

GETTING STARTED WITH ANGULAR 2

FluentConf
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@gnomeontherun

HI, I'M JEREMY

Experience Engineer at Teradata

Lives in Austin, TX

Author of Ionic in Action, Angular 2 in Action

Certified Beer Judge and Homebrewer

INTRODUCE YOURSELF TO AT LEAST 2 PEOPLE NEAR TO YOU

We've got 3 hours together, let's make it more fun.

AGENDA

- Web applications with Angular 2
- Setup the app
- Add a service
- Create a component
- Break (30 mins)
- Add more components
- Routing
- Testing
- Review/Questions

FOLLOWING ALONG

- Code along with me as much you like
- Checkout the git tags as we go
- Use Vagrant, NVM, or Plunkr if needed

AAPL
\$101.18
-\$0.69 (-0.68%)

GOOG
\$698.77
\$3.61 (0.52%)

FB
\$106.31
\$0.58 (0.55%)

AMZN
\$565.50
\$2.70 (0.48%)

TWTR
\$18.83
-\$0.34 (-1.774%)

Add Stock

AAPL	REMOVE
GOOG	REMOVE
FB	REMOVE
AMZN	REMOVE
TWTR	REMOVE

WEB APPLICATIONS WITH ANGULAR 2



ES6 IN A NUTSHELL

- New features: classes, modules, promises, arrows, generators, and more.
- Additive only, doesn't remove existing features.
- Most features can be transpiled to current ES5.
- Will continue to add features.



TYPESCRIPT IN A NUTSHELL

- Transpiler to compile down to ES6/5/3.
- Adds strict typings to variables.
- “Typed Superset” that only extends JavaScript syntax.



JAVASCRIPT TYPE LIMITATIONS

What is the value of total?

```
var bill = 20;  
var tip = document.getElementById('tip').value; // 5  
  
var total = bill + tip; // 25? Are you sure?
```


JAVASCRIPT TYPE LIMITATIONS

TypeScript can enforce the right type is assigned, here tip is invalid

```
var bill:number = 20;  
var tip:number =  
  (<HTMLInputElement>document.getElementById('tip')).value  
;  
  
var total:number = bill + tip; // 25!?
```

JAVASCRIPT TYPE LIMITATIONS

TypeScript does not convert values, you must

```
var bill:number = 20;  
var tip:number = parseFloat(  
  (<HTMLInputElement>document.getElementById('tip')).value  
);  
  
var total:number = bill + tip; // 25!
```


JAVASCRIPT IS NOW A
COMPILED
LANGUAGE

JAVASCRIPT IS NOW A
COMPILE-TO
LANGUAGE

ES6/TYPESCRIPT PRIMER

ES6 const & let keyword

```
const stocks = ['AAPL', 'GOOG', 'FB', 'AMZN'];  
let service = 'https://angular2-in-action-  
api.herokuapp.com';
```

ES6/TYPESCRIPT PRIMER

ES6 inline multiline template strings

```
let name = 'Jeremy';
```

```
let template = `  
<h1>Template by ${name}</h1>  
<p>I can write markup without escaping and write on  
multiple lines!</p>  
`;
```


ES6/TYPESCRIPT PRIMER

ES6 arrow functions

```
let stocks = ['aapl', 'goog', 'fb', 'amzn'];

class Dashboard {
  constructor() {
    stocks.forEach(stock => {
      this.add(stock.toUpperCase());
    });
  }
  add(stock) {
    this.stocks.push(stock);
  }
}
```

ES6/TYPESCRIPT PRIMER

ES6 classes

```
class Dashboard {  
  constructor(service) {  
    this.symbols = service.get();  
  }  
  
  reset() {  
    this.symbols = [];  
  }  
}
```


ES6/TYPESCRIPT PRIMER

ES6 modules

```
import {service} from './service';

export class Dashboard {
  constructor() {
    this.symbols = service.get();
  }
}
```

ES6/TYPESCRIPT PRIMER

ES7 decorators

```
@Component({  
  selector: 'app'  
})  
export class App {  
}
```


ES6/TYPESCRIPT PRIMER

Typescript interfaces and type declarations

```
interface StockInterface {  
    symbol: string,  
    lastTradePriceOnly: number,  
    change: number,  
    changeInPercent: number  
}
```

```
let stocks: Array<StockInterface> = [];
```

