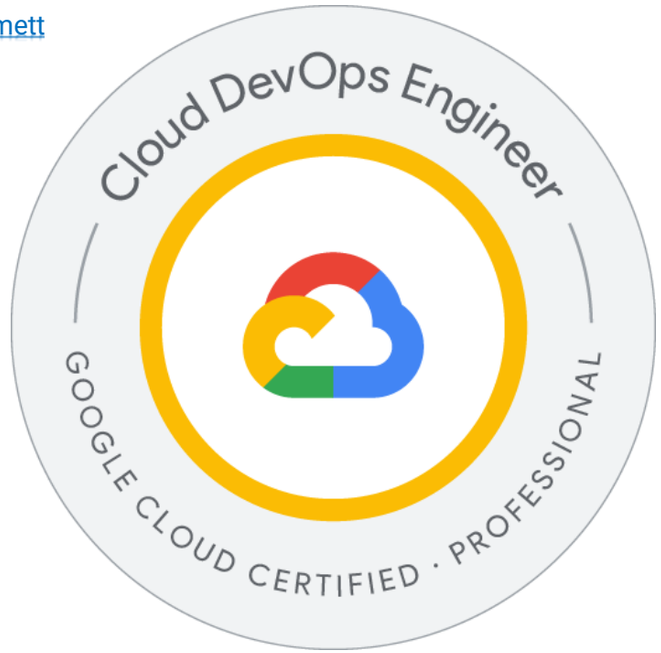
Google Cloud Professional DevOps Engineer Exam

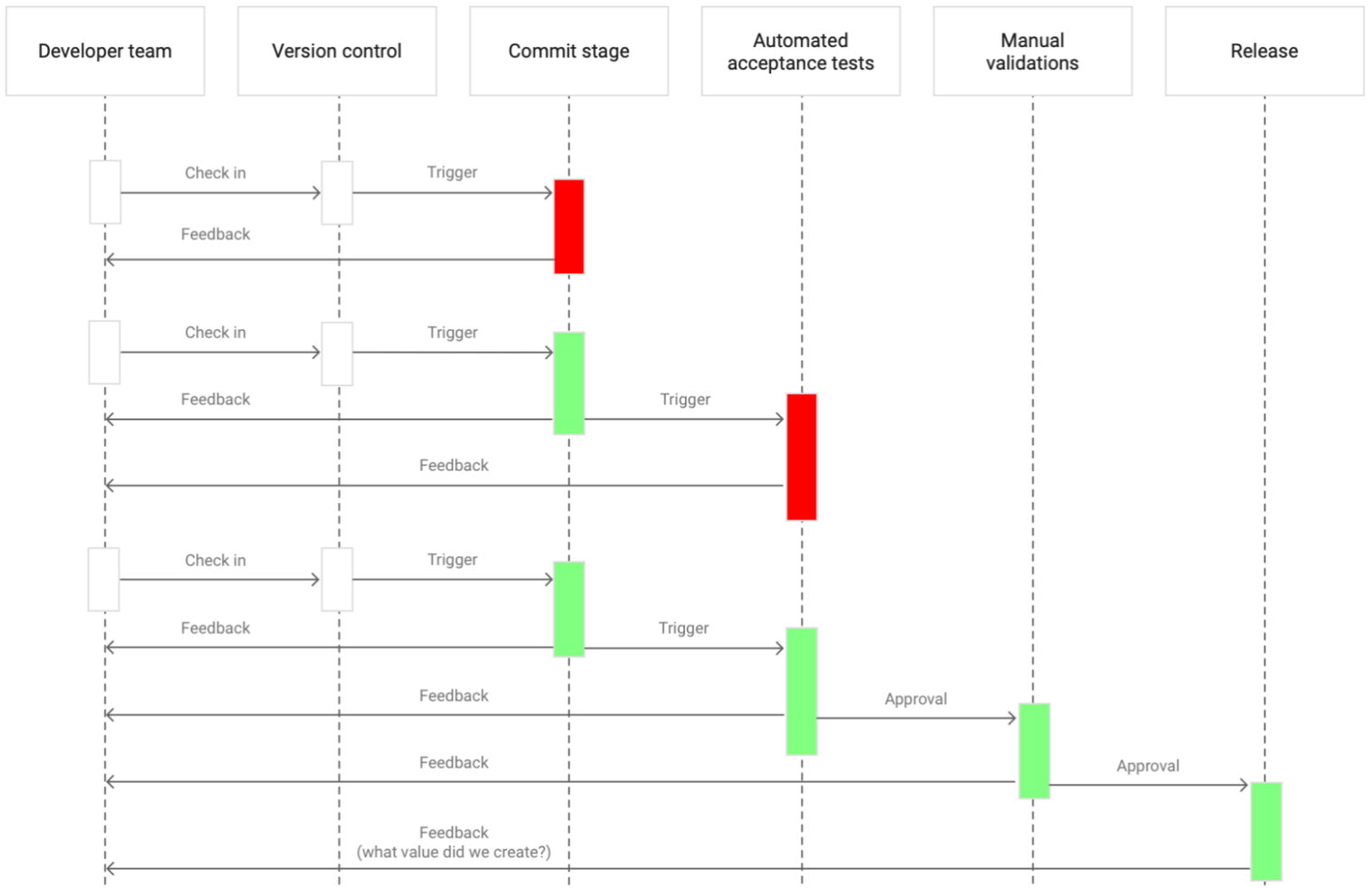
Prep Notes by

Ammett

V2



Start Cloud Now



BY AMMETT

Google Cloud Professional Cloud DevOps Engineer Exam

Exam prep sheet by Ammett v.2

06-2023

SRE

SRE

What it is

In general, an SRE team is responsible for the **availability, latency, performance, efficiency, change management, monitoring, emergency response, and capacity planning** of their service(s)

What you should know

1- What it is and how it aligns with DevOps

Key Points

1- Understand the mind-set of the SRE principles (important)

SLO

What it is

This is a target value or range of values for a service level that is measured by an SLI.

What you should know

1- Actions to take when SLO's are being met or not being met
2- Monitor SLO burn rate (select_slo_burn_rate)

Key Points

1- Options, adjusts SLO & SLI, stop deployment until stable,

SLI

What it is

This is a carefully defined quantitative measure of some aspect of the level of service that is provided.

What you should know

1- How to set metrics
2- Freshness
3- Formulas

Key Points

1- Understand the "math" what is being measured

SLA

What it is

This is an explicit or implicit contract with your users that includes consequences of meeting (or missing) the SLOs they contain

What you should know

1- These have penalties
2- Should be less strict than SLO's

Key Points

1- Compare SLA to SLO targets point

Error budget

What it is

Provides a clear, objective metric that determines how unreliable the service is allowed to be within a single quarter.

What you should know

1- How is this determined
2- What happen when this is exceeded or in danger

Key Points

1- How are these established and who is responsible.

Toil

What it is

Toil is the kind of work tied to running a production service that tends to be **manual, repetitive, automatable, tactical, devoid of enduring value, and that scales linearly** as a service grows

What you should know

1- What is toil
2- How to handle toil over time
3- What type of task are worth automating

Key Points

1- What should be the aim of engineering task vs toil. Automate this year's toil away

Review documents

SRE Book

Video

SRE playlist watch all

My experience

Various element of the SRE topics combine to make some interesting questions. Spend some time on each area and learn to appreciate your SLI metrics. Generally, a good area to pick up some points and not too hard if you understand them well.

Post-mortems

What it is

These are conducted after and incident and a great form of learning for everyone.

What you should know

1- Writing post-mortems based on SRE principles.

Key Points

1- No blame, root causes, action items

Alerting

What it is

While there may be many alerts ultimately, your goal is to be notified for a significant event: an event that consumes a large fraction of the error budget.

