



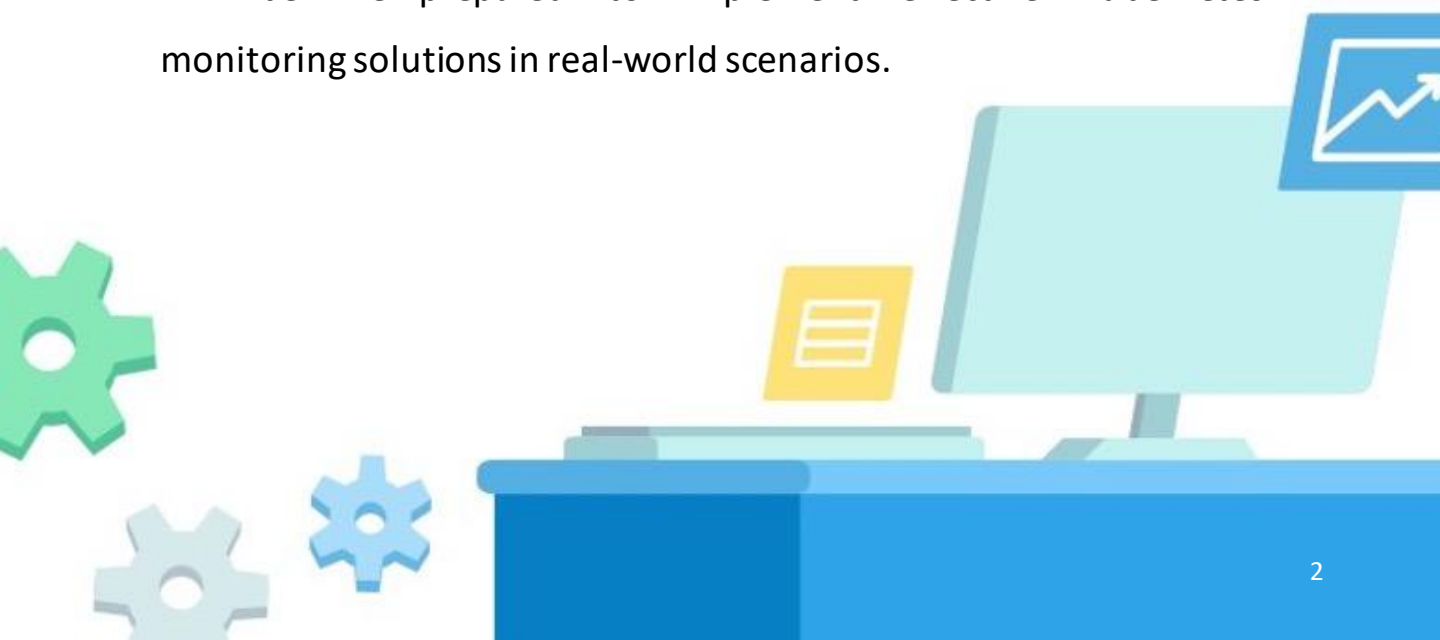
BTECH TRAINING

# Study Plan Kubernetes Monitoring (K9-MON)



# About This Course

In this Kubernetes monitoring course, we leverage a powerful suite of tools to equip participants with comprehensive monitoring capabilities. The course centers around the utilization of key tools such as Prometheus, Grafana, Node Exporter, Kube State Metrics, and Alert Manager. These industry-standard tools enable students to gain hands-on experience in effectively monitoring Kubernetes applications. Throughout the course, students will learn to set up Prometheus for robust data collection, utilize Grafana for visualizing vital metrics, employ Node Exporter to gather system-level insights, leverage Kube State Metrics for Kubernetes-specific data, and harness Alert Manager for proactive monitoring and alerting. With practical exposure to these essential monitoring tools, participants will be well-prepared to implement effective Kubernetes monitoring solutions in real-world scenarios.



# Summary



**Training Duration: 32 Hours (4 Days)**

## Course Main Subjects

- Introduction to Kubernetes
- Installing Kubernetes with kubeadm
- Kubernetes Deployment
- Prometheus Setup
- PromQL
- Metrics Collection
- Grafana Visualization
- Prometheus Operator



# Target Audience

System Administrators, Cloud Administrators, Developers, Site Reliability Engineer.