ANGULAR2 APP ARCHITECTURE

- Component based (tree of components)
- Modularity (ES6 modules)
- Dependency injection
- Services
- Component based routing

APP ARCHITECTURE

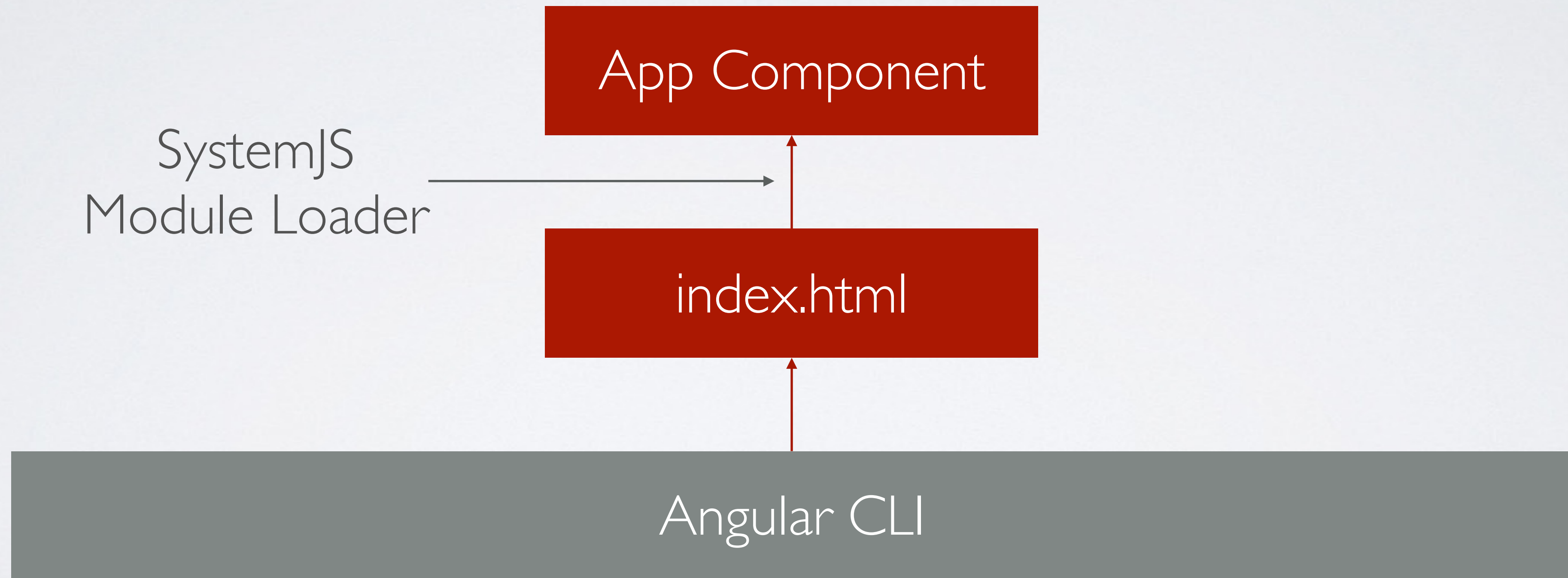
THE BASE

Uses the Angular CLI which has a local server.
Files are transpiled with TypeScript.

