Understanding Microservices | A Technical Overview - TT7050

Explore Microservices Basics: Including design, management, scaling, and practical application within a business environment

Duration: 1 Day
Skill Level: Introductory
Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

Understanding Microservices - A Technical Overview is a one-day course ideally suited for technical professionals seeking an introduction to microservices architecture and its application within a business context.

What You'll Learn

Overview

Microservices have rapidly emerged as a popular architectural style, breaking down applications into small, independent services that can be developed, deployed, and scaled individually. Microservices offer a robust method to address a variety of projects, such as e-commerce platforms and content management systems, enhancing scalability and boosting productivity. This technology, when employed correctly, can greatly increase software delivery speed and system resilience, making it a crucial skill set for modern technology professionals.

Understanding Microservices - A Technical Overview is a one-day course ideally suited for technical professionals seeking an introduction to microservices architecture and its application within a business context. Under the guidance of an industry expert, this engaging class combines lecture-style learning with lively demonstrations, case study review and group discussions.

Throughout the course you'll explore the principles and characteristics that define microservices, how to identify suitable projects for a microservices approach, the factors to consider when designing them, and the strategies to effectively manage and scale them within complex systems. You'll also learn about the best practices, patterns, and anti-patterns, arming you with the knowledge to make the right architectural choices. This course also explores the real-world implementation of microservices in a business enterprise. We'll discuss how to align the application of microservices with your organization's specific business capabilities, and offer strategies for smoothly integrating this technology within existing legacy systems.

You'll exit this course with a solid understanding of microservices and their role within a business environment, equipping you to be able to contribute effectively to any microservices-related project.

Objectives

This course combines engaging instructor-led presentations and useful demonstrations with engaging group activities. Throughout the course you'll explore:

- Understand the Basics of Microservices: Get to know the fundamental principles and characteristics of microservices and how they revolutionize traditional software development approaches.
- Explore the Design of Microservices: Gain an overview of how microservices are designed based on business requirements and what makes them unique in the software architecture world.
- Overview of Managing and Scaling Microservices: Get an introduction to how microservices are managed and scaled independently, and understand the significance of these features in your business operations.
- Familiarize with the Microservices Ecosystem: Learn about the typical patterns, best practices, and common pitfalls in the microservices world, setting a foundation for future learning and implementation.
- Introduction to Microservices in a Business Context: Acquire a basic understanding of how microservices can be aligned with specific business capabilities, and get a glimpse into how they can coexist with legacy systems in a business setting.

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

Audience

This overview-level course is ideally suited for professionals seeking an introduction to microservices architecture and its application within a business context. Ideal attendee roles include software developers, system architects, technical managers, and IT professionals who are part of teams transitioning to a microservices approach. It's also an excellent starting point for non-technical roles such as product owners or business analysts who work closely with technical teams and want to better understand and become conversant in the language and principles of microservices.

Pre-Requisites

To ensure a smooth learning experience and maximize the benefits of attending this course, you should have the following prerequisite skills:

- Basic Understanding of Software Development
- Knowledge of Software Architectures
- Conceptual Understanding of Cloud Services
- Familiarity with Business Operations
- Basic exposure to programming languages would be helpful but is not required.

Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We'll work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill level, interests and participation.

1. Introduction to Microservices

- Understand what microservices are and their role in modern software development.
- Introduction to Microservices: what they are and why they matter.
- Monolithic vs Microservices: highlighting the shift and benefits.
- Key principles and characteristics of microservices.
- Identifying suitable applications for microservices transformation.
- Demo: Analyzing a sample application and identifying potential microservices

2. Architecting and Managing Microservices

- Learn the basic strategies for scaling and managing microservices.
- Scaling Microservices: from a single service to hundreds.

- Key components of a microservices architecture.
- Introduction to resilience patterns: Circuit-Breakers and Bulkheads.
- Load management and provisioning in a microservices setup.
- Understanding the role of cloud services in microservices.
- Optional Demo: Illustrating how a microservice-based application scales in real-time

3. Designing Microservices

- Learn the key aspects to consider when designing microservices.
- Defining microservice boundaries: Deciding the scope of a microservice.
- Communication patterns in microservices.
- Understanding Microservice endpoints.
- Exploring data stores and transaction boundaries in microservices.
- Overcoming challenges in Microservices design.
- Demo: Designing microservices for a hypothetical business requirement

4. Implementing Microservices in a Business Enterprise

- Understand the process and considerations for implementing microservices in an enterprise context.
- Assessing enterprise readiness for microservices.
- Building the business case for microservices: strategic advantages and potential challenges.
- Aligning microservices with business capabilities.
- Organizational changes: Team structures and processes for microservices.
- Dealing with Legacy Systems: Strategies for microservices integration.
- Demo: Exploring a case study of successful microservices implementation in a business enterprise

5. The Microservices Ecosystem

- Understand the key tools and best practices in the Microservices ecosystem.
- Understanding the typical Microservices Stack.
- Monitoring and Logging in Microservices.
- Introduction to Docker: Containerization of Microservices.
- Deployment strategies in a Microservices setup.
- Introduction to Orchestration in Microservices
- Demo: Containerizing and deploying a simple microservice

6. Microservices Deployment Strategies

- Understand various ways to safely introduce changes in a microservices environment.
- The concept of Blue-Green Deployment: changing services without downtime.

- Canary Releases and Feature Toggles: slowly rolling out changes to users.
- Database changes in a microservices environment: keeping data consistent.
- Demo: Examining various deployment strategies

7. Microservices Best Practices and DevOps

- Learn key strategies to ensure a smooth operation of your microservices setup.
- The DevOps culture in Microservices: collaboration for efficiency.
- Defining a Minimum Viable Product in a Microservices setup: building small, delivering fast.
- Dealing with data in a distributed setup: managing Data Islands.
- The importance of Continuous Integration/Continuous Delivery in a microservices setup.
- Governance: Keeping track of your services and their consumers.
- Demo: Visualizing a simple continuous delivery pipeline

8. Microservices Patterns and Anti-Patterns

- Learn about common do's and don'ts when working with microservices.
- Understanding patterns that help with efficient microservices operation.
- Recognizing and avoiding anti-patterns that can hinder performance.
- Dealing with common challenges: dependencies between services, managing service boundaries.
- Demo: Examples of real-world patterns and anti-patterns

Bonus Chapter / Time Permitting

9. Simple Overview of OAuth and OpenID for Microservices

- Introduction to OAuth and OpenID: What they are and why they matter in Microservices.
- The role of tokens in OAuth 2.0: How they help in securing communications.
- A simplified look at OpenID Connect: Linking identities across services.
- Demo

Related Courses

TT7305	Java REST Essentials
TT7050	Understanding Microservices | A Technical Overview

Setup Made Simple! Learning Experience Platform (LXP)

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels and rich extended learning and post training resources are provided for you in our “easy access, no install required” online Learning Experience Platform (LXP), remote lab and content environment. Access periods vary by course. We’ll collaborate with you to ensure your team is setup and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.