Dynatrace Synthetics (Synthetic Monitoring)

Delivery Mode: Virtual Instructor-Led Training (VILT) with Hands-On Labs
Duration: 24 hours (3 days × 8 hours/day)
Format: Theory (20%-30%) + Hands-on Labs (70%-80%)
Modality: Virtual Lab Environment with Dynatrace Demo Environment
Capstone Exercise

Course Overview

This intensive hands-on training equips participants with the knowledge and skills to **leverage Dynatrace Synthetics** for proactive monitoring of application availability, performance, and user journeys. The program focuses on **practical implementation**, covering the creation and execution of synthetic monitors, in-depth performance analysis, and troubleshooting using Dynatrace AI-powered insights.

Course Objectives

By the end of this course, participants will be able to:

- Configure and manage **synthetic monitoring** with real-world scenarios.
- Create and execute **browser and HTTP monitors** with advanced configurations.
- Simulate complex **user journeys with Clickpath monitors**.
- Perform **API monitoring** and validate web services.
- Use **waterfall analysis** for performance optimization.
- Conduct **root cause analysis (RCA)** using Dynatrace AI.
- Set up **alerts, reports, and private synthetic locations**.
- Apply skills through a **capstone exercise** simulating real-world scenarios.

Target Audience

- IT Operations and DevOps Engineers
- Application and Infrastructure Monitoring Teams
- Site Reliability Engineers (SREs)
- Performance Testing and QA Engineers
- Cloud and Network Administrators

Participant Prerequisites

- Basic understanding of **web applications and APIs**.
- Familiarity with **monitoring concepts** and performance testing.
- Basic knowledge of **HTTP protocols** and browser operations.

Day-Wise Course Outline with Hands-On Labs

Day 1: Introduction, Setup & Core Monitoring

Session 1: Dynatrace Synthetics Overview & Architecture

- **Introduction to Dynatrace Synthetics**
  - Use cases: Uptime validation, SLA monitoring, and benchmarking
  - Key benefits and value proposition
- **Architecture Overview:**
  - Browser and HTTP monitors
  - Execution locations (Public vs. Private Synthetic Locations)
- **Waterfall Analysis Basics:**
  - Resource loading sequence
  - Identifying performance bottlenecks

Hands-On Lab:

- Accessing the **Dynatrace Demo Environment**
- Exploring the **Dynatrace UI** and dashboard navigation
- Creating a **Single-URL browser monitor**
- Analyzing the **waterfall data** and identifying load times

Session 2: Synthetic Monitor Configuration

- **Creating Synthetic Monitors:**
  - Single-URL browser monitor
  - API and HTTP monitors
  - Choosing appropriate locations and scheduling tests
- **Performance Metrics and Thresholds:**
  - Response times, availability, and failure thresholds
  - SLA monitoring

Hands-On Lab:

- Configuring **multiple synthetic monitors** (Browser + HTTP)
- Setting **thresholds and alerts**
- Testing for **SSL certificate validity and uptime**
- Analyzing **monitoring results** and identifying failures

Day 2: Advanced Monitoring, API & Troubleshooting

Session 3: Multi-step Clickpath and User Journeys

- **Clickpath Monitor:**
  - Simulating complex multi-step user journeys
  - Step-by-step flow creation (e.g., login, search, checkout)
- **Assertions and Validations:**
  - Adding content checks
  - Handling dynamic values and redirects

Hands-On Lab:

- Building a **multi-step Clickpath Monitor**
- Simulating a **user journey with form submissions**
- Adding **validations and assertions**
- Analyzing test results and fixing errors

Session 4: API and HTTP Monitoring

- **HTTP Monitors:**
  - Testing REST APIs and SOAP services
  - Verifying response codes, payloads, and latency
- **Advanced Configurations:**
  - Chaining HTTP requests
  - Adding authentication tokens
  - Managing dependencies between requests

Hands-On Lab:

- Creating and executing an **HTTP Monitor**
- Performing **API testing** with chained requests
- Using **authentication tokens**
- Verifying **response payloads and response times**

Day 3: Root Cause Analysis, Reporting & Capstone Exercise

Session 5: Troubleshooting & Root Cause Analysis

- **Identifying Synthetic Failures:**
  - Diagnosing failures and timeouts
  - Analyzing error codes and slow responses
- **Root Cause Analysis (RCA):**
  - Using **Dynatrace AI insights**
  - Linking synthetic failures with **Real User Monitoring (RUM)**
- **Troubleshooting Tools:**
  - Viewing logs and traces
  - Waterfall analysis for deep-dive diagnostics

Hands-On Lab:

- Troubleshooting **synthetic monitor failures**
- Performing **root cause analysis** with Dynatrace AI
- Using logs to identify **third-party issues**

Session 6: Advanced Configurations & Reporting

- **Private Synthetic Locations:**
  - Deploying and configuring private monitoring locations

    - Use cases for internal applications
- **Alerting and Reporting:**
    - Setting up **alerts and notifications**
    - Generating and exporting **custom reports**
- **Visualization and Dashboards:**
    - Building custom dashboards
    - Adding synthetic metrics

Hands-On Lab:

- Deploying a **Private Synthetic Location**
- Configuring **custom alerts and thresholds**
- Generating and exporting **monitoring reports**

Capstone Exercise

In this **real-world simulation**, participants will apply their skills by:

1. **Designing a complete synthetic monitoring setup**:
    - Multi-step **Clickpath Monitor**
    - **API Monitor** with chained requests
2. **Configuring private synthetic locations**
3. **Root cause analysis and troubleshooting:**
    - Simulating failures and performing RCA using Dynatrace AI
4. **Generating reports and configuring alerts:**
    - Creating dashboards with synthetic metrics
    - Exporting performance reports

Hands-On Lab:

- Build, test, and analyze a **synthetic monitoring solution**
- Present insights from your **Capstone solution**

Training Deliverables

- **Training Materials:** PDF course slides, lab exercises, and troubleshooting guides
- **Hands-On Lab Access:** Dynatrace demo environment for practice
- **Reference Sheets:** Cheat sheets and RCA templates
- **Capstone Evaluation Report**

Final Duration Breakdown

Day	Topics Covered	Total Duration
Day 1	Intro, Setup, and Core Monitoring	8 hours
Day 2	Advanced Monitoring & API	8 hours
Day 3	RCA, Reporting & Capstone Exercise	8 hours

Total		**24 hours**

Key Takeaways:

- Master **synthetic monitoring** with extensive hands-on labs.
- Gain real-world experience through the **capstone project**.
- Learn troubleshooting and RCA using **Dynatrace AI insights**.