Angular CLI

THE APP COMPONENT

Creating the app component, and bootstrapping it



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THE STOCK SERVICE

Creating a reusable service to manage stocks collection

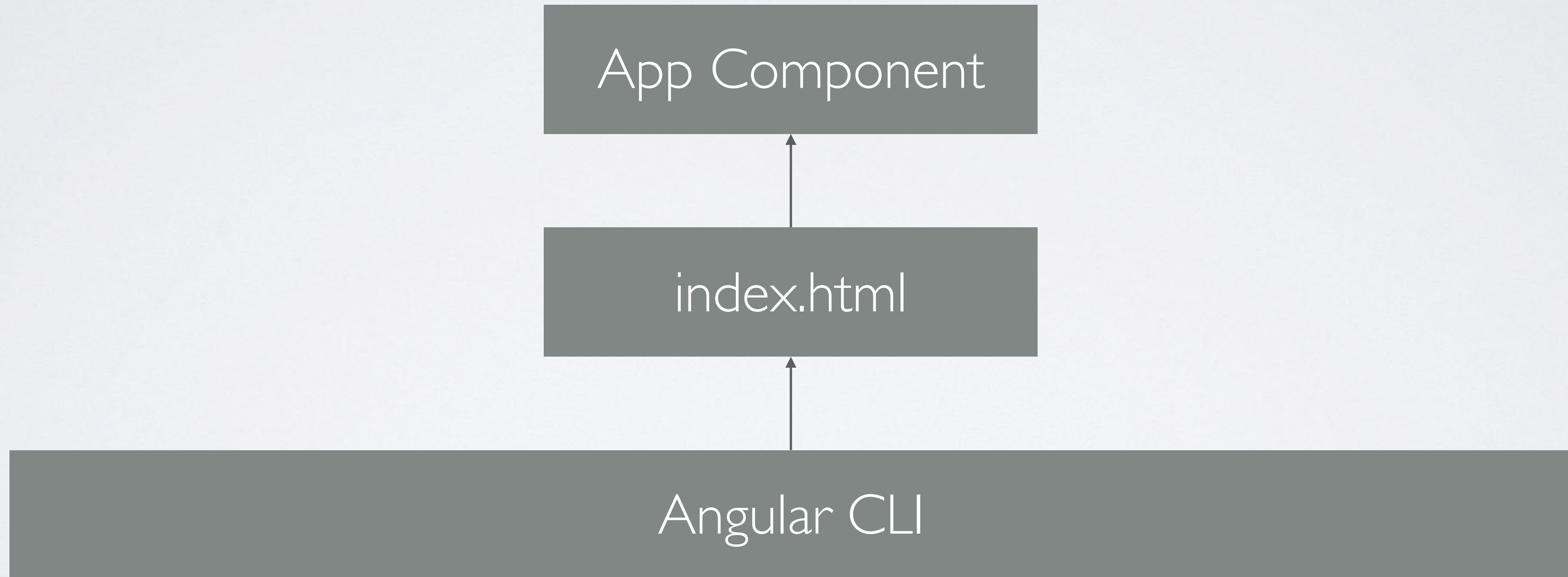
ES6 Module

Stock Service

App Component

index.html

Angular CLI



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REST API Service

THE SUMMARY COMPONENT

