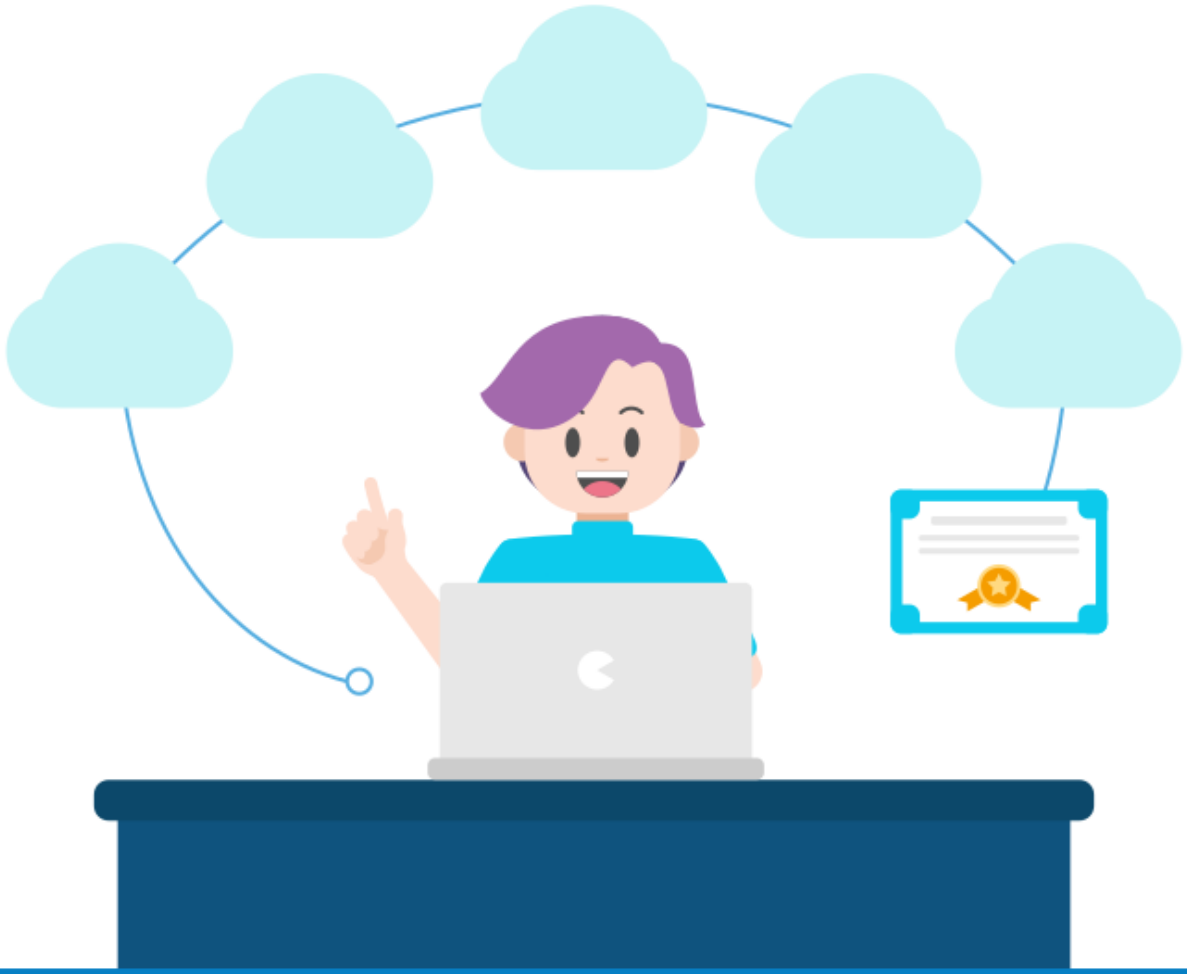
Cloud Engineer Bootcamp

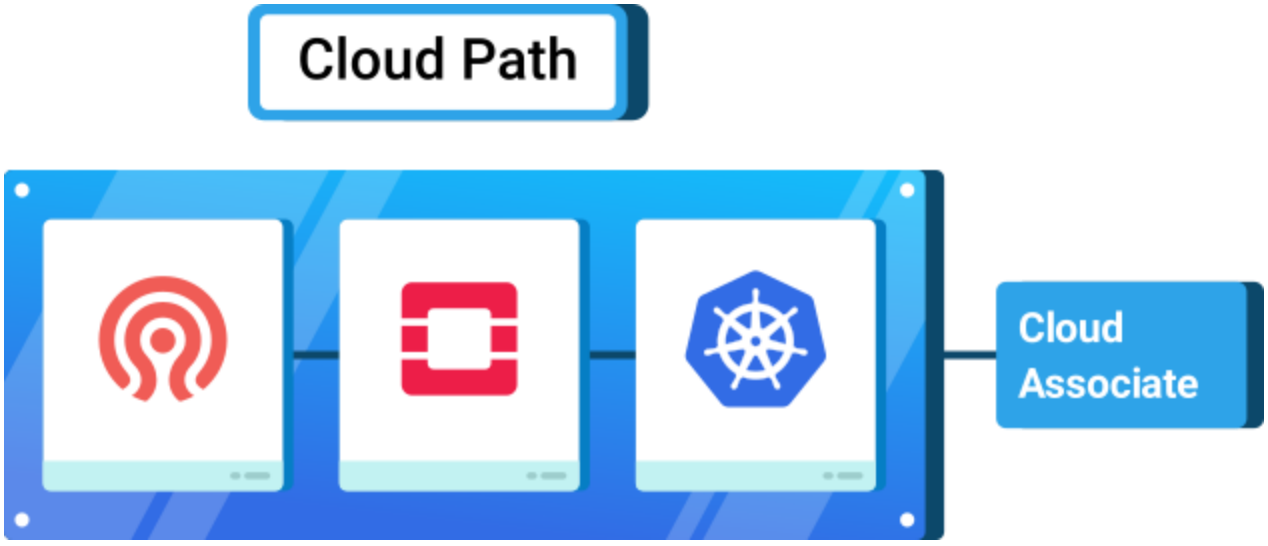
Batch 3

03 Nov 2025 – 24 Nov 2025



boer technology

Course Path
Cloud and DevOps



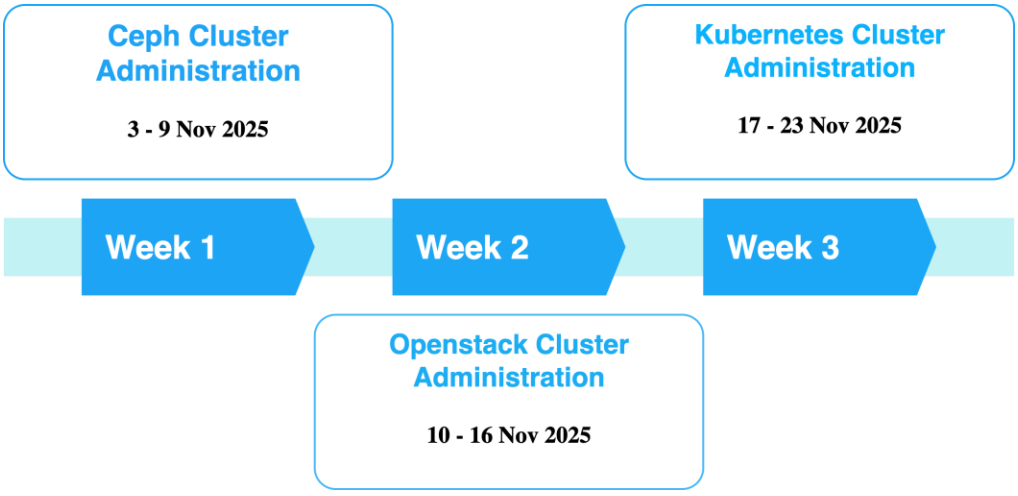
About This Bootcamp

The Cloud Engineer Bootcamp is a program organized by Btech through the Learning ADINUSA platform. The main objective of this bootcamp is to improve digital talent skills, particularly in the field of cloud computing, with a focus on learning Ceph, OpenStack, and Kubernetes.

