Integrating Angular with ASP.NET Core RESTful Services

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Course Introduction

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Module Overview

- Prerequisites to maximize learning
- Learning goals
- Server-side Technologies and concepts
- Client-side technologies and concepts
- Running the sample application
- Running the sample application with Docker

Prerequisites to Maximize Learning

Course Prerequisites

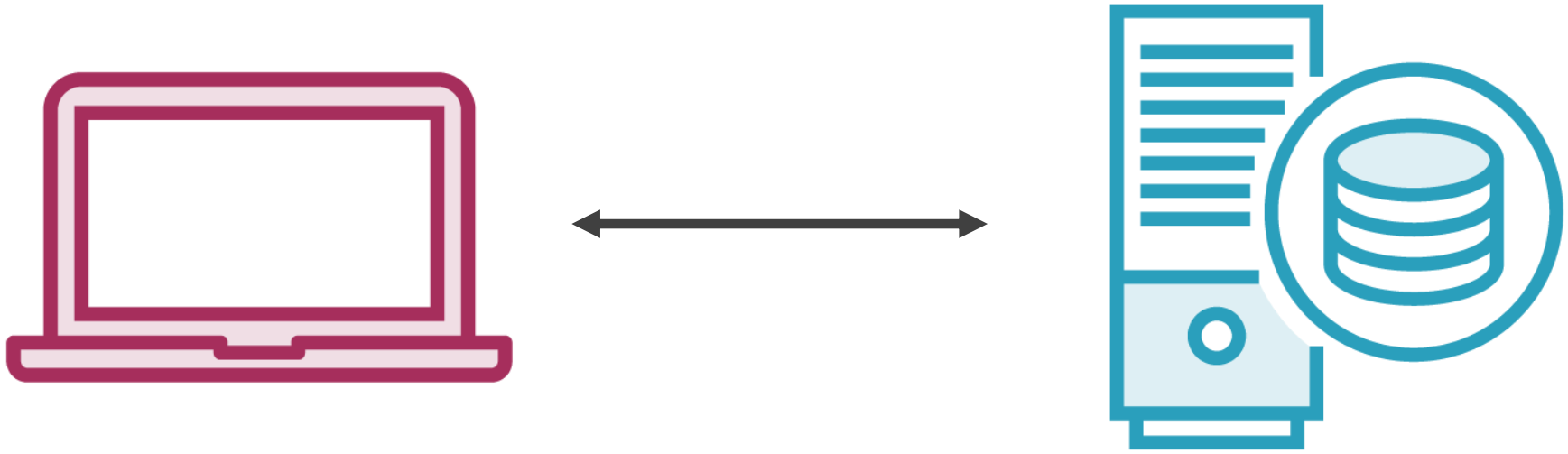
JavaScript/
TypeScript

Angular
Fundamentals

C# and
ASP.NET Core
Fundamentals

Learning Goals

Learning Goals



Client-Side

Server-Side

Server-Side Learning Goals

Learn how to use ASP.NET Core to create a RESTful service

- Create a web API using controllers, actions and attributes
- Create model classes
- Create a repository layer with Entity Framework Core
- Integrate with a database
- Provide web API documentation with Swagger

Client-Side Learning Goals

Learn how to use the Angular Http client to integrate with a RESTful service

- Understand the role of RxJS and observables
- Retrieve and display data from a RESTful service using Http
- Create, read, update and delete data (CRUD)
- Page data

