پک حرفه ای متخصص مجازی سازی و HA

فهرست سرفصل‌های دوره‌های آموزشی

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Ceph Storage

Introduction to Ceph Cluster Storage
Install and Configure Ceph

- Creating the Ceph cluster
- Scaling up your Ceph cluster

Working with Ceph Block Device

- Configuring Ceph client
- Creating Ceph Block Device
- Mapping Ceph Block Device
- Resizing Ceph RBD
- Working with RBD clones
- Disaster recovery replication using RBD mirroring
- Configuring image mirroring
- Recovering from a disaster!

Ceph Object Storage

- Understanding Ceph object storage
- RADOS Gateway standard setup, installation, and configuration

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Ceph Object Storage Multi-Site v2

- Functional changes from Hammer federated configuration
- Installing the Ceph RGW multi-site v2 environment

Ceph Filesystem

- Understanding the Ceph Filesystem and MDS
- Accessing Ceph FS through kernel driver
- Exporting the Ceph Filesystem as NFS

Monitoring Ceph Clusters

- Monitoring Ceph clusters – the classic way
- Monitoring Ceph MON
- Monitoring Ceph OSDs
- Monitoring Ceph MDS
- Introducing Ceph Metrics and Grafana
- Installing and configuring Ceph Metrics with the Grafana dashboard

Operating and Managing a Ceph Cluster

- Managing the cluster configuration file
- Running Ceph with system
- Scale-up versus scale-out
- Scaling down your Ceph cluster
- Replacing a failed disk in the Ceph cluster
- Upgrading your Ceph cluster
- Maintaining a Ceph cluster

Ceph scalability and high availability

- Understanding the CRUSH mechanism
- CRUSH map internals
- Ceph authentication and authorization
- I/O path from a Ceph client to a Ceph cluster

Production Planning and Performance Tuning for Ceph

- Ceph recommendations and performance tuning
- Ceph erasure-coding
- Ceph cache tiering

The Virtual Storage Manager for Ceph

- Understanding the VSM architecture
- Getting ready for VSM
- Creating a Ceph cluster using VSM
- Upgrading the Ceph cluster using VSM

Troubleshooting Ceph

- Initial troubleshooting and logging
- Troubleshooting network issues
- Troubleshooting placement groups
- Troubleshooting OSDs

OpenStack
Cloud Computing

Concept of Cloud Computing

- Learning IaaS, PaaS, SaaS
- Reviewing of Linux Command
- Install RDO OpenStack distribution with PackStack

Identity Management (Keystone)

- Architecture and Main Components of Keystone
- Managing Keystone Catalog Services and Endpoints
- Managing/Creating Projects, Users, and Roles

Image management (Glance)

- Architecture and Main Components of Glance
- Deploy Image
- Managing Images
- Managing Image Back Ends

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OpenStack Compute (Nova)

- Architecture and Components of Nova
- Managing Flavors
- Managing Hypervisor
- Managing Key pairs
- Managing Quotas

OpenStack Networking (Neutron)

- Architecture and Components of Neutron
- Architecture of Open vSwitch
- Manage Network Resources (DHCP, Router, Floating IPs ...)

OpenStack Dashboard (Horizon)

- Architecture of Horizon
- Managing Horizon

Block Storage (Cinder)

- Architecture and Components of Cinder
- Manage Volume
- Managing Volume on the LVM and NFS
- Manage Quotas
- Back Up and Restore Volumes and Snapshots

Object Storage (Swift)

- Architecture and Components Swift Object Storage
- Managing Storage backend
- Monitoring Swift Cluster

Orchestration of OpenStack (Heat)

- Architecture and Components of Heat
- Introducing the Heat OpenStack Template
- Launching a Stack Using a HOT

Troubleshooting

- The Main Principles of Troubleshooting
- How to Check the OpenStack Version
- Where to Find and How to Analyze Log Files
- Back Up the Database Used by an OpenStack Instance
- Analyze Network status

Terraform

Understand infrastructure as code (IaC) concepts:

- Explain what IaC is
- Describe advantages of IaC patterns

Understand Terraform's purpose (vs other IaC):

- Explain multi-cloud and provider-agnostic benefits
- Explain the benefits of state

Understand Terraform basics:

- Handle Terraform and provider installation and versioning
- Describe plugin based architecture
- Demonstrate using multiple providers
- Describe how Terraform finds and fetches providers
- Explain when to use and not use provisioners and when to use local-exec or remote-exec

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Use the Terraform CLI (outside of core workflow):

- Terraform format code
- Taint Terraform resources
- Import and reuse of terraform modules
- Terraform workspaces
- Terraform states
- Terraform verbose logging

Interact with Terraform modules:

- Contrast module source options
- Interact with module inputs and outputs
- Describe variable scope within modules/child modules
- Discover modules from the public Terraform Module Registry
- Defining module version

Navigate Terraform workflow:

- Describe Terraform workflow
- Initialize a Terraform working directory
- Validate a Terraform configuration
- Generate and review an execution plan for Terraform
- Execute changes to infrastructure with Terraform
- Destroy Terraform managed infrastructure

Implement and maintain state:

- Describe default local backend
- Outline state locking
- Handle backend authentication methods
- Describe remote state storage mechanisms and supported standard backends
- Describe effect of Terraform refresh on state
- Describe backend block in configuration and best practices for partial
- Configurations
- Understand secret management in state files

Read, generate, and modify configuration:

- Demonstrate use of variables and outputs
- Describe secure secret injection best practice
- Understand the use of collection and structural types
- Create and differentiate resource and data configuration
- Use resource addressing and resource parameters to connect resources together
- Use Terraform built-in functions to write configuration
- Configure resource using a dynamic block
- Describe built-in dependency management

Understand Terraform Cloud and Enterprise capabilities:

- Describe the benefits of Sentinel, registry, and workspaces
- Differentiate OSS and TFE workspaces
- Summarize features of Terraform Cloud