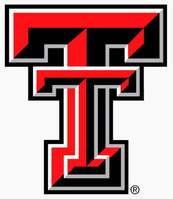
Google Developer Student Clubs

1st GCP Workshop

Texas Tech University

Fundamentals of Cloud Computing with GCP



TEXAS TECH UNIVERSITY

Google Cloud Platform

Meet your Instructors!

Atharva Lade

Developer Projects Lead - GDSC
Lecturer - GCP Workshop Series
Finance Lead - HackWesTX 23

Aniket L. Avasare

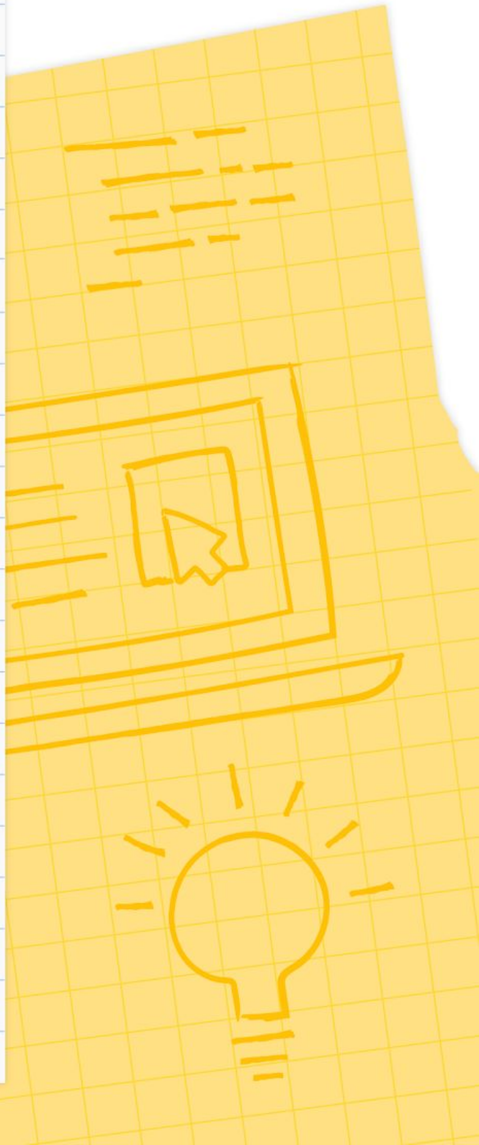
Event Planning Lead - GDSC
Lecturer - GCP Workshop Series
Marketing Lead - HackWesTX 23

Google Developer Student Clubs

Scan to Join Our Community !!

Join the club if you haven't already!

1. Join the discussion on our Discord
2. Join us officially on the GDSC website
3. **Join us on Tech Connect for important updates and Newsletters**



No Prerequisites!

This course is intended for absolute beginners with no prior experience or knowledge of GCP or Cloud Computing.

This is a mildly-theoretical course so make sure you take notes and grasp everything while you are here!

Which workshop is this?

1. **Google Cloud Computing Foundations: Cloud Computing Fundamentals**
2. Google Cloud Computing Foundations: Infrastructure in Google Cloud
3. Google Cloud Computing Foundations: Networking and Security in Google Cloud
4. Google Cloud Computing Foundations: Data, ML, and AI Google Cloud

Workshop 1:

- Introduction
- Cloud Computing
- Cloud vs. Traditional Architecture
- Iaas, PaaS, and SaaS
- Google Cloud Architecture
- The Google Cloud Console
- Understanding Projects
- Billing in Google Cloud

So, what’s the cloud anyway?

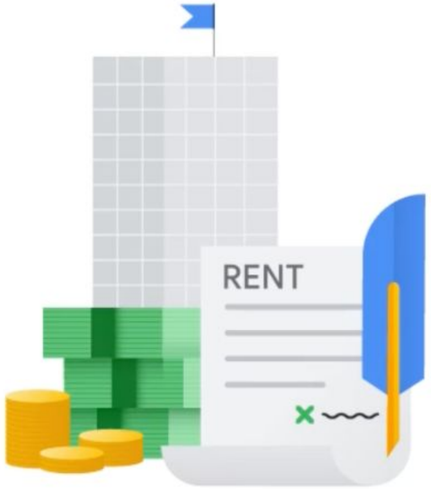
What is Cloud Computing?

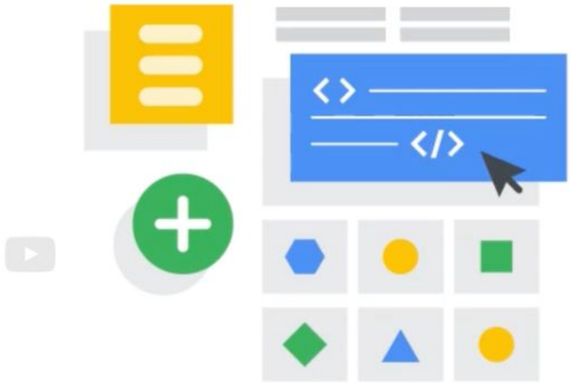
Cloud computing is a way of using **information technology (IT)** that has these 5 traits:

1. Computing resources are on-demand and self service.
2. Services can be accessed over the internet
3. The provider of has a large pool of services and resources- Bulk Purchases
4. The services are elastic - Customer's flexibility
5. Customers only pay for what they use.

