02-pod

Pod What it is `Pod` is the smallest deployable unit in Kubernetes. A Pod wraps one or more tightly coupled containers sharing network namespace and storage volumes. When to use Direct debugging or one-off workloads Sidecar patterns (app + log shipper/proxy) Usually managed by higher-level controllers (Deployment, Job) Key fields `spec.containers[]`: container definitions `spec.restartPolicy`: `Always`, `OnFailure`, `Never` `spec.volumes[]`: shared storage for containers `spec.nodeSelector` / `affinity` / `tolerations`: scheduling control Common commands `bash kubectl get pods -A kubectl run nginx-pod --image=nginx:1.27 --restart=Never kubectl describe pod nginx-pod kubectl logs nginx-pod kubectl logs -f nginx-pod kubectl exec -it nginx-pod -- sh kubectl delete pod nginx-pod` YAML example `yaml apiVersion: v1 kind: Pod metadata: name: api-pod labels: app: api spec: containers: - name: api image: nginx:1.27 ports: - containerPort: 80 resources: requests: cpu: "100m" memory: "128Mi" limits: cpu: "300m" memory: "256Mi"` Practical notes Pod IP is ephemeral; use a `Service` for stable networking. Standalone Pods are not self-healing after node loss.