Anypoint Platform Operations: Runtime Fabric on Virtual Machines

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 (VMs) 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 virtual machines (VMs) or bare metal. In the hands-on exercises, this course uses EC2 instances on Amazon Web Services (AWS), but the process and steps are similar for other VMs. For Runtime Fabric installations on bare metal, the majority of the course is applicable except for the section on installation.

Note: For maximum flexibility and customization, you can use your own Kubernetes provider instead of the Kubernetes environment that is provided by MuleSoft with the Runtime Fabric appliance. In this case, you can instead take the Anypoint Platform Operations: Runtime Fabric on Self-Managed Kubernetes 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 the Runtime Fabric appliance on VMs.
- Deploy Mule applications to Runtime Fabric.
- Scale Runtime Fabric deployments for performance and high availability.
- Use Anypoint Runtime Manager and to manage, monitor, and analyze Mule applications.
- Use OpsCenter and Anypoint Monitoring for dashboarding and monitoring.

Audience

Operations personnel, developers, and architects who want to get hands-on experience installing, configuring, and using the Runtime Fabric appliance on VMs

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
- An SSH client
- Terraform
- OpenSSL
- OpenJDK 8 (not 11 or a later version)
- Apache JMeter

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

- Explain relevant concepts and underlying technologies
- Install Runtime Fabric to a provisioned AWS environment
- Remotely access the Runtime Fabric environment

Module 3: Enabling inbound traffic

- Explain relevant concepts
- List Runtime Fabric security requirements
- Configure Runtime Fabric for inbound traffic

Module 4: Deploying applications

- List deployment options
- Deploy and undeploy applications
- Update and redeploy applications with zero downtime

Module 5: Configuring Runtime Fabric

- Explain relevant concepts and underlying technologies
- Install a license to Runtime Fabric
- Enable alerting
- Use OpsCenter for monitoring and management
- Enable Persistence Gateway in Runtime Fabric

Module 6: Scaling for high availability and performance

- Explain relevant concepts and underlying technologies
- Distinguish between horizontal and vertical scaling
- Scale application runtime environments for high availability
- Scale application runtime environments for performance

Module 7: Logging and monitoring

- Identify logging options for Mule applications and Runtime Fabric
- Set up audit logging
- Retrieve, view, and filter applications logs
- Set up log forwarding to a logging server
- Monitor Runtime Fabric using OpsCenter

Module 8: Securing Runtime Fabric and Mule applications

- Describe security options in Anypoint Platform
- Secure applications and data
- Secure access to OpsCenter