This program is conducted online for 3 weeks, during which participants will study independently using the courses we have provided. The courses have been prepared to meet industry needs. In addition, there will be sessions with instructors to present the material and discuss what has been learned. Each week, participants will attend two face-to-face sessions with instructors. Participants can also discuss and ask questions through the platform we provide.

Time Line

Bootcamp Duration: 3 Weeks



Details timeline:

- Orientation on October 31, 19:30 - 21:30 WIB
- Period: November 3 - November 23, 2025
- Time: 19:30 - 21:30 WIB
- Live sessions every Tuesday and Thursday
    - Ceph
        - Live I: November 4
        - Live II: November 6
    - Openstack
        - Live I: November 11
        - Live II: November 13
    - Kubernetes
        - Live I: November 18
        - Live II: November 20

Main Course Bootcamp

Get Three Course:

- Ceph Cluster Administration
  - Introduction Ceph
  - Ceph Core Components Explanation
  - Deploying Ceph
  - Managing Ceph Pools
  - Ceph Operational
  - Ceph Dashboard
  - Lab Challenge

- Openstack Cluster Administration
  - Introduction Cloud Computing
  - Introduction Openstack
  - Openstack Service Explanation
  - Installing Openstack
  - Launching an Instance using CLI
  - Launching an Instance Using Horizon
  - Managing Project, User, Role, Quota
  - Managing Block Storage
  - Lab Challenge

Main Course Bootcamp

- Kubernetes Cluster Administration
  - Introduction Kubernetes
  - Kubernetes Architecture
  - Kubernetes installation and Configuration
  - Kubernetes APIs and Access
  - API Objects
  - Managing State With Deployments
  - Volumes and Data
  - Kubernetes Service
  - Ingress
  - Scheduling
  - Helm
  - Lab Challenge

Target Audience

Cloud Administrators, Site Reliability Engineer.

Prerequisites

Participants are required to have the following before attending the bootcamp:

- Familiarity with the Linux command line.
- Basic Understading of containerization concepts.

Learning Outcomes

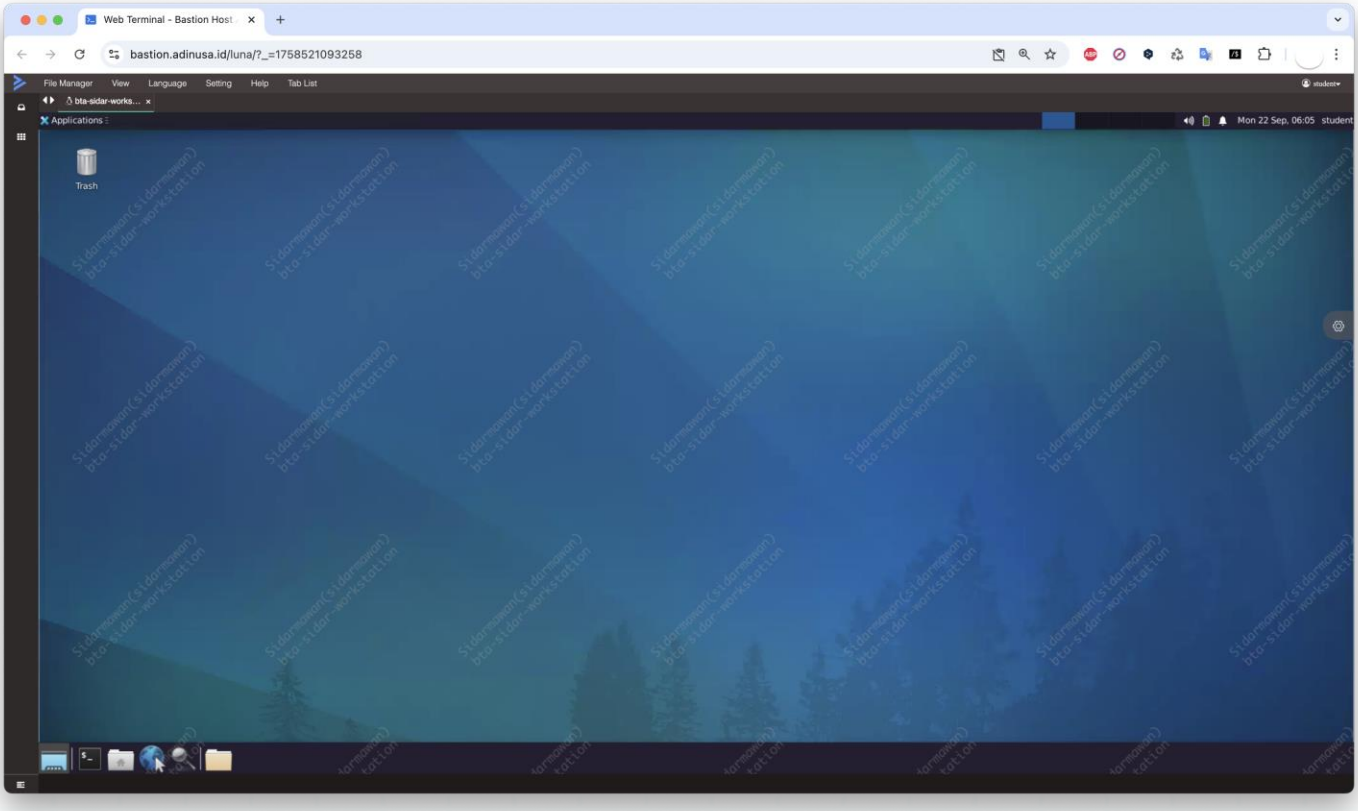
Participants will gain the following skills:

