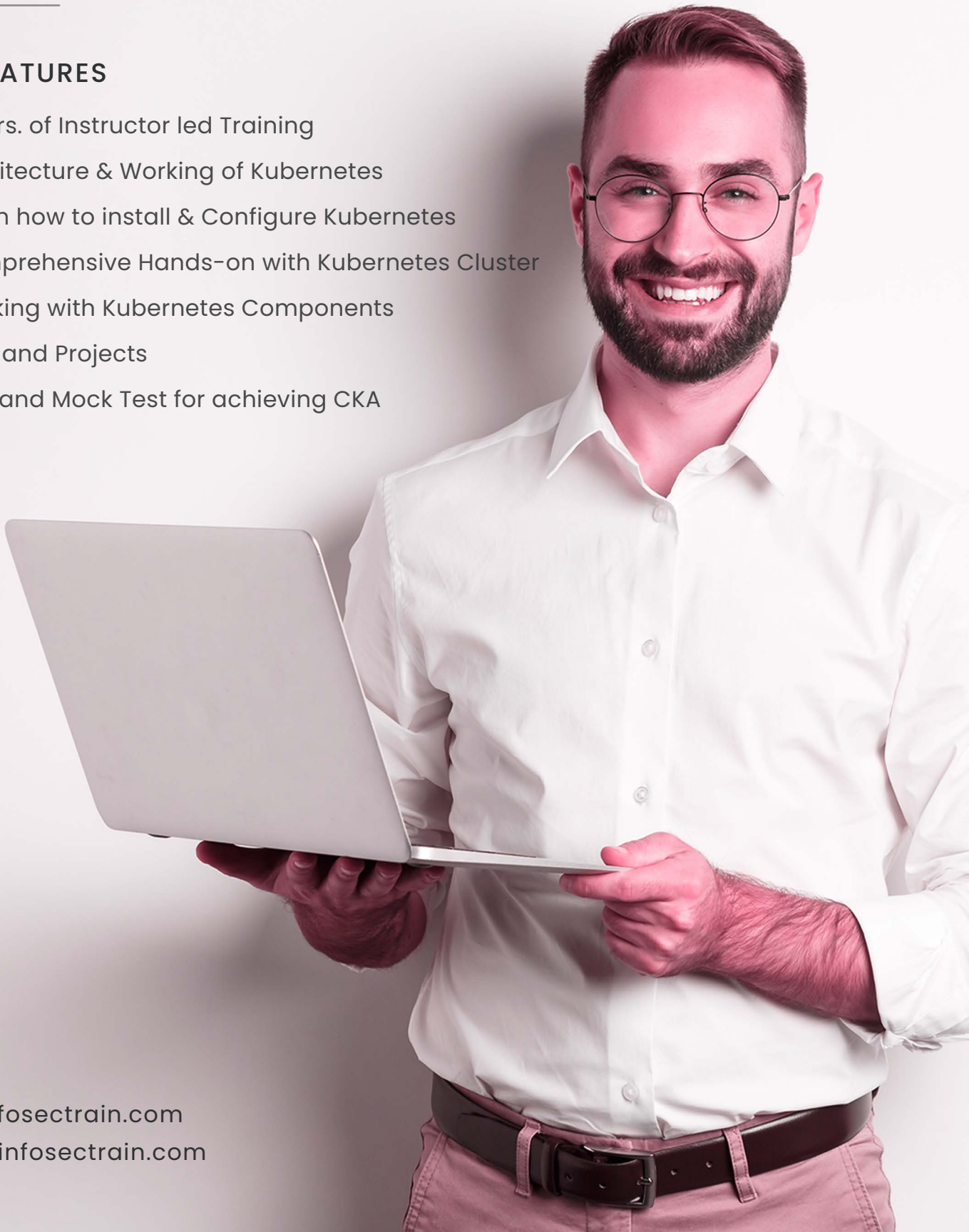


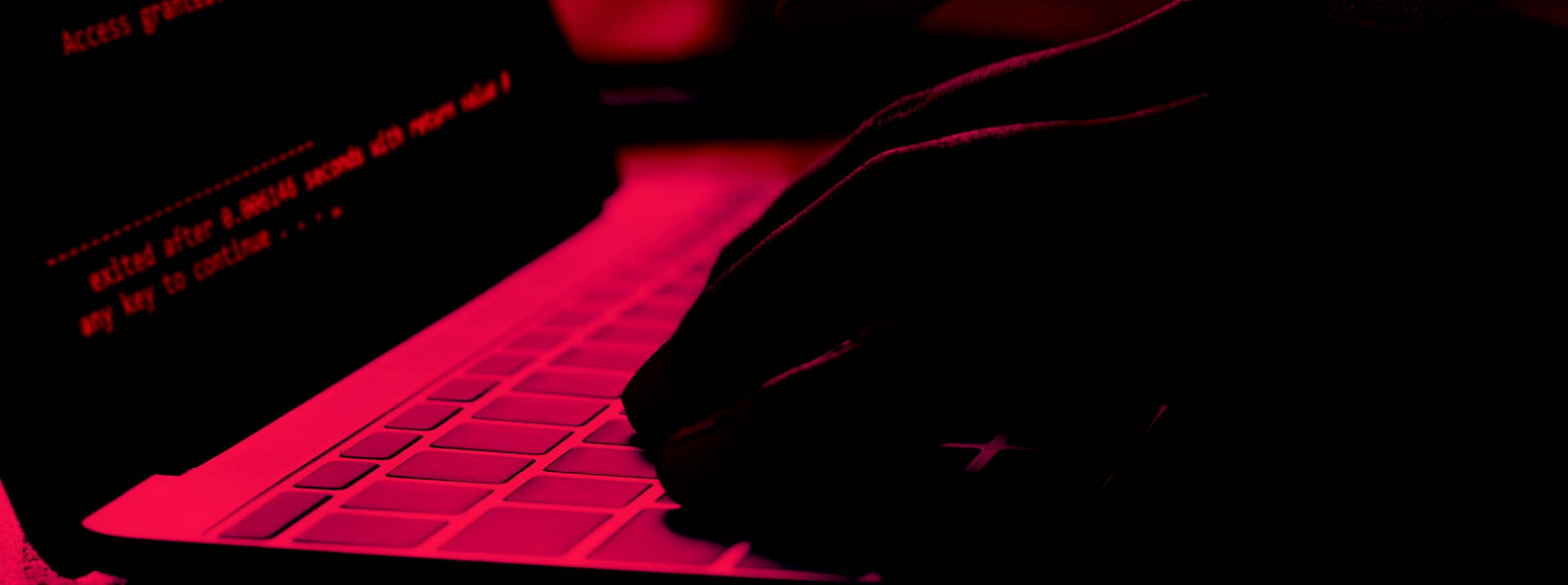
Kubernetes

TRAINING

KEY FEATURES

- 40 hrs. of Instructor led Training
- Architecture & Working of Kubernetes
- Learn how to install & Configure Kubernetes
- Comprehensive Hands-on with Kubernetes Cluster
- Working with Kubernetes Components
- Quiz and Projects
- Tips and Mock Test for achieving CKA





Course Description

This course prepares you for the Certified Kubernetes Administrator (CKA) exam by the Cloud Native Computing Foundation. Participants will learn Kubernetes concepts in depth using command line which includes Installing & Configuring Kubernetes, Networking, Deploying applications, Scheduling pods, Logging and more

The CKA exam is a hands-heavily focused on practical and participants would be tested to run commands to perform specific actions. There are no multiple-choice questions in this exam.

Tools and Technologies used

- AWS EC2
- Putty & Puttygen tools (On Windows OS)

Pre-requisites Knowledge

- Good Understanding of Containers and Dockers
- Concepts of Virtualization
- Linux & Networking Fundamentals
- Experience with installing and configuring applications
- Working experience using vi or vim editor tools

Who should Attend?

- Software Developers
- Operational Engineers
- IT Professionals & Architects

Curriculum

Module 1: Overview of Certified Kubernetes Administrator (CKA) Exam

- Overview of CKA Exam
- Exam Domains and Format

Module 2: Introduction to Kubernetes

- Overview of Dockers and Containers
- What is Container Orchestration?
- Evolution of Kubernetes
- Differences between Kubernetes and Docker Swarm
- What is Kubernetes
- Kubernetes Use Cases
- Quiz

Module 3: Kubernetes Architecture & Components

- Understand Kubernetes Architecture
- Introduction to Kubernetes Master
- Components of Kubernetes Master
- Introduction to Node Components
- Quiz

Module 4: Installing & Configuring Kubernetes

- Overview of Minikube installation
- Installing and Configuring Kubernetes Master and Nodes using kubeadm
- Building a Highly Available Kubernetes Cluster
- List all the nodes of the clusters
- Working with cluster using various kubectl commands
- Quiz

Module 5: Working with Namespaces and Pods

- Overview of Namespaces and creating Namespaces
- Introduction to Pods
