Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS)

Category: Infrastructure & IT Operations | **Vendor:** Amazon Web Services

Duration: 24.00 hours (3 days) **19.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

Amazon EKS makes it easy for you to run Kubernetes on AWS without needing to install, operate, and maintain your own Kubernetes control plane. In this course, you will learn container management and orchestration for Kubernetes using Amazon EKS.You will build an Amazon EKS cluster, configure the environment, deploy the cluster, and then add applications to your cluster. You will manage container images using Amazon Elastic Container Registry (ECR) and learn how to automate application deployment. You will deploy applications using CI/CD tools. You will learn how to monitor and scale your environment by using metrics, logging, tracing, and horizontal/vertical scaling. You will learn how to design and manage a large container environment by designing for efficiency, cost, and resiliency. You will configure AWS networking services to support the cluster and learn how to secure your Amazon EKS environment.

About This Course

Amazon EKS makes it easy for you to run Kubernetes on AWS without needing to install, operate, and maintain your own Kubernetes control plane. In this course, you will learn container management and orchestration for Kubernetes using Amazon EKS.

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Who Should Attend

This course is intended for:

Those who will provide container orchestration management in the AWS Cloud including:

DevOps engineers

Systems administrators

Prerequisites & Entry Requirements

General Prerequisites:

We recommend that attendees of this course have:

- Completed Amazon Elastic Kubernetes Service (EKS) Primer
- Completed Introduction to Containers
- Completed AWS Cloud Practitioner Essentials (CP-ESS) (or equivalent real-world experience)
- Basic Linux administration experience
- Basic network administration experience

Learning Outcomes

Upon successful completion of this course, participants will be able to:

In this course, you will learn to:
Review and examine containers, Kubernetes and Amazon EKS fundamentals and the impact of containers on workflows.
Build an Amazon EKS cluster by selecting the correct compute resources to support worker nodes.
Secure your environment with AWS Identity and Access Management (IAM) authentication by creating an Amazon EKS service role for your cluster
Deploy an application on the cluster. Publish container images to ECR and secure access via IAM policy.
Automate and deploy applications, examine automation tools and pipelines. Create a GitOps pipeline using WeaveFlux.
Collect monitoring data through metrics, logs, tracing with AWS X-Ray and identify metrics for performance tuning. Review scenarios where bottlenecks require the best scaling approach using horizontal or vertical scaling.
Assess the tradeoffs between efficiency, resiliency, and cost and impact for tuning one over the other. Describe and outline a holistic, iterative approach to optimizing your environment. Design for cost, efficiency, and resiliency.
Configure the AWS networking services to support the cluster. Describe how EKS/Amazon Virtual Private Cloud (VPC) functions and simplifies inter-node communications. Describe the function of VPC Container Network Interface (CNI). Review the benefits of a service mesh.
Upgrade your Kubernetes, Amazon EKS, and third party tools

Detailed Course Outline

Module 0: Course Introduction

- Course preparation activities and agenda

Module 1: Container Fundamentals

- Best practices for building applications

  Container fundamentals

  Components of a container

Module 2: Kubernetes Fundamentals

- Container orchestration

  Kubernetes objects

  Kubernetes internals

  Preparing for Lab 1: Deploying Kubernetes Pods

Module 3: Amazon EKS Fundamentals

- Introduction to Amazon EKS

  Amazon EKS control plane

  Amazon EKS data plane

  Fundamentals of Amazon EKS security

  Amazon EKS API

Module 4: Building an Amazon EKS Cluster

- Configuring your environment

  Creating an Amazon EKS cluster

  Demo: Configuring and deploying clusters in the AWS Management Console

  Working with eksctl

  Preparing for Lab 2: Building an Amazon EKS Cluster

Module 5: Deploying Applications to Your Amazon EKS Cluster

- Configuring Amazon Elastic Container Registry (Amazon ECR)

  Demo: Configuring Amazon ECR

  Deploying applications with Helm

  Demo: Deploying applications with Helm

  Continuous deployment in Amazon EKS

  GitOps and Amazon EKS

  Preparing for Lab 3: Deploying App

Module 6: Configuring Observability in Amazon EKS

- Configuring observability in an Amazon EKS cluster

  Collecting metrics

  Using metrics for automatic scaling

  Managing logs

  Application tracing in Amazon EKS

  Gaining and applying insight from observability

  Preparing for Lab 4: Monitoring Amazon EKS

Module 7: Balancing Efficiency, Resilience, and Cost Optimization in Amazon EKS

- The high level overview

  Designing for resilience

  Designing for cost optimization

  Designing for efficiency

Module 8: Managing Networking in Amazon EKS

- Review: Networking in AWS

  Communicating in Amazon EKS

  Managing your IP space

  Deploying a service mesh

  Preparing for Lab 5: Exploring Amazon EKS Communication

Module 9: Managing Authentication and Authorization in Amazon EKS

- Understanding the AWS shared responsibility model

  Authentication and authorization

  Managing IAM and RBAC

  Demo: Customizing RBAC roles

  Managing pod permissions using RBAC service accounts

Module 10: Implementing Secure Workflows

- Securing cluster endpoint access

  Improving the security of your workflows

  Improving host and network security

  Managing secrets

  Preparing for Lab 6: Securing Amazon EKS

Module 11: Managing Upgrades in Amazon EKS

- Planning for an upgrade

  Upgrading your Kubernetes version

  Amazon EKS platform versions

, Day 1

Module 1: Kubernetes Fundamentals

- Benefits of containers
- Container orchestration
- Kubernetes internals
- Pod scheduling
- Kubernetes objects

