



Google Cloud Platform

An Overview for our Architects & Engineers

May 4, 2020



about myself

LinkedIn: <http://in.linkedin.com/pub/harish-chauhan/9/961/a35/>

- Joined Cognizant in 2012
- Started his career in 1991; has 28+ years of IT experience
- Hold Bachelor's degree in Computer Science & Engineering
- He manages two practices e.g. Google Cloud Platform & PaaS/CaaS
- He has 4-Patents to his credit e.g. two are already granted, one got published in 2020 and one is filed in 2019, contributed numerous technical publications, co-authored an IBM Red Book on Virtualization and two Whitepapers on Big Data from Cognizant

Email:

harish.chauhan@cognizant.com

Certifications: Google Professional Cloud Architect | Microsoft Azure Solution Architect | CDH 3.0

Area of specialization includes Distributed Computing (Cloud Computing | HPC), Containerization (Dockers | Kubernetes | Swarm | Istio | Visualization | Helm), Big Data (Hadoop Eco-system | Analytics/ML), Automation, DevOps, etc.

Agenda - Master Class

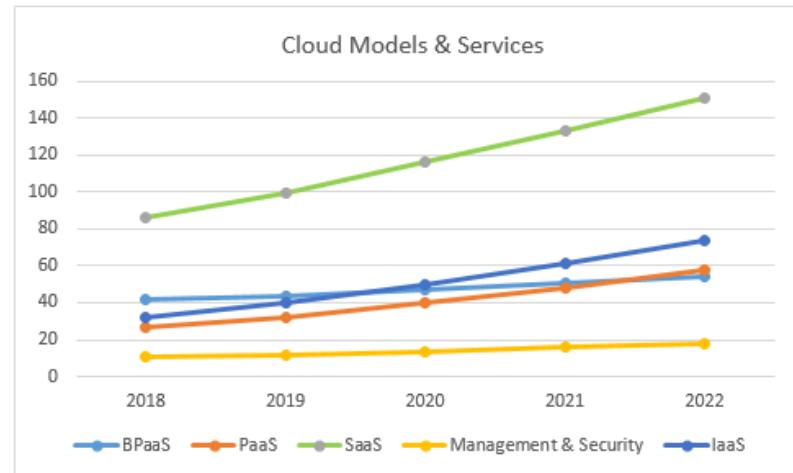
S.No.	Topic (Master Class)	Date	Day
1	Introduction to Google Cloud Platform	4-May	Mon
2	Introduction to Google Compute Services - GCE GAE GKE	6-May	Wed
3	Introduction to Google Storage - GCS Bigtable Big Query Datastore	8-May	Fri
4	Introduction to Google Networking	11-May	Mon
5	Introduction to GCP Monitoring Services	13-May	Wed
6	DEMO-I (2 Hours)	15-May	Fri
7	Introduction to GCP Security Services	18-May	Mon
8	Introduction to Google Data & Serverless Services	20-May	Wed
9	Introduction to GCP DevOps Services	22-May	Fri
10	Introduction to Google API Services	26-May	Tue
11	Introduction to Google Anthos	27-May	Wed
12	DEMO-II (2 Hours)	29-May	Fri

Agenda

1. Cloud Market | Analyst Reports | Google Ecosystem
2. Cognizant - GCP Partnership | Offerings | Capability Launches
3. GCP Value Proposition
4. GCP Differentiators
5. How do we get started?
6. How's GCP Organized?
7. GCP Compute Services
8. GCP Storage Services
9. Policy Flow | Roles | User Synchronization
10. Data Transfer Service (Online | Offline)
11. Google Network Services
12. Google Security Services
13. Environment Observability & Marketplace
14. Hybrid/Multi-Cloud using Google Anthos
15. GCP Success Stories

Cloud Market

	2018	2019	2020	2021	2022
Cloud Business Process Services (BPaaS)	41.7	43.7	46.9	50.2	53.8
Cloud Application Infrastructure Services (PaaS)	26.4	32.2	39.7	48.3	58.0
Cloud Application Services (SaaS)	85.7	99.5	116.0	133.0	151.1
Cloud Management and Security Services	10.5	12.0	13.8	15.7	17.6
Cloud System Infrastructure Services (IaaS)	32.4	40.3	50.0	61.3	74.1
Total Market	196.7	227.8	266.4	308.5	354.6



BPaaS = business process as a service; IaaS = infrastructure as a service; PaaS = platform as a service; SaaS = software as a service

Note: Totals may not add up due to rounding.

Source: Gartner (November 2019) [Source](#)

Where does Google stand?



