Microservices Learning Journey

Microservices Engineering Boot Camp

Microservices JumpStart: Explore Essentials, Design, Deployment, Management, Containers, Best Practices & Security

Course Snapshot

- **Course: Microservices Engineering Boot Camp (TT7053)**
- **Duration**: 3 days
- **Audience & Skill Level:** This introduction to Microservices is geared for experienced technical team members.
- **Format / Hands-on:** This course combines engaging instructor-led presentations and practical demonstrations with hands-on programming exercises, challenge labs, use case exploration and engaging group activities. Student machines are required.
- **Flexible Delivery Options**: This course can be delivered for your team or organization **online-live (virtual)**, **onsite in-person, self-paced** or across our immersive **blended learning experience platform (LXP).**
- **Customizable**: We're flexible! This course agenda, topics, labs, hours and delivery modalities can be adjusted to target your specific training skills objectives, tools and learning goals. Please ask for details.

Description

The **Microservices Engineering Boot Camp** is a three-day, jump start style hands-on course designed to provide you with the knowledge and skills needed to design, implement, scale and manage modern microservices architectures and containerized applications.

Working in a hands-on learning environment, guided by our engaging instructor, you'll explore microservices' fundamentals, characteristics and benefits, and learn how they contrast and complement other architectural styles. You'll learn to navigate and apply microservices concepts and patterns, understanding the inherent challenges and how to overcome them. The course also covers mastering monitoring and logging practices using tools designed to ensure the reliable performance of your microservices. You'll learn the practical aspects of setting up Kubernetes and Docker, two pivotal tools in the microservices ecosystem. You'll also delve into the microservices security model, learning about network policies, authentication, and authorization, providing a safe environment for your applications. If time permits, you can also explore how Generative AI or automation can be incorporated in Microservices.

By the end of this intensive three-day course, you'll be able to design, implement, and manage a microservices architecture using modern tools and best practices. You'll have hands-on experience in handling real-world scenarios, ensuring that you can apply what you've learned directly in your job. This course will empower you to improve the scalability and efficiency of your projects, adding tangible value to your organization.

Learning Objectives

Working in a hands-on learning environment led by our expert practitioner you will learn to:

- Grasp the core principles of Microservices including their key characteristics, benefits, and potential use cases in various industries.
- Gain practical experience deploying and managing microservices using Docker and Kubernetes
- Identify and apply common microservices design patterns, contributing to the development of efficient, scalable, and robust microservice architectures.
- Implement basic Microservices Security and Health Checks, ensuring the security and health of your microservices.
- Use optimal resource management techniques and effective monitoring strategies for microservices, and will be adept at setting resource limits, implementing autoscaling, and utilizing monitoring tools to maintain optimal performance.

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 course explores the terminology, specification, tools, processes and technologies specific to microservices. Technical attendee roles would include experienced software developers, system administrators, IT architects who are new to microservices and wish to gain a fundamental understanding of this architecture style. Project managers and tech leaders overseeing modern software development projects can also benefit from understanding the practical applications of microservices to guide their teams effectively.

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 and Computer Programming
- Familiarity with Command-Line Interfaces (CLI)
- Basic Networking Knowledge
- Basic Understanding of Cloud Computing Concepts:

Related Courses
The following is a small subset of our related services or Microservices courses. Please see our full catalog for a complete list.
- TT7050   Understanding Microservices – A Technical Overview
- TT7053   Microservices Engineering Boot Camp
- TT7305   Java REST Essentials

Next Steps / Follow-on Courses: We offer a wide variety of follow-on courses for next-level Microservices, DevOps, Kubernetes, Docker, containers, programming, automation, application security, AI and machine learning in services and more. Please see our **Microservices Courses & Learning Paths** for options based on your specific role and goals.

Enhanced Learning Services: Please also ask about our robust Learning Experience Platform (LXP), Skills Assessment & Skills Prep Services, Skills Immersion Programs & Camps, Coaching and Mentoring Services and Extended Learning Support programs.

Course Topics / 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.

Day 1

1. **Introduction to Microservices**
- Familiarize yourself with the basic concepts of microservices
- Evolution of Microservices
- What are Microservices?
- Characteristics of Microservices
- Lab: Exploring real-world microservice examples

2. **Applications and Advantages of Microservices**
- Understand the benefits and applications of microservices
- Microservice Use Cases
- Benefits of Microservices

- Relationship with Other Architectural Styles
- Lab: Identifying potential microservice use cases in a business scenario

3. **Introduction to Docker**
- Gain a high-level understanding of Docker and its relevance to microservices
- Docker 30,000ft Overview
- Lab: Installing Docker
- Lab: Running First Containers

4. **Microservices with Docker**
- Learn how to build and manage Docker images for

microservices
- Building Images with Docker Engine
- Shipping Images with a Registry
- Managing Docker Containers
- Lab: Building and managing Docker containers for microservices

5. **Introduction to Kubernetes**
- Understand the role of Kubernetes in managing microservices
- Setting Up Kubernetes
- Kubernetes Dashboard
- Lab: Setting up Kubernetes and exploring its dashboard

Day 2

6. Deploying Microservices with Kubernetes
- Learn how to deploy and manage microservices on Kubernetes
- Deploying with YAML
- Kubernetes Network Model
- Running Application on Kubernetes
- Lab: Deploying a simple microservice on Kubernetes

7. Scaling and Exposing Microservices
- Explore ways to expose and scale microservices in Kubernetes
- Exposing HTTP Services with Ingress Resources
- Scaling our Demo App
- Lab: Exposing and scaling a microservice on Kubernetes

8. Kubernetes Management Basics
- Delve into the basics of managing and operating a Kubernetes cluster
- Daemon Sets
- Labels and Selectors
- Namespaces
- Lab: Basic operations and management in a Kubernetes cluster

9. Chapter 9: Applying Microservices Concepts
- Apply basic concepts and patterns in microservices
- Patterns and Common Design Decisions
- Microservices Capability Model
- Lab: Analyzing a simple microservice design

Day 3

10. Microservices Health and Maintenance
- Grasp the importance of health checks and updates for microservices
- Health Checks
- Rolling Updates
- Lab: Monitoring and updating a simple microservice

11. Basic Security in Microservices
- Learn essential security concepts for microservices
- Network Policies
- Authentication and Authorization
- Lab: Implementing network policies and basic authentication for a microservice

12. Microservices with Persistent Storage
- Discover the concept of volumes in microservices
- Volumes

- Lab: Managing data in a microservice

13. Monitoring Microservices
- Familiarize yourself with basic techniques for monitoring microservices
  - Centralized Logging
  - Collecting Metrics with Prometheus
  - Lab / Demo: Setting up simple logging and metrics for a microservice

OPTIONAL BONUS CHAPTERS: Time Permitting

14. Resource Management in Microservices
- Gain insight into resource management and scaling in microservices
- Understanding Resource Limits
- Introduction to Autoscaling

15. Incorporating Generative AI in Microservices (Overview)
- Understanding Generative AI and its potential use cases
- Automating Code Generation:
- Intelligent Error Detection and Debugging:
- Personalization:
- Automated Documentation:
- Proactive Maintenance:
- Improved User Interaction:
- Automating Testing

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

For more information about our training services (instructor-led, self-paced or blended), collaborative coaching services, robust Learning Experience Platform (LXP), Career Experiences, public course schedule, partner programs, courseware licensing options or to see our complete list of course offerings, solutions and special offers, please visit us at **www.triveratech.com**, email **Info@triveratech.com** or call us toll free at **844-475-4559.**