

# Tooling

---



**Joe Eames**

WEB DEVELOPER

@josepheames [www.joeeames.me](http://www.joeeames.me)



# Agenda

CLI

Server-Side Rendering

Mobile/Native Frameworks

Testing

AOT Compiler

Editors



# The Angular CLI

---



# Running a JavaScript Application

**Module Handling**

**Bundling**

**Minifying**

**Typescript/ES6 Transpilation**

**Browser Shims**

**Zone.js**



# By Hand

Module Handling

Minifying

Shims

Zone.js

Bundling

Transpilation



# By Hand

A solid orange rectangle with the text "CLI" centered inside it in white.

CLI



# CLI Capabilities

**New Application**

**New Component/Service/Pipe/Etc**

**Serving up the Application**

**Linting**

**Testing**

**Building**



# Server-Side Rendering

---





# Main Benefits

## Performance

- Initial Download Size
- Render Time

## Search Engine Optimization



# Server-Side Rendering Operation Modes

**Full Pre-Render**

**Dynamic Pre-Render**

**Client-Side Switch**

- Download App
- Hidden Div
- Boots
- Replays Events
- Swap Display



# Mobile & Native Frameworks

---



# Native Mobile & Desktop Applications

## Mobile

- Ionic
- NativeScript

## Desktop

- Electron



# Testing Tools

---



# Angular Testing Tools

**Karma**

**Protractor**

**Alternatives**

- Jest
- theIntern
- Cypress.io

**Angular Testing Utilities**

- TestBed
- Async & fakeAsync
- MockBackend



# AOT Compiler

---



# JIT Process

Server

Code & Framework

Templates

Compiler

Browser

DOM Functions





# AOT Process

Server

Browser

Code & Framework

Templates

Compiler



# Editors

---



# Editors

## TypeScript

- Better IntelliSense
- Catch Typing Bugs

## Angular Language Service

- VS Code
- WebStorm
- Sublime Text



# Summary



CLI

AOT

Better Editors