What you should know

1- Precision, Recall, Detection time, reset time

Key Points

1-. Target Error rate, Increased alert window, incrementing duration, Burn rate, multiple burn rate, multiwindow, multi-burn-rate alerts

Monitoring

What it is

Collecting, processing, aggregating, and displaying real-time quantitative data about a system, such as query counts and types, error counts etc.

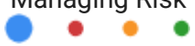
What you should know

1- Analyse long term trends.
2- Comparing over time

Key Points

Concepts in service monitoring

Managing Risk



What it is

Item or risk that may cause you to not meet the SLO

What you should know

1- Target risk that will bring you in the error budget
2. Quantify data

Key Points

1- Controlling and identify risk helps you manage your SLO

DevOps

What it is

Organizational and cultural movement that aims to increase software delivery velocity, service reliability, and shared ownership among stakeholders.

What you should know

1- Map SRE principles to DevOps

Key Points

1- No Silos, Accidents are normal, Gradual change, Tooling, measurement is crucial.

Handling Incidents

What it is

Things break so it is important to understand how and what to do when that happens.

What you should know

1- What options do you employ

Key Points

1- Roll back, Connection draining, stop testing, A/B, scaling

Review documents

SRE Workbook
Post-mortems
DevOps

Video

Improving reliability

Burn rate

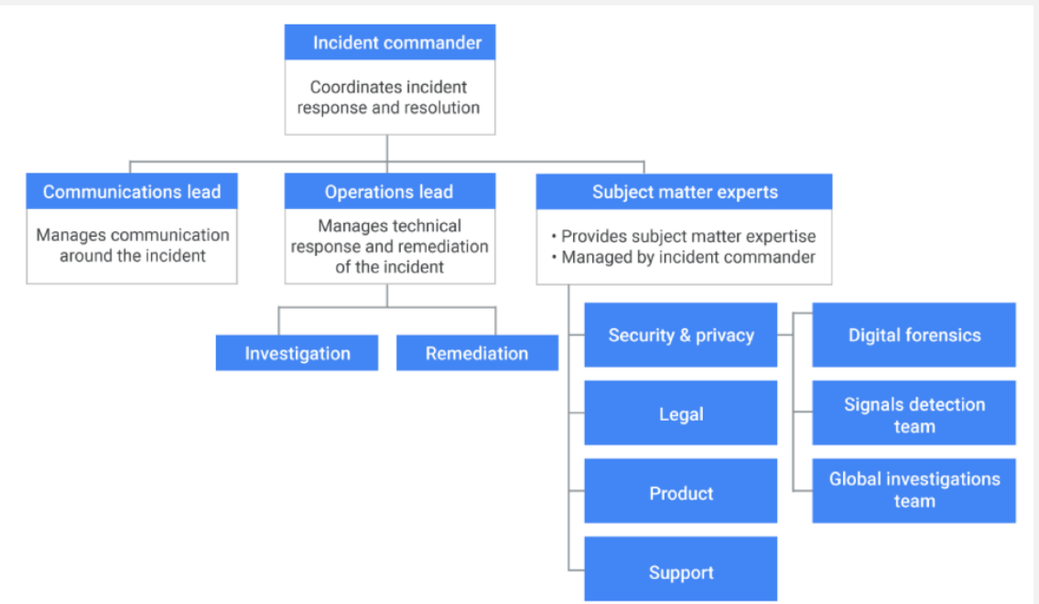
My experience

These topics make up the core of the SRE practice. Combined they will be featured and you can pick up a few points if you are prepared enough.

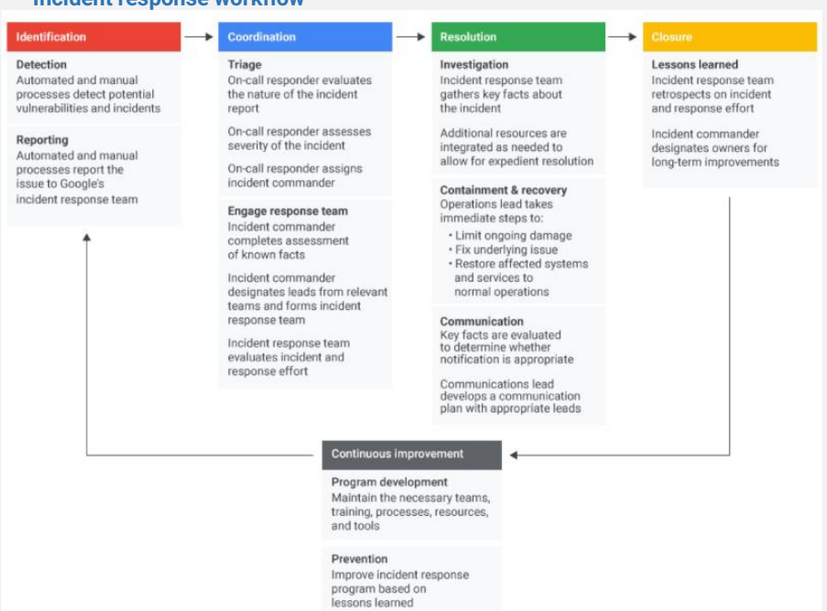
SRE

Response Structure	API lifecycle	Communication	API Error Codes			
What it is Communication and structure is a key part of handling incident.	**What it is** What is the process for your new deployment and life cycle of your API.	**What it is** Keeping stack holder in the loops. Communication is "KEY" the better it is the better for your incident management	**What it is** These codes give insight into performance of API			**Review documents** Data incident response API lifecycle Error codes **Video** SRE playlist
What you should know 1- Who handle what role 2- Delegation 3- Communication	**What you should know** 1 - Stages to replace an API	**What you should know** 1- Who handles communication in what circumstances 2-Internal and external communication	**What you should know** **1- 400, 500, 200 codes**			
Key Points 1- Operation lead, Communication lead, Incident commander	**Key Points** 1 - The order of the process 2 - Is it chicken or egg	**Key Points** 1- Communication loops	**Key Point** Error codes			**My experience** Handling incident is important. There are steps, roles, activities involved. Do not forget communication also.

