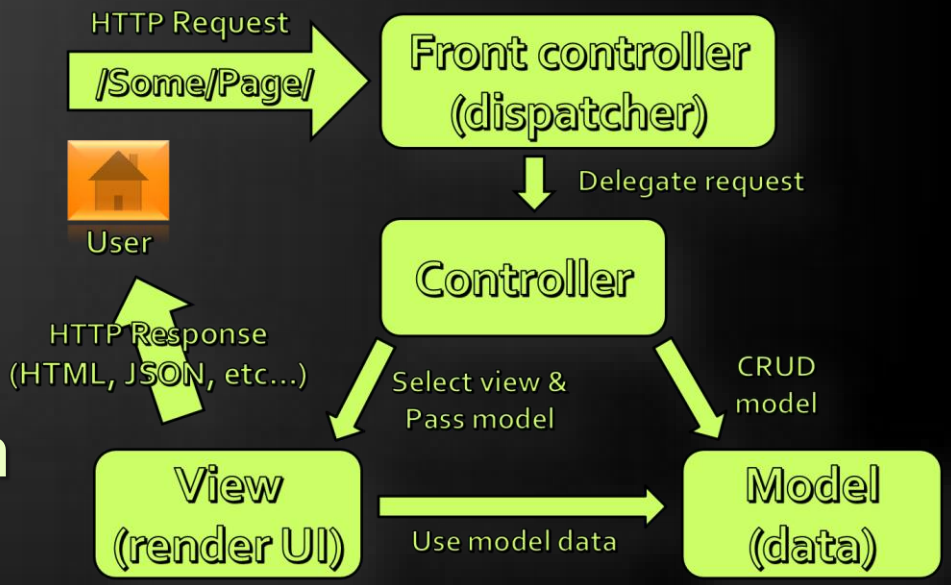
Connect for NodeJS – Example

- Custom middleware function for connect

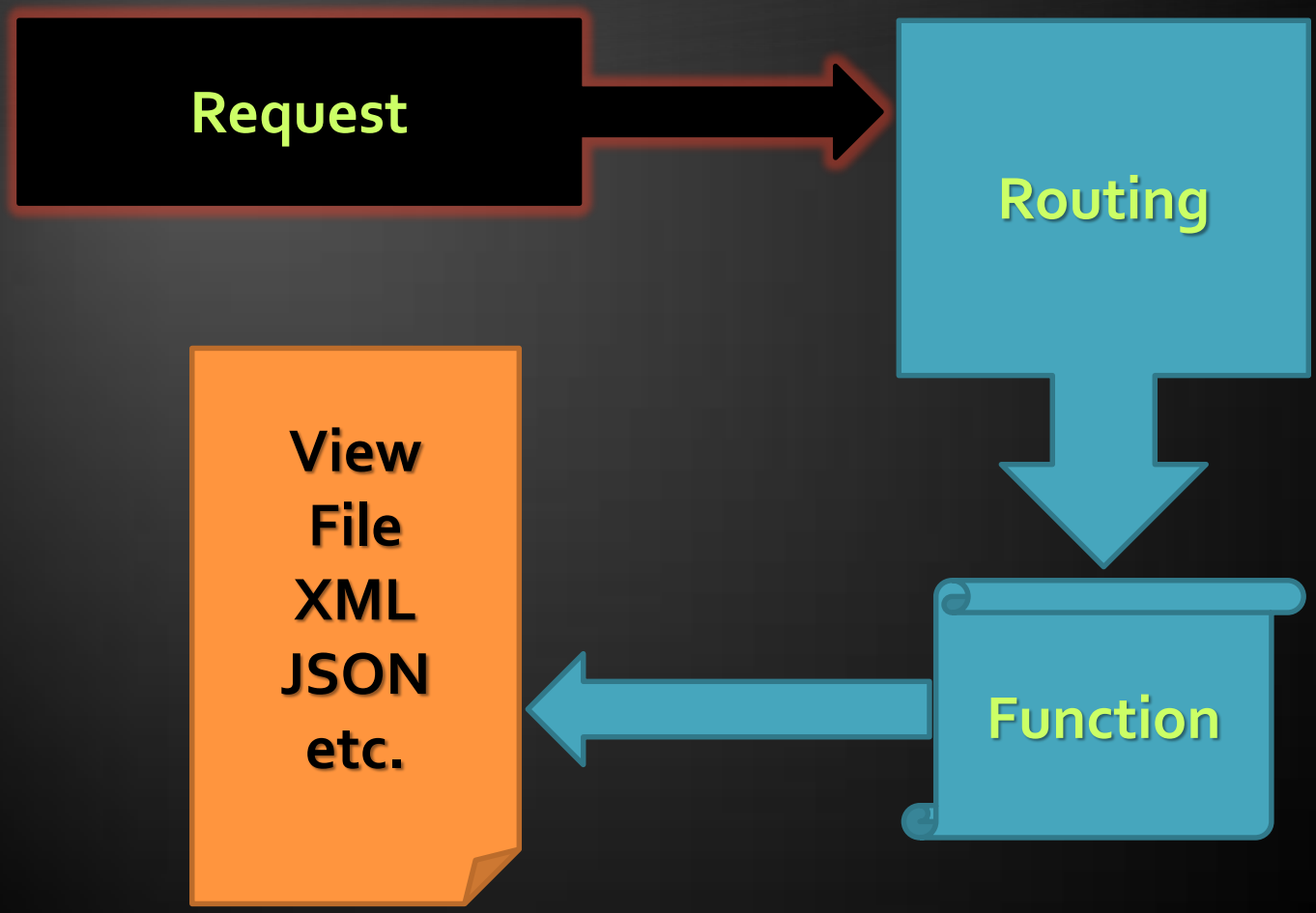
```
var connect = require('connect'),
    util = require('util');

var interceptorFunction = function(request, response, next) {
    console.log(util.format('Request for %s with method %s',
        request.url, request.method));
    next();
};

var app = connect()
    // .use('/log', interceptorFunction)
    .use(interceptorFunction)
    .use(function onRequest(request, response) {
        response.end('Hello from Connect!');
    }).listen(3001);
```