Using directives, types, and bindings

Summary Component

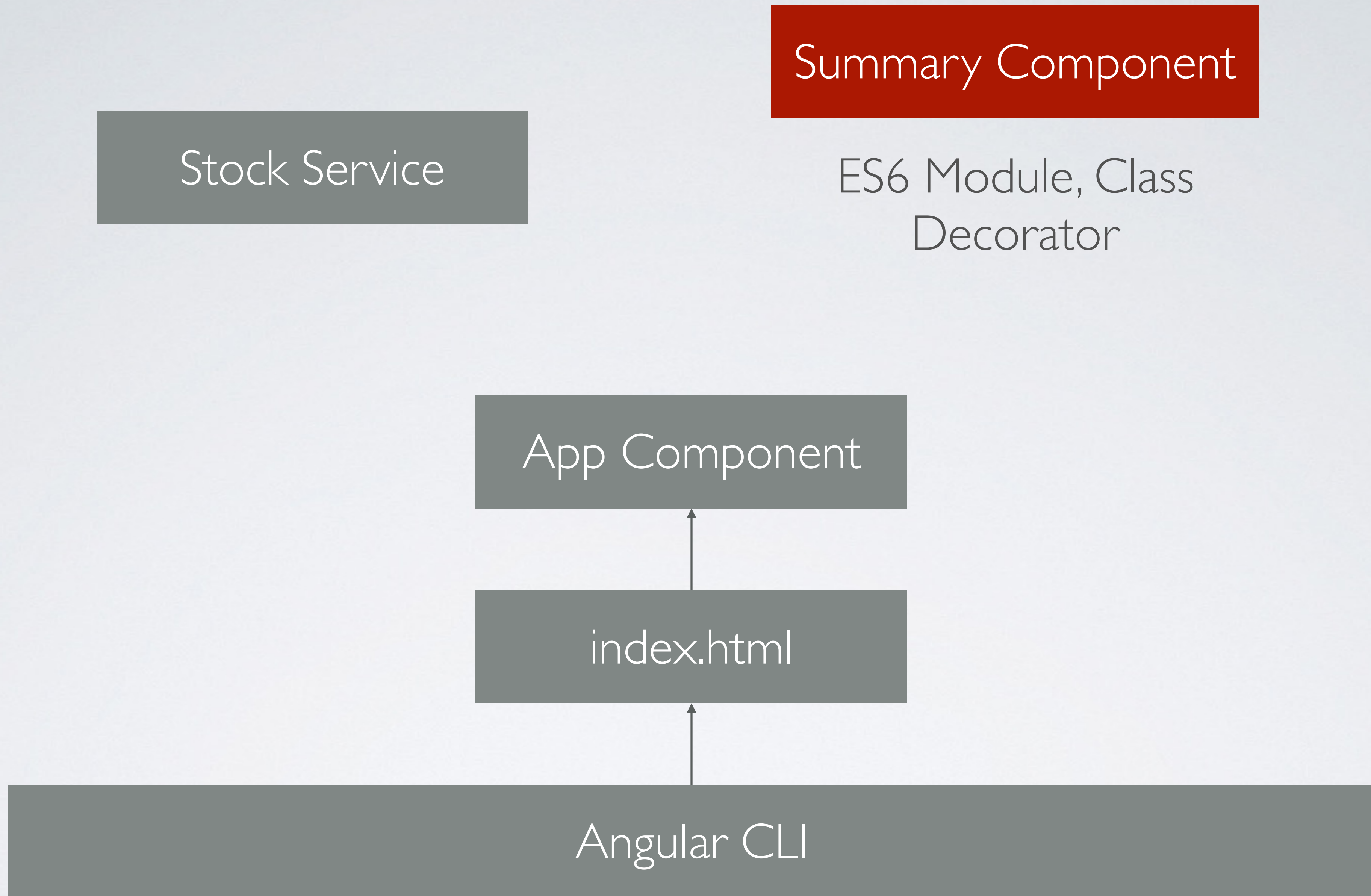
ES6 Module, Class
Decorator

Stock Service

App Component

index.html

Angular CLI



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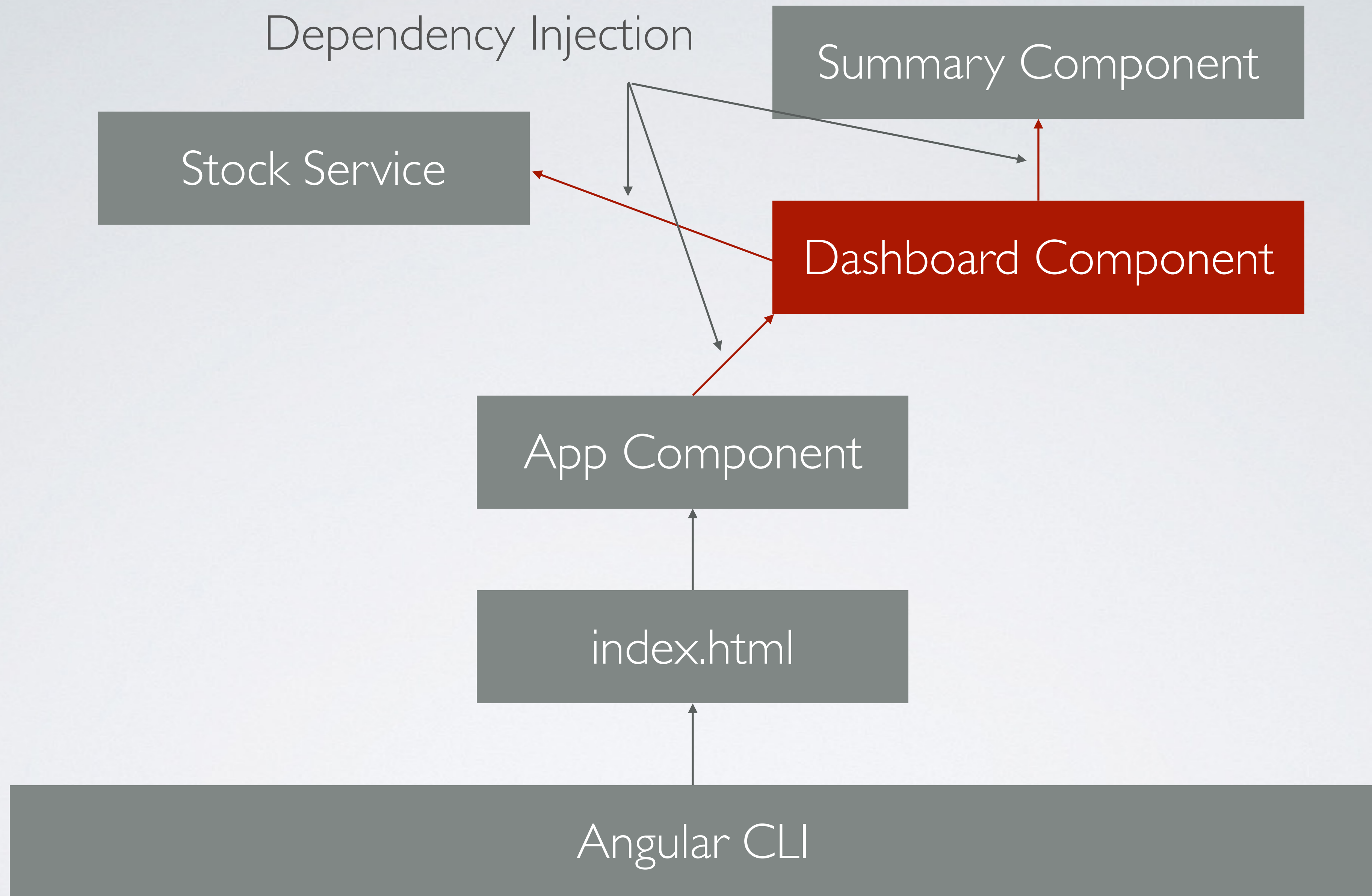
5 Summary Components



```
graph TD; AAPL --> Center((5 Summary Components)); GOOG --> Center; FB --> Center; AMZN --> Center; TWTR --> Center;
```