IaaS (Jul 2019)

6



Cognizant

Cognizant - GCP Partnership, Offerings & Capability Launches



Highlights - Cognizant & Google Partnership

25+

Joint Customers

1000+

Trained

515+

Google Certified
Professionals

Partnership

- **Top 5 Strategic GSI Partner (Premium) with Google Cloud**
- **Top 2 GSI Partner with Apigee**
- Google Specialization: **Infrastructure & Migration**
- Dedicated Google Cloud Partner Teams
- Rich and varied experience on Google Cloud Platform, Big Data/AI and Digital Marketing Analytics
- Co-Executive Sponsorship, funded Centers of Excellence & Innovation
- Focus on Cloud 2.0; Innovation



Insights to AI
Digital
Marketing
Modern Data
Mgmt.



Modern App
Delivery
Open Cloud
Containerized
Infra
API
Architectures

Cognizant + **Google**

Accelerators/Training

- Dedicated GCP PaaS Product team delivering PaaS at high velocity
- Extra ramp-up programs for GCP Certifications
- Assessment Kit – Assessment framework for Google Cloud suitability
- Data Warehouse / MPP Assessment for Cloud Migration

Cognizant Cloud: GTM Solution Offerings



Data Center Migration

Rehost, Replatform, Reengineer to cloud

- Hybrid cloud build & setup
- Data centre consolidation
- Server Migration
- Application re-engineering
- Storage, Backup, DR optimization



Agile Engineering Environments

Optimize Dev, Test, Ops value chain

- Environments-as-a-service
- DevSecOps-pipeline-as-a-service
- Smart Operations Fabric
- Compliant Cloud Environments



Pivotal Cloud Foundry

Increased velocity for deployments of Cloud Native apps

- Pivotal Cloud Foundry on GCP – the best platform for cloud native applications.
- AI based Pricing & Managed Services available



Kubernetes

K8S Clustering – Superior Orchestration

- End-to-end Kubernetes implementation for Hybrid environments.
- Leverage simple and robust Google Network to deploy, migrate workloads across the data centers



Intelligent Data Platform

Leverage scalable data stores securely, flexibly

- Cloud-native big data analytics
- Data archival, storage modernization
- Cloud-native DW & BI
- Cloud-based IoT



Resilient Web Platform

Secure Websites/apps on cloud IaaS / PaaS

- Digital marketing / Web sites on cloud
- E-commerce web stores on cloud
- Business web apps on cloud
- Cloud-native app development

Capability Launches

Workload Migration to GCP

This capability focuses on migrating customer workloads to Google Cloud Platform i.e. host, data, applications

Harnessing Native Tools for Resource Monitoring

This capability focuses on providing an integrated solution for resource monitoring using vendor native tools.

Cloud Native Containers

This capability focuses on defining solutions leveraging vendor provided services around Containers on Google Cloud Platform

Cloud Optimize

The Cloud optimize capability provides customers a value-add service that focuses on the deployed infrastructure on Cloud

Hybrid Storage on GCP

This capability focuses on building backup, archival and DR/BC solutions on Google Cloud Platform