Cloud Computing
vs
Traditional Infrastructure

The history of cloud computing





First wave

Colocation

Second wave

Virtualized data center

Third wave

Container-based architecture

Types of Cloud Services

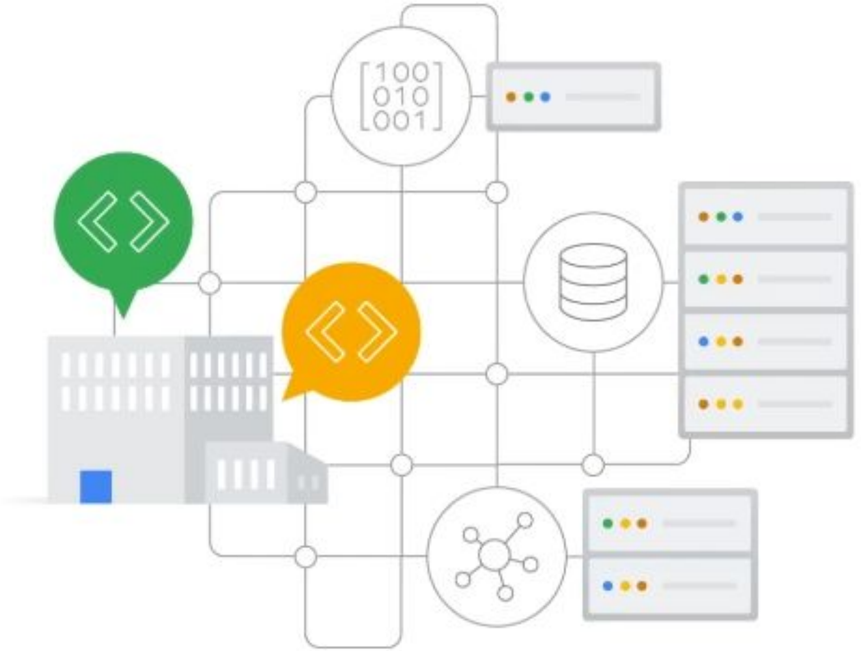
IaaS : Infrastructure as a Service

PaaS: Platform as a Service

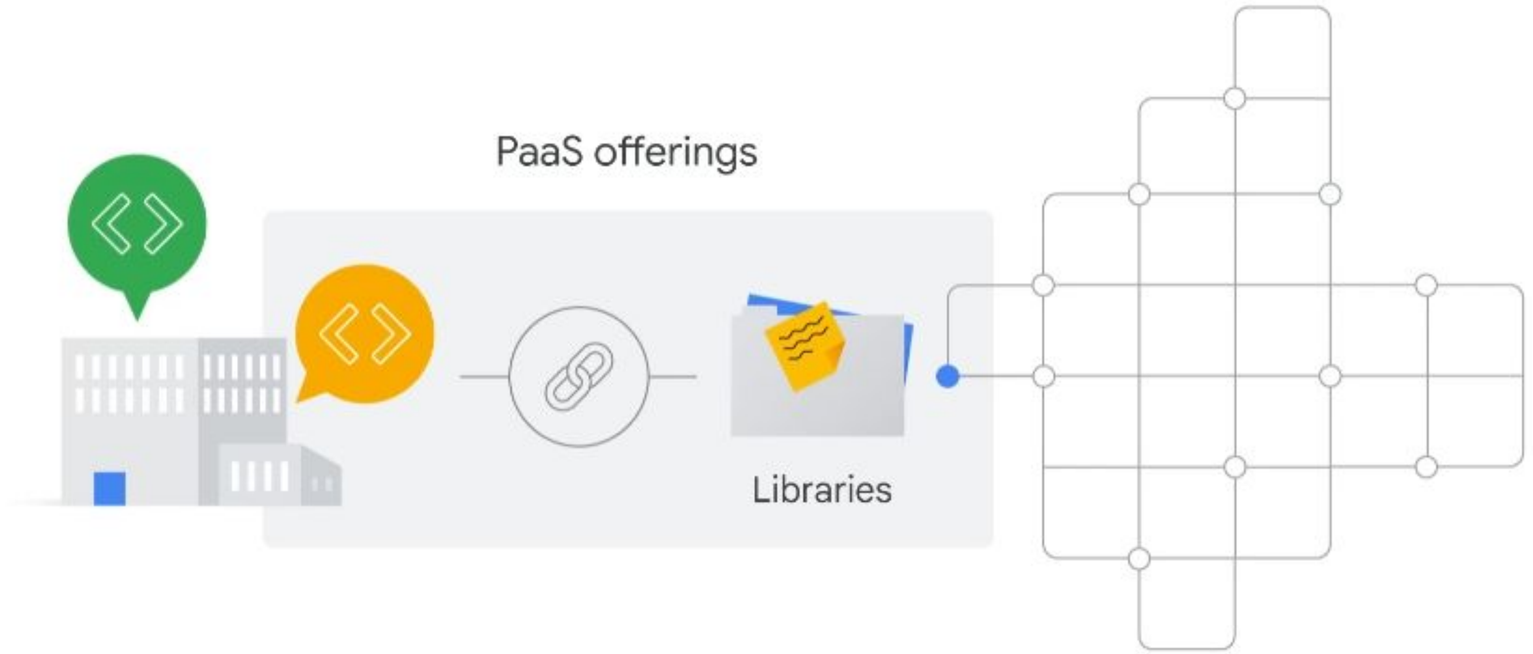
SaaS: Software as a Service

Infrastructure as a Service (IaaS)