Server-Side Technologies and Concepts

Server-Side Technologies and Concepts

ASP.NET Core

Database

HTTP

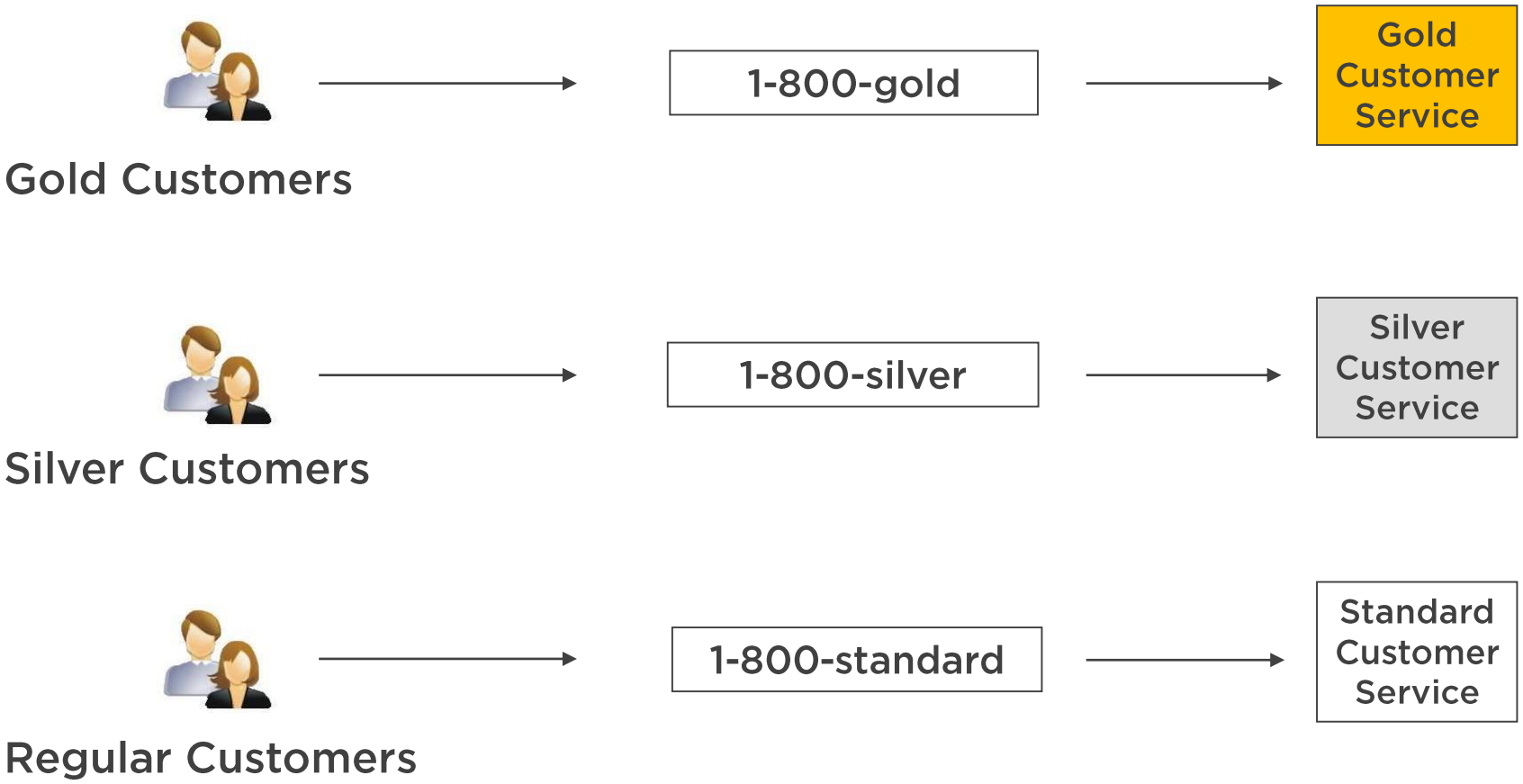
REST

Introduction to REST

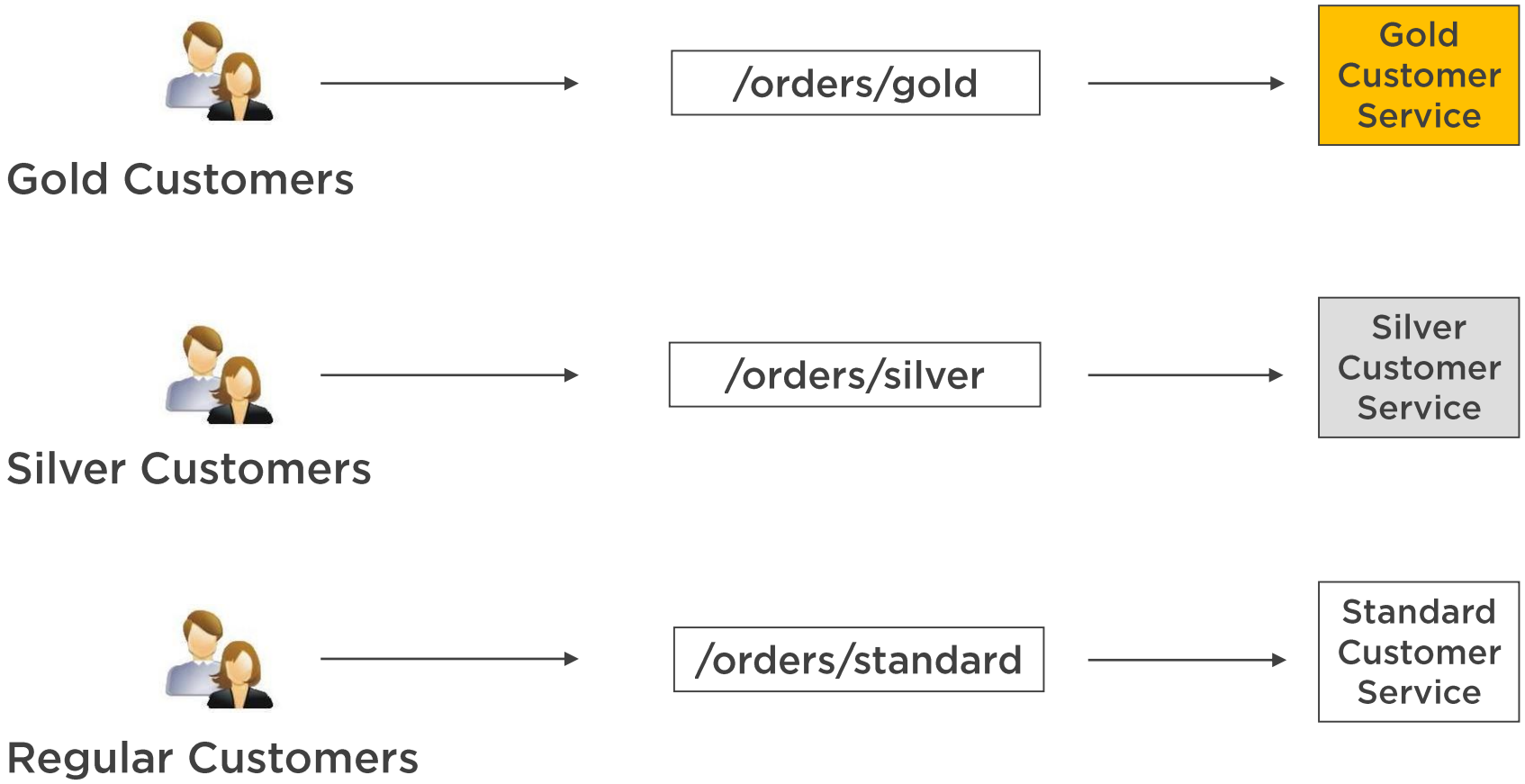
REST = Representational State Transfer

- Architectural style for distributed systems
- Exposes resources (state) to clients
- Resources identified with a URI
- Uses HTTP, URIs, MIME types