1. Understanding how to deploy and manage Ceph Cluster.
2. Understanding how to deploy and manage Openstack Cluster.
3. Understanding how to deploy and manage Kubernetes Cluster

Facilities & Resources

Participants will have access to the following resources on the bootcamp:

Virtual machine lab : Boost your learning experience with **24/7 VM access**. Each participant receives dedicated accounts and credentials to practice hands-on and explore freely via **Web Browser (SSH/RDP)**.



Technical Requirements

Participants must have a laptop or computer with the following minimum specifications and tools installed:

Specification	Details
Operating System	Windows, Linux, or MacOs
Processor	Intel Core i3
Memory	4 GB RAM
SSH Client	Termius / Putty / MobaXTerm
Text Editor	Sublime Text / VSCode
Browser	Brave or Chrome
Discord App	

Certification

Upon successful completion of the bootcamp, Participants will receive 4 certificates:

- 1 certificate for participating in the bootcamp.
- 3 certificates for passing each course with validation 2 years*.

Bootcamp Certificate of Complation

Course Certificate Graduate

Participants must successfully graduate from the course to get a certificate. *

Learning Strategies

Pre-Test

Theory

Hands-on
Lab Practice

Post-Test

Hand-on Lab
Challange

Support team

Live Session
With Instructor

Reporting

Terms and Conditions

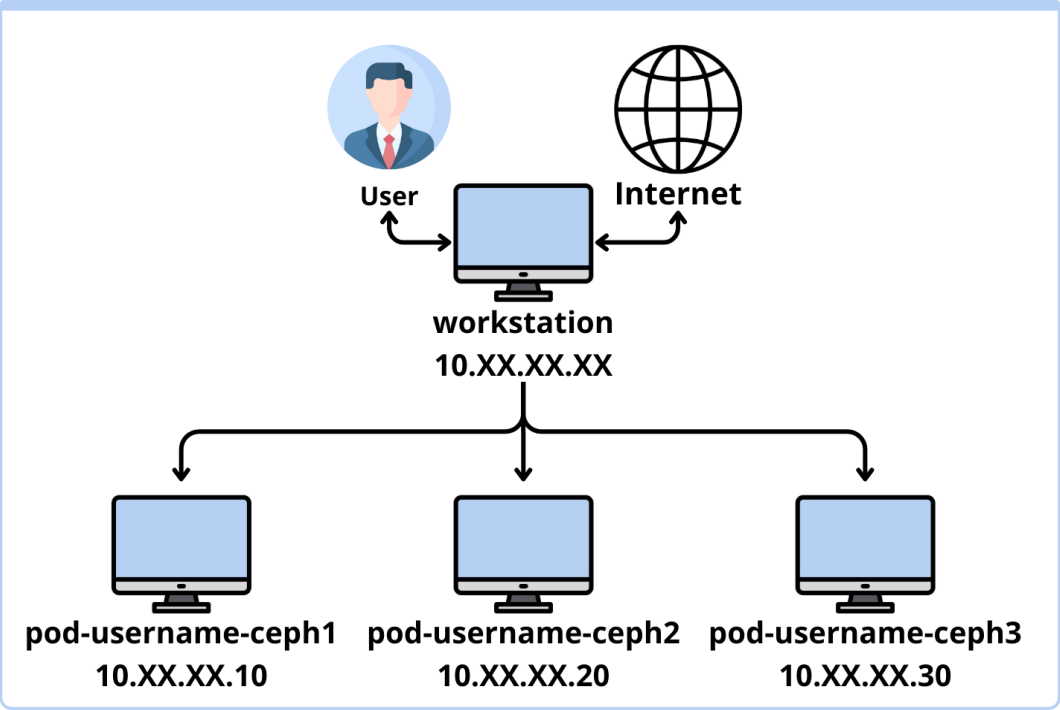
- **Bootcamp Purchase Rules**
- **Registration**:
  - Participants must register through the official ADINUSA website and fill out the registration form with accurate and complete information.
- **Payment**:
  - Bootcamp payments must be paid in full before access to course materials is granted. Course materials will be distributed sequentially according to the schedule. Accepted payment methods include bank transfer, credit card, and digital payment.
- **Purchase Confirmation**:
  - After payment is received, participants will receive a payment invoice and bootcamp access in the enrollment menu in the Adinusa profile settings, which will be used to access the course materials.

Terms and Conditions

- **Access Management**
- **Access License**:
  - Each participant will be granted an access license for 1 year, starting from the date of registration. This license includes access to all relevant training materials.
- **Use of Materials**:
  - Bootcamp course may only be used for personal purposes and may not be distributed, sold, or published without written permission from ADINUSA.
- **Account Security**:
  - Participants are responsible for maintaining the confidentiality of their account information. ADINUSA is not liable for any losses arising from unauthorized account use.
- **Access Termination**:
  - ADINUSA reserves the right to terminate participants' access to bootcamp course if any violation of the applicable terms and conditions is found, including but not limited to unauthorized distribution of course materials.