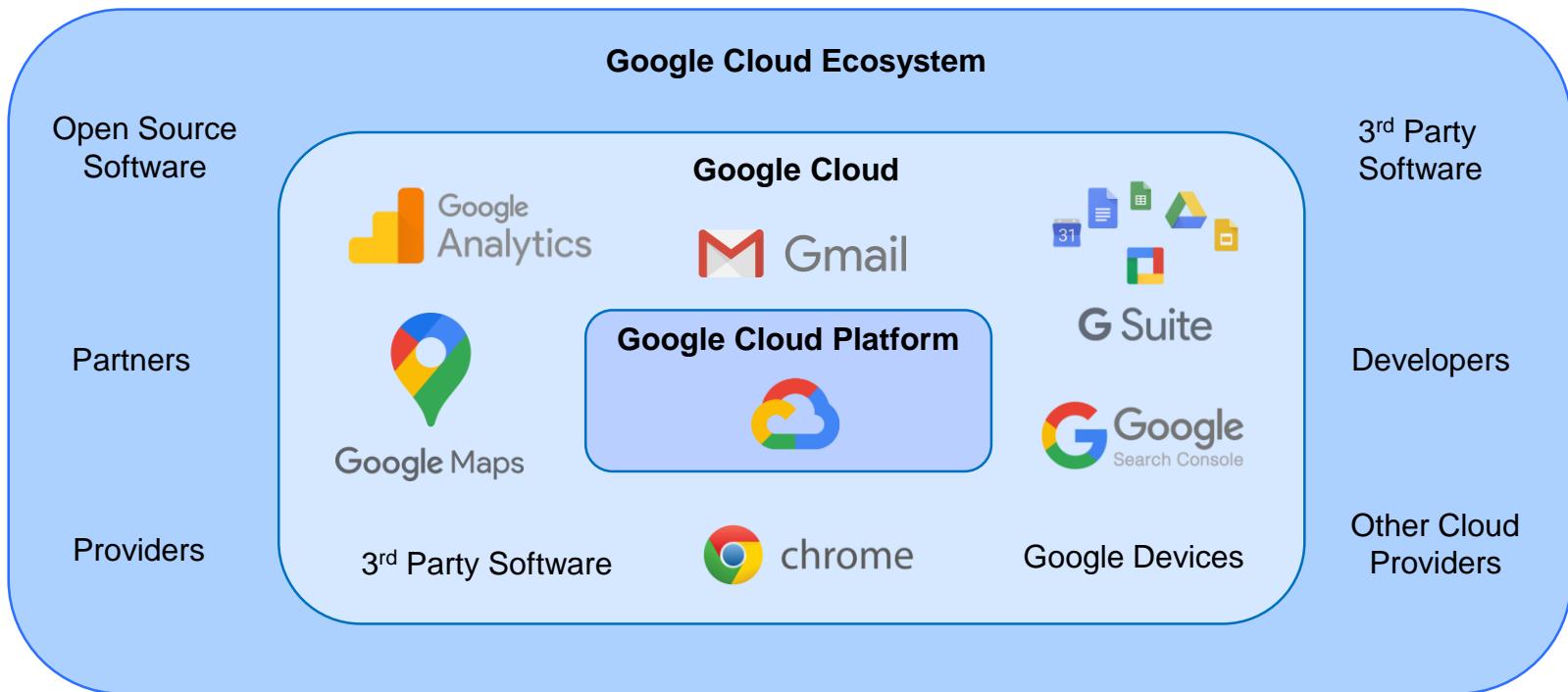
Building Hybrid/Multi-Cloud Platform | Container Mobility (App Modernization)



This capability focuses on leveraging Google Anthos for setting up Hybrid/Multi-Cloud environments & application modernization.

Let's get started

Where does GCP fits in Google Cloud Ecosystem?



Google Cloud Platform - Value Proposition

Future Proof Infrastructure

Scale your business smoothly & responsibly

- \$29B/Year investment in 3 years, 2X competitors
- Private network, largest ISP, own Fibre optics cable laid across the globe
- Live Migration
- Carbon-neutral operation

Get Access to Innovation

15 years of support for Open source software

- Google's track record of open innovation continues-allows you to deploy at your own rate:
 - ✓ Container Management
 - ✓ Machine learning
 - ✓ Scalable databases
 - ✓ No-ops SW development

True Cloud Economic

Make the cloud work for you, not your vendor

- Per Second Pricing Model
- No Upfront Cost
- No Termination Fees
- Sustained-Use discounts
- Custom machine type, exact right infra at right cost
- Tailor-made offerings priced to match use case (e.g. *Nearline*, *Preemptible VMs*)