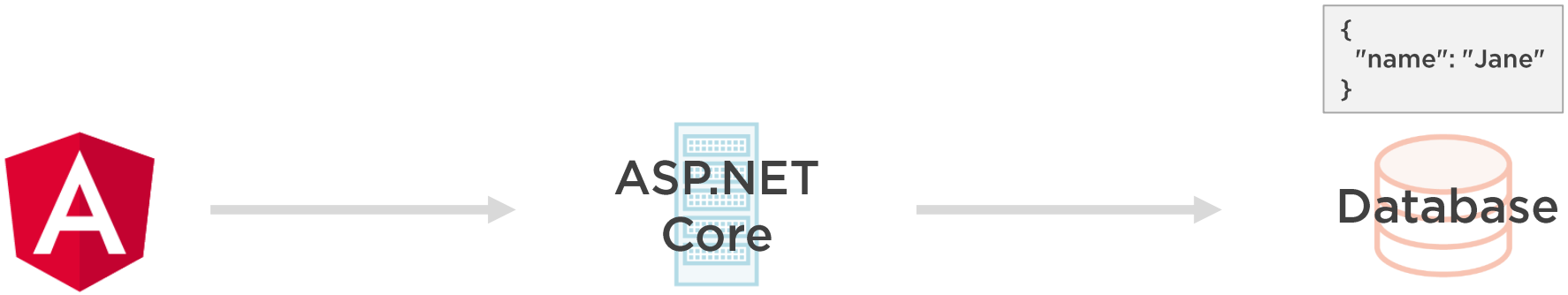
"RESTful" System Overview



RESTful Services and URIs



Key Technology Players



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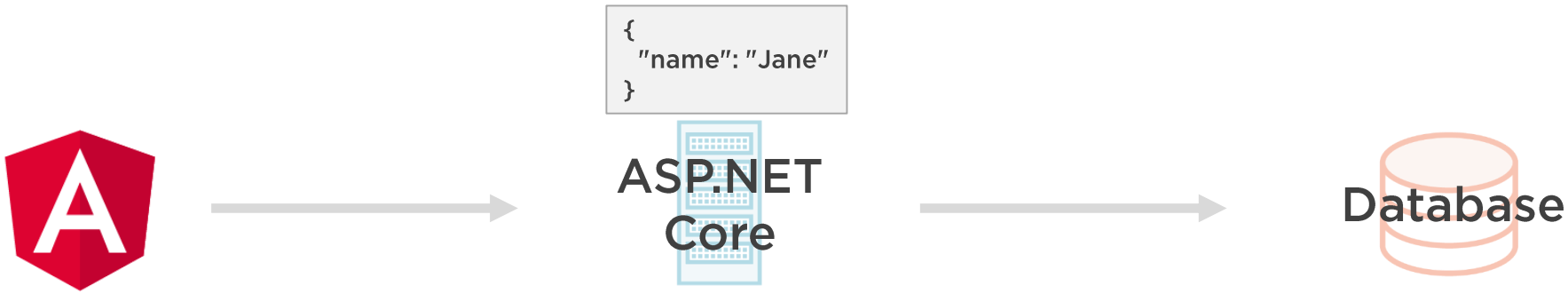

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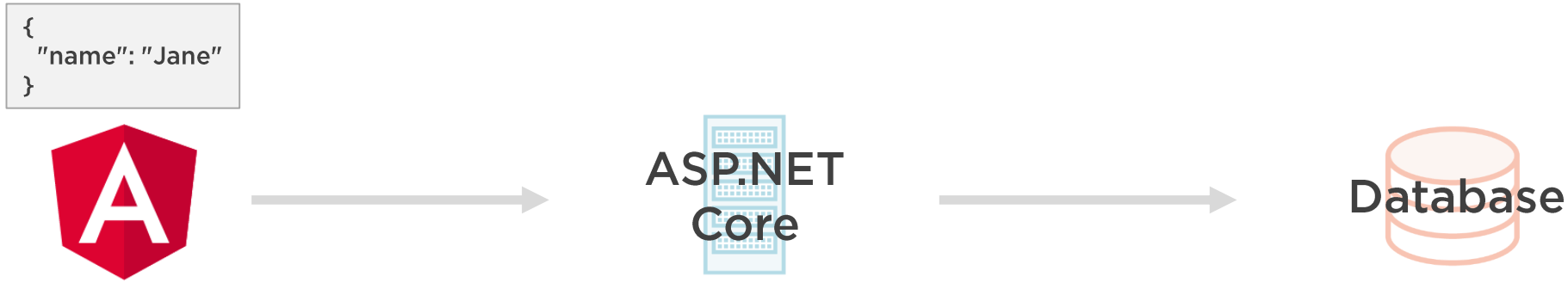
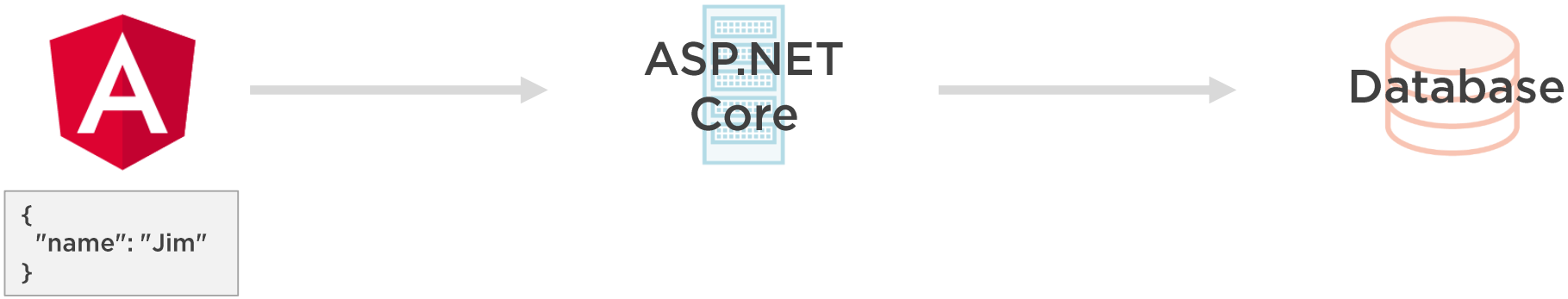