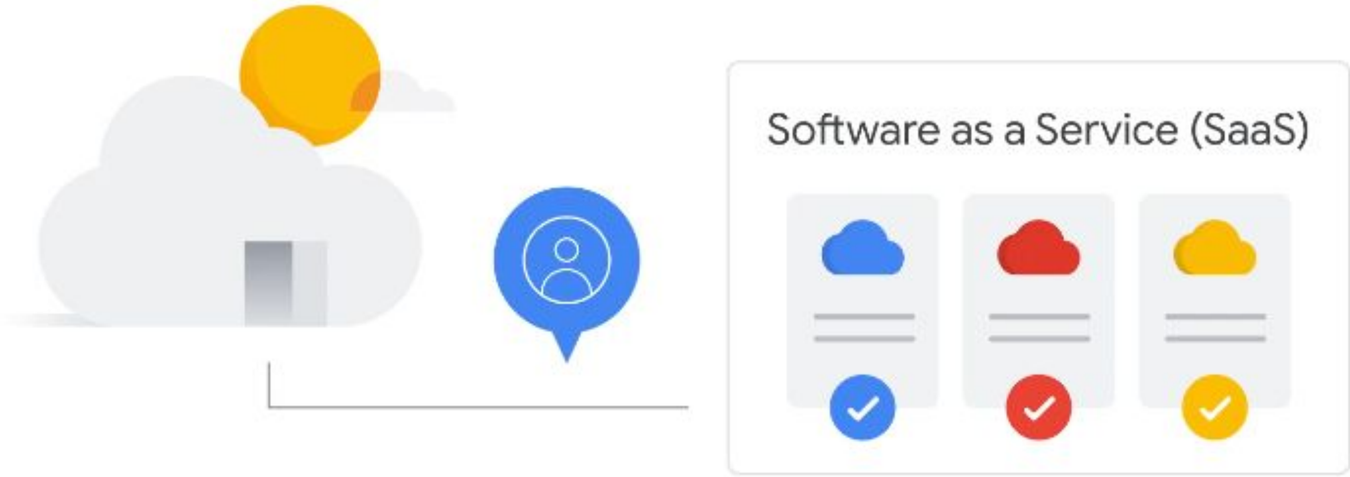
- Raw compute
- Storage
- Network capabilities

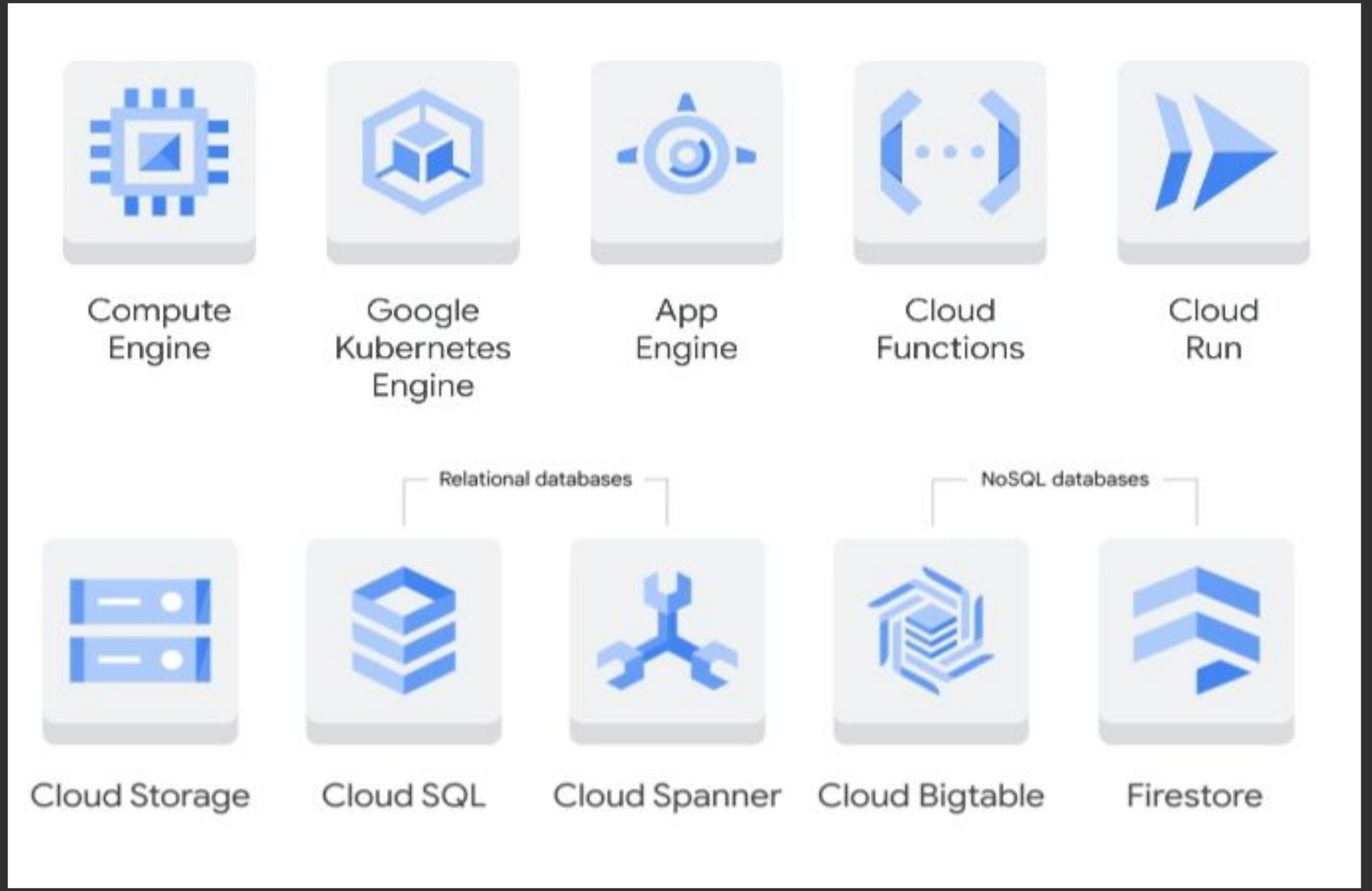


Platform as a Service (PaaS)