Google Grade Security

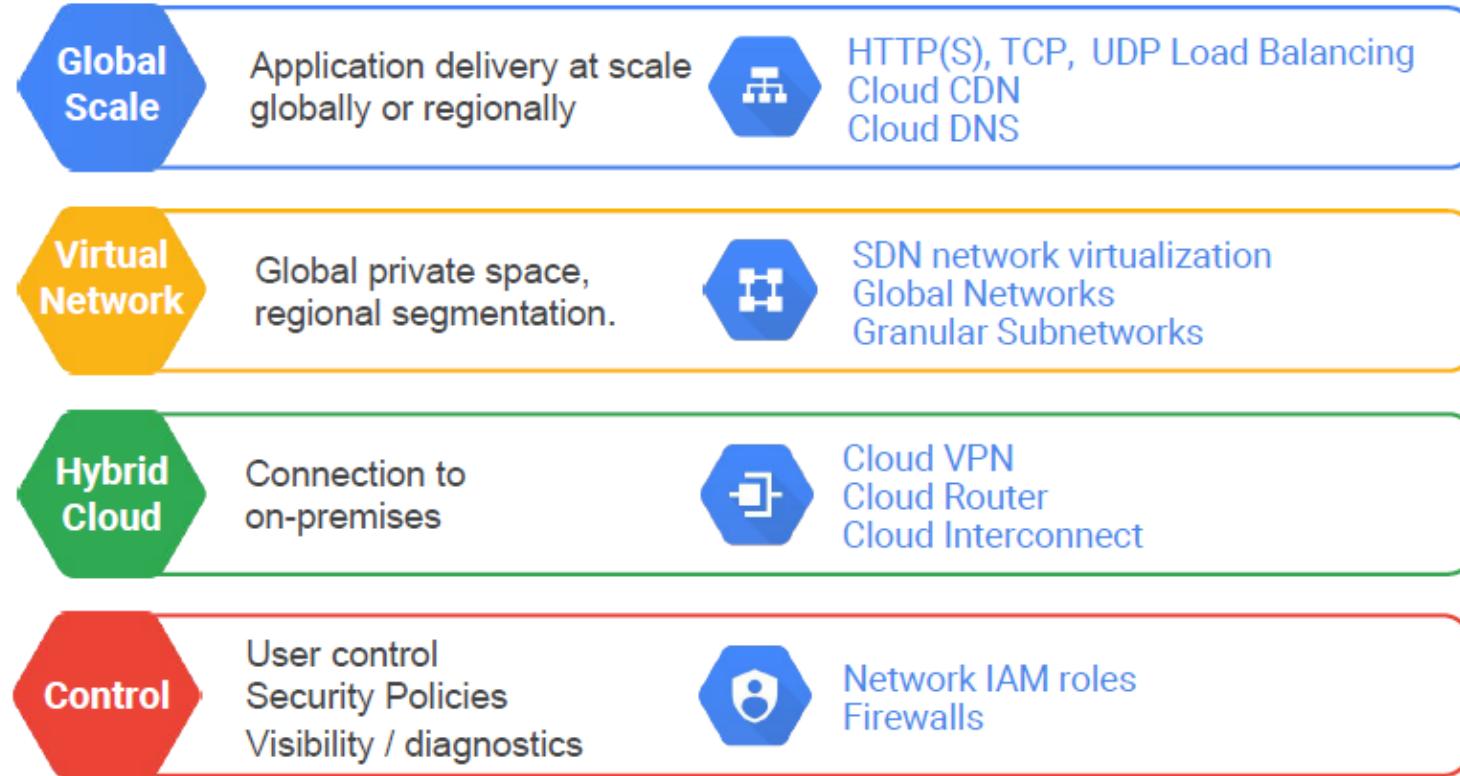
Best security available, because we need it

- Ongoing investment and innovation in electronic counter measures
- Over 600+ security engineers building technology
- Google controls its cloud stack, from silicon up