THE DASHBOARD COMPONENT

Loading data, using services, and importing components.



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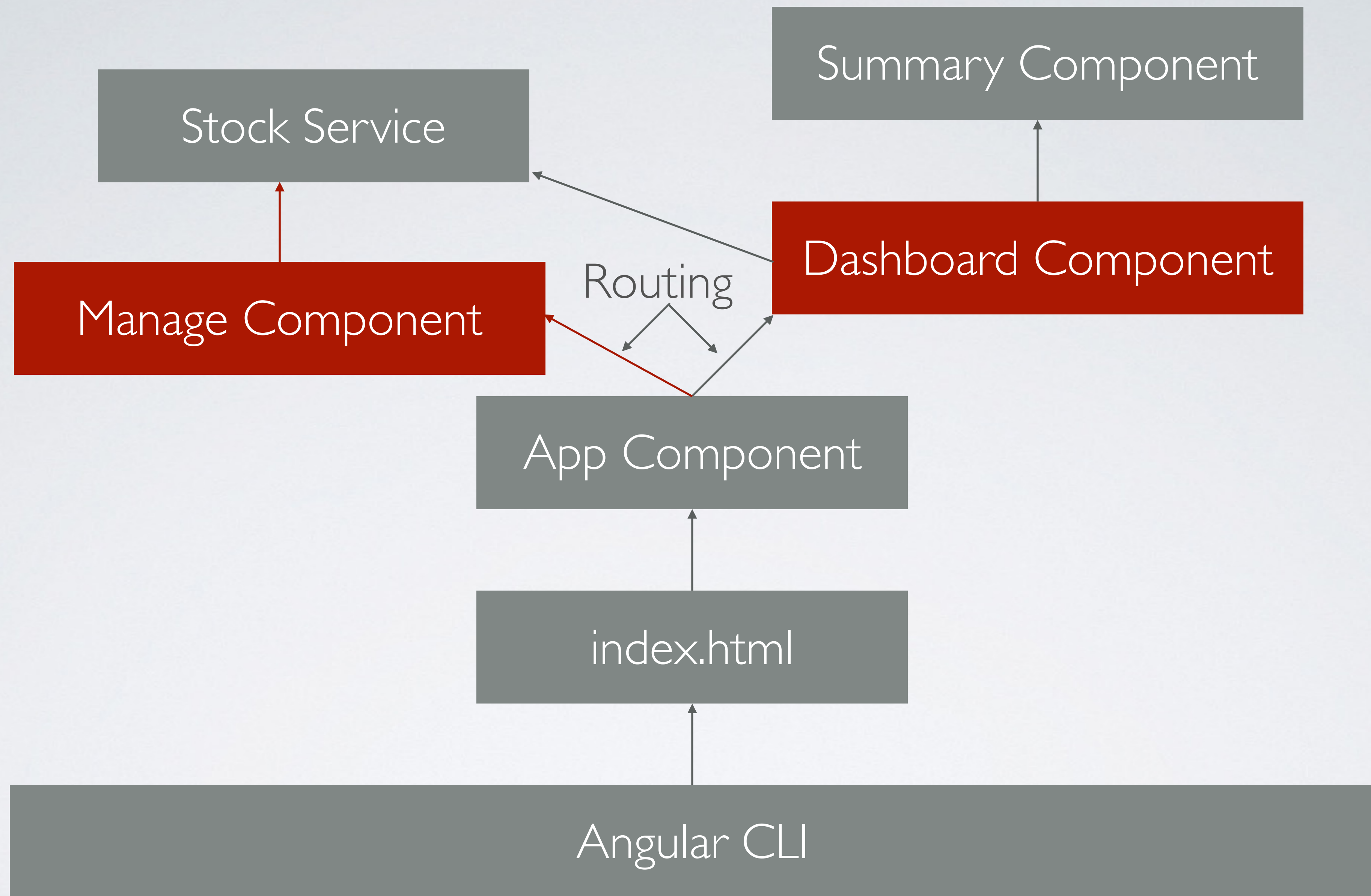
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Dashboard Component