Key Technology Players



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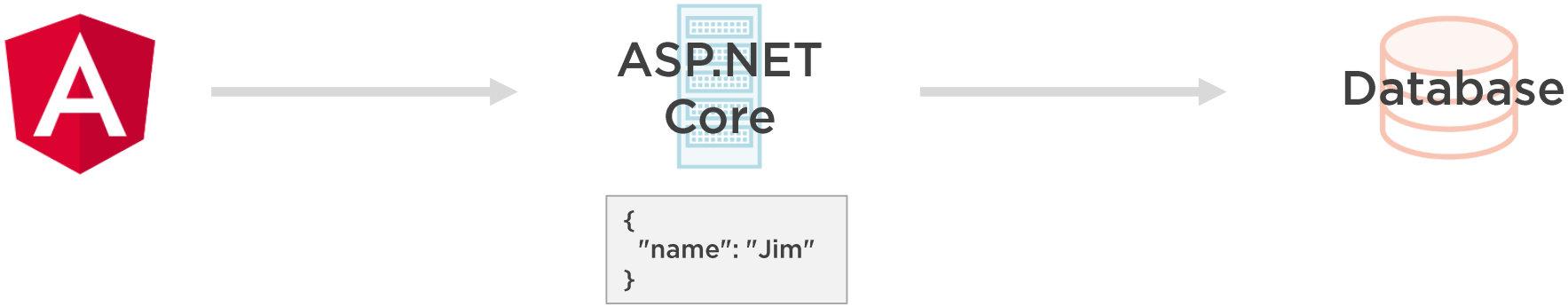

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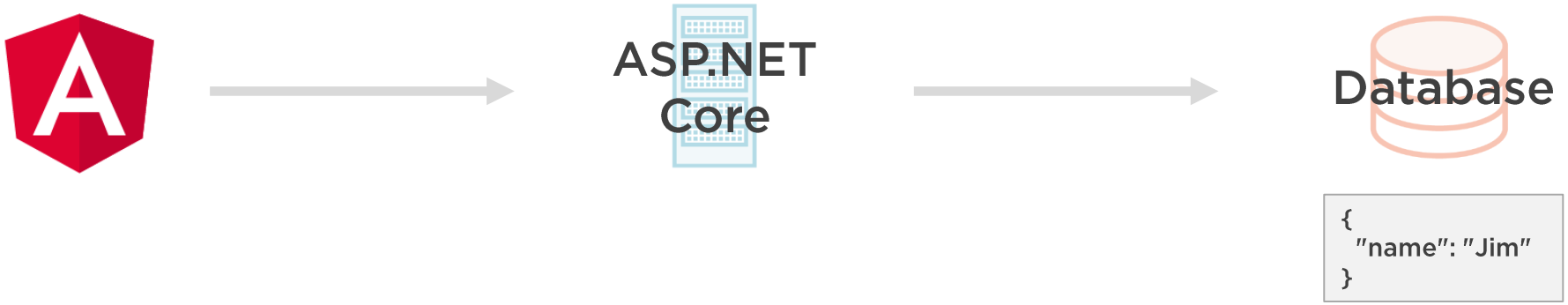