Incident response team



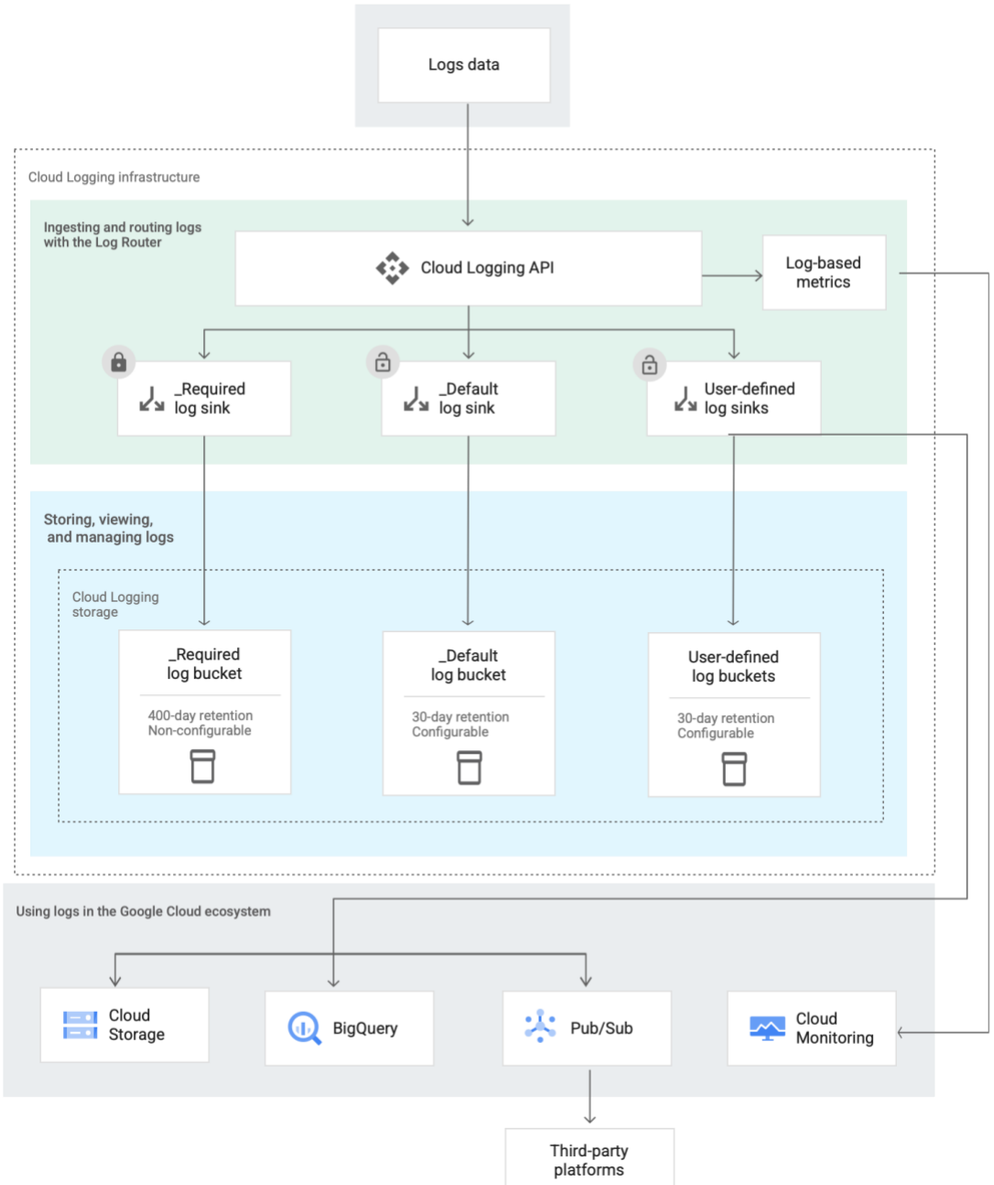
Incident response workflow



Cloud Operations						
Cloud Monitoring 	**What it is** Cloud Monitoring discovers and monitors your cloud resources automatically, whether you are running on Google Cloud, AWS or other.	**Key points** 1- Metrics 2- Custom metrics 3- Alerting policies 4- Monitoring	**What you should know** 1- Everything in depth about Cloud Operations	**Review documents** Monitoring docs	**Video** Best practice for monitoring	**My experience** Ok if you don't know Cloud Operations spend some time on it. This means you should do some testing an experimenting with all the features.
Cloud logging 	**What it is** Cloud Logging automatically collects logs from Google Cloud resources. You can also collect logs from your applications, on-prem resources, and resources from other cloud providers	**Key points** 1- How it works 2- Exporting	**What you should know** 1- As much as possible ☺	**Review documents** Log router Export to Splunk	**Video** Best practices for cloud logging Understand your services with Cloud Logging	**My experience** Ok if you don't know Cloud Operations spend some time on it.
Sharing charts 	**What it is** If you want, you can share a chart with others.	**Key points** 1- Sharing various chars is possible 2- Understand how to customise the parameter 3- Know the tag used	**What you should know** 1- How to create charts 2- How to share charts	**Review documents** Display SLO Sharing custom dashboard		**My experience** This can pick you up a point maybe.
Metrics scopes 	**What it is** By default, a Google Cloud project has visibility only to the metrics it stores. However, you can expand the set of metrics that a project can access by adding other Google Cloud projects to the project's *metrics scope*.	**Key points** 1- How to config 2- How to design 3- Every Workspace has a *host project* 4- Add existing account to workspace	**What you should know** 1- Required roles, project owner, monitoring editor, monitoring Admin, etc.	**Review documents** Metric Scopes Multiple projects Roles	Video How to use metric scopes	**My experience** Understand the steps to configure
Python 	**What it is** You can write logs to Logging from Python applications by using the Python logging handler included with the Logging client library	**Key points** 1- How to use with App engine, GKE, compute engine, locally 2- IAM permission required	**What you should know** 1- Logging library for python	**Review documents** Cloud logging for python Google Cloud Client Libraries for Python		**My experience** What about the others languages?
Ops Agent 	**What it is** The used to collect telemetry from virtual machine (VM) instances or third party applications.	**Key points** 1- Stream log from VM and 3rd party software packages 2- How to Install agent	**What you should know** 1 - Uses Fluent Bit 2 - Get syslog files 3 - Get third party logs	**Review documents** About the agent Configuring the agent		**My experience** Cloud Operations **is important.** Spend time on the components

Cloud Operations – Trace – Profiler						
Trace 	**What it is** Trace is a distributed tracing system that collects latency data from your applications and displays it in the Google Cloud Platform Console.	**Key points** 1- What type of problems you would use trace for.	**What you should know** 1- Latency 2- Permission errors 3- How & when to create custom roles 4- Service account permissions 5- X-Cloud-Trace-Context	**Review documents** Trace Force request to be traced	**Video** Distributed tracing with Open telemetry & Cloud Trace	**My experience** Think latency and finding it's cause.
Profiler 	**What it is** Profiler continuously analyzes the performance of CPU or memory-intensive functions executed across an application.	**Key points** 1- Capture characteristics of the code *as it runs* 2- Finds bugs 3- It does not require pervasive changes	**What you should know** 1- Show what happing within each service 2- Take random sample profiles	**Review documents** Profiler	**Video** Stackdriver profiler	**My experience** Know what your code is doing in real time, get analytics with profiler.
Alerting 	**What it is** You must configure most notification channels before you use them in alerting policies.	**Key points** 1- Different channels and how to use them for alerts	**What you should know** 1- Email, mobile apps, pagerduty, SMS, Slack, Webhooks	**Review documents** Notification Options Error reporting	**Video** Error reporting Alerting	**My experience** Alerts can be sent using multiple channels. Understand the integrations.
Cloud Operations for GKE 	**What it is** Designed to monitor GKE clusters	**Key points** 1- Features and use		**Review documents** Cloud Operations for GKE	**Video** Manage GKE service with Cloud Operation	**My experience** Good to know
Cloud IAM 	**What it is** With the logging data in a Google Cloud project, you must be a member and have an Cloud IAM role that grants you permission to use Logging	**Key points** 1- What are the various roles and the permissions they have to do various functions 2 – Data Access audit logs	What you should know 1- Permissions level necessary to export logs 2- (Logging.configWriter, logging.admin owner, logging.privateLogViewer)	**Review documents** Role etc Export logs Permission and roles		**My experience** IAM permissions are necessary to run most services. You may as well get familiar with them.

Routing and storage overview



Data

BigQuery

What it is

BigQuery is a serverless, highly scalable, and cost-effective cloud enterprise data warehouse that enables super-fast SQL queries using the processing power of Google's infrastructure.

What you should know

1- How it works with Cloud operations etc.

Key Points

1- Sinks, viewing logs, exporting logs, ingesting logs

Looker Studio

What it is

allows you to create branded reports
with **data** visualizations to share with your clients.

What you should know

1- Integrating Google services these services

Cloud Storage

What it is

Used for a range of scenarios including serving website content, storing data for archival and disaster recovery, or distributing large data objects to users via direct download.

What you should know

1- What it does, classes
2- Integrations
3- Uses for DevOps (TF state, storage, etc)

Pub/Sub

What it is

Cloud Pub/Sub is a *publish/subscribe* (*Pub/Sub*) *service*: a messaging service where the senders of messages are decoupled from the receivers of messages

What you should know

1- Multiple uses and integration of Pub/Sub

Key Points

1- Be aware of the services that can use it as a trigger

API gateway

What it is

API Gateway is an API management system that provides management, monitoring, and authentication for your APIs.

