

DevOps Mock Interview Q&A; (Wrapped & Clean Layout)

Docker

Question	Answer
What is the difference between Docker and a Virtual Machine?	Docker containers share the host OS kernel and are lightweight, while virtual machines run their own full guest operating system on a hypervisor, which makes them heavier and slower to boot.
How do you persist data in Docker?	Use Docker volumes (e.g., <code>docker volume create myvol</code>) or bind mounts (e.g., <code>-v /host/path:/container/path</code>) so data outlives the container lifecycle.
What happens if a container crashes?	The container exits. You can use restart policies like <code>--restart=always</code> or let an orchestrator such as Kubernetes handle automatic restarts and rescheduling.

Jenkins

Question	Answer
Explain the difference between declarative and scripted pipelines.	Declarative pipelines use a structured <code>pipeline {}</code> syntax that is easier to read and maintain, while scripted pipelines are Groovy-based and more flexible but generally more complex.
How would you integrate Jenkins with GitHub?	Configure the Git plugin and repository in the job or Jenkinsfile, then set up a GitHub webhook for push or PR events so Jenkins is automatically triggered on changes.
What is the role of an Agent in Jenkins?	Agents (workers) execute the build steps while the controller schedules jobs and coordinates agents. This enables horizontal scaling of CI workloads.

Git

Question	Answer
What's the difference between `git reset` and `git revert`?	`git reset` moves branch pointers and can rewrite history (dangerous on shared branches), whereas `git revert` creates a new commit that safely undoes a previous commit.
How do you resolve merge conflicts?	Git marks conflict sections in files. You manually edit and resolve, then `git add` the files and create a merge commit (or continue the rebase) to finalize resolution.
Explain branching strategies you've used.	Feature branching and pull requests for review; GitFlow for structured releases (develop/release/hotfix); trunk-based for fast, small merges gated by CI.

Terraform

Question	Answer
How does Terraform manage infrastructure state?	In a `terraform.tfstate` file that maps resources in configuration to real remote objects. Use remote state backends (e.g., S3 with DynamoDB locking) for teams.
What is the difference between `terraform plan` and `terraform apply`?	`plan` shows the proposed changes without modifying infrastructure; `apply` executes the changes to reach the desired state.
How do you reuse code in Terraform?	Create modules to encapsulate resources and variables. Publish internally or use the public registry; pass variables and expose outputs for composition.

Kubernetes

Question	Answer
Difference between Deployment and StatefulSet?	Deployments manage stateless replicas with interchangeable pods; StatefulSets provide stable identities, ordered rollouts, and persistent storage semantics for stateful apps.
How do Services work in Kubernetes?	Services provide stable virtual IPs and DNS for pods selected by labels. Types include ClusterIP (internal), NodePort (node-level port), and LoadBalancer (cloud LB).
What is an Ingress Controller?	A control plane component that implements Kubernetes Ingress resources to route external HTTP/HTTPS traffic to Services using rules and host/path matching.

Prometheus & Grafana

Question	Answer
How does Prometheus collect metrics?	Prometheus uses a pull model, scraping Exposition Format metrics from `/metrics` endpoints on targets discovered via static configs or service discovery (e.g., Kubernetes).
What is the role of Alertmanager?	Alertmanager receives alerts from Prometheus, de-duplicates, groups, and routes them to receivers such as Slack, email, PagerDuty, or webhooks with silencing rules.
How do you visualize metrics?	By connecting Prometheus as a data source in Grafana and building dashboards with panels, variables, and PromQL queries for interactive exploration and alerts.

Ansible

Question	Answer
How is Ansible different from Puppet/Chef?	Ansible is agentless (SSH/WinRM), uses YAML playbooks, and is easy to start with. Puppet and Chef use agents and often require more setup and DSL knowledge.
What is the difference between a Playbook and a Role?	A playbook defines the tasks to run on hosts; a role organizes tasks, handlers, templates, and variables into a reusable, shareable structure.
How do you store secrets in Ansible?	Use Ansible Vault to encrypt files or variables (e.g., <code>`ansible-vault encrypt vars.yml`</code>) and provide the vault password or key at runtime.