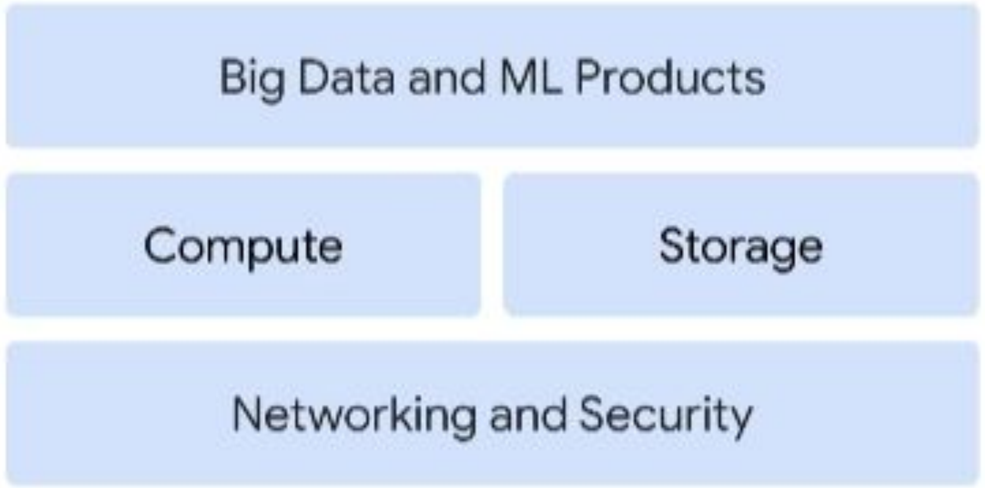
What about SaaS?

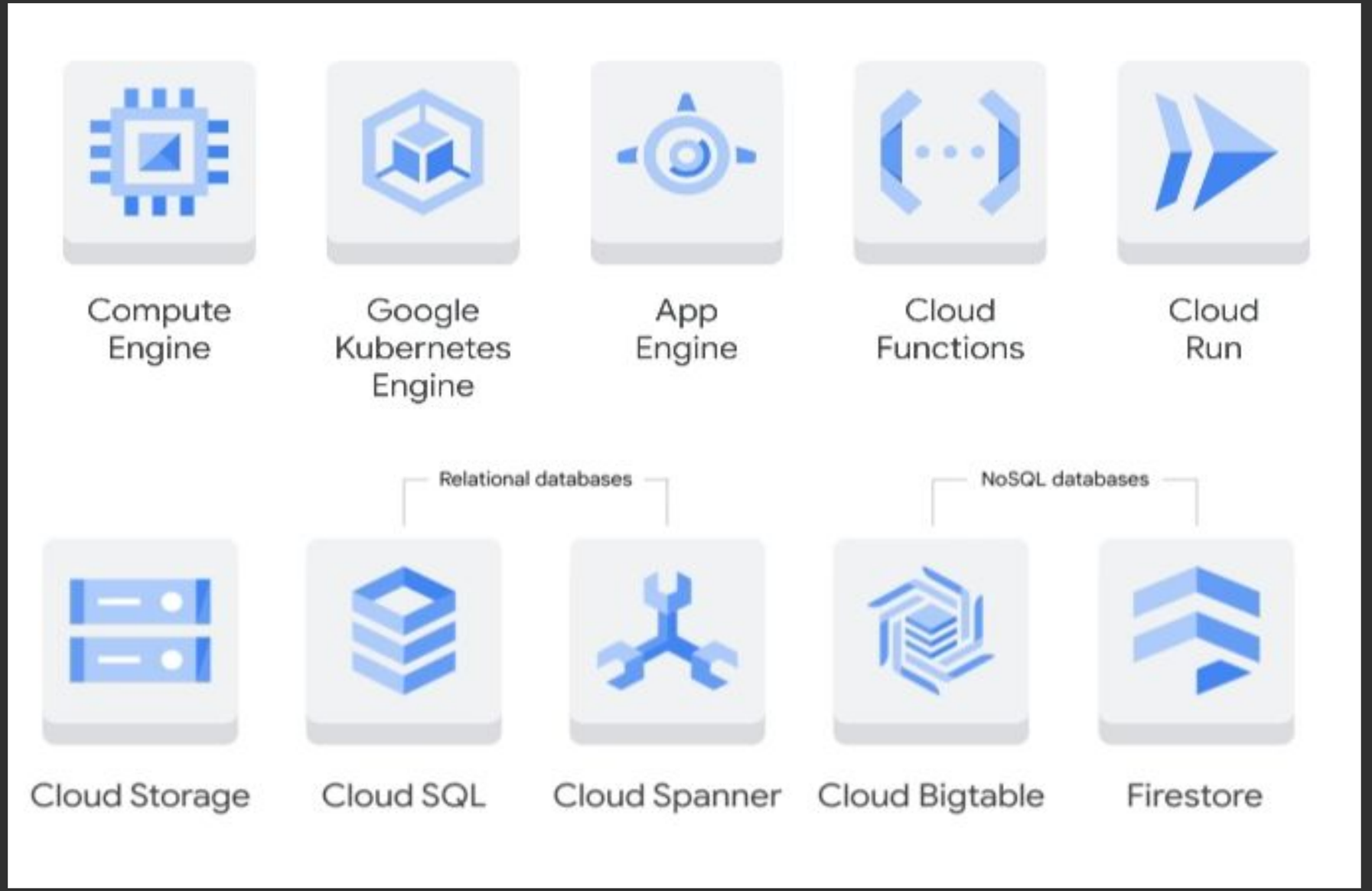



Compute Engine
Google Kubernetes Engine
App Engine
Cloud Functions
Cloud Run
Relational databases
NoSQL databases
Cloud Storage
Cloud SQL
Cloud Spanner
Cloud Bigtable
Firestore

