

Cloud Learning Roadmap for Build and Release Engineer

Visual Roadmap

Month 1	Month 2	Month 3	Month 4
Networking	Docker	Kubernetes	OpenShift
DNS	Dockerfile	k8s Services	k8s Volumes & Helm
Load Balancer	Compose	k8s Config/RBAC	OpenShift Projects
	Volumes	Monitoring/Logs	CI/CD + Security

Month 1: Foundations

Week 1: Basic Networking

- OSI Model, IP addressing, Subnetting
- NAT, Port Forwarding, Routing
- Tools: ip, netstat, ping, traceroute

Week 2: DNS

- DNS concepts, record types (A, AAAA, CNAME, TXT)
- DNS tools: nslookup, dig, /etc/hosts, resolv.conf

Week 3: Load Balancing

- L4 vs L7 load balancers
- Round robin, least connections
- Hands-on with NGINX or HAProxy

Week 4: Introduction to Docker

- What is Docker? Containers vs VMs
- Install Docker, run containers
- docker run, docker exec, docker ps, docker logs

Month 2: Docker Deep Dive

Week 5: Dockerfile and Images

- Write Dockerfiles, Build/tag/push images

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- Optimize layers & use .dockerignore

Week 6: Docker Volumes and Networking

- Volume types: bind, named, anonymous
- Docker networks: bridge, host, overlay

Week 7: Docker Compose

- Multi-container apps with docker-compose.yml
- Use env variables, volumes, ports

Week 8: Docker Best Practices

- Docker security basics, image scanning
- Use Alpine images, non-root users, secrets

Month 3: Kubernetes

Week 9: K8s Basics and Architecture

- Master/Worker nodes, etcd, kubelet
- Minikube/Play With K8s, deploy first pod

Week 10: Pods, Deployments, Services

- YAML: Pod, Deployment, ReplicaSet
- Services: ClusterIP, NodePort, LoadBalancer

Week 11: Config, Secrets & RBAC

- Use ConfigMaps, Secrets, Roles
- Namespaces, network policies

Week 12: Storage, Logging, Monitoring

- PV/PVC, Probes, Logs, Prometheus, Grafana

Month 4: OpenShift & Integration

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Week 13: OpenShift Introduction

- OpenShift Local/Developer Sandbox
- Web console, CLI (oc), Projects

Week 14: OpenShift Features

- Routes vs Ingress, BuildConfigs, ImageStreams
- Source-to-Image (S2I)

Week 15: OpenShift CI/CD

- Tekton Pipelines, Git triggers
- Example CI/CD with BuildConfig

Week 16: Security & Final Project

- RBAC, OAuth, Security Context Constraints
- Deploy full app with CI/CD

Final Checklist

- Can write a Dockerfile and use docker-compose
- Understand Docker networking and volumes
- Can deploy, expose, scale, and update apps in Kubernetes
- Understand Kubernetes storage, secrets, config, and RBAC
- Can deploy apps in OpenShift and understand key differences
- Understand networking, DNS, and load balancing in containers/cloud