Kubernetes Administrator

Install, secure, operate and troubleshoot production Kubernetes clusters.

DURATION	FORMAT	LEVEL	LABS
45 hours	Onsite, online or hybrid	Advanced	Cloud sandbox included

About this programme

An advanced, lab-driven programme for engineers who run Kubernetes: cluster architecture and installation, workloads, networking, storage, security, observability, troubleshooting and upgrades.

Who it is for: Platform engineers, DevOps engineers and system administrators

What your team will be able to do

- Install and configure clusters on-premises or with managed cloud services
- Deploy, scale, update and roll back applications
- Configure networking, network policies and persistent storage
- Secure clusters with RBAC, pod security standards and admission controllers
- Monitor, troubleshoot, upgrade and back up clusters

Before you start

- Linux command line and system administration
- Working knowledge of Docker containers

Course outline

1. Architecture and installation

- Core concepts: pods, nodes, deployments, services and namespaces
- Control plane and worker node components
- Installing clusters on-premises or with managed cloud services
- Working with kubectl

2. Application lifecycle management

- Deployments and ReplicaSets
- Horizontal and vertical scaling
- Rolling updates and rollbacks
- ConfigMaps and Secrets

3. Networking and storage

- Pod-to-pod, pod-to-service and external communication
- CNI plugins such as Calico and Flannel, and network policies
- Persistent volumes, claims and StorageClasses
- Cloud, NFS and object storage options

4. Security

- RBAC and secrets management
- Securing the API server and etcd
- Pod security standards and admission controllers
- Container image security and patching

5. Observability and troubleshooting

- Cluster, node and application logging
- Metrics and dashboards with Prometheus, Grafana and the Elastic Stack
- Alerting on critical cluster events
- Troubleshooting nodes, pods and deployments

6. Maintenance and advanced topics

- Cluster upgrades, static pods and CronJobs
- Backup and recovery for disaster recovery
- Helm, operators and multi-tenancy

Sample schedule

6 days onsite, or 12 half-day sessions online. We fit days and session lengths to your team's calendar.

Day 1	8 h	Architecture and installation
Day 2	8 h	Application lifecycle management
Day 3	8 h	Networking and storage; Security
Day 4	8 h	Security (continued); Observability and troubleshooting
Day 5	8 h	Observability and troubleshooting (continued); Maintenance and advanced topics
Day 6	5 h	Maintenance and advanced topics (continued)

Assessment and certification

How learning is checked

- A short knowledge check on day one and again at the end, so you can see each person's progress
- Graded hands-on labs in every module, reviewed by the trainer
- A final exercise that applies the programme to a problem like your team's own
- A timed practice exam in the format of the real one, with a review of every answer

Certificate and exams

- Participants who complete the programme receive a Cognitive Networks AI certificate of completion.
- Prepares your team for the CKA exam. Exam vouchers are not included: each participant books the exam with The Linux Foundation.

Formats and cohort size

- Onsite: At your office or a venue you choose, in full days.
- Online, live: Instructor-led over video, usually in half-day sessions so people can keep up with work.
- Hybrid: Some days in a room together, the rest online. Useful when a team works across cities.

Cohort size: 15 to 25 people per trainer. Larger teams run as parallel cohorts on the same outline, so everyone learns the same thing.

Pricing: We quote per cohort, based on duration, format and number of cohorts. There is no per-seat price list: tell us your team and we send a proposal within one business day.

Bring this programme to your team

Request a proposal at cognitivenetworks.ai/contact?programme=kubernetes-administrator

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