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*The Future of Traffic Portal*

Steve Hamrick

# *Introduction*

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Steve Hamrick

Software Engineer @ Comcast

CDN Team

[shamrick@apache.org](mailto:shamrick@apache.org)



# About

- Current state of Traffic Portal
- High level overview
  - Whats new
  - Tech stack
- Comparisons

# Agenda

- Traffic Portal v1
- Angular History
- The New Angular
  - Comparison
  - Overview
  - Out of the Box
- Demo
- Q&A

# Traffic Portal v1

→ AngularJS

→ End of Life 12/2021

→ JQuery

→ Underscore

→ Flot

→ SCSS

→ Custom build system

→ NPM

→ Bower\*

→ Grunt

→ Compass

→ Browserify

→ HTML2js

→ Cache Busting

→ Etc.

# AngularJS History

- Started at Google
- Single Page Application
- Open Source
- JavaScript Framework
- Fell behind other web frameworks
  - Performance
  - Tooling



Source: wikipedia

# Angular - High Level

- No longer follows model-view-controller design
  - Uses structural or attributive directives
  - \$scope and controllers are gone!
- Now a proper framework
  - Includes CLI
  - Build system
- Accesiblity support
- Mobile/Legacy browser support
- Modules
  - Dynamic Loading
- Async template compilation
- Better callbacks
- 6-Month release cadence
- New binding & expression syntax
- Typescript

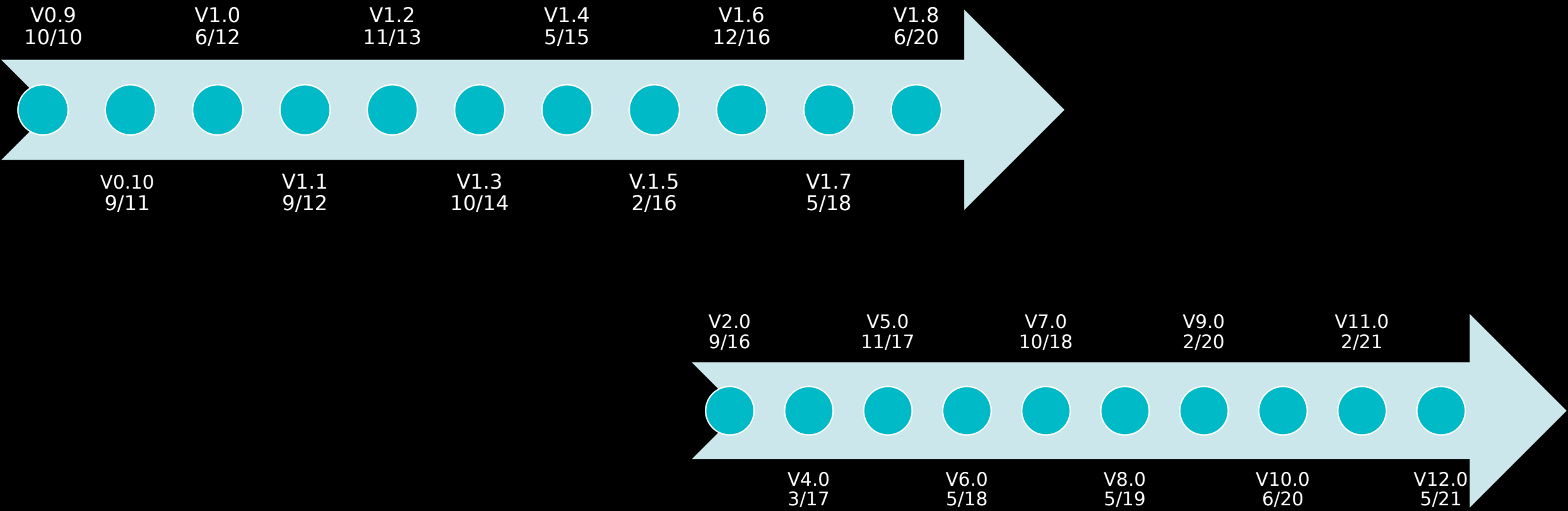
# *Angular – Out of the Box*

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- Semantic Versioning
- Typescript
- SCSS
- Build System
- Angular CLI
- Unit/E2E Testing
- And much more



# Angular - Semantic Versioning





# *Typescript*

- Open source
- Superset of JS
- Transpiles to JS
- Type "safety"
- Linter



# *Angular Build System*

- Introduces the Angular Compiler
  - Complements Angular Runtime
- Internationalization
- Polyfills
- Bundler
- Mobile browser support
- Transpilation/Compilation (SCSS -> CSS, TS -> JS)

# Angular CLI

- Encompasses entire ecosystem
- Generation
  - Modules, components, services, etc.
- Updates
- Schematics



# *Angular Tooling*

- UI
  - Material
  - Layout (flex, grid)
  - Forms
  - Animations
- Component Development Kit (CDK)
- Schematics



Source: [angular.io/presskit](https://angular.io/presskit)

# Testing

- Every generated file includes Unit Tests
  - Karma
- Project creation also sets up E2E tests
  - Protractor
- Able to change frameworks using schematics



# Angular Compiler

- Client browser has no knowledge of this step
- Converts templates into imperative code
  - Was declarative
- Automatic optimizations
- JIT/AOT compilation
  - Runtime does JIT (if necessary)
  - Compiler does AOT



# *Server-side Rendering*

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- Improves start up performance
  - Leverages the new compiler/runtime
- Server runs some Angular Runtime steps
  - User gets semi-processed script



*Demo*



Binding

Component

Theming

# Modules/Lazy Loading

# Routing

Guards

# Interceptors



Questions?