Express.js 4.0

- Has middleware built-in
- Adds functionality to the normal server
  - Request / Response enhancements
  - Routing
  - View Support
  - HTML Helpers
  - Content Negotiation



Basic Architecture



First Express App

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

var app = express();

app.get('/', function (request, response) {
    response.send('Welcome to Express!');
});

app.get('/customer/:id', function (req, res) {
    res.send('Customer requested is ' + req.params['id']);
});

app.listen(3000);
```

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Demo: Creating Express Applications

- Simple ExpressJS application and "nodemon"
- Create routes and require() them
- Pass parameters
- Configure middleware

Views in ExpressJS

- User Interface
- Based on Templates
- Support for multiple View Engines
  - Jade, EJS, JSHtml, . . .
- Default is Jade
  - http://jade-lang.com

```
app.get('/', function (req, res) {
    res.render('index');
});
```

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Views in ExpressJS – Example

```
var express = require('express'),
    path = require('path');
var app = express();
app.configure(function () {
    app.set('views', __dirname + '/views');
    app.set('view engine', 'jade');
    app.use(express.static(path.join(__dirname, 'public')));
});
app.get('/', function (req, res) {
    res.render('empty');
});
app.listen(3000);
```

```
doctype
html(lang="en")
  head
    title Welcome to this emtpy page
  body
```

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Demo: Views in ExpressJS

- Show simple views in ExpressJS
- Jade syntax examples
- Layouts and blocks
- Stylus

Working with Data

- Pass data to the views

```
res.render('index', { title: 'Customer List' });
```

- Read data from the views (bodyParser)

```
res.render('index', { title: 'Customer List' });
```

- Read and send files

```
var filePath = req.files.picture.path;
// ...
res.download(filePath);
res.sendfile(filePath);
```

- Data for all views

```
app.locals.clock = { datetime: new Date().toUTCString()};
```

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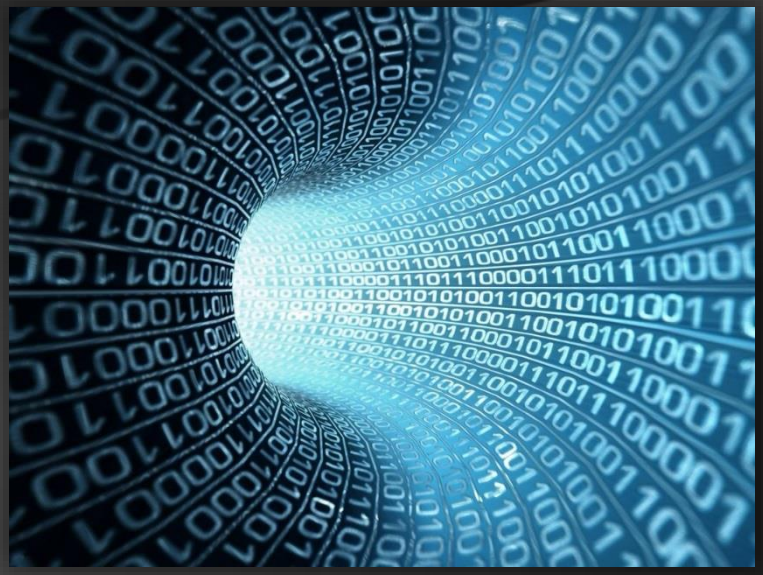

Demo: Working with data

- Pass data to views (customer.index)
- Submit data from views (customer.create)
- Content negotiation (customer.details)
- Upload files (customer.create)
- Helpers (app.locals)

Demo: Advanced Scenarios

- Cookies
- Sessions
- Custom middleware
- Authentication and authorization

Next Steps

- Express.js Samples
  - https://github.com/visionmedia/express
- Database Support
  - MS SQL
  - CouchDB
  - PostgreSQL
  - Redis
- Socket.io
  - Real-time support

Next Steps (2)

- Search on npm.org before you re-invent the wheel
- Express is Lightweight Framework and Fast to work with
- Testing is not optional
  - Mocha
- JavaScript can get messy

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ExpressJS

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Homework

1. Create a web site (with normal design) using Express with private and public parts – CRUD operations over a model by your choice
   - At least 6 pages
   - Use Express
   - Use File upload
   - Use Jade
   - Use Stylus
   - Use Passport module for authentication
   - Use good application architecture