

The Ultimate Kubernetes Journey with Linux and Docker						
Area	Topics	No.Days			Purpose	Open Source Tools
Kubernetes	Overview of container orchestration				Authentication	InraHQ Paralus Rancher OpenLense
	History of Kubernetes - openshift - mesos - dockerswarm				Monitoring	Grafana Thanos Coroot Signoz
	Kubernetes architecture - etcd - kube-api-server - kube-control-manager - kube-scheduler - kubelet - kube-proxy				Security	OPA kyverno certmanager
	kubernetes units - pods - replication-controller - replicaset - deployment				Kubernetes	microk8s/kind/kubeadm load balancer - Nginx/HA/metalLB ingress
DEMO					Autscaling	Keda
	Scheduling Algorithm - manual scheduling - labels and selectors, node selector - taints and toleration - node affinity - taint toleration vs node affinity - pod affinity - resource limits				Deployment	Argocd
DEMO					Packaging	Helm
	Types of pods - daemon sets - static pods - init containers					
DEMO					Basics of Docker	
	Logging and Monitoring metrics/logs/traces - monitor cluster components - managing application logs - kubernetes dashboard - grafana open source monitoring - newrelic moniotring - datadog monitoring				Introduction to Docker	- Overview and benefits of containerization - How to Setup docker on Linux - Basic Docker commands - What is Docker Engine, Images and Containers
DEMO					Working with Docker Images	- Explore images with DockerHub - Build custom images with Dockerfile - Tag, remove, and optimize images - Run, stop, and inspect containers
	application lifecycle management - rolling update and roll back - recreate - canary - blue green - commands and arguments in docker - configmap and secrets - sealed secret - multi container pod - self healing apps				Docker Containers and Networking	- Interactive vs. detached mode - View logs and resource limits - Types of Docker networks (bridge, host) - Connect containers, basic networking commands
DEMO					Docker Volumes and Docker Compose	- Persistent storage, creating and mounting volumes - Write docker-compose.yml - Run multi-container apps
	cluster maintenance - os upgrade - kubernetes software version - cluster upgrade - backup and restore				Hands-On Project and Best Practices	- Optimizing Dockerfiles, security basics - Build and deploy a web app using Docker Compose
DEMO						

	security <ul style="list-style-type: none">- kubernetes security primitives- authentication- tls in kubernetes- view certificate details- certificate health check- certificates api- kube config- api groups- authorization- role based access control- cluster roles- service accounts					
DEMO					Basics of Linux	
	storage <ul style="list-style-type: none">- volume- persistent volume- dynamic pvc- ebs and efs pvc					Introduction to Linux ?
DEMO						Kernel, Distribution, Hypervisor
	Tools for kubernetes, <ul style="list-style-type: none">- kube-adm- kops- minikube- kind					Physical Machine, Virtual Machine and Container Machine
DEMO						Linux Booting Process & Linux Run levels
	Backup and Restore <ul style="list-style-type: none">- Velero- Manual Backup					Filesystem hierarchy (root, /home, /etc, /var, etc.)
DEMO						Understanding permissions (rwx, chmod)
						Basic Commands
						Linux File management
						File Searching and Processing
						File Compression and Archiving
						System Monitoring and Management
						Network Configuration and Troubleshooting
						User and Group Management
						System Services and Daemon Management
						Backup and Recovery
						Linux Firewall/IPTables/CSF
						Security Practices