

Cloud Engineer interview questions

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What to expect

Cloud Engineer interviews usually mix technical depth with judgement calls, since the job involves both building systems and being the person called when they break. Expect a heavier technical load than in a general IT interview, often including a live design or troubleshooting exercise.

- **Technical:** Direct questions on cloud services, infrastructure-as-code tools and architecture patterns, checking depth rather than just familiarity with buzzwords.
- **Scenario / judgement:** Hypothetical operational problems, like a cost blowout or an outage, to see how you'd prioritise and communicate under pressure.
- **Process walk-through:** Questions asking you to describe how you'd approach a design or deployment task from start to finish.
- **Behavioural:** Past-experience questions about incidents, collaboration with developers, or handling conflicting priorities.
- **Security and compliance:** Questions probing how you build security and regulatory requirements into infrastructure rather than treating them as a separate step.

Most processes start with a recruiter or hiring manager screen focused on background and motivation, followed by a technical interview or take-home exercise covering architecture and troubleshooting, then a panel round mixing technical depth with behavioural and team-fit questions. Senior roles may add a whiteboard system design session.

1. Walk me through how you'd design a highly available architecture on AWS for a workload that can't tolerate more than a few minutes of downtime.

Why they ask

This checks whether you understand multi-AZ or multi-region design, load balancing and failover, not just individual services in isolation.

How to structure your answer

Walk-through: state assumptions about the workload first, then step through compute, storage, networking and failover design in order, explaining the trade-off at each decision point.

Example answer

"I'd start by confirming the workload's traffic pattern and recovery time objective, since that changes the design. Assuming it's a stateful web application, I'd deploy across at least two availability zones with an application load balancer in front, auto-scaling groups for compute, and RDS in a multi-AZ configuration for the database. For storage I'd use S3 with versioning for anything that needs to survive a regional issue. I'd set up health checks so the load balancer stops sending traffic to unhealthy instances automatically, and I'd document and test the failover process rather than assume it works, because untested failover is the most common reason disaster recovery plans don't hold up."

2. Why would you choose Terraform over CloudFormation for a given project, or vice versa?

Why they ask

Tests genuine hands-on experience with infrastructure-as-code rather than surface-level familiarity, since both tools solve the same problem differently.

How to structure your answer

Technical comparison: state your general preference, then give the specific factors that would change your answer.

Example answer

"My default is Terraform because it's cloud-agnostic, which matters if there's any chance of a multi-cloud or hybrid setup down the track, and its state management and module ecosystem make larger codebases easier to maintain. That said, if a team is fully committed to AWS and wants tighter native integration with services like CodePipeline, or needs day-one support for a brand-new AWS feature, CloudFormation can be the better fit since it's maintained directly by AWS. The decision usually comes down to how locked in the organisation already is to a single provider."

3. Role: Cloud Engineer Cloud costs have jumped after a recent migration and finance wants an explanation. How do you approach this?

Why they ask

Cost optimisation is a named task for this role, and this checks whether you can diagnose a problem methodically rather than just cutting resources blindly.

How to structure your answer

Judgement under pressure: outline immediate triage steps, then the investigation process, then how you'd communicate findings and prevent recurrence.

Example answer

"First I'd pull a cost breakdown by service and tag to see where the increase is concentrated rather than guessing. If it's compute, I'd check for oversized instances or resources left running from the migration that were never decommissioned. If it's data transfer, that often points to a misconfigured architecture moving data between regions unnecessarily. Once I've identified the cause, I'd implement rightsizing or reserved capacity where it makes sense, and set up budget alerts so finance and engineering both see cost trends before they become a surprise at month end. I'd also report back with the specific cause and fix rather than a vague explanation, since that builds trust for the next conversation."

4. Tell me about a time you had to resolve a critical infrastructure outage.

Why they ask

Outages are part of the job, and this checks how you diagnose problems under pressure and what you do afterwards to prevent repeats.

How to structure your answer

STAR: situation, task, action, result, with particular attention to what changed afterwards.

Example answer

"During a deployment, a configuration change caused our production API to start returning errors under load. I was on call, so I first checked our monitoring dashboards to confirm the scope, which showed the issue was isolated to one service rather than the whole platform. I rolled back the deployment while the team investigated, which restored service within a short window. Afterwards we found the change had removed a connection pool limit that the service depended on under high traffic. I wrote up the incident and added a pre-deployment checklist item to catch that class of configuration change before it reaches production again."

5. How do you build security and compliance requirements into cloud infrastructure rather than treating them as an afterthought?

Why they ask

With cyber security listed as a core skill for this role, interviewers want to see security treated as part of design, especially relevant in regulated industries like financial services or public sector.

How to structure your answer

Framework answer: describe your general approach, then give a concrete example of applying it.

Example answer

"I try to apply least-privilege access from the start, using IAM roles scoped to exactly what a service needs rather than broad permissions that get tightened later, if ever. I also use infrastructure-as-code so security configurations like encryption at rest, VPC security groups and logging are version-controlled and reviewed the same way application code is. On one project I set up automated checks that flagged any S3 bucket created without encryption or public access blocked, which caught a misconfiguration before it went live. Where the environment needs to meet a specific standard, like the ACSC Essential Eight or an industry framework, I map controls to specific infrastructure settings so compliance isn't a manual audit exercise after the fact."

6. How do you work with development teams when building or changing a deployment pipeline?

Why they ask

Cloud Engineers sit between infrastructure and development, and this checks collaboration skills alongside technical delivery.

How to structure your answer

STAR, with emphasis on communication and negotiation between technical priorities.

Example answer

"On one project the development team wanted faster deployments, but our existing pipeline ran a full test suite on every commit, which slowed things down. I sat down with the lead developer to understand which tests were essential versus nice-to-have, then restructured the pipeline to run a fast subset on every push and the full suite before merging to the main branch. I kept the team updated through the change so nobody was caught out by a shifted process. Deployment frequency increased and the team didn't lose confidence in test coverage, because we'd agreed on the trade-off together rather than me making the call unilaterally."