Build
for
everyone

Interview Preparation Guide for Cloud Engineer, Data role

Who are Cloud Engineers?

Cloud Engineers encompass a job family of roles that work with some of Google Cloud's most strategic Cloud customers, helping them to architect, and deploy their applications and services in Google Cloud. We solve complex technical challenges which are critical to our clients' business transformation. We collaborate with Google Cloud Product Management and Engineering to build and drive excellence in our products. Specialised roles under the Cloud engineering family include: Data, Networking, DevOps, Cloud Engineering, AI/ML and G Suite. Check out this video to learn more about the Delivery Centre and Professional Services Organisation teams.

Cloud Data Engineer Overview

As a Cloud Data Engineer, you will play a critical role in ensuring that customers have the best experience moving to the Google Cloud suite of products. You are a technical expert with an entrepreneurial drive and a passion for customer success. You architect, design and deliver technical solutions. You are responsible for rapid and accurate resolution of technical challenges, lead flawless implementations and integration of custom features. You'll have access to Google's incredible technology to monitor application performance, debug and troubleshoot product code, and address customer and partner needs. You will regularly code in Python, Java, and increasingly Go. The Cloud Data Engineer role requires regular coding (at least weekly). Many of our most successful Cloud Data Engineers have software engineering backgrounds in addition to data engineering experience. You will regularly capture your learning from the field in order to create tools, template solutions, or best practice guides to accelerate the next customer on their journey.

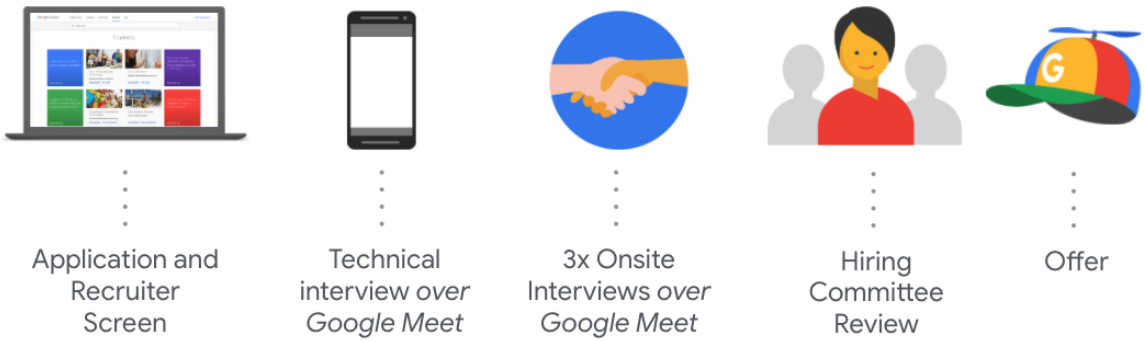
Check out some of the cool customer projects we are currently working on:

- Renault: Solving Challenges with Industrial Data platform using BigQuery and Dataflow
- IKEA Retail: Leveraging Google Cloud and AI
- PayPal leverages Google Cloud to flawlessly manage surges in financial transactions
- Tata Communications partners with Google Cloud to drive cloud adoption in India
- Sabre: Implementing a culture of secure innovation
- TELUS International migrates key customer experience app to Google Cloud

Also check out some of the team's past solutions, blog posts, and guides:

- Dataflow Pipeline Templates
- Transitioning from Data Warehousing in Teradata to GCP Big Data
- Visualise GCP Billing using BigQuery and Data Studio
- Coding Apache Beam in your Web Browser and Running it in Cloud Dataflow

Basics of Cloud Engineering: Timeline



Many of the questions asked in Google interviews are open-ended because we want to see how you engage with a problem. The specific questions will depend on your interviewer, but the ultimate goal is the same – to understand how you think. Are you methodical, structured, logical, and holistic in your thinking?

When you are asked a technical question, talk through your thought process and your approach to problems and solutions. You are encouraged to ask clarifying questions. Many of our initial questions do not have enough information for you to answer. We are trying to see how you gather requirements, in the same way you would be expected to interact with customers in this role. Ask specific questions if you need more clarification.

As we have discussed, Cloud Engineering at Google requires a combination of both business and technical skills, so you should expect both types of questions in your upcoming interview. If it has been a while since you have written code, we strongly recommend taking some time to brush up on your tech skills/knowledge before your interview.

The Technical Video Interview

While this list is not necessarily exhaustive, it should be a good guide to help you prepare. Also, don't panic if you are not well-versed in all of these areas. A little preparation can go a long way.

Our most successful candidates have spent time writing actual code using interview preparation websites like HackerRank, LeetCode or InterviewBit. You can also try out Pramp and Interviewing.io. Most successful candidates spend weeks or even months practising here. If you code day to day in your current role, we still suggest spending time preparing for the coding interview.

Data Structures - Study up on as many data structures as possible. Data structures most frequently used are arrays, linked lists, stacks, queues, hash-sets, hash-maps, hash-tables, dictionary, trees and binary trees. You should know when to use these data structures and which algorithms tend to go along with each data structure.

Data Ecosystem - Be aware of the open source tools including Hadoop, Spark and other Apache frameworks that data engineers use. You don't need to know the details of every system, but you should have a high level understanding of the most popular tools.

Databases/SQL/NoSQL - May touch upon data modelling fundamentals, database architecture/efficiency, SQL commands/syntax including analytical functions, complex query design, etc.

Algorithms - You will be expected to know the complexity of an algorithm and how you can improve/change it. Know Big-O notations (e.g. runtime, space) and be ready to discuss the runtime of your solution. You may wish to discuss or use bullets to outline the algorithm you have in mind before writing code. Check out the Big O Complexity Chart.

