Tytuł szkolenia: HPE Ezmeral Container Platform Administration

Kod szkolenia: HG7G2S

Wprowadzenie

This course is for administrators who want to learn about the installation, upgrade, system management, network integration and other tasks required to effectively administer HPE Ezmeral Container Platform 5.3. Hands-on labs are included.

Adresaci szkolenia

Hadoop administrators, system administrators, network administrators, IT managers

Prerequisites

- Unix/Linux user and administration experience
- Hadoop/AI/big data application administration experience (Cloudera/ Hortonworks, Jupyter Notebook, Tensorflow, etc.)
- Experience in machine learning lifecycle (e.g. model training/development and model deployment)
- bash/shell/python scripting

Cel szkolenia

- Understand all architecture components of the HPE Ezmeral Container Platform 5.3
- Understand all basic administration concepts of the HPE Ezmeral Container Platform 5.3, including installation, tenant management, user management and maintenance
- Understand application development to cluster handling
- Learn how HPE Ezmeral Container Platform integrates with existing IT infrastructure and integration with MapR
- Understand monitoring and alerting services in HPE Ezmeral Container Platform

Czas i forma szkolenia

- 21 godzin (3 dni x 7 godzin), w tym wykłady i warsztaty praktyczne.

Plan szkolenia

1. Introduction

• Introduction
• Learning objectives review
• Course schedule review
• HPE Ezmeral Container Platform architecture overview
• Control plane/management overview
• Network architecture overview
• Handling distributed stateful app
• Storage architecture overview

2. HPE Ezmeral Container Platform Packaging - Install, Upgrade

• Requirement gathering and planning
  ○ HPE Ezmeral Container Platform installation checklist
  ○ HPE Ezmeral Container Platform sizing tool

- Installation/deployment
  - Deployment + ecosystem planning
  - Worker/gateway deployment methods
  - App Store
  - Virtual cluster lifecycle (including scripts)
  - Container placement using host tags
  - Adding host to create Kubernetes cluster
- Airgap support
- License
- Upgrade
  - Kubernetes cluster rolling upgrade

3. HPE Ezmeral Container Platform Multi-Tenancy

- Multi-tenancy
  - What is a tenant
  - Comparison EPIC tenant and K8s tenant
- Tenant management
  - Kubernetes: Creating tenant
  - Kubernetes: Tenant and namespace
  - HPE Ezmeral Container Platform agent operator: Tenant management

4. HPE Ezmeral Container Platform User Role

- User roles
  - Role and corresponding view
  - Navigating to different roles
- User authentication
  - HPE Ezmeral Container Platform management login
  - User authentication into HPE Ezmeral Container Platform with 3 different methods
  - Exercise: Tenant group membership
- RBAC: Role binding (authorization)
  - HPE Ezmeral Container Platform five users roles
  - HPE Ezmeral Container Platform role is mapped to K8s role (RBAC) • Session management
  - User authenticated sessions

5. HPE Ezmeral Container Platform Storage

- Overall storage architecture
- Ephemeral storage
- Tenant share
- HDFS
  - DataTap
- Application persistent storage
  - Container migration
- FS mount/DTap management
- MapR management

6. MapR Integration

- MapR terminology
- MapR services
- HPE Ezmeral Container Platform and MapR integration
- MapR Control System (MCS)
- MapR user accounts

7. HPE Ezmeral Container Platform Application

- Complex stateful application deployment
  - App Store
  - Kubernetes application management
- Anatomy of Kubedirector application

- Application lifecycle
  - Deploy application
  - Deployment vs statefulset
  - start, stop, scale virtual cluster
- Kubedirector operator

8. HPE Ezmeral Container Platform Monitoring and Alerting

- Kubernetes cluster service monitoring
- Dashboard monitoring
- Usage monitoring
- Monitoring architecture
- HPE Ezmeral Container Platform usage monitoring tools
- Kibana: UI visualization
- Collecting container node storage usage
- Elasticsearch monitoring logs
- Elasticsearch common tasks
- Best practice
- SNMP alerts and SMTP notification
- From planning to production to optimization - Big-Dataas-a-Service lifecycle
- Create and secure environments
- Monitor, manage and optimize
- Optimize memory usage

9. HPE Ezmeral Container Platform Technical Overview

- Control plane/management overview
- Network architecture overview
- Handling distributed stateful app (App Store and deployment)
- Container application services
- Storage architecture overview
- Ephemeral and persistent disks
- Application persistent storage
- Rest API

10. HPE Ezmeral Container Platform Network

- Overall network architecture
- Linux virtual networking
- Docker networking
- HPE Ezmeral Container Platform gateway
- Gateway Loadbalancer
- Case study: HPE Ezmeral Container Platform gateway
- Gateway configuration scenarios
- Kubernetes core DNS
- EPIC: DNS for containers
- Container network
- Kubernetes network
- Virtualized networking
- Networking in multi-tenant environment

11. Add-on and Picasso integration

- Kubernetes Deployment and Add-ons
- Picasso Cluster Deployment

Module 1: Login to HPE Ezmeral Container Platform

- Task 1: Login
- Task 2: Monitoring via HPE Ezmeral Container Platform Dashboard

Module 2: HPE Ezmeral Container Platform - Cluster Management
- Task 1: Create cluster
- Task 2: App Store and virtual cluster
- Task 3: ActionScript and Bootstrap script
- Task 4: Virtual node resource
- Task 5: Container placement

Module 3: User Roles
- Task 1: Create local users
- Task 2: Configure external authentication for project members
- Task 3: Observe differences in tenant membership
- Task 4: Observe user membership

Module 4: HPE Ezmeral Container Platform Tenant Management
- Task 1: Create tenants
- Task 2: Action performed on tenants

Module 5: Kubernetes Tenant Management
- Task 1: Creating Kubernetes tenant
- Task 2: Accessing a Kubernetes tenant
- Task 3: Accessing Kubernetes web terminal
- Task 4: KubeDirector application image

Module 6: HPE Ezmeral Container Platform - User Management
- Task 1: Create user
- Task 2: AD/LDAP login
- Task 3: Logon to container
- Task 4: Container logon to container via AD/LDAP

Module 7: Kubernetes User Management
- Task 1: Internal user management
- Task 2: External user management - AD/LDAP User

Module 8: HPE Ezmeral Container Platform - Storage Management
- Task 1: Storage concepts and DataTap

Module 9: Kubernetes Applications Management
- Task 1: Launch an application using KubeDirector app images
- Task 2: Access application using service endpoints

Module 10: HPE Ezmeral Container Platform - Monitoring
- Task 1: BDaas monitoring

Module 11: HPE Container Platform - Network Management
- Task 1: Network - validate network isolation