What you should know

1- How does this work

API Gateway
HTTP(S) LB for API gateway

Recommender

What it is

A recommender is a service on Google Cloud that provides usage recommendations for Google Cloud resources.

What you should know

1- What it is used for
2- Syntax of recommenders

Key Points

recommender
Recommender list

Review documents

Pub/Sub
BigQuery
Continuous Data integration in BQ
Cloud storage
API Gateway

Video

BigQuery Spotlight
API gateway
Recommender Playlist

My experience

All these may appear as single or combinations in the exam so get familiar.

Networking / Compute

Computer Engine

What it is

Compute Engine delivers configurable virtual machines running in Google's data centres with access to high-performance networking infrastructure and block storage.

What you should know

1- Monitor these with Ops Agent
2- Monitor application on VM

Managed Instance Groups

What it is

A managed instance group (MIG) contains identical instances that are based on an instance template.

What you should know

1- What it does (autoheal, load balancing, autoscaling an auto-updating.

Key Points

1- Keep scenarios in mind where you would use these for deployments

Flow logs

What it is

VPC Flow Logs record a sample of network flows sent from and received by VM instances, including instances used as GKE nodes

What you should know

1- Log entry sampling (default 0.50 (50%)) max is 1
2- TCP/UDP traffic
3- Health checks

Key Points

1-What you can monitor with it
2- Used for seeing what's happening in the network

Network service Tier

What it is

Allows customers to optimize their cloud network for performance or price optimisation.

What you should know

1- When to use. Premium and standard
2- What is the difference and trade-off

Key Points

1- Managing cost (know the trade-offs also)

Spot/Preemptible VM's

What it is

Best for short-lived compute instances suitable for batch jobs and fault-tolerant workloads.

What you should know

1- How, when to use these to save cost or help processing

Committed use CUD

What it is

Committed use discounts are ideal for workloads with predictable resources needs.

What you should know

1- Predictable work needs
2- Term 1-3 years
3- Billed weather used or not monthly
4- review SUDs also

Key Points

1- Requirements and recommendation for use.

Review documents

Committed use
Sustained use
Managed instances
Preemptible VM
Spot VMs
Network Service Tier
Flow logs

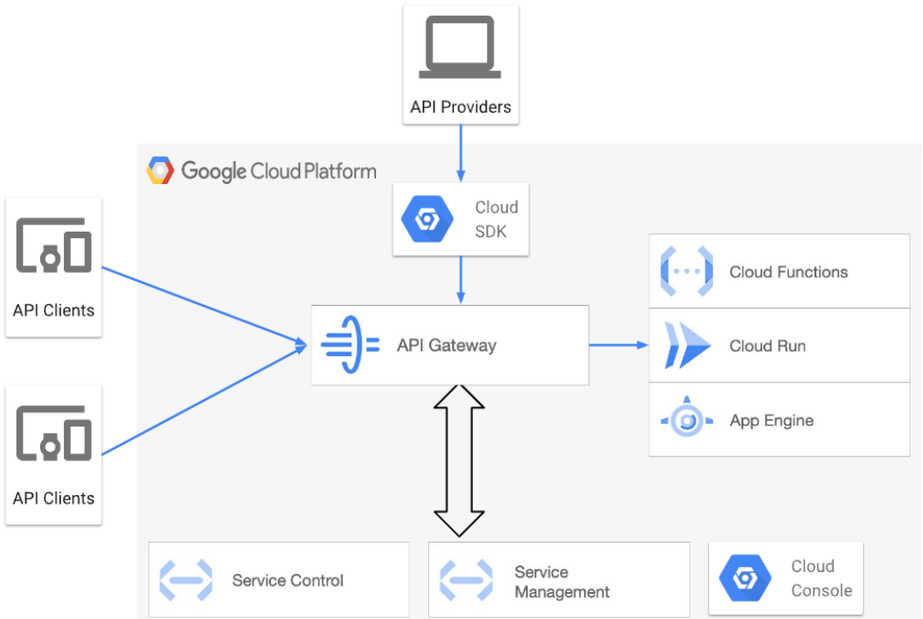
Video

Highly available deployments

My experience

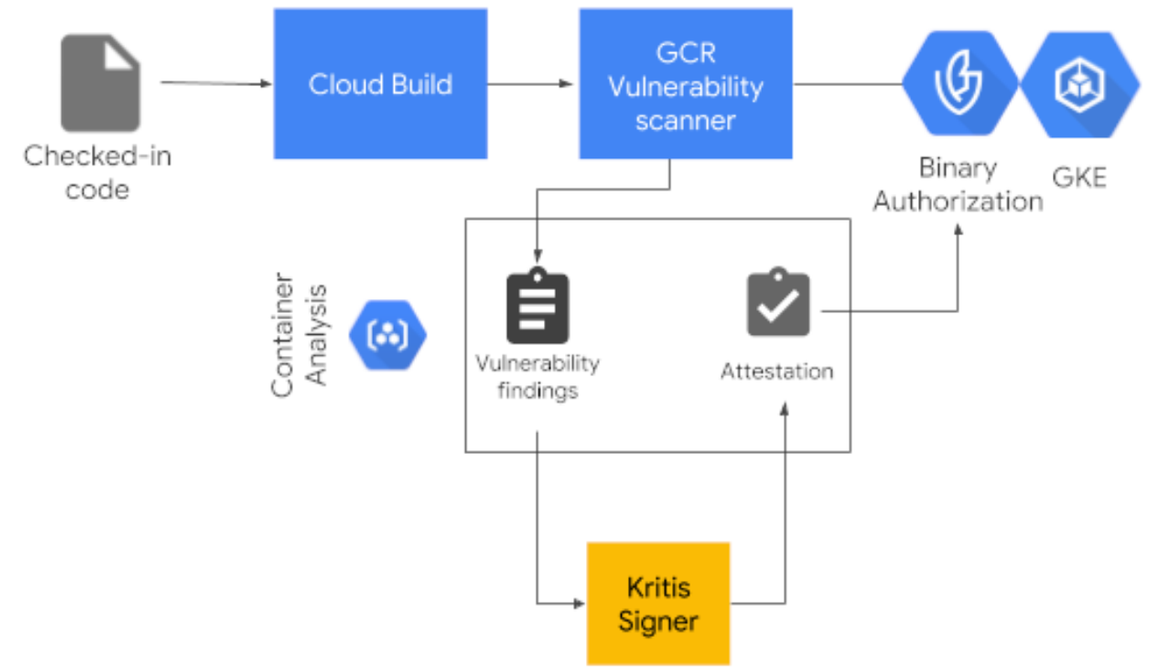
The networking once again is a key point in any cloud infrastructure same applies in DevOps. Get familiar with these and pick up a point or 3