Programming/OO - You will be asked to write some code in at least one of the interviews (in your preferred language). You will be expected to design APIs, using appropriate Object Oriented Design and Programming. Be sure to think about how to test your code, as well as come up with corner cases and edge cases for code. Note that we focus on conceptual understanding rather than memorization. We're not focused on if you have memorised the language's file system API for example. Checkout: Style Guide. *Sample Question: Given a single page of a book, find me the longest word on that page.*

Googleyness - We also want to make sure this is a place you'll thrive, so we'll be looking for signs around your comfort with ambiguity, your bias to action and your collaborative nature. Be prepared to talk about how you would support a team to help them navigate tough challenges and changes. Think about how to effectively lead in a non-hierarchical team environment and what your personal leadership style is.

The Onsite Interviews

In *addition* to all the areas that were covered in the video interview, the following topics will be covered as well:

Web/Internet Technologies - The communication protocols, languages/APIs, and other mechanisms that enable the Internet to function. HTTP, Browsers, DNS, HTML/XML, AJAX, etc. Brush up on HTTP Protocol basics: Part I, Part II.

Databases/SQL/NoSQL - Data modelling fundamentals, database architecture/efficiency, SQL commands/syntax including analytical functions, complex query design, etc.

Linux/Unix - Must be comfortable working in a Linux environment and will be expected to have a good working knowledge of user-level Linux commands, shell scripting. Check out The Art of Unix Programming.

Distributed Systems - Understanding the fundamental aspects (availability, scalability, performance) of distributed systems. Be prepared to discuss tradeoffs in this space including availability and consistency for data.

System Design - System design questions are used to assess a candidate's ability to combine knowledge, theory, experience and judgement toward solving a real-world engineering problem. Sample topics include distributed systems, designing a system under certain constraints, simplicity, limitations, robustness and tradeoffs. Make sure you also have an understanding of how the internet works and be familiar with the various pieces (routers, domain name servers, load balancers, firewalls, etc.). For information on system design see the resources at the end of this document. Typically system design questions will start with a broad ask, and we're looking to see how you navigate that. Gather the appropriate amount of information by asking questions and use your judgement to decide when to start proposing a design. Hint: Asking no clarifying questions is typically not the right approach. Check out Prepare for Your Google Interview: Systems Design, Approaching System Design and Anatomy of a System Design Interview.

Troubleshooting - Interviewers are looking for a logical and structured approach to problem solving through distributed systems, network and web scenarios. Make sure you understand the questions and ask appropriate follow-up questions to the interviewer if you need clarification. A big part is finding out what the actual problem is and breaking it down into specifics. Check out Life in App Engine Production for a troubleshooting example.
Sample Question: Your marketing manager complains to you that the new company website is slow, what would you do?

Networking - Cloud Engineers are not network specialists, so we're not as focused on networking depth. However you should be broadly aware of network architectures, what the tradeoffs are, and how you may troubleshoot basic network issues including latency. Check out High Performance Browser Networking.

Leadership/Communications/Stakeholder Management - Be prepared to show examples of how you've resolved complex situations. How did you ensure you dealt with team challenges in a balanced way? You may also be asked some more hypothetical questions, so be prepared to talk through how you would influence, solve problems and drive improvements. How would you take ownership and stay creative while moving quickly? Check out Prepare for Your Google Interview: Leadership.

Project Management - While the majority of interviews are tech focused, we typically will dive into your past projects. The project management interview covers hypothetical practical questions on effectively leading end-to-end projects. This will include topics around applying the right framework, navigating complexity and ambiguity and delivering results.

Project Management - While the majority of interviews are tech focused, we typically will dive into your past projects. The project management interview questions cover hypothetical practical questions on effectively leading end-to-end projects. This will include topics around applying the right framework, navigating complexity and ambiguity and delivering results.

Remember to look into the topics covered in the video interview since they will show up during your onsite interview as well! It will be a good idea to be familiar with Google Cloud Platform, our customers, and the trends within the Cloud Industry. Research our industry dynamics and current/recent industry events (hint: use Google News). Take a listen to the Google Cloud Podcast put on by Googlers. Also familiarise yourself with other Google products before your interview. Know how to simply describe these and how you might potentially discuss the benefits with our clients. Finally we recommend registering for a free trial account here.

We are not expecting you to know the products in low level detail, but you should have a mental map of the product categories as well as how products will map to technology that you are familiar with.

Next Steps

It usually takes interviewers about 3 to 5 business days to submit feedback following a phone interview. As soon as I receive your feedback, I'll make sure to reach out to you to provide an update regarding next steps!

You may receive an Experience Survey asking you for feedback/satisfaction on my overall communication throughout the process. My colleagues and I strive for a perfect report card, so please let me know if you have any questions or concerns throughout the process. If you don't get a survey, I am happy to personally take your feedback.

Please do remember to fill out our Voluntary Self Identification form. This is a form that we ask all candidates to fill out as part of our U.S. recruitment process. This form contains questions that help us comply with our legal obligations and assists us with our diversity, recruitment and retention efforts. While we ask all candidates to fill out the form, disclosure is voluntary, and the information will be kept confidential in compliance with Google's Candidate Privacy Policy. You can fill out the form by searching your inbox for an email with the subject, "A Message from Google". Click on the link provided in the body of that email to access the form. If you are unable to locate the email, please let me know and I can request for it to be resent.

That's it! I promise to take great care of you and will be updating you every step of the way, but please don't hesitate to reach out to me if you have any questions.

About our Company

Company - Google
The Google story
Life @ Google
Google Developers
Open Source Projects
Cloud Computing