Google Cloud Architecture

The Google Cloud infrastructure




Compute Engine
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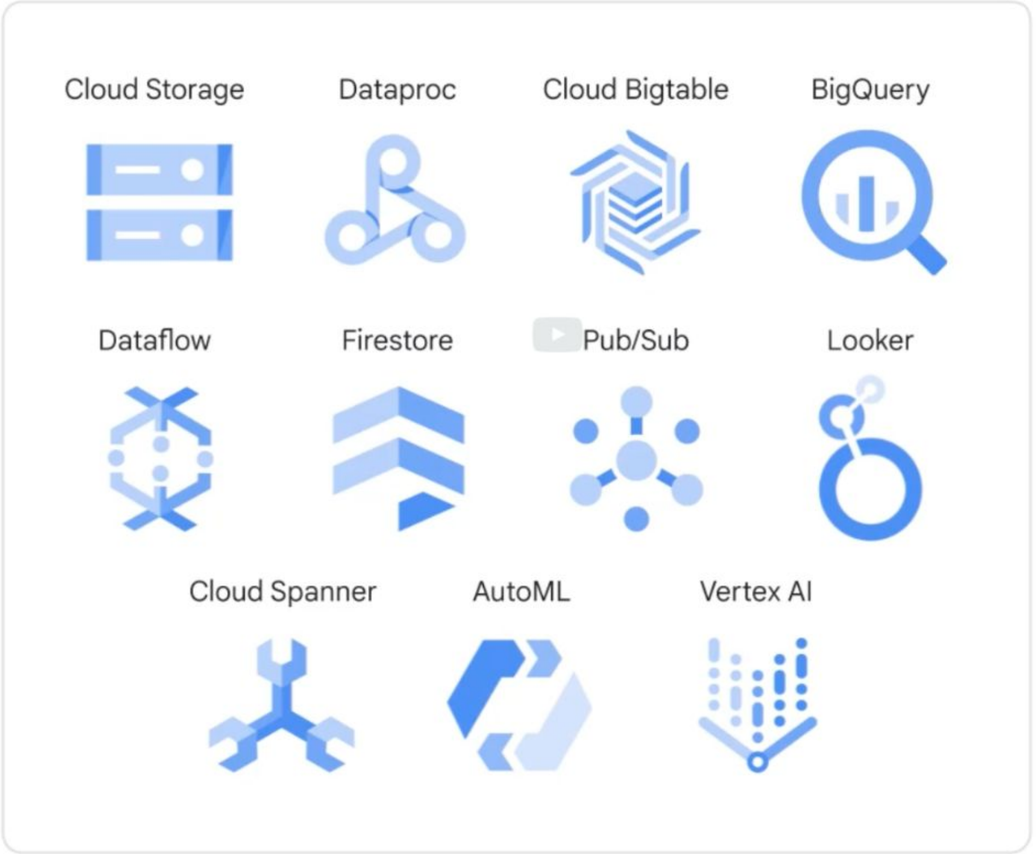
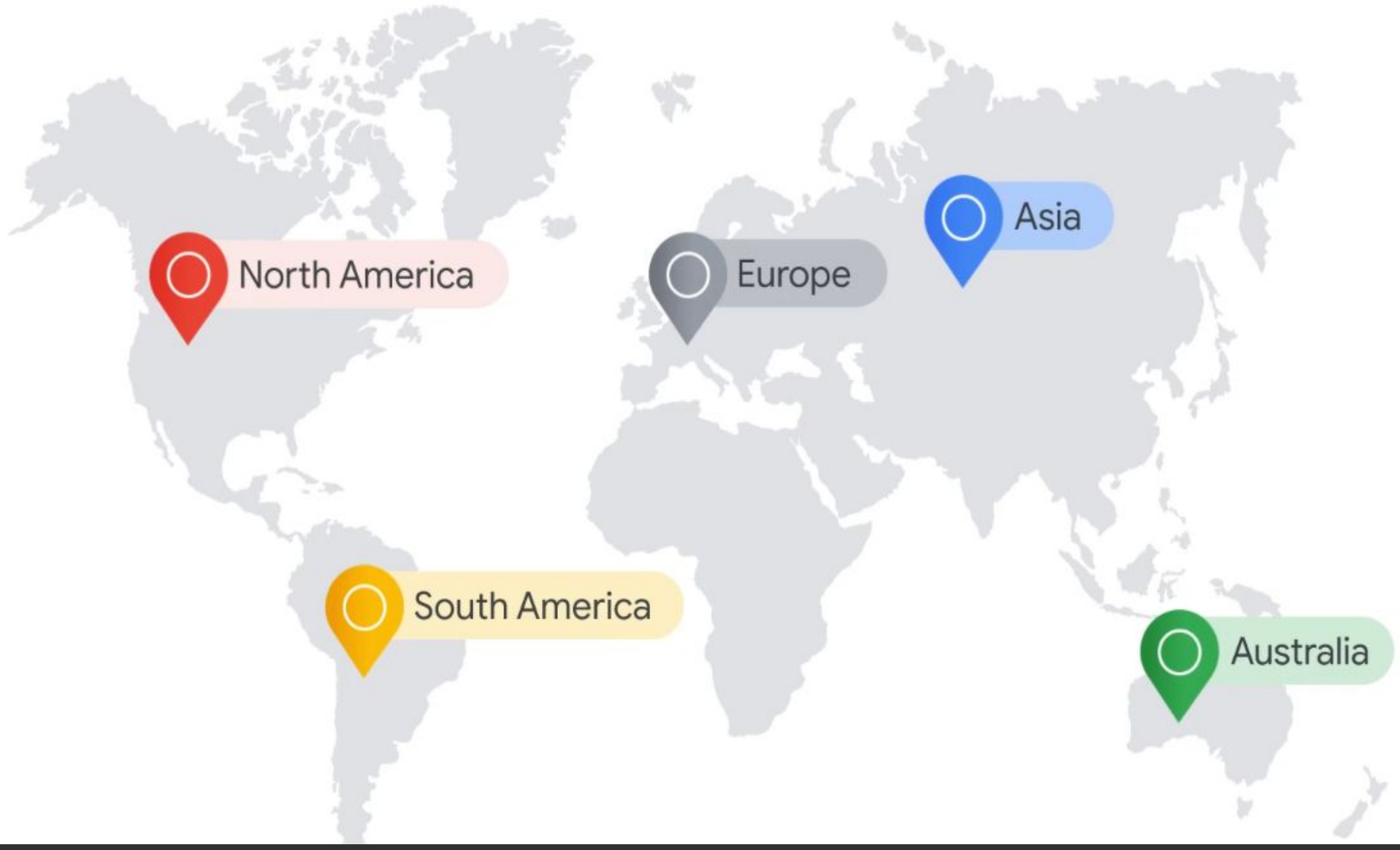
A robust big data and ML product line

