https://www.udemy.com/course/microservices-with-node-js-and-react/

Microservices with Node JS and React

Build, deploy, and scale an E-Commerce app using Microservices built with Node, React, Docker and Kubernetes

26 sections 652 lectures 54h 27m total length

### **Fundamental Ideas Around Microservices9 lectures • 46min**

* ~~How to Get HelpPreview~~
* ~~00:56~~
* ~~Course Resources~~

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* ~~What Is a Microservice? Preview~~
* 03:19
* ~~Data in MicroservicesPreview~~
* 07:34
* ~~Quiz - Data in Microservices~~

3 questions

* ~~Big Problems with Data~~

05:08

* ~~Sync Communication Between Services~~

06:53

* ~~Event-Based Communication~~

05:19

* ~~A Crazy Way of Storing Data~~

09:48

* ~~Pros and Cons of Async Communication~~

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05:44

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* ~~Testing the Posts Service~~

04:04

* ~~Implementing a Comments Service~~

08:22

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00:20

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00:39

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05:00

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* ~~Handling CORS Errors~~

04:08

* ~~Fetching and Rendering Posts~~

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* ~~Creating Comments~~

08:09

* ~~Displaying Comments~~

07:23

* ~~Completed React App~~

00:13

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04:54

* ~~An Async Solution~~

07:16

* ~~Common Questions Around Async Events~~

04:14

* ~~Event Bus Overview~~

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* ~~Important Note about Node v15 and Unhandled Promise Rejections~~

00:23

* ~~A Basic Event Bus Implementation~~

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* ~~Emitting Events~~

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* ~~Creating the Data Query Service~~

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* ~~Using the Query Service~~

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04:46

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05:37

* ~~How to Handle Resource Updates~~

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* ~~Reminder about Node v15 and Error Catching~~

00:11

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05:29

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* ~~Rendering Comments by Status~~

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* ~~Event Syncing in Action~~

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* ~~Why Docker?~~

02:55

* ~~Why Kubernetes?~~

05:47

* ~~Don't Know Docker? Watch This.~~

01:17

* ~~Note About Docker Build Output and Buildkit~~

00:44

* ~~Dockerizing the Posts Service~~

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* ~~Review Some Basic Commands~~

05:23

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* ~~Installing Kubernetes~~

03:19

* ~~IMPORTANT Note for Minikube and MicroK8s Users~~

00:47

* ~~A Kubernetes Tour~~

09:45

* ~~Important Kubernetes Terminology~~

02:51

* ~~Notes on Config Files~~

03:11

* ~~Creating a Pod~~

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05:15

* ~~Common Kubectl Commands~~

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02:26

* ~~Introducing Deployments~~

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* ~~Common Commands Around Deployments~~

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* ~~Updating Deployments~~

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* ~~Preferred Method for Updating Deployments~~

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* ~~Creating a NodePort Service~~

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* ~~Accessing NodePort Services~~

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* ~~Setting Up Cluster IP Services~~

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* ~~Updating Service Addresses~~

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05:00

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* ~~Testing Communication~~

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* ~~Load Balancers and Ingress~~

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* ~~Important - DO NOT SKIP - Ingress Nginx Installation Info~~

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06:35

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03:59

* ~~Kubectl Contexts~~

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* ~~Surprising Complexity Around Errors~~

06:06

* ~~Other Sources of Errors~~

04:17

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* ~~Building an Error Handling Middleware~~

07:38

* ~~Communicating More Info to the Error Handler~~

05:23

* ~~Encoding More Information In an Error~~

04:35

* ~~Subclassing for Custom Errors~~

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* ~~Determining Error Type~~

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00:23

* ~~Converting Errors to Responses~~

10:12

* ~~Moving Logic Into Errors~~

08:36

* ~~serializeErrors' not assignable to the same property in base type 'CustomError'~~

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* ~~Verifying Our Custom Errors~~

08:34

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* ~~Understanding the Signup Flow~~

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05:21

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07:12

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* ~~Reminder on Server Side Rendering~~

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* ~~Suggestion Regarding a Default Export Warning~~

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05:24

* ~~Building a Next Image~~

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* ~~Running Next in Kubernetes~~

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00:19

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07:45

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00:19

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* ~~Passing Through the Cookies~~

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* ~~A Reusable API Client~~

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00:12

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07:09

* ~~A Required Session Fix and a Global Signin Reminder~~

00:15

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* ~~Validating Title and Price~~

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08:21

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* ~~Ticket Updating~~

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05:24

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00:09

* ~~Remember Mongoose?~~

04:57

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00:17

* Singleton Implementation

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* Accessing the NATS Client

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* Handling Publish Failures

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* Associating Orders and Tickets

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07:09

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05:45

* Finding Reserved Tickets

06:10

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02:36

* Small Update for "Value of type 'typeof ObjectId' is not callable"

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* Asserting Tickets Exist

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* Asserting Reserved Tickets

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* Implementing the Publishers

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00:20

* Time for Listeners!