Client-Side Technologies and Concepts

Client-Side Technologies and Concepts

Angular

RxJS

XHR/HTTP

Observables

RxJS

http://reactivex.io/rxjs

Reactive Extensions for JavaScript

- Library for composing asynchronous and event-based programs
- Relies on observable sequences
- Used with Angular

Promises and Observables

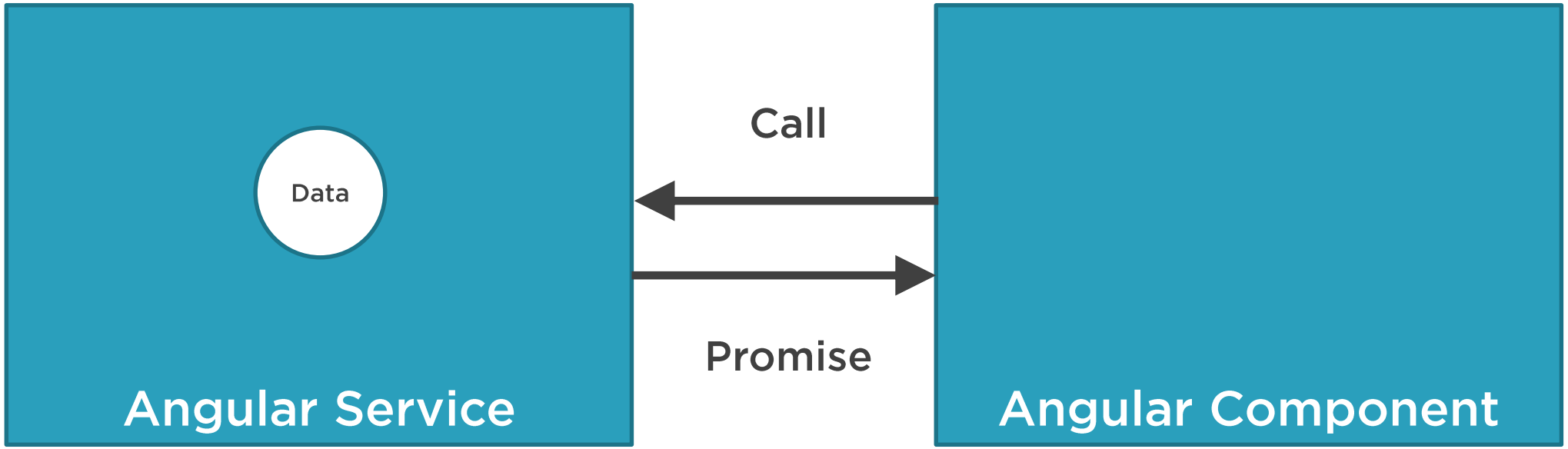
Promise

- An operation that hasn't completed yet, but is expected in the future
- Used with async/deferred operations
- Can be hooked to a callback