THE MANAGE COMPONENT

Use a form to manage the list of stocks.



Manage Component

Add Stock

AAPL	REMOVE
GOOG	REMOVE
FB	REMOVE
AMZN	REMOVE
TWTR	REMOVE

LET'S REVIEW

- Angular CLI generates app files and tooling
- App component is bootstrapped to start rendering
- Services are used to load and manage data
- It is best to nest simple components
- Pipes and directives manipulate rendered data
- Routing determines which component to display

WHERE DO YOU LIVE, AND WHERE WOULD YOU RATHER LIVE?

Talk to Your Neighbor Short Break

LET'S BUILD AN
ANGULAR 2 APP

[https://github.com/gnomeontherun/
angular2-fluent-conf](https://github.com/gnomeontherun/angular2-fluent-conf)

Follow README instructions

START THE APP

```
$ ng init -n tracker
```

CHECKOUT STEP 1

```
$ git checkout -f step1
```


REVIEW START THE APP

- Angular CLI generates project files
- Default files needs some styling and structure
- Angular CLI runs local server
- Angular CLI runs testing suite

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WHAT IS YOUR FAVORITE SONG, AND WHAT DOES IT MEAN TO YOU?

Talk to Your Neighbor Short Break

STOCKS SERVICE

```
$ ng generate service stocks
```


CHECKOUT STEP 2

```
$ git checkout -f step2
```

REVIEW STOCKS SERVICE

- Class manages list of stocks
- Http service helps makes REST calls
- Interfaces enforce typings
- Annotate class to make it injectable

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REST API Service

IF YOU WROTE A BOOK FOR
O'REILLY, WHAT WOULD
YOUR COVER ANIMAL BE?

Talk to Your Neighbor Short Break

SUMMARY COMPONENT

```
$ ng generate component summary
```

CHECKOUT STEP 3

```
$ git checkout -f step3
```


REVIEW SUMMARY COMPONENT

- Controller accepts an input value
- Controller has methods for template
- Pipes format data for display
- NgIf conditionally includes an element
- Use NgClass to apply colors to cards

