Anypoint Platform Operations: Runtime Fabric on Self-Managed Kubernetes

Summary

Anypoint Runtime Fabric is a container service that automates and orchestrates the deployment of Mule runtimes across any environment with centralized management through a single MuleSoft-hosted control plane. There are two Runtime Fabric options:

- As a package that is installable on an existing Kubernetes environment on Amazon Elastic Kubernetes Service (Amazon EKS), Azure Kubernetes Service (AKS), or Google Kubernetes Engine (GKE). You operate and manage the Kubernetes environment.
- As an appliance that includes Docker and Kubernetes. You install this version on virtual machines or bare metal that you operate and manage.

This course is for Anypoint Platform administrators who want to learn the skills and best practices to install, operate, and maintain Runtime Fabric on an existing Kubernetes environment on Amazon EKS, AKS, or GKE. In the hands-on exercises, this course uses a Kubernetes cluster on Amazon EKS, but the steps are the same with minor command changes for a Kubernetes cluster on AKS or GKE.

Note: This course does NOT teach you how to operate and manage a Kubernetes environment; your company needs to already have this expertise to use Runtime Fabric on self-managed Kubernetes. If this is not the case, you can instead use the Runtime Fabric appliance and take the Anypoint Platform Operations: Runtime Fabric on Virtual Machines course.

Duration

2 days (in-person or online)

Objectives

At the end of this course, students should be able to:

- Describe the features, benefits, and architecture of Runtime Fabric.
- Install and configure Runtime Fabric on self-managed Kubernetes.
- Deploy Mule applications to Runtime Fabric.
- Perform maintenance tasks using command-line tools.
- Scale Runtime Fabric deployments for performance and high availability.
- Use Anypoint Monitoring for alerts, dashboarding, and monitoring.

Audience

Anypoint Platform administrators who are responsible for operations of a Runtime Fabric running on a managed Kubernetes solution provided by AWS, Azure, or Google Cloud

Prerequisites

A basic knowledge and experience with the components of Anypoint Platform from one of the following:

- Completion of the *Getting Started with Anypoint Platform* course
- Completion of the *Anypoint Platform Development: Fundamentals* course

Prior system knowledge and experience:

- A knowledge of system administration and server commands
- A basic understanding of data formats such as XML, CSV, and JSON
- A basic knowledge of working on Linux systems
- A basic understanding of remote connection mechanisms such as SSL and SSH
- (Optional, but useful) A basic understanding of containerization concepts and technologies

Setup requirements

- A computer with at least 2GB available RAM and 500MB available storage
- Unrestricted internet access to port 80 (with > 5Mbps download and > 2Mbps upload)
- Operating system admin permissions
- OpenJDK 8 (not 11 or later version)
- Apache JMeter
- curl

Get a detailed setup document here.

Outline

Module 1: Introducing Runtime Fabric

- Describe the development lifecycle of Mule applications
- Describe and navigate Anypoint Runtime Fabric
- Distinguish between Runtime Fabric operating models
- Distinguish between Anypoint Platform deployment options
- List features and limitations of Runtime Fabric
- Explain relevant concepts and underlying technologies

Module 2: Installing Runtime Fabric

- List the requirements for installing Runtime Fabric
- Install Runtime Fabric on a provisioned Kubernetes cluster
- Remotely access the Runtime Fabric environment
- Install a Mule license with Runtime Fabric entitlement
- Update Runtime Fabric

Module 3: Enabling inbound traffic

- Configure Runtime Fabric for inbound traffic
- Describe Ingress configuration for Runtime Fabric

Module 4: Deploying applications

- Explain relevant concepts and underlying technologies
- List deployment options
- Deploy and undeploy applications
- Update and redeploy applications with zero downtime

Module 5: Managing Runtime Fabric

- Use tools for managing Runtime Fabric
- Create reports used for troubleshooting Runtime Fabric clusters
- Back up and restore a Runtime Fabric setup
- Transition between Runtime Fabric on VMs/bare metal to self-managed Kubernetes
- Enable Persistent Gateway in Runtime Fabric

Module 6: Scaling for high availability and performance

- Distinguish between horizontal and vertical scaling
- Scale application runtime environments for high availability
- Scale application runtime environments for performance

Module 7: Logging and monitoring

- Set up audit logging
- Identify logging options for Mule applications and Runtime Fabric
- Access application logs within Kubernetes
- Retrieve, view, and filter applications logs
- Monitor Runtime Fabric using Anypoint Monitoring

Module 8: Securing Runtime Fabric and Mule applications

- Identify security options for Runtime Fabric in Anypoint Platform
- Protect sensitive application data using Anypoint Tokenization
- Manage secure properties in Runtime Fabric