

# MEAN Stack

**27 Jun 2013 - Kirk Morales**

# About Me

- Background in web analytics consulting, analysis, and technical implementation
- Web application developer & product manager
- Currently working at AMEX..for a few more weeks
- CEO/Founder of Intrakr (intrakr.com)
- Competitive Olympic Weightlifter & Coach

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# MmEAN Stack

## **MongoDB**

NoSQL BSON document-based database.

## **MongooseJS**

MongoDB object modeling for NodeJS

## **ExpressJS**

Web Application Framework for NodeJS.

## **AngularJS**

JavaScript MVC framework.

## **NodeJS**

Platform build on V8 runtime engine for building fast, scalable, event-driven, non-blocking network applications.

# MongoDB ([mongodb.org](http://mongodb.org))

- Non-relational store of BSON objects - superset of JSON, which includes binary data.
- Documents can be queried on any object property.
- Atomic operations with guaranteed unique document IDs.
- Indexes can be made on any combination of object properties for faster querying.
- Data types include: String, Numbers, Binary, Mongo Date, ObjectId (document references), sub-objects, arrays.
- Robust querying - exact matches, regex, >, <, in array, exists, geo-spatial.
- Horizontal (sharding) and vertical (replica sets) scaling.

# Mongoose ([mongoosejs.com](https://mongoosejs.com))

- Object modeling for MongoDB
- Document instance methods - extend your Mongo documents with custom functions.
- Common Mongo operation wrappers (find, update, etc)
- Indexes enforcement
- Strict data type enforcement

# ExpressJS ([expressjs.com](https://expressjs.com))

- Simple web application framework
- Support for robust path routing, sessioning, templates (Jade), custom middleware
- Automatic query string and body parsing
- Auto conversion between objects and JSON

# AngularJS ([angularjs.org](http://angularjs.org))

- MVC JavaScript Framework
- Client-side routing
- Templates
- Filters
- Event handlers
- Custom services

# NodeJS (nodejs.org)

- Event-driven
- Non-blocking
- Uses Google V8 runtime engine
- Lightweight
- Plugins exist to extend to production-ready server:
  - Clustering
  - Daemonizing
  - Logging



# Building the App

# Create Server

app.js - NodeJS, Mongoose, MongoDB, ExpressJS

- Declare dependencies
- Create new express server
- Set configuration options for dev/production/all
- Define routes
- Connect to MongoDB
- Bind server to port

# Define Post Schema

lib/post.js - Mongoose

```
var postSchema = new mongoose.Schema({
  date:      {type: Date, default: Date.now},
  author:    String,
  title:     String,
  content:   String
});

// Create a reverse index on date so we can sort on it quicker
postSchema.index({date: -1});

// Create post object from schema
var Post = mongoose.model('Post', postSchema);
```

# Create Route Handlers

lib/post.js - ExpressJS

Defined as exported functions

- `getPosts`
- `getPostContent`
- `savePost`

# Create Page Template

views/index.jade - Jade (ExpressJS), AngularJS

- Use Jade syntax to declare HTML5
- Write template variable to page

```
var blogPosts = !{JSON.stringify(blogPosts)};
```

- Markup with AngularJS syntax

# Create Angular Controllers

public/js/app.js - AngularJS

- Controller for post list
  - Posts are loaded with the page and brought into scope
  - Post content is loaded via AJAX
- Controller for adding a new post
  - Adds content via AJAX and pushes onto post list

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