API Gateway Architecture

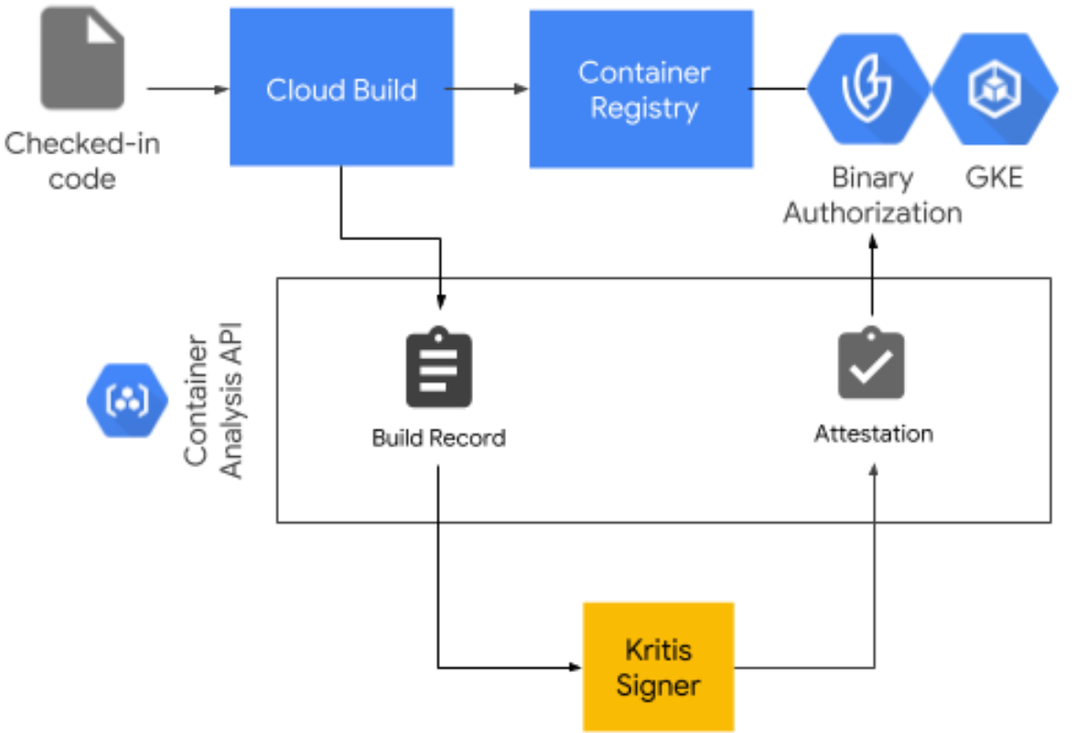


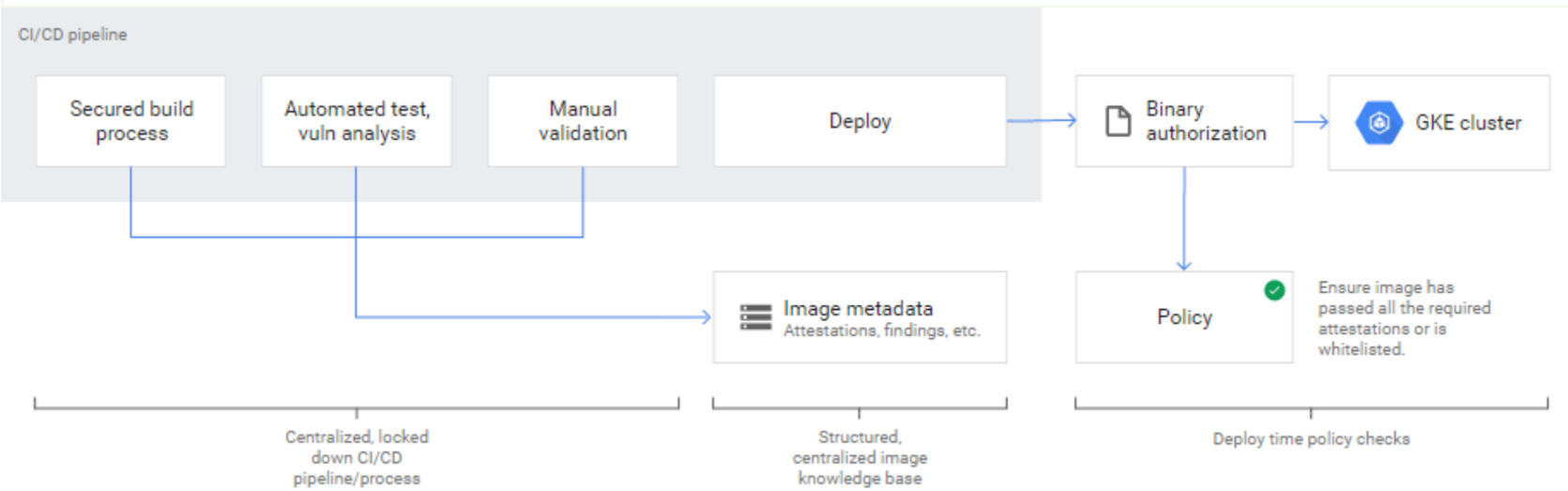
Security						
Service accounts 	**What it is** IAM lets you manage who has access to what in you GCP environment.	**Key points** 1- All the services need some level of permissions to run. 2- User service account or not	**What you should know** 1- Modify permission on service accounts. 2- Organizational Constraints constraints/iam.disableServiceAccountKeyCreation	**Review documents** IAM roles	**Video** Best practices for identity	**My experience** IAM is a core concept in Google Cloud.
KMS 	**What it is** Cloud KMS is a cloud-hosted key management service that lets you manage encryption for your cloud services the same way you do on-premises. .	**Key points** 1- You can generate, use, rotate, and destroy cryptographic keys	**What you should know** 1- Using cloud KMS with other Google Cloud services (especially developer based)	**Review documents** Using cloud KMS with other products	**Video** Securing Kubernetes secrets	**My experience** KMS helps you in many ways. Figure out which ways you need to be helped.
Secret Manager 	**What it is** Secret Manager provides a secure and convenient tool for storing API keys, passwords, certificates, and other sensitive data.	**Key points** 1- Encrypt, store and audit (infrastructure and apps secrets) 2- You can address individual version of a secret 3- Rotation	**What you should know** 1-Applications often require access to small pieces of sensitive data at build or run time. These pieces of data are often referred to as *secrets*.	**Review documents** Secrets Manager Secrets	**Video** Cloud Run secrets securely with secret manager Cloud Code	**My experience** Secrets will pop up somewhere, so now it's no longer a secret.
Cloud SCC 	**What it is** Security Command Center gives enterprises consolidated visibility into their Google Cloud assets across their organization.	**Key points** 1- What it does.	**What you should know** 1- What may be relevant for your pipeline.	**Review documents** Security Command Center	**Video** Cloud security cc	**My experience** Good to know
Binary Authorisation 	**What it is** Binary Authorization is a service on Google Cloud Platform (GCP) that provides software supply-chain security for applications that run in the Cloud.	**Key points** 1- Allows or blocks deployment of images to GKE based on policy 2- Attestation 3- Enforcement functionality 4 Authorization	**What you should know** 1-Know the flow of binary authorisation **(Très important)**	**Review documents** Secure software chains Codelab Binary authorization	**Video** Binary Authorisation Demo	**My experience** This is a bit confusing so study the flow and the stages
Images 	**What it is** Artifact Analysis provides vulnerability information and other types of metadata for the container images in Artifact and Container Registry.	**Key points** 1- Allow vulnerability scanning and metadata storage for software artifacts	**What you should know** 1- Performs scans on images -Incremental scans -Continuous analysis	**Review documents** Get image vulnerabilities	**Video** Building small containers End-To-End Security and Compliance for Your Kubernetes Software Supply Chain	**My experience** Think secured images and secure deployments

Binary Authorization/vulnerability



Binary Authorization/Cloud Build





BY AMMETT

DevOps and tools

Git

What it is
Git is a version control app which handle everything from small to large projects with speed an efficiency.

What you should know
1- What it is and how it aligns with DevOps

Code process

What it is
Stages involved in DevOps.

What you should know
1- Put code into SCM, Build, Test, Stage, deploy, test code, Run

Key Points
1- Know the steps

Jenkins

What it is
Jenkins is an open source automation server that enables developers around the world to reliably build, test, and deploy their software.

What you should know
1- What it does, flow, stages, uses with GCP

Key Points
Jenkins

Spinnaker

What it is
Spinnaker on GCP is a tool for easily installing a production-ready instance of Spinnaker, and for managing that instance over time.