Module 2: Amazon EKS Fundamentals

- Introduction to Amazon EKS
- Amazon EKS control plane
- Amazon EKS data plane
- Fundamentals of Amazon EKS security
- Two APIs: Kubernetes and Amazon EKS
- Hands-On Lab: Deploying Kubernetes Pods

Module 3: Building and maintaining an Amazon EKS cluster

- Creating an Amazon EKS cluster
- Deploying nodes
- Planning for an upgrade
- Upgrading your Kubernetes version

Module 4: Deploying Applications to Your Amazon EKS Cluster

- Application deployment methods
- Working with Amazon ECR
- Deploying applications with Helm
- Hands-On Lab: Deploying Applications

Day 2

Module 5: Managing Applications at Scale in Amazon EKS

- Scale to meet demand in Amazon EKS
- Continuous deployment in Amazon EKS
- GitOps and Amazon EKS
- Hands-On Lab: Continuous Deployment and GitOps

Module 6: Managing Networking in Amazon EKS

- Review: Networking in AWS
- Communicating in Amazon EKS
- Improving Pod-level security
- Load balancing with Services

Module 7: Configuring Observability in Amazon EKS

- Configuring observability in an Amazon EKS cluster
- Collecting metrics
- Managing logs
- Application tracing in Amazon EKS
- Hands-On Lab: Monitoring Amazon EK

Day 3

Module 8: Managing Storage in Amazon EKS

- Design patterns for storage

- Persistent storage in Kubernetes

- Persistent storage with AWS storage services

- Managing secrets

- Hands-On Lab: Persistent Storage in Amazon EKS

Module 9: Managing Security in Amazon EKS

- Cloud security fundamentals

- Authentication and authorization

- Managing IAM and RBAC

- Managing Pod permissions using RBAC service accounts

- Hands-On Lab: Capstone Exercise, Configuring Observability in Amazon EKS, Managing Storage in Amazon EKS, Managing Security in Amazon EKS, Managing Authentication and Authorization in Amazon EKS, Implementing Secure Workflows, Managing Upgrades in Amazon EKS, Amazon EKS Fundamentals, Kubernetes Fundamentals, Building and maintaining an Amazon EKS cluster, Managing Networking in Amazon EKS, Managing Applications at Scale in Amazon EKS, Deploying Applications to Your Amazon EKS Cluster

Skills You Will Learn:

In this course, you will learn to:

- Describe the main components of Kubernetes, including the key objects and the core components of the Kubernetes API.
- Describe how Amazon EKS manages the Kubernetes control plane and parts of the data plane.
- Build and maintain an Amazon EKS cluster.
- Deploy applications to an Amazon EKS cluster.
- Manage applications running in enterprise-scale Amazon EKS clusters.
- Configure efficient, secure communication both within the cluster and with outside services.
- Configure observability in an Amazon EKS cluster.
- Provision storage for applications running on Amazon EKS.
- Secure an Amazon EKS cluster.

Additional Course Details

Nexus Humans Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS) training program is a workshop that presents an invigorating mix of sessions, lessons, and masterclasses meticulously crafted to propel your learning expedition forward.

This immersive bootcamp-style experience boasts interactive lectures, hands-on labs, and collaborative hackathons, all strategically designed to fortify fundamental concepts.

Guided by seasoned coaches, each session offers priceless insights and practical skills crucial for honing your expertise. Whether you're stepping into the realm of professional skills or a seasoned professional, this comprehensive course ensures you're equipped with the knowledge and prowess necessary for success.

While we feel this is the best course for the Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS) course and one of our Top 10 we encourage you to read the course outline to make sure it is the right content for you.

Additionally, private sessions, closed classes or dedicated events are available both live online and at our training centres in Dublin and London, as well as at your offices anywhere in the UK, Ireland or across EMEA.

Frequently Asked Questions

Q: What delivery options are available for Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS)?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 3-day Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS) course provides up to 19.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS) training?

The training takes place over 3 day(s), with each day lasting approximately 24.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS)?

Yes, we provide corporate training, dedicated training, and closed classes for Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS). Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS), Container, RCAEKS, Amazon Web Services, vILT

Q: Why choose Nexus Human for Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS)?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Running Containers on Amazon Elastic Kubernetes Service (Amazon EKS) training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

Nexus Human

Professional Training & Development

Email: info@nexushuman.com

Website: www.nexushuman.com

Phone: +353 1 889 8700 (Ireland) | +44 20 8142 8961 (UK)

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