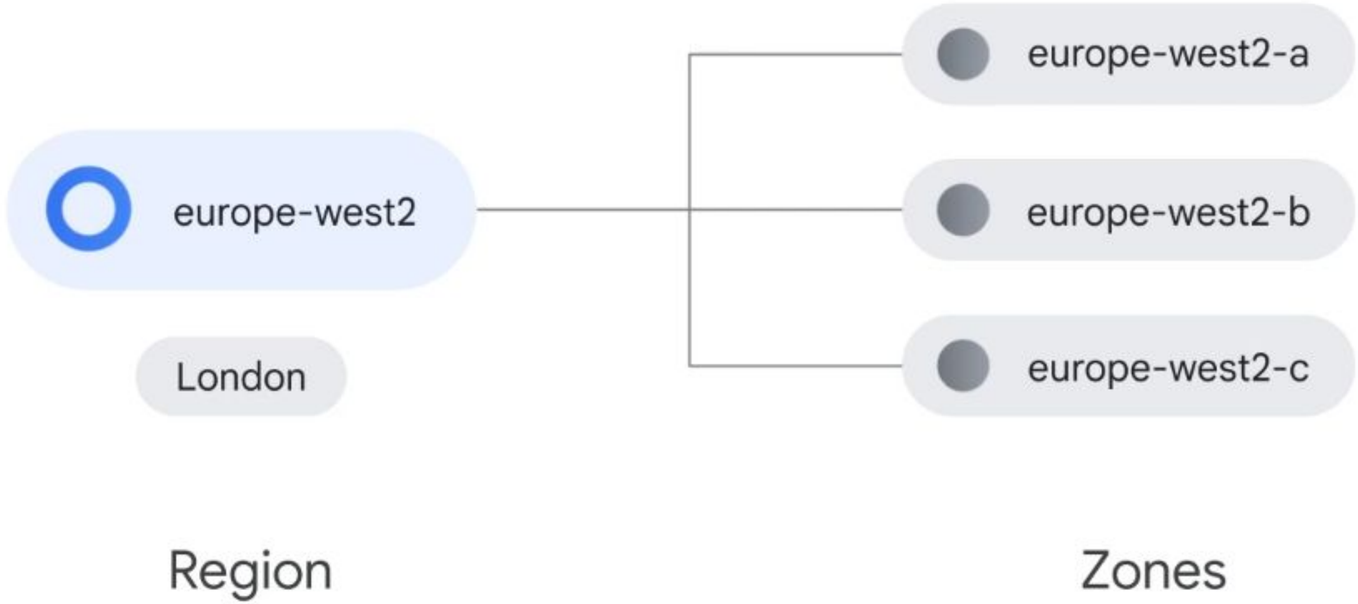
Google Cloud



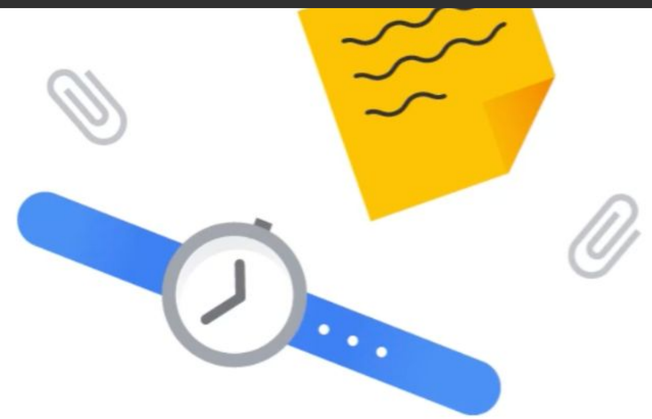
Infrastructure locations



Regions contain multiple zones



Next Agenda:



Agenda

01	The Cloud Console
02	Understanding projects
03	Google Cloud billing
04	Install and configure the Cloud SDK
05	Cloud Shell
06	Lab: A Tour of Google Cloud Hands-on Labs Hands-on Labs
07	Lab: Getting Started with Cloud Shell and gcloud
08	Google Cloud APIs
09	The Cloud Console Mobile App
10	Quiz
11	Summary