What you should know
1- Stages it does, flow, stages, uses with GCP

Key Points
1- Triggers for Spinnaker (Important)

Spinnaker cloud build pub/sub

Terraform

What it is
Terraform is a tool for building, changing, and versioning infrastructure safely and efficiently developed by HashiCorp

What you should know
1- Using terraform to manage code in a team (Central repository, peer review, one final source)

Key Points
Terraform best practices

Store state

Webhooks

What it is
A Webhook target is an open and public URL. Most services provide a token or a secret to ensure that the incoming requests are from authorized services

What you should know
1- What is it
2- Where and what services it's used with
3- How to set up

Review documents

Jenkins
Webhooks
Terraform

Video

CI/CD across multiple Terraform Spinnaker

My experience

These tools and terms have a high probability of being used and the flows are very important. Get some lab practice, try out Terraform to clarify anything in your mind.

CI

What it is
CI follows the principle of frequent automatic integration of code. It is easier to make small frequent changes.

What you should know
1- Helps find bugs faster
2- Automatically test all new and modified code with the master code.

Key Points
1- Continuous Integration

CD

What it is
Extension of **Continuous Integration**

What you should know
1- Ensures that the code is always ready to be deployed
2- Manual approval is required to actually deploy the software to production

Key Points
1- Continuous delivery

Triggers

What it is
A **trigger** automatically starts a build whenever you make any changes to your source code.

What you should know
1- Types of triggers, how to create triggers. (important)

Artifacts

What it is
If your build produces artifacts such as container images, binaries, or tarballs, you can store them in Container Registry, Cloud Storage, or any private third-party repositories.

What you should know
1- Where / How to store (Container registry or Cloud Storage)

JSON

What it is
JSON stands for JavaScript Object Notation. JSON is a lightweight format for storing and transporting data

What you should know
1- General Syntax

YAML

What it is
YAML is a human-readable data-serialization language.

What you should know
1- General Syntax

Review documents

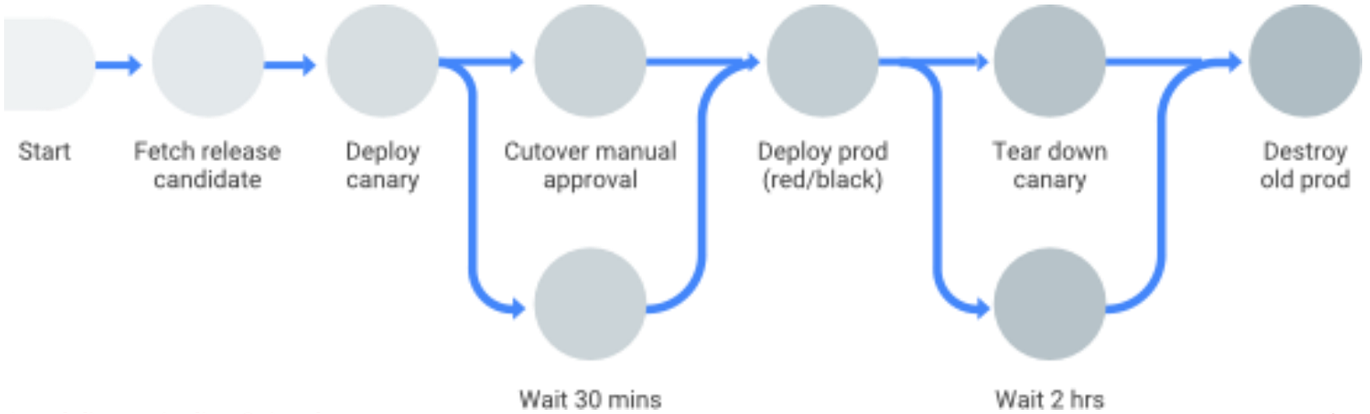
Triggers

Artifacts

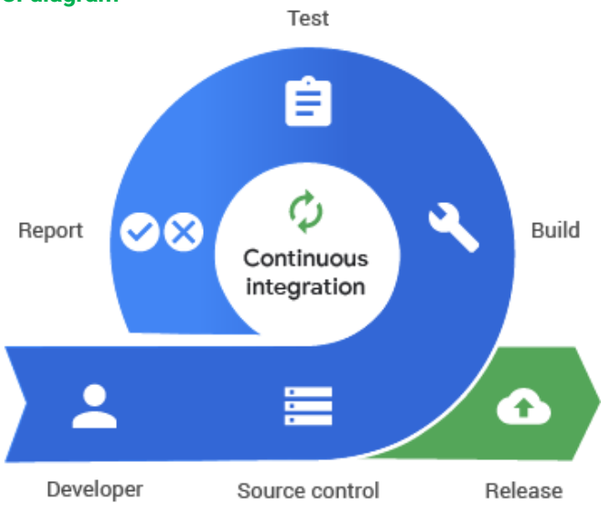
My experience

Understanding what these terms are will help you understand the point of view of the question. These are core terms in the DevOps process