- Pods Lifecycle
- Working with YAML files
- Working with Pods to manage multiple containers
- Deploying Pods using kubectl run command.
- Quiz

Module 6: Application Lifecycle Management

- Overview of Deployments
- Scale-out deployments using ReplicaSets
- Rolling Updates with Deployments
- Working with Labels and Selectors
- Application Health Checks – Liveness Probes, Readiness Probes
- Working with Jobs
- Quiz

Module 7: Kubernetes Scheduling

- Overview of kube-scheduler
- Scheduling with kube-scheduler
- Scheduler Policies
- Horizontal Pod Autoscaling
- Affinity and Anti-Affinity
- Quiz

Module 8: Storage Management in Kubernetes

- Overview of Kubernetes Volumes
- Volumes Types -emptydir, hostPath, NFS, Cloud Volume
- What are Persistent Volumes
- Working with Persistent Volume Claims
- Persist Volume Access Modes
- Quiz

Module 9: Kubernetes Controllers

- Overview of Replication Controllers
- Working with DaemonSets
- Working with StatefulSets
- Quiz

Module 10: Kubernetes Networking

- Overview of Kubernetes Networking
- Overview of Kubernetes CNI providers – Flannel, Calico and WeaveNet
- Need for Kubernetes Services
- Types of Services- Cluster IP, NodePort and LoadBalancer
- Configuring Services using YAML files
- Ingress Rules & Load Balancers
- Cluster DNS
- Quiz

Module 11: Securing Kubernetes Cluster

- Basics of Kubernetes Security
- Cluster Authentication & Authorization
- Users , Groups and Service Accounts
- Configuring Network Policies
- Creating TLS Certificates
- Secure Images
- Quiz

Module 12: Logging and Monitoring

- Overview of Logging and Monitoring
- Monitoring the Cluster Components
- Monitoring Application Logs
- Quiz

Module 13: Introduction to Helm

- Overview of Helm Charts
- Helm Charts
- Helm Repository
- Developing Helm Templates

Module 14: Kubernetes Maintenance

- Overview of Node Maintenance
- Drain vs Cordoning Node
- Cluster Upgrade Process
- Backup and Restore Methods

Module 15: Troubleshooting in Kubernetes

- Troubleshooting Application Failure
- Troubleshooting Control Plane Failure
- Troubleshooting Worker Node Failure
- Troubleshooting Networking
- Quiz

Module 16: FAQ's and Practice Tests

- Registering for Exam
- Tips for Exam
- Practice Tests
- Project



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