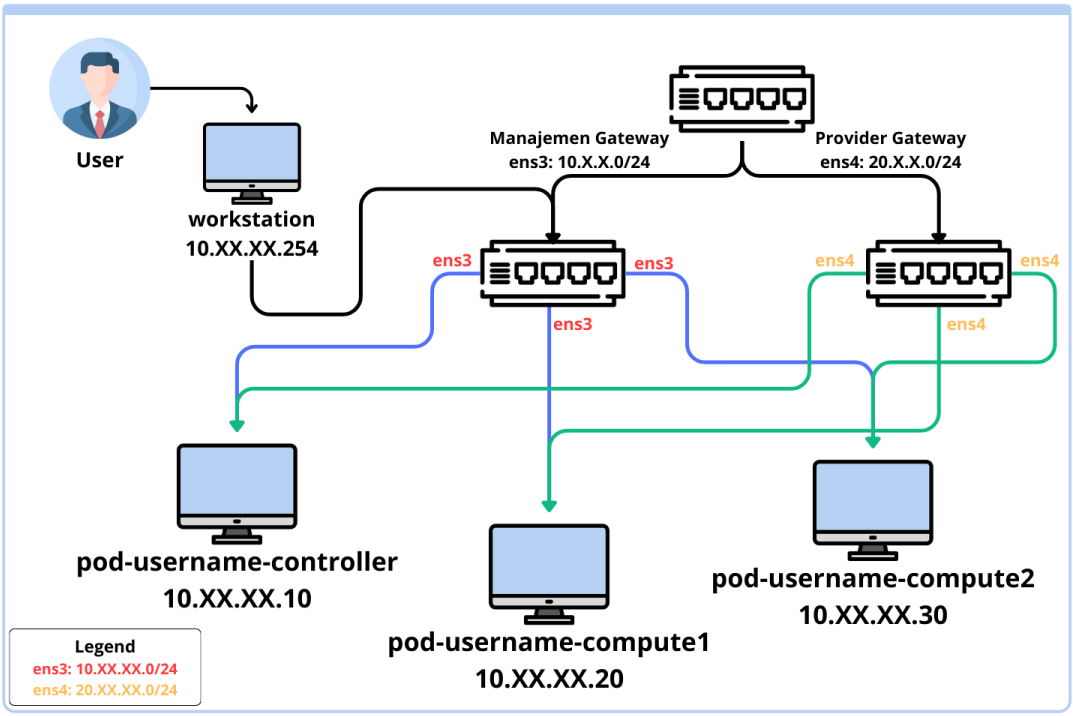
Bootcamp Topology

Ceph Cluster Administration



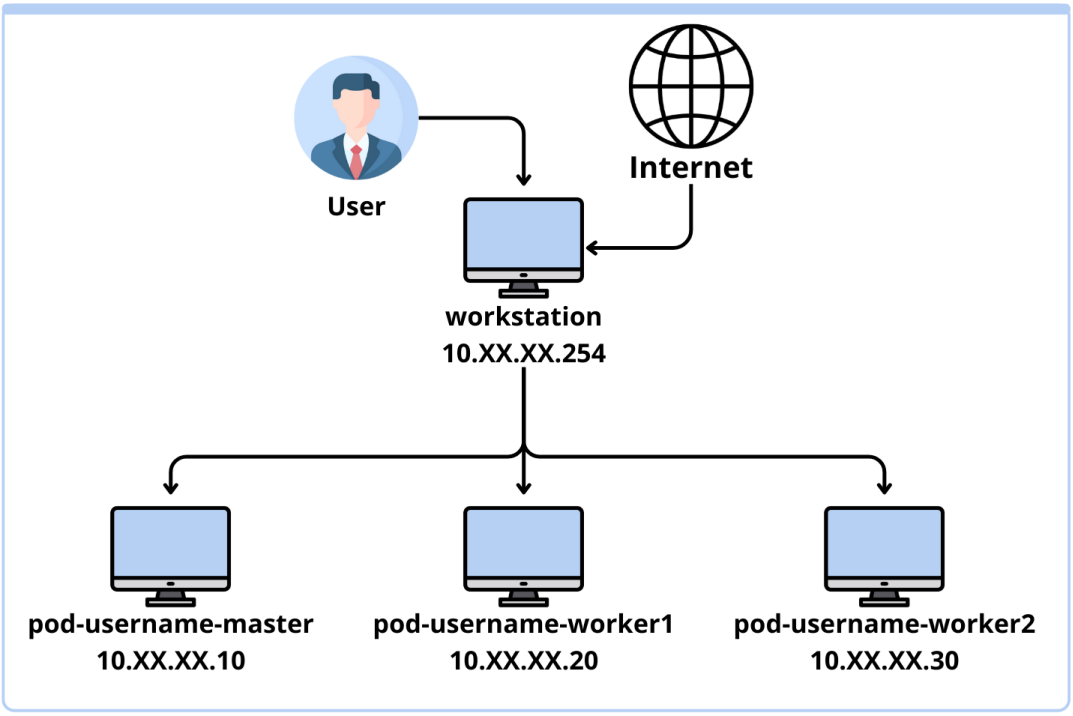
Bootcamp Topology

Openstack Cluster Administration



Bootcamp Topology

Kubernetes Cluster Administration



Learning Modul Ceph Cluster Administration

Bootcamp Plan	
Module	**Outcome**
Introduction Ceph	• Understand the basics of Ceph. • Understand the Ceph Releases. • Understand the Ceph Architecture. • Understand differences between Ceph and RAID levels.
Ceph Core Components Explanation	Understand the ceph core components : ○ Ceph-mon ○ OSD ○ Ceph-mgr ○ Rados Gateway ○ Placement Groups ○ Ceph pools
Deploying Ceph	• Understand the Hardware recommendation • Understand the Os recommendation • Understand the Ceph deployment tools • Understand Basic configuration practices before installation • Understand how to deploy and configure Ceph
Managing Ceph Pools	• Understand the difference between replica and erasure code pool • Understand how to manage pools (create and delete)
Ceph Operational	• Understand how to Creating and managing CephFS • Understand how to Creating and managing RADOS Block Devices (RBDs)