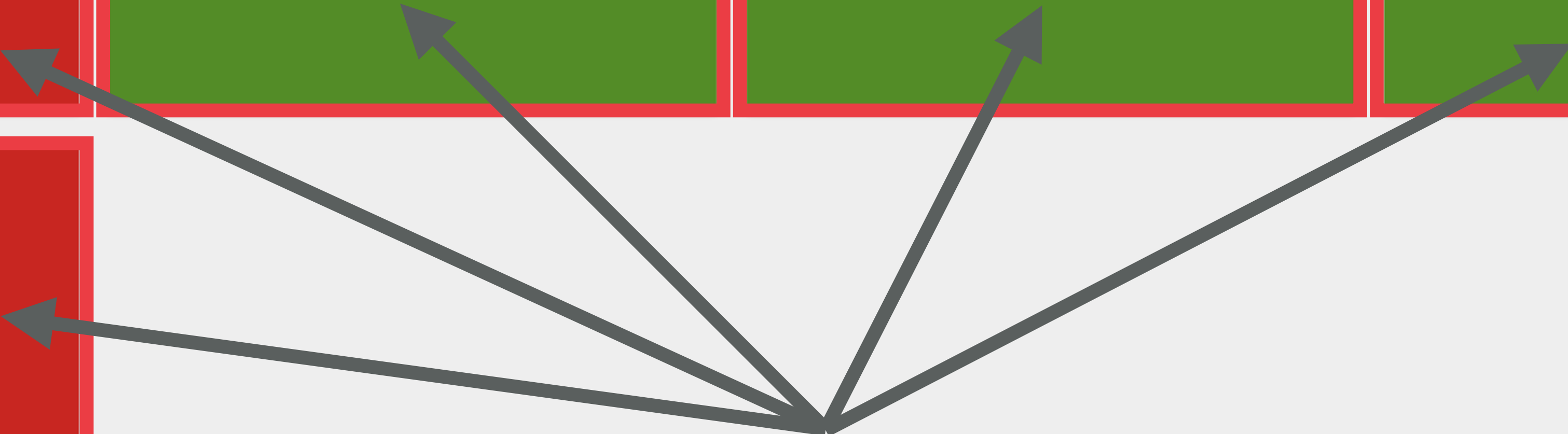
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5 Summary Components

BREAK TIME

IF YOU COULD HAVE ANY
CAR, WHAT WOULD IT BE
AND WHY?

Talk to Your Neighbor Short Break

DASHBOARD COMPONENT

```
$ ng generate component dashboard
```

CHECKOUT STEP 4

```
$ git checkout -f step4
```


REVIEW DASHBOARD COMPONENT

- Controller loads the stock data
- Stocks service handles the actual http requests
- Services and directives must be injected
- ngFor loops over stocks and displays a card

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Dashboard Component

IF YOU COULD TRAVEL
SOMEWHERE IN TIME, WHERE
AND WHEN WOULD YOU GO?

Talk to Your Neighbor Short Break

MANAGE COMPONENT

```
$ ng generate component manage
```


CHECKOUT STEP 5

```
$ git checkout -f step5
```

REVIEW MANAGE COMPONENT

- Controller manages the list of stocks
- Form builder describes a form
- `ngFormModel` is used with form inputs
- Event bindings send data to controller

Manage Component

Add Stock

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GOOG	REMOVE
FB	REMOVE
AMZN	REMOVE
TWTR	REMOVE

WHAT IS YOUR BIGGEST PET
PEEVE, AND WHEN WAS THE
LAST TIME SOMEONE DID IT?

Talk to Your Neighbor Short Break

ROUTING

CHECKOUT STEP 6

```
$ git checkout -f step6
```


REVIEW ROUTING

- Configure routes to define links
- Components must be directly referenced in config
- Router link directive links to components
- Router outlet is where content is rendered

Router Outlet

Add Stock

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GOOG	REMOVE
FB	REMOVE
AMZN	REMOVE
TWTR	REMOVE

WHAT IS THE WEIRDEST HABIT YOU HAVE? (WE ALL HAVE ONE)

Talk to Your Neighbor Short Break

UNIT TESTING

CHECKOUT STEP 7

```
$ git checkout -f step7
```

REVIEW UNIT TESTING

- Angular CLI generates test files
- Test the controller and service methods
- Use Angular's testing services
- Testing is expected to become easier

QUESTIONS

use `#topics-angular` slack channel if you have other questions later

THANK YOU!

Jeremy Wilken
@gnomeontherun

<http://manning.com/books/angular-2-in-action>

<https://speakerdeck.com/gnomeontherun>