Google Cloud Platform - Differentiators

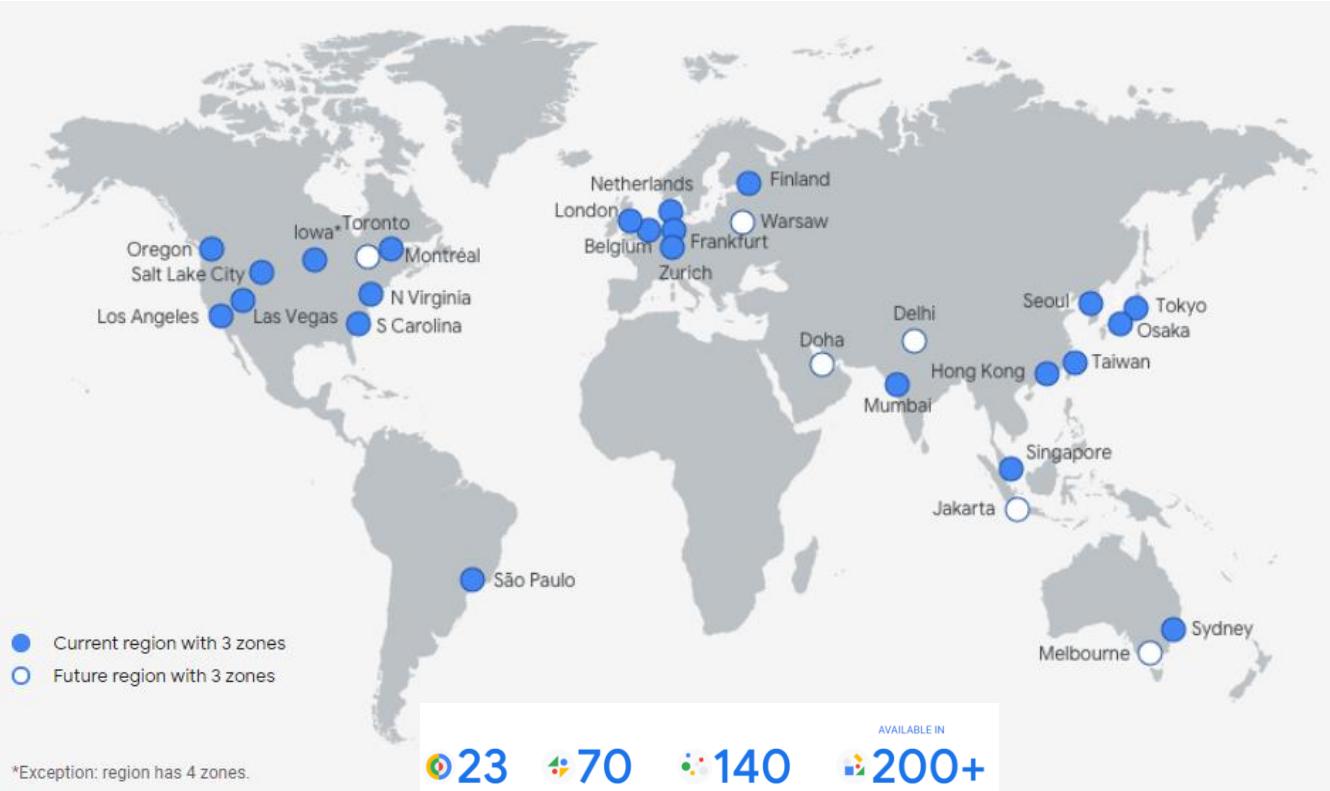
Network	<ul style="list-style-type: none">World's largest software defined network: Bandwidth, fiber miles, network POP; more horizontal bandwidth than entire internetGlobal reach means low latency to every metro
Open-ness	<ul style="list-style-type: none">Investment in open source: multi-cloud, open standard and open source software (OSS) e.g. GFS/Colossus -> GCS, MapReduce -> Dataproc, Dremel -> BigQuery, Flume -> Dataflow, Bigtable -> BigtableGoogle Services are designed to fit your business without Lock-In
Security	<ul style="list-style-type: none">Security at scale is part of Google's DNA: 600+ Security Experts, SRE, EC3 Security Cloud CouncilDriving security innovation: Encryption at-rest/in-transit, Security tools/services, etc.
Big Data/ML	<ul style="list-style-type: none">Leading innovator in Big Data (i.e. GFS, MapReduce, Dremel, Flume)Multi-year lead in Machine Learning (ML); strategic to all Google properties; mainstreaming ML for the market
Performance	<ul style="list-style-type: none">Every GCP element purpose-built for cloud-continual improvement in reliability, efficiency & performanceNo over-provisioning, or pre-provisioning - major price advantage

Google Network

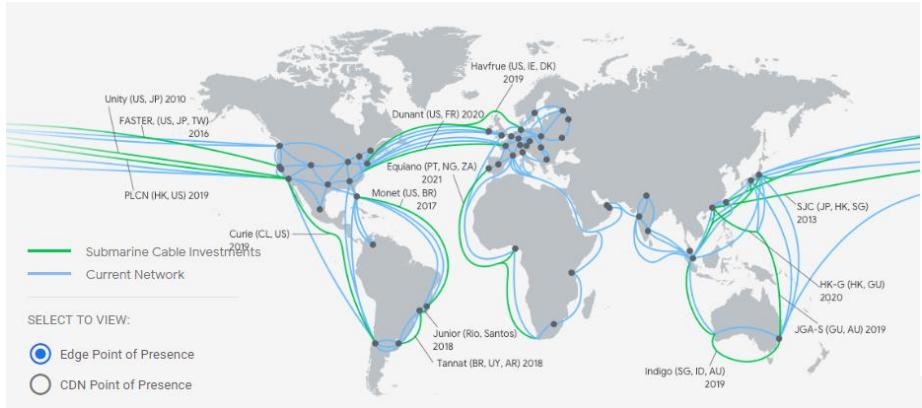


Source: Google

Global Presence (Regions & Zones)