	• Understand how to Managing pools and objects in a Ceph cluster • Understanding and managing snapshots, clones, and rollbacks for data protection • Monitor cluster health and optimize performance through cluster flags and cache tiering
Ceph Dashboard	• Understand the main functions and features of Ceph Dashboard. • Understand the architecture and integration of Ceph Dashboard with clusters. • Practice creating pools using Ceph Dashboard. • Being able to use the dashboard for visual monitoring and management of the cluster
Lab Challenge	• Understanding how to reconstruct OSD (reference) • Practicing NGINX setup with Ceph Block Storage as root • Troubleshooting Monitor downtime Handling OSD downtime and how to restore it to an up state

Learning Modul Openstack Cluster Administration

Bootcamp Plan	
Module	**Outcome**
Introduction Cloud Computing	• Understanding the definition and basic concepts of cloud computing. • Understanding the difference between cloud computing and on-premise. • Understanding the main cloud service models: SaaS, PaaS, IaaS. • Understanding additional service models such as STaaS and CaaS. • Understanding the difference between cloud workloads and traditional workloads. • Familiarizing with various types of clouds (public, private, hybrid).
Introduction Openstack	• Understanding the basic concepts of OpenStack. • Understanding OpenStack service diagrams and how they work. • Knowing the various versions of OpenStack releases. • Understanding the OpenStack ecosystem (landscape). • Understanding the various installers for installing OpenStack.
Openstack Service Explanation	• Understand the functions and roles of core OpenStack services such as Keystone (identity service). • Know the role of Nova as a compute service. • Familiarize yourself with Glance for virtual machine image management. • Understand Neutron as a networking service. • Understand the interaction of OpenStack core services (Core Service Interaction Layout). • Know the function of Heat for service orchestration. • Understand Horizon as a web dashboard for OpenStack management.

Installing Openstack	• Understanding OpenStack deployment tools and methods. • Getting to know Kolla Ansible as a popular OpenStack deployment tool. • Understanding OpenStack cluster topology. • Setting up a lab environment for deployment practice. • Deploying core OpenStack services using Kolla. Ansible directly in the lab.
Launching an Instance using CLI	• Be able to use basic OpenStack CLI commands to effectively launch and access instances
Launching an Instance Using Horizon	• Be able to use the Horizon dashboard to easily launch and manage OpenStack instances visually.
Managing Project, User, Role, Quota	• Understanding the fundamentals of OpenStack identity in managing projects, users, roles, and quotas. • Capable of managing projects in OpenStack. • Capable of managing users and assigning roles. • Effectively setting resource quotas for each project.
Managing Block Storage	• Be able to manage block storage volumes in OpenStack using Cinder. • Perform basic operations such as creating, deleting, and managing storage volumes. • Apply best practices in storage volume management through practical labs.
Lab Challenge	• Be able to create instances using CLI and Horizon in a practical manner. • Manage storage volumes by creating volumes and mounting them into instances. • Manage projects with best practice strategies for effective maintenance and upkeep.

Learning Modul Kubernetes Cluster Administration

Bootcamp Plan	
Module	**Outcome**
Introduction Kubernetes	• Understanding the basic concepts of container orchestration and its importance in modern application management. • Getting to know the Kubernetes architecture and key terms used. • Learning about the history of Kubernetes releases and the user community that supports it. • Understanding the role of the Cloud Native Computing. Foundation and tools that support the Kubernetes ecosystem.
Kubernetes Architecture	• Understanding the roles and functions of Master Nodes and Worker Nodes in the Kubernetes architecture. • Getting to know Kubelet, Pods, Containers, and Init Containers as the basic components of container management. • Understanding the concept of Services for connecting containers to external networks. • Preparing the lab environment for hands-on practice in understanding Kubernetes components.
Kubernetes installation and Configuration	• Get to know various Kubernetes installation tools such as kubectl, Minikube, and kubeadm. • Understand the steps for installing kubeadm, including the upgrade process and pod network installation. • Learn about important considerations in the installation and main configuration of Kubernetes deployment. • Perform practical Kubernetes cluster provisioning through a special lab.