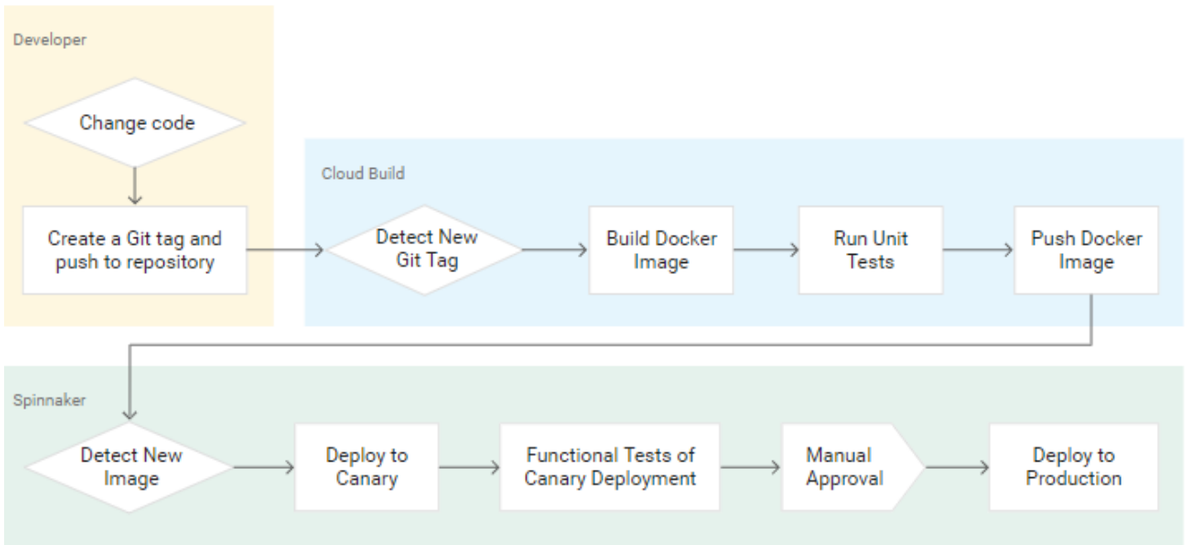
CD diagram



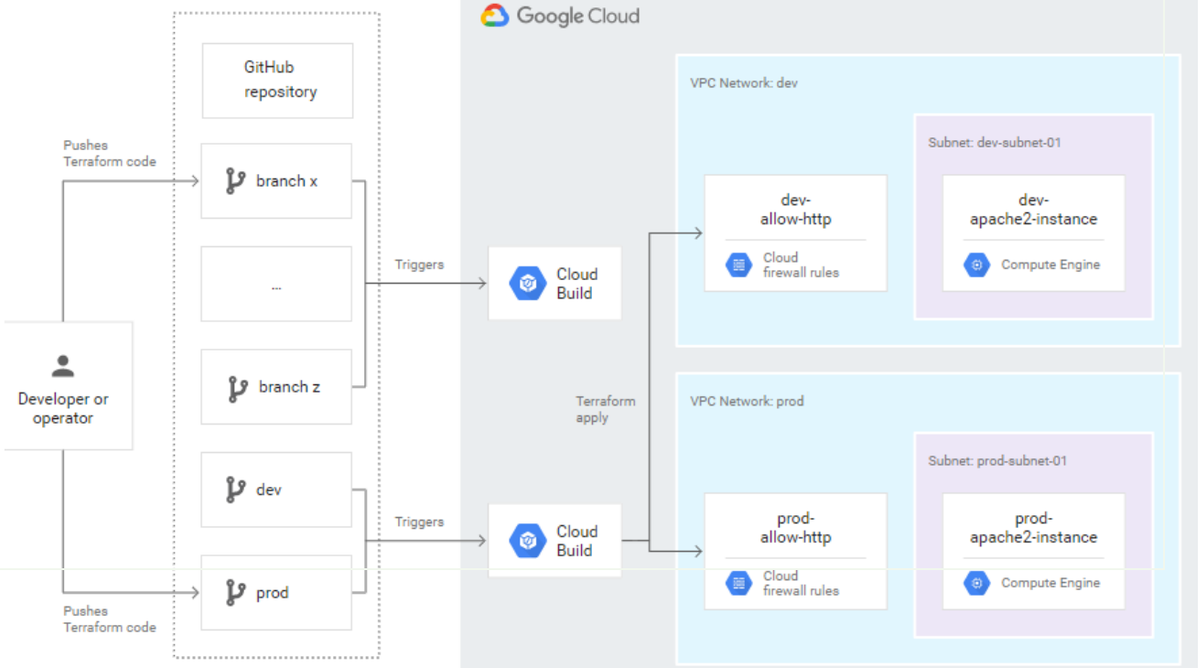
CI diagram



App delivery pipeline Spinnaker



Terraform, Cloud Build and Gitops



Kubernetes - DevOps on Google

GKE

What it is
GKE provides a managed environment for deploying, managing, and scaling your containerized applications using Google infrastructure.

What you should know
1- This is standard understand deployment, scaling, load balancing, rollbacks) important

RBAC
Performing rolling updates

Deployments

What it is
A Deployment runs multiple replicas of your application and automatically replaces any instances that fail or become unresponsive.

What you should know
1- What is a deployment
2- How to use a deployment for rollout and testing

Key Points
1- Difference between deployment and replica set

ReplicaSets

What it is
ReplicaSet's purpose is to maintain a stable set of replica Pods running at any given time

What you should know
1- What it is
2- Difference from a deployment

Load balancer

What it is
This can be exposed as a service type LoadBalancer in kubernetes to create a Network Load Balancer to distributes traffic among virtual machine (VM)

Getting metric, scaling, placement, have a good general appreciation of this

Ingress

What it is
An Ingress object defines rules for routing external HTTP(S) traffic to applications running in a cluster

What you should know
1- The purpose and setup of ingress

Workload identity

What it is
allows workloads in your GKE clusters to impersonate IAM service accounts to access Google Cloud services.

What you should know
1- How it works
2- Outside secrets

Video
GKE workloads with work identity

Configure workload Identity

Review documents
GKE
Canary
Deployments
ReplicaSets
Load balancer

Video
Canary GKE
Artifact registry to GKE
GKE Essentials

My experience

GKE is standard and you should spend some time on it**.** All the topics mention here can be combined and referenced in term of **uses and DevOps so don't ignore them.**

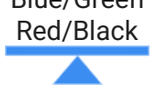
Rolling deployments

What it is
Rolling update deployment, you update a subset of running application instances instead of simultaneously updating every application instance

What you should know
1- Problem that is solved
2- How it works in GKE, MIG

Performing rolling updates GKE

Blue/Green Red/Black



What it is
Blue/green deployment maintains two instances of a system: one that is serving traffic (green), and another that is ready to serve traffic (blue).

What you should know
1- Difference from canary and how it's deployed (general knowledge)

Node pool upgrade strategies GKE

Canary

What it is
A way of comparing a candidate version again a baseline to check deviations in behaviour

What you should know
1- When to use, how it works
2- Uses for DevOps (important)

Key Points
1- What you are comparing again (current production version)

Anthos

What it is
Anthos is Google's cloud-centric container platform for running modern apps anywhere consistently at scale.

What you should know
1- How it works

Anthos congif management

What it is
Create a common configuration across all your infrastructure, including custom policies, and apply it both on-premises and in the cloud.

What you should know
1- How it works
2- Components Policy controller, Config Sync, Config controller

Config connector

What it is
Open Source Kubernetes add-on to manager Google Clouse resources through GKE

What you should know
1- What it is

Review documents
Rolling deployments
Blue/green
Canary
Anthos
Anthos config management
Config connector

Video
Deployments Canary
KRM Toolchain
Canary GKE

My experience
Deployment methods you should know well, along with awareness of Anthos congif manager components

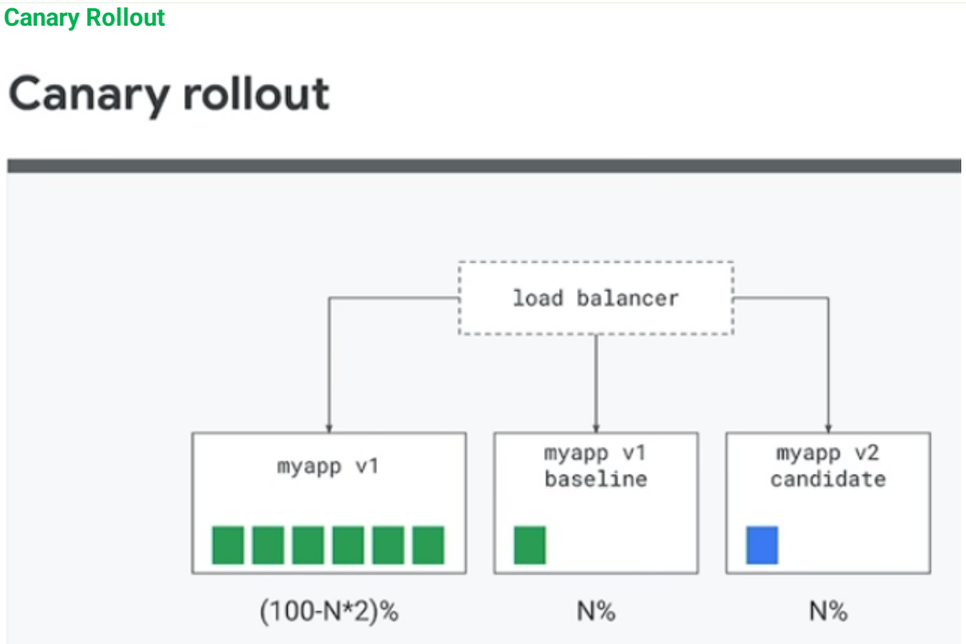
DevOps on Google – key services

Cloud Source Repositories	Cloud Build	Cloud Build private Pools	Cloud Composer	Deployment Manager	Cloud Run	Review documents
						Cloud Source repository Cloud Composer Deployment Manager Modify IAM permission CB Cloud Build pools Cloud Build Cloud run Traffic migration
What it is Cloud Source Repositories are fully featured, private Git repositories hosted on Google Cloud.	**What it is** Cloud Build executes your build as a series of *build steps*, where each build step is run in a Docker container.	**What it is** **Private pools** are private, dedicated pools of workers that offer greater customization including the ability to access resources in a private network.	**What it is** managed workflow orchestration service, enabling you to create, schedule, monitor, and manage workflow pipelines that span across clouds and on-premises data centers.	**What it is** Deployment Manager is an infrastructure deployment service that automates the creation and management of Google Cloud resources	**What it is** Cloud Run is a managed compute platform that lets you run containers directly on top of Google's scalable infrastructure.	**Video** Continuous integration for Cloud Run Point and click deployment Cloud Run
What you should know 1- Integration with other GCP tools.	**What you should know** 1- Import source code from Cloud storage, Github, Bitbucket etc 2- Produces artifacts (docker or java)	**What you should know** 1- How it works	**What you should know** 1- Components and how it works. 2- Manages across environments 3-Based on Apache airflow	**What you should know** 1- When to use. 2- Different templates.	**What you should know** 1- Ho to deploy 2-Traffic migration, rollouts, rollbacks 3- Traffic splitting	**My experience** These tools **(Cloud Build, Cloud Repositories, Cloud Composer, Cloud Run, etc)** will appear in various ways in the exam. Understand these well. And how to manage and deploy
	Proper understanding of cloud build capabilities is important		**Video** Cloud Composer for data orchestration	**Key Points** 1- Config written in YAML must contain Name, Type, Properties 2- Templates written in python or jinja2		