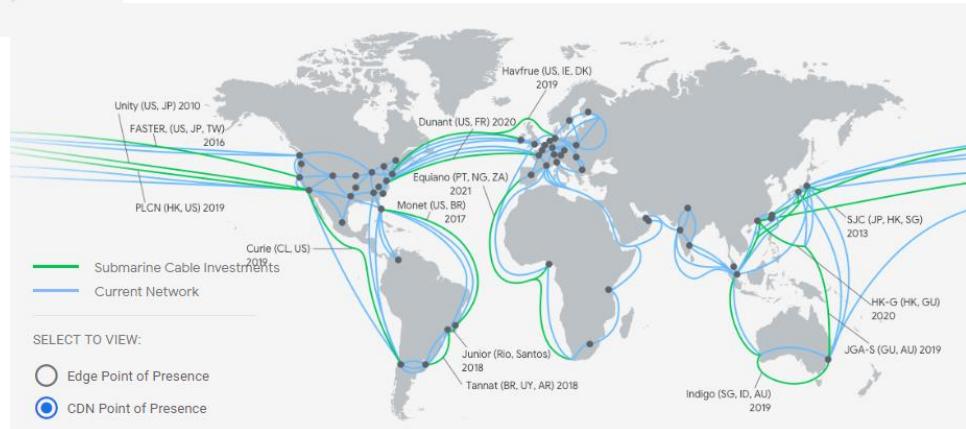


Global Presence (Edge/CDN - Point of Presence)



140 Locations

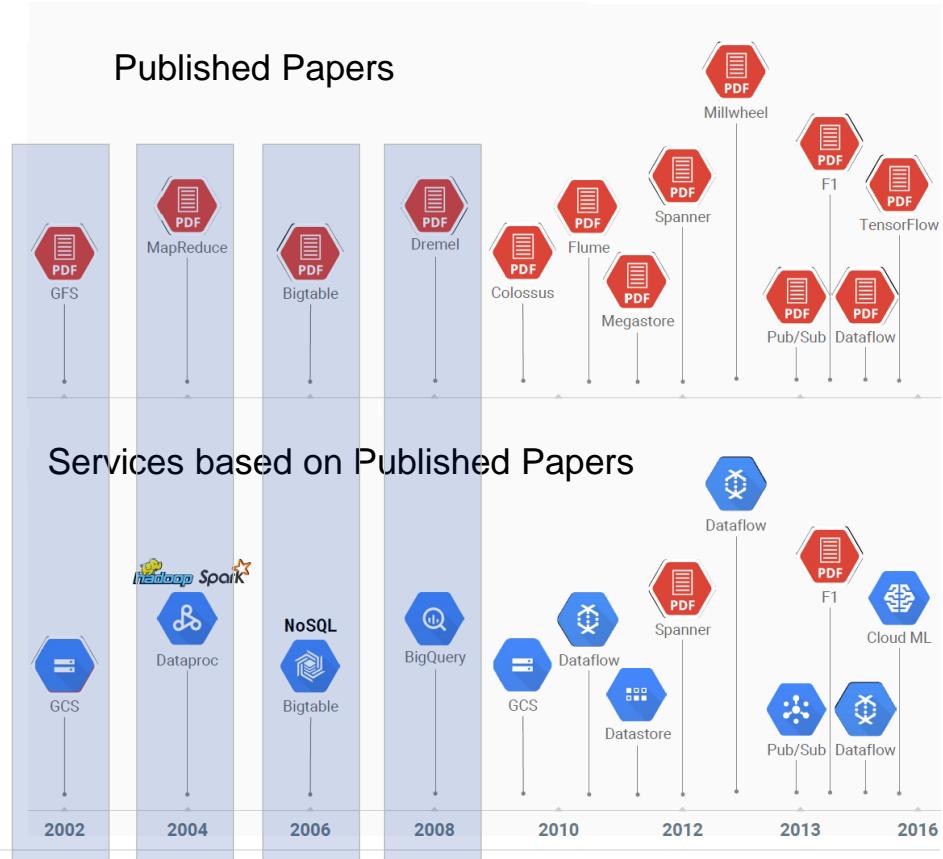
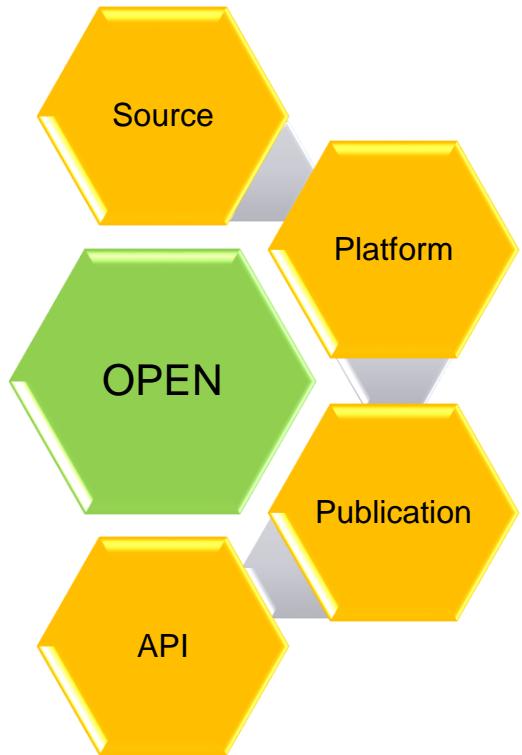
CDN Point of Presence



Edge Point of Presence

Reference

Google leverages and promotes “Openness”



Google Security

Rely on a secure-by-design infrastructure with hardening, configuration management, and patch and vulnerability management.