Kubernetes APIs and Access	• Understand the basic concepts of the Kubernetes API, including RESTful principles and how to access the API. • Be able to use annotations and manage API resources with kubectl. • Learn how to access the API from outside the cluster and understand kube-config configuration. • Perform basic operations on Pods, such as creation, deletion, and log checking, through practical labs.
API Objects	• Understanding the main API Objects concepts in Kubernetes and how to find available API Groups. • Able to deploy applications using various objects such as DaemonSets, StatefulSets, Jobs, and perform autoscaling. • Understand the use of Namespaces to organize resources and implement RBAC (Role-Based Access Control) for security. • Perform practical labs covering DaemonSet, Autoscaling, simple Jobs, Namespace management, and RBAC.
Managing State With Deployments	• Understand the overview and key components of deployment in Kubernetes, including metadata, specification configuration, and pod templates. • Be able to manage scaling, rolling updates, and deployment rollbacks to maintain application availability. • Master the use of DaemonSets and labels for more dynamic and organized deployment management. • Conduct practical labs covering simple deployment creation, scaling, deployment image editing, rollback, and label usage

Volumes and Data	• Understanding the concept of volumes in Kubernetes, including specifications and various types of commonly used volumes. • Learn about the use of Persistent Volumes (PV) and Persistent Volume Claims (PVC) as well as dynamic provisioning mechanisms. • Understand how to manage Secrets in Kubernetes, both through environment variables and mounting as volumes. • Conduct practical labs to understand the creation and exploration of PV & PVC as well as the management of Kubernetes Secrets.
Kubernetes Service	• Understanding various types of services in Kubernetes, such as ClusterIP, Load Balancer, and NodePort for application access. • Understanding the concept of DNS and DNS registration verification in the context of Kubernetes services. • Familiarity with the use of local proxies for local application development. • Conducting practical labs on creating and managing services, deploying the Kubernetes Dashboard, and managing stand-alone and multi-tier applications.
Ingress	• Understand the concept and function of Ingress Controller in managing HTTP/HTTPS access to the Kubernetes cluster. • Learn about the Ingress API resource and how to use it to manage traffic routing. • Be able to deploy Ingress Controller practically in the Kubernetes cluster. • Create and manage Ingress Rules, including the use of multiple rules through practical labs.

Scheduling	• Understanding the function of kube-scheduler in scheduling pods to the appropriate node based on predicates and priorities. • Understanding various scheduling policies such as node labels, pod affinity, pod anti-affinity, node affinity, taints, and tolerations. • Able to apply scheduling rules for pod placement optimization, including examples of affinity and anti-affinity usage. • Conducting practical labs such as node selector, pod affinity, and taints usage for effective scheduling.
Helm	• Understanding the differences between Helm v2 (with Tiller) and Helm v3, as well as the advantages of each. • Understanding the structure of Helm charts, including chart contents and templates used for complex application deployment. • Able to initialize Helm, manage chart repositories, and deploy applications using Helm charts. • Conducting practical labs on deploying simple applications such as Nginx using Helm and evaluating them through quizzes. • Understanding Helm's command-line interface and its capabilities.
Lab Challenge	• Testing understanding of the material and practical skills learned in previous modules through lab quizzes. • Practicing in-depth application of Kubernetes concepts with more complex practical challenges. • Improving troubleshooting, analysis, and decision-making skills in Kubernetes cluster management. • Strengthening readiness to face real-world scenarios in Kubernetes application deployment and management.

Thank You

For further assistance, please contact us at:
Phone: +62 8111123242
Email: kontak@adinusa.id