# Prerequisites

- Docker Administration (DO-ADM)

# Learning Output

The learning topics will assist participants in :

1. Understanding how to monitor Kubernetes Cluster
2. Understanding how to setup monitoring tools for Kubernetes
3. Understanding how to setup and configure monitoring tools

# Requirements

Have a laptop/computer with min. specifications and installed tools:

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	Chrome and Firefox
VPN (Optional)	<a href="https://client.pritunl.com/">https://client.pritunl.com/</a>

## Facilities

- Virtual machine (available until H+5 post training)
- Class materials (Access 1 years)
- Certificate
- Recording (VITL)

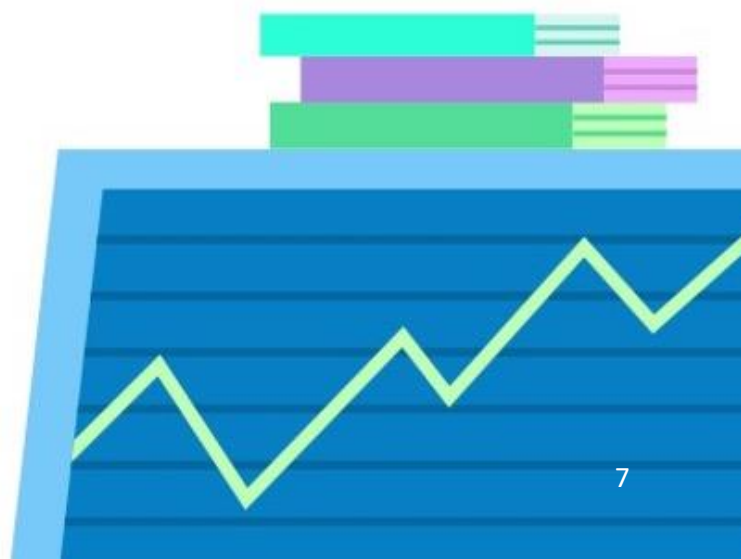
# Certification

- Certificate of Course Completion



# Learning Strategies

- Theory
- Study Case
- Pre-Test & Post-Test
- Quiz / Internal Exam
- Hands-on Lab



# Training Topology





# Learning Modules

Training Plan	
Topic	Outcome
Introduction Kubernetes	<ul style="list-style-type: none"> <li>• Understand the concept of microservices technology in building applications</li> <li>• Understanding kubernetes technology</li> </ul>
Kubernetes Architecture	<ul style="list-style-type: none"> <li>• Understand the master and worker function</li> <li>• Understand the concepts of pods, containers, and nodes</li> <li>• Understanding network services on a Kubernetes cluster</li> </ul>
Kubernetes Installation and Configuration	<ul style="list-style-type: none"> <li>• Preparation for Kubernetes Cluster installation</li> <li>• Install the services needed in the Kubernetes cluster</li> <li>• Build a Kubernetes Cluster</li> </ul>
Volumes and Data	<ul style="list-style-type: none"> <li>• Understand the types of volumes that function as storage in pods</li> <li>• Understand how to create a volume that is added to a pod</li> <li>• Understand how to encrypt data using the secret service</li> </ul>
Services	<ul style="list-style-type: none"> <li>• Understand the kubernetes service types</li> </ul>

Kubernetes Monitoring	<ul style="list-style-type: none"> <li>• Understand the importance of monitoring in Kubernetes.</li> <li>• Learn how to collect and analyze data from Kubernetes clusters.</li> </ul>
Prometheus Fundamentals	<ul style="list-style-type: none"> <li>• Master the core concepts and components of Prometheus.</li> <li>• Gain proficiency in setting up and configuring Prometheus for monitoring.</li> </ul>
PromQL	<ul style="list-style-type: none"> <li>• Acquire the skills to write PromQL queries for metric retrieval and analysis.</li> <li>• Apply PromQL to create custom monitoring solutions in Prometheus.</li> </ul>
Node Exporter	<ul style="list-style-type: none"> <li>• Learn how to deploy and utilize Node Exporter for system-level monitoring.</li> <li>• Monitor individual nodes in a Kubernetes cluster using Node Exporter.</li> </ul>
Kube State Metrics & Alert Manager	<ul style="list-style-type: none"> <li>• Explore Kube State Metrics for cluster state monitoring.</li> <li>• Understand the role of Alert Manager in managing and responding to alerts.</li> </ul>
Grafana	<ul style="list-style-type: none"> <li>• Utilize Grafana for creating visually appealing and interactive dashboards.</li> <li>• Integrate Grafana with Prometheus to visualize monitoring data effectively.</li> </ul>
Prometheus Operator	<ul style="list-style-type: none"> <li>• Gain expertise in deploying Prometheus using the Prometheus Operator.</li> <li>• Learn how to manage and scale Prometheus instances in Kubernetes.</li> </ul>

# Thank You

Another Course :

<https://adinusa.id/pro-training>