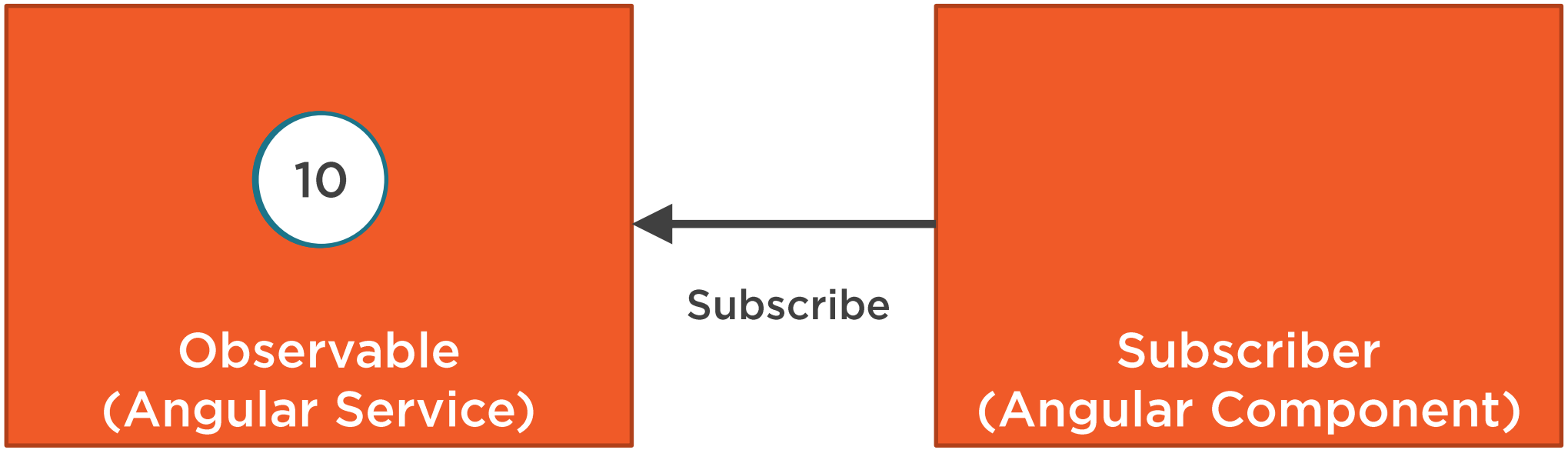
Observable

- An object that can be "subscribed" to by other objects
- Can return multiple values over time – an async data stream
- Event based

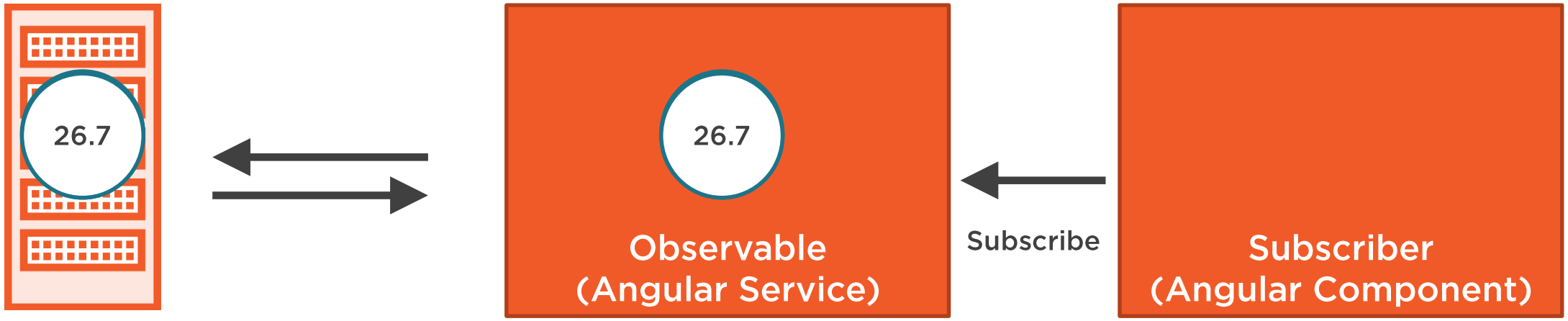
Promises Overview



Observables Overview



Observables and Async Streams



Promises and Observables Review

Promises	Observables
Returns a single value	Can return multiple values over time
Cannot cancel	Can cancel
Natively supported in browsers	Supports standard array functions (map, filter, reduce, etc.)
	Relies on a library such as RxJS

Running the Application on Windows

Software Requirements

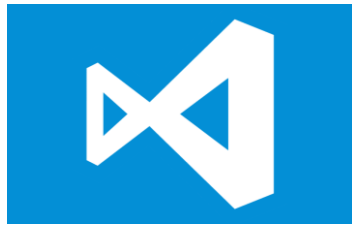
https://visualstudio.com

https://dot.net

Sqlite, PostgreSQL,
SQL Server

Running the Application on Mac

Software Requirements



https://code.visualstudio.com

ASP.NET Core

https://dot.net

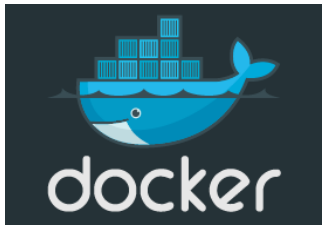
Database

Sqlite, PostgreSQL,
SQL Server

Running the Application with Docker

Software Installation

https://dot.net



https://docker.com

Summary

Key learning goals include understanding how to move data to and from a RESTful service

- Key technologies and concepts
- ASP.NET Core/Http/REST
- Angular/RxJS/Observables/Http