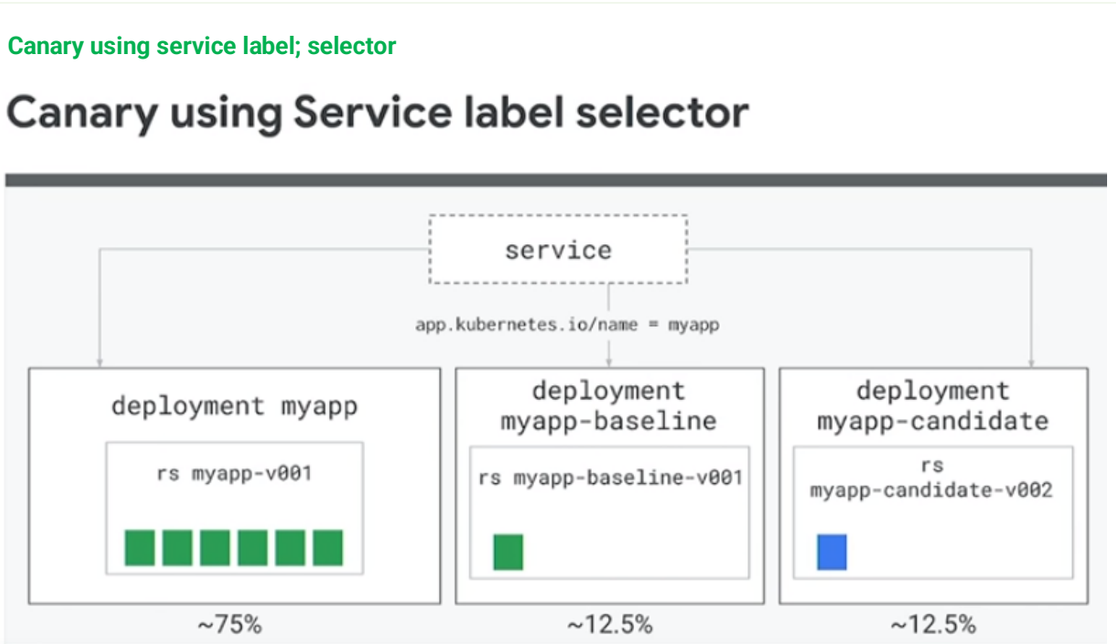
DevOps on Google – key services

GitOps	Artifact registry	Container Registry	App Engine	Helm Charts		Review documents
						GitOps Artifact registry Container registry App engine Work with helm charts
What it is Is a concept using a Git repository to store the environment state that you want	**What it is** Cloud Build executes your build as a series of *build steps*, where each build step is run in a Docker container.	**What it is** Container Registry is a private container image registry that runs on Google Cloud.	**What it is** App Engine is a fully managed, serverless platform for developing and hosting web applications at scale	**What it is** A chart is a HELM packaging format. It is a collection of files that describe a related set of Kubernetes resources.		**Video** CI/CD anywhere CI testing with Cloud Build
What you should know 1- How to use GitOps style in Google Cloud	**What you should know** 1- manage images in various formats 2- OCI	**What you should know** 1- How it works 2- Images (pulling and pushing)	**What you should know** 1- Understand it's functions 2- Get current open connections	**What you should know** 1- OCI format Manage charts		**My experience** These tools **(GitOps Artifact registry, AppEngine, Helm Charts)** may appear in various ways in the exam.

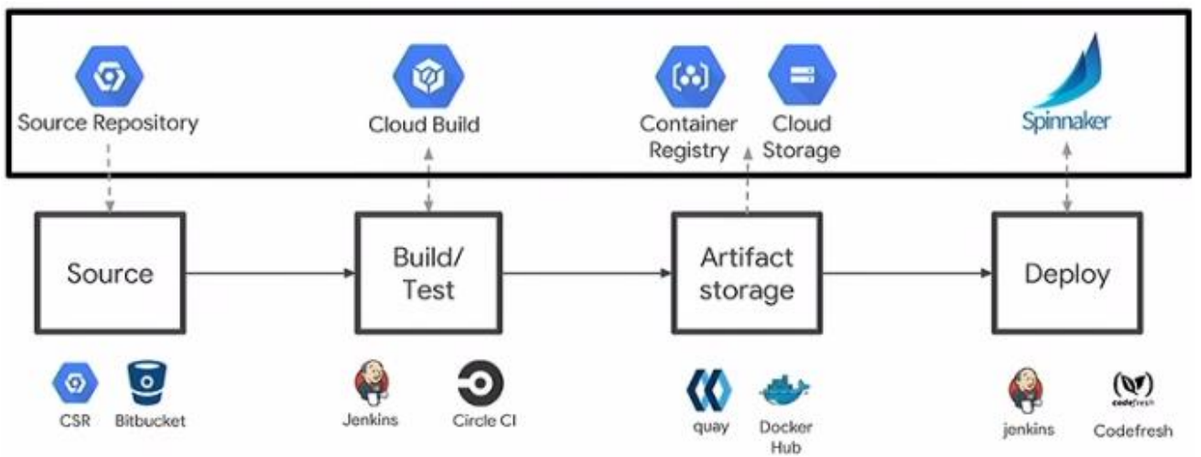
Canary Rollout



Canary using service label; selector



CI \ CD on Google Cloud



Hostname	Storage location
gcr.io	Stores images in data centers in the United States
asia.gcr.io	Stores images in data centers in Asia
eu.gcr.io	Stores images in data centers within member states of the European Union
us.gcr.io	Stores images in data centers in the United States

Performance						
Speeding up builds 	AutoScaling Deployments GKE 	MTTR 	Structure of metric types 	Troubleshooting agents 	Prometheus Managed Service 	**My experience** Now these are super helpful. That's all I am going to say Video Google Cloud managed service for Prometheus Troubleshoot the Ops Agent
What it is Quick ways to improve deployment speed	**What it is** This is a target value or range of values for a service level that is measured by an SLI.	**What it is** MTTR, MTTD, MTBF etc	**What it is** Take some time to understand observability metric types	**What it is** Things break and can give problem check out these troubleshooting tips for your ops agents	**What it is** Prometheus is an open-source systems monitoring and alerting toolkit	
Review Documents Speeding up builds	**Review Documents** Autoscaling deployments	**Review Documents** MTTR	**Review Documents** Metric Types	**Review Documents** Troubleshooting Agents	**Review Documents** Prometheus Managed service	

Thanks for reviewing

- Please visit the official certification outline HERE
- Practice test from Google HERE

ps. These are my notes and deep dive resources for the latest Cloud DevOps exam. This updated exam is a tough exam. Every area on the document represents a topic that has a strong probability of appearing. Google may change the exam requirements at any time so always review the outline.

The knowledge is free it just cost me a good bit of time to put together. Please share with your network who may be interested in the GCP Cloud DevOps Exam or just need a quick refresher on these topics.

You can also check my all my **prep notes** for other **Google Cloud Certs** exams **HERE**

If these help you give me a shout on LinkedIn.

Bonne Journée

Start Cloud Now