02:12

* Reminder on Listeners

01:53

* Blueprint for Listeners

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* A Few More Reminders

05:26

* Simple onMessage Implementation

02:17

* ID Adjustment

05:44

* Ticket Updated Listener Implementation

04:32

* Initializing the Listeners

02:44

* A Quick Manual Test

03:16

* Clear Concurrency Issues

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* Reminder on Versioning Records

06:41

* Optimistic Concurrency Control

05:37

* Mongoose Update-If-Current

03:46

* Implementing OCC with Mongoose

04:02

* Test functions cannot both take a 'done' callback and return something Error

00:20

* Testing OCC

09:07

* One More Test

03:45

* Who Updates Versions?

06:29

* Including Versions in Events

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* Updating Tickets Event Definitions

03:55

* Property 'version' is missing TS Errors After Running Skaffold

00:49

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* Did it Work?

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* Abstracted Query Method

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04:55

* A Complete Listener Test

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* Testing the Ack Call

02:09

* Testing the Ticket Updated Listener

08:20

* Success Case Testing

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* Out-Of-Order Events

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* The Next Few Videos

03:39

* Fixing a Few Tests

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* Listeners in the Tickets Service

01:47

* Building the Listener

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* Strategies for Locking a Ticket

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* Expiration Options

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* Initial Setup

06:14

* Skaffold errors - Expiration Image Can't be Pulled

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* A Touch of Kubernetes Setup

07:44

* File Sync Setup

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* Listener Creation

03:42

* What's Bull All About?

03:56

* Creating a Queue

09:07

* Queueing a Job on Event Arrival

05:10

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* Delaying Job Processing

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* A Touch More Testing

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* Listening for Expiration

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00:21

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* Creating a Stripe Secret

03:20

* Creating a Charge with Stripe

06:08

* Manual Testing of Payments

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* Automated Payment Testing

06:27

* Mocked Stripe Client

04:23

* A More Realistic Test Setup

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* Realistic Test Implementation

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* Tying an Order and Charge Together

07:18

* Testing Payment Creation

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* Publishing a Payment Created Event

06:31

* More on Publishing

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* Marking an Order as Complete

06:18

* Important Info About the Next Lecture - Don't Skip

00:51

* Don't Cancel Completed Orders!

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* A Few More Pages

06:15

* Reminder on Data Fetching with Next

06:09

* Two Quick Fixes

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* Scaffolding a Form

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* Listing All Tickets

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* Reminder on Invalid <Link> with <a> child Errors

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* Linking to Wildcard Routes

07:07

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* The Expiration Timer

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* Displaying the Expiration

01:01

* Showing a Stripe Payment Form

03:06

* Module not found: Can't resolve 'prop-types'

00:14

* Configuring Stripe

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* Test Credit Card Numbers

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* Paying for an Order

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* Filtering Reserved Tickets

02:27

* Header Links

01:47

* Rendering a List of Orders

06:20

### CI/CD30 lectures • 2hr 17min

* Development Workflow

03:39

* Git Repository Approaches

06:05

* Creating a GitHub Action

07:11

* Adding a CI Test Script

02:42

* Tests in GitHub Actions Hang - Jest did not exit

00:17

* Running Tests on PR Creation

04:48

* Output of Failing Tests

05:48

* Running Tests in Parallel

07:28

* Verifying a Test Run

03:01

* Selective Test Execution

05:44

* Deployment Options

07:40

* Creating a Hosted Cluster

02:39

* Reminder on Kubernetes Context

03:32

* Reminder on Swapping Contexts

03:56

* The Deployment Plan

04:04

* Building an Image in an Action

08:40

* Testing the Image Build

02:30

* Restarting the Deployment

07:17

* Applying Kubernetes Manifests

03:27

* Prod vs Dev Manifest Files

04:23

* Manual Secret Creation

03:39

* Don't Forget Ingress-Nginx!

05:31

* Testing Automated Deployment

02:51

* Additional Deploy Files

07:12

* A Successful Deploy!

06:07

* Buying a Domain Name

03:10

* Three Important Changes Needed to Deploy - Do Not Skip!

01:23

* Configuring the Domain Name

05:27

* I Really Hope This Works

01:58

* Next Steps

04:36

### [Appendix A] - Basics of Docker46 lectures • 3hr 3min

* Finished Code and Diagrams

00:38

* Why Use Docker?

03:43

* What is Docker?

02:53

* Docker for Mac / Windows

01:57

* Installing Docker on macOS

01:10

* Installing Docker with WSL2 on Windows 10/11

01:50

* Installing Docker on Linux

01:55

* Using the Docker Client

05:03

* But Really... What's a Container?

08:30

* How's Docker Running on Your Computer?