How to Access the Google Cloud Platform

How to Access the Google Cloud Platform

You can interact with Google Cloud in four ways

01

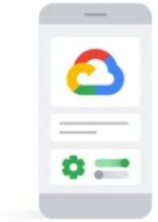
Cloud Console

02

Cloud SDK and Cloud Shell

03

APIs



04

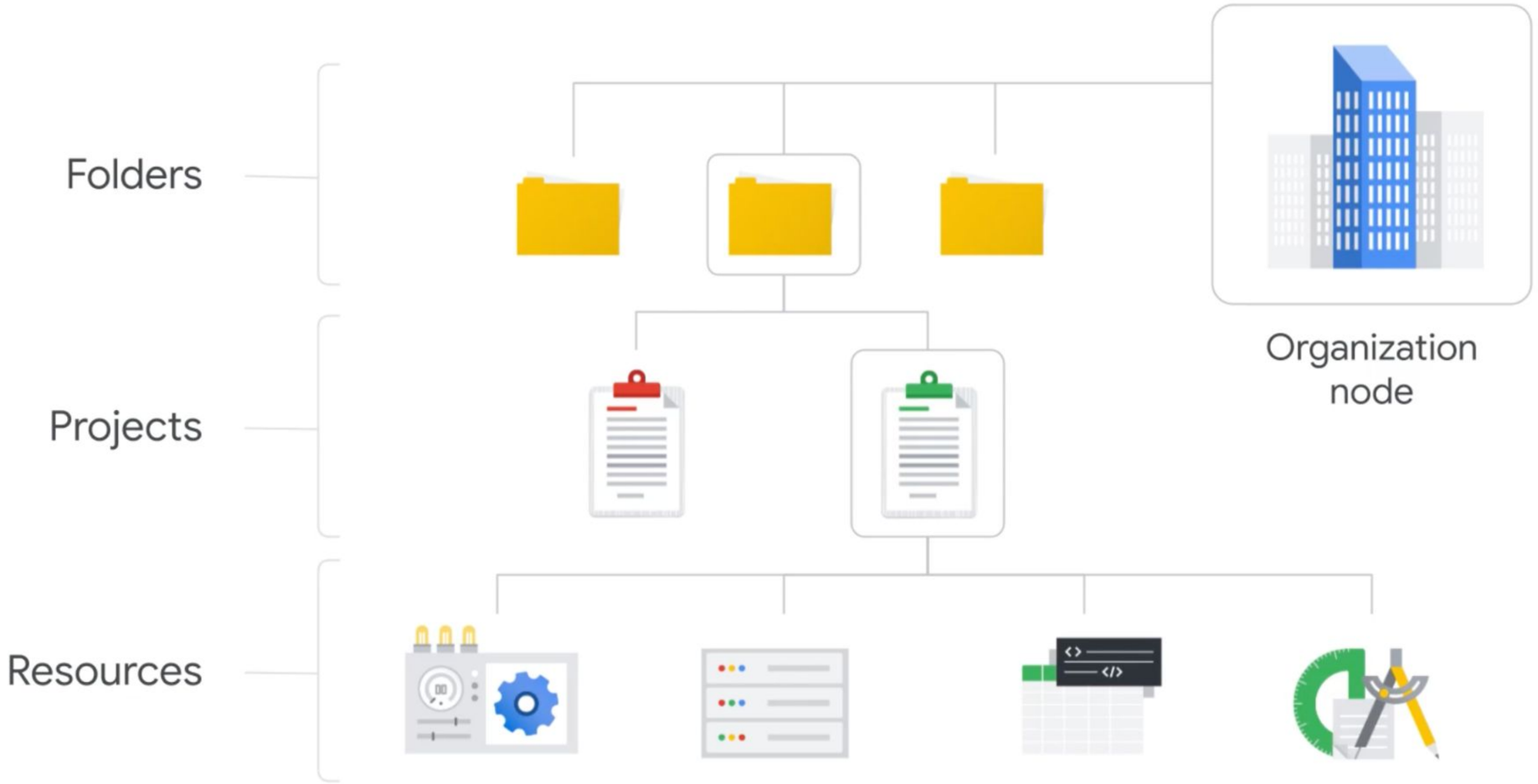
Cloud Console Mobile App

Cloud Console provides web-based interaction

console.cloud.google.com

- Simple web-based graphical user interface
- Easily find resources, check their health, have full management control over them, and set budgets
- Provides a search facility to quickly find resources and connect to instances via SSH in the browser

Resources are hierarchical



Projects are the basis for utilizing Cloud services

01 Projects are separate entities under the Organization node

02 Projects hold resources, each of which belongs to just one Project

03 Projects can have different owners and users

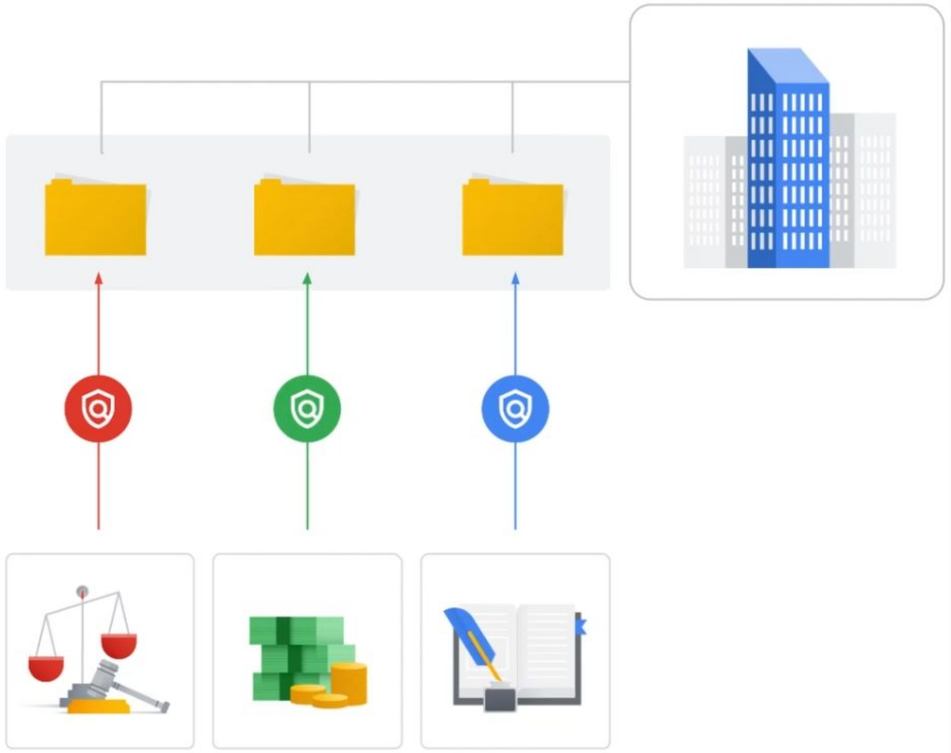
04 Projects are billed separately

Project attributes vary in uniqueness and immutability

Project ID	Project name	Project number
Globally unique	Need not be unique	Globally unique
Assigned by Google Cloud but mutable during creation	Chosen by you	Assigned by Google Cloud
Immutable after creation	Mutable	Immutable