Operational Security

Intrusion Detection	Reducing Insider Risk	Safe Employee Devices & Credentials	Safe Software Development
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Internet Communication

Google Front End	DoS Protection
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Storage Services

Encryption at rest	Deletion of Data
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User Identity

Authentication	Login Abuse Protection
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Service Deployment

Access Management of End User Data	Encryption of Inter-Service Communication	Inter-Service Access Management	Service Identity, Integrity, Isolation
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Hardware Infrastructure

Secure Boot Stack and Machine Identity	Hardware Design and Provenance	Security of Physical Premises
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Two-Factor Authentication



Encryption By default



Reward Programs



Physical Security



Elliptic-Curve Cryptography



Data-Loss Prevention



600+ Security Professionals



<https://cloud.google.com/security/infrastructure/design/>

Governance | Risk | Compliance | Certifications

	Americas	Europe, Middle East & Africa	Asia Pacific			
Global	 USA HIPAA HiTrust FedRAMP FIPS 140-2 COPPA FERPA NIST 800-53 NIST 800-171 NIST 800-34 Sarbanes-Oxley SEC Rule 17a-4(f) CFTC Rule 1.31(c)-(d) FINRA Rule 4511(c) HECVAT DISA IL2 CCPA	 Canada Personal Information & Electronic Documents Act  Argentina Personal Data Protection Law	 Europe GDPR EU Model Contract Clauses Privacy Shield TISAX EBA Guidelines  Germany BSI C5  Switzerland FINMA  France HDS	 Spain Esquema Nacional de Seguridad  South Africa POPI	 Australia Australian Privacy Principles Australian Prudential Regulatory Authority Standards IRAP	 Japan FISC My Number Act  Singapore MTCS Tier 3 OSPAR MAS Guidelines ABS Guide
ISO/IEC 27001	HIPAA	Personal Information & Electronic Documents Act	GDPR	Esquema Nacional de Seguridad	Australian Privacy Principles	FISC My Number Act
ISO/IEC 27017	HiTrust		EU Model Contract Clauses			
ISO/IEC 27018	FedRAMP		Privacy Shield			
SOC 1	FIPS 140-2		TISAX			
SOC 2	COPPA		EBA Guidelines			
SOC 3	FERPA		Germany			
PCI DSS	NIST 800-53		BSI C5			
CSA STAR	NIST 800-171	Personal Data Protection Law	UK			
MPAA	NIST 800-34		Switzerland	NCSC Cloud Security Principles		
Independent Security Evaluators Audit	Sarbanes-Oxley		FINMA	NHS IG Toolkit		
	SEC Rule 17a-4(f)		France			
	CFTC Rule 1.31(c)-(d)		HDS			
	FINRA Rule 4511(c)					
	HECVAT					
	DISA IL2					
	CCPA					