02:44

* Docker Run in Detail

01:54

* Overriding Default Commands

05:12

* Listing Running Containers

04:09

* Container Lifecycle

05:16

* Restarting Stopped Containers

03:43

* Removing Stopped Containers

01:39

* Retrieving Output Logs

02:33

* Stopping Containers

05:21

* Multi-Command Containers

04:16

* Executing Commands in Running Containers

02:53

* The Purpose of the 'it' Flag

04:35

* Getting a Command Prompt in a Container

04:06

* Starting with a Shell

02:13

* Container Isolation

03:09

* Creating Docker Images

02:36

* Buildkit for Docker Desktop

00:45

* Building a Dockerfile

04:51

* Dockerfile Teardown

02:41

* What's a Base Image?

05:40

* The Build Process in Detail

11:09

* A Brief Recap

03:24

* Rebuilds with Cache

07:02

* Tagging an Image

04:26

* Quick Note for Windows Users

00:14

* Manual Image Generation with Docker Commit

05:00

* Project Outline

02:35

* Node Server Setup

05:03

* A Few Planned Errors

05:12

* Required Node Base Image Version

00:23

* Base Image Issues

07:50

* A Few Missing Files

03:18

* Copying Build Files

04:50

* Container Port Forwarding

07:26

* Specifying a Working Directory

07:52

* Unnecessary Rebuilds

04:16

* Minimizing Cache Busting and Rebuilds

04:58

### **[Appendix B] - Basics of Typescript75 lectures • 5hr 42min**

* ~~How to Get Help~~

01:04

* ~~TypeScript Overview~~

06:19

* ~~Environment Setup~~

07:59

* ~~Important Axios Version Information~~

00:12

* ~~A First App~~

04:43

* ~~Executing Typescript Code~~

05:03

* ~~One Quick Change~~

03:35

* ~~Catching Errors with TypeScript~~

07:22

* ~~Catching More Errors!~~

05:15

* ~~Do Not Skip - Course Overview~~

03:36

* ~~Types~~

05:12

* ~~More on Types~~

05:53

* ~~Examples of Types~~

04:48

* ~~Where Do We Use Types?~~

00:49

* ~~Type Annotations and Inference~~

02:03

* ~~Annotations With Variables~~

04:53

* ~~Object Literal Annotations~~

06:53

* ~~Annotations Around Functions~~

05:55

* ~~Understanding Inference~~

03:51

* ~~The Any Type~~

07:47

* ~~Fixing the "Any" Type~~

01:49

* ~~Delayed Initialization~~

03:05

* ~~When Inference Doesn't Work~~

04:37

* ~~More on Annotations Around Functions~~

04:56

* ~~Inference Around Functions~~

06:08

* ~~Annotations for Anonymous Functions~~

01:42

* ~~Void and Never~~

02:49

* ~~Destructuring with Annotations~~

03:35

* ~~Annotations Around Objects~~

07:05

* ~~Arrays in TypeScript~~

05:05

* ~~Why Typed Arrays?~~

04:30

* ~~Multiple Typees in Arrays~~

02:57

* ~~When to Use Typed Arrays~~

00:54

* ~~Tuples in TypeScript~~

04:04

* ~~Tuples in Action~~

05:28

* ~~Why Tuples?~~

03:20

* ~~Interfaces~~

01:26

* ~~Long Type Annotations~~

04:42

* ~~Fixing Annotations With Interfaces~~

04:36

* Syntax Around Interfaces

03:31

* Functions in Interfaces

04:46

* Code Reuse with Interfaces

04:15

* General Plan with Interfaces

03:12

* Classes

03:47

* Basic Inheritance

03:03

* Class Method Modifiers

06:41

* Fields in Classes

06:18

* Fields with Inheritance

04:18

* Where to Use Classes

01:09

* Updated Parcel Instructions

00:13

* App Overview

02:45

* Bundling with Parcel

04:54

* Project Structure

03:19

* IMPORTANT Info About Faker Installation

00:23

* Generating Random Data

05:29

* Type Definition Files

05:17

* Using Type Definition Files

06:20

* Export Statements in TypeScript

05:06

* Defining a Company

04:43

* Important Note About Google Maps Key

00:27

* Adding Google Maps Support

07:38

* Required Update for New @types Library

00:18

* Google Maps Integration with TypeScript

04:06

* Exploring Type Definition Files

12:46

* Hiding Functionality

06:28

* Why Use Private Modifiers? Here's Why

08:25

* Adding Markers

09:18

* Duplicate Code

02:45

* One Possible Solution

06:38

* Restricting Access with Interfaces

05:35

* Implicit Type Checks

03:26

* Showing Popup Windows

06:47

* Updating Interface Definitions

07:11

* Optional Implements Clauses

06:06

* App Wrapup

08:08

### Bonus!1 lecture • 1min

* Bonus!

00:33