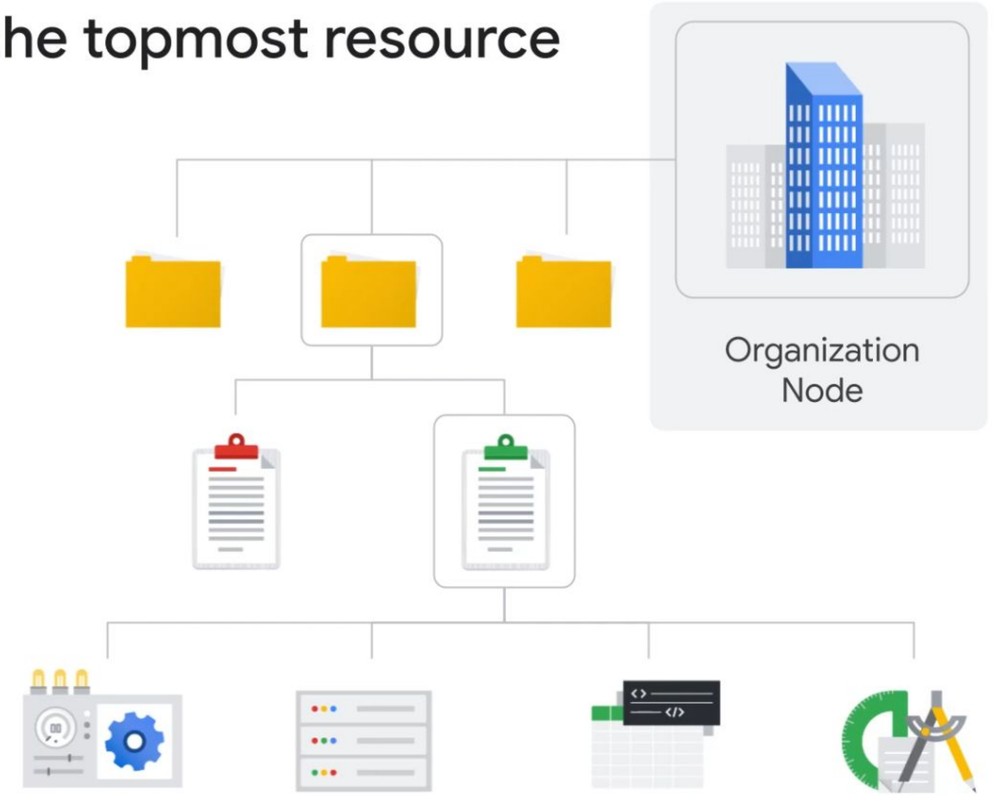
Folders group projects

Folders allow you to group resources on a per-department basis



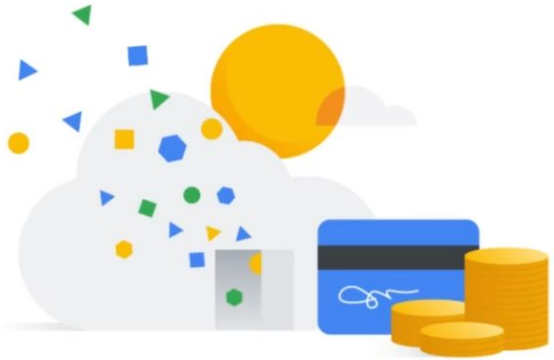
Organization node is the topmost resource

Everything attached to the account goes under the organization node



Billing in the Google Cloud Platform

How billing works

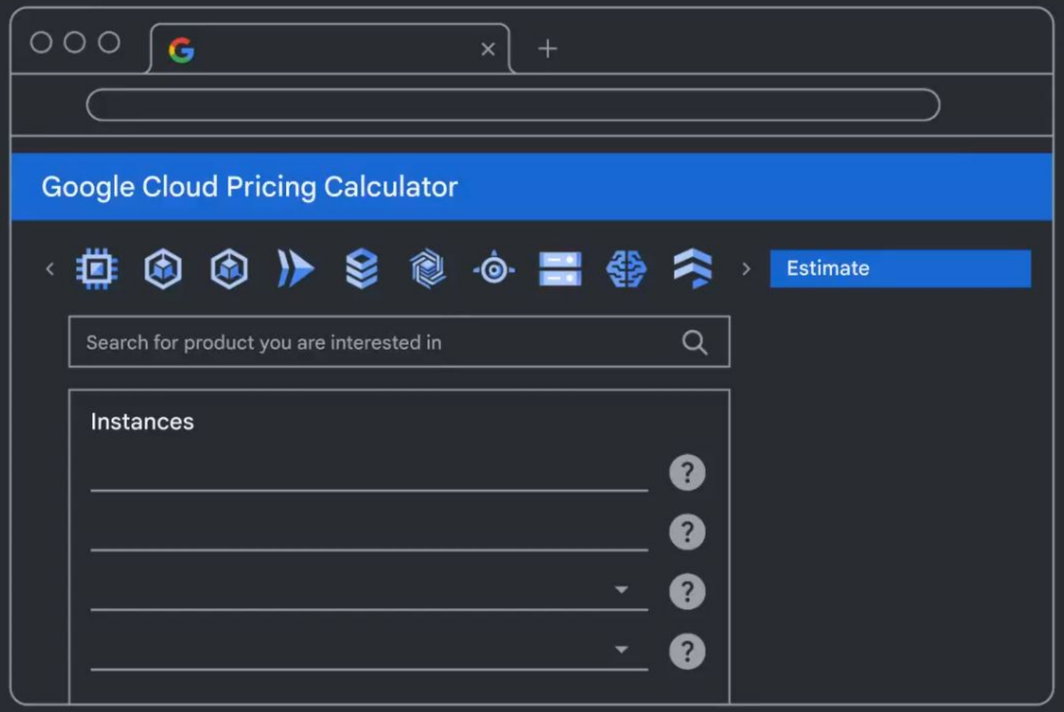


Billing is established at the project level.

A billing account can be linked to zero or more projects.

Billing accounts are charged automatically and invoiced every month, or at every threshold limit.

Billing sub accounts can be used to separate billing by project.



cloud.google.com/products/calculator

Why Cloud?

- Flexibility and scalability
- Cost effectiveness
- Reliability
- Security
- Quick deployment time
- Low cost

Google

8 cloud products with 1 billion users