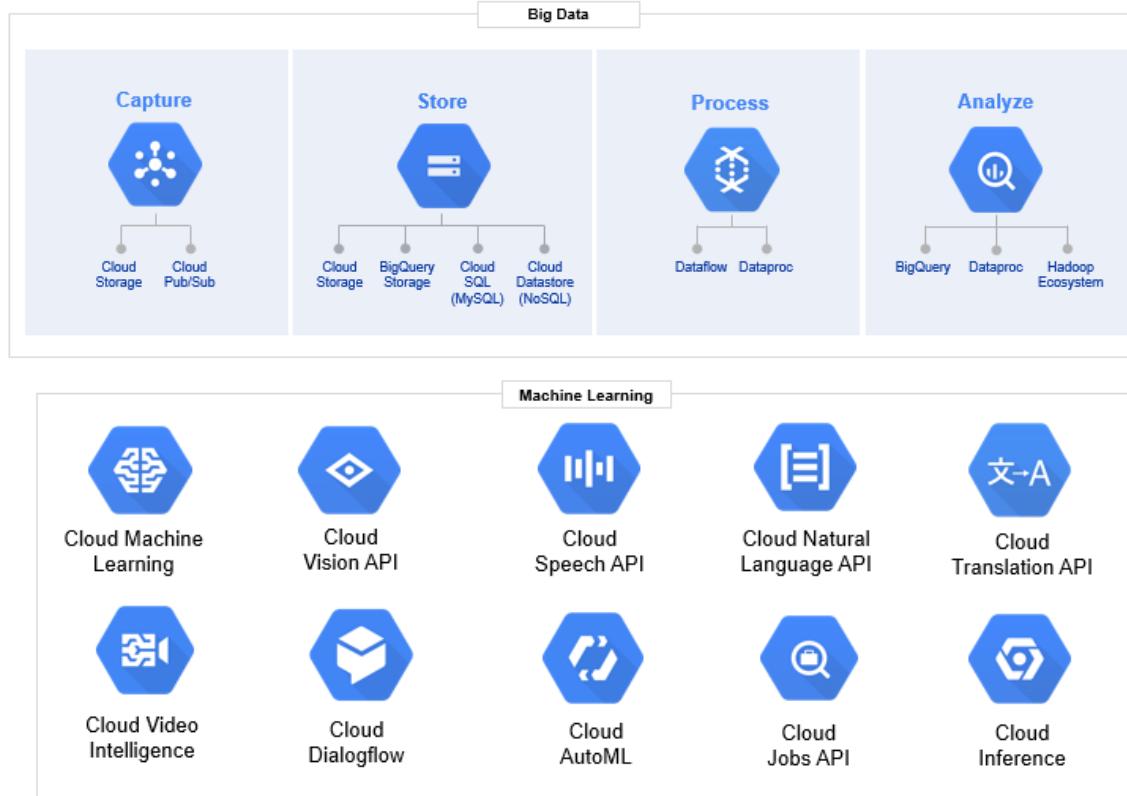
As on Dec 2019

Icons made by [Freepik](#) from [www.flaticon.com](#)

<https://cloud.google.com/security/overview/whitepaper>
<https://cloud.google.com/security/compliance/>

[Read More](#)

Big Data, AI/ML Services



Performance & Contribution towards Green Environment

Custom-build Servers



Custom build Switch-Jupiter

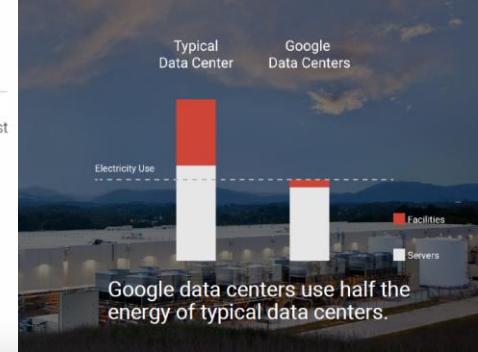
Custom build NIC



Titan

Google's purpose-built chip to establish hardware root of trust for both machines and peripherals on cloud infrastructure

Google's purpose-built network controller



3x the computing power with the same amount of electrical power

computing power



2010 2011 2012 2013 2014 2015

energy

Designing efficient data centers

ENERGY

50% LESS ENERGY

On average, a Google data center uses 50% less energy than a typical data center.

1.12 PUE

In 2015, the average annual power usage effectiveness (PUE) for our global fleet of data centers was 1.12, compared with the industry average of 1.7—meaning our data centers use nearly six times less overhead energy.

3.5x COMPUTING POWER

Compared with five years ago, we can now deliver more than 3.5 times as much computing power with the same amount of electrical power.

CERTIFICATIONS

14001 & 50001 ISO CERTIFICATIONS

12 out of 13 Google-owned and -operating data centers globally have achieved ISO 14001 (environmental management) and ISO 50001 (energy management) certifications.

WASTE

100% LANDFILL DIVERSION

In total, six of our operating data centers have achieved 100% landfill diversion, and one of these has reached Zero Waste to Landfill.

86% WASTE DIVERTED

In 2015, we diverted 84% of waste from our global data center operations away from landfills, and so far in 2016, we've diverted 86%.

19% OF SERVERS REMANUFACTURED

In 2015, 19% of the servers Google deployed were remanufactured machines.

52% OF COMPONENTS REFURBISHED

In 2015, 52% of the components we used for machine upgrades in our data centers were refurbished inventory.

Cost Advantages, Savings, Discounts,

Per-Second
Billing

Sustained-
Use
Discount

Up to 30%
Cheaper

Committed
Use
Discount

Up to 57%
cheaper
with 3-Year

Preemptive
Instances

Up to 80%
Cheaper

Custom VM
Sizes

Reduced List
Price

- Right-Size Recommendation
- No Lock-In Contracts
- No Upfront Cost
- No Termination Fees
- Low Cost Storage Options for data archival purposes i.e. Coldline

GCP Pricing Calculator: <https://cloud.google.com/products/calculator/>

So how do we explore or perform
hands-on GCP?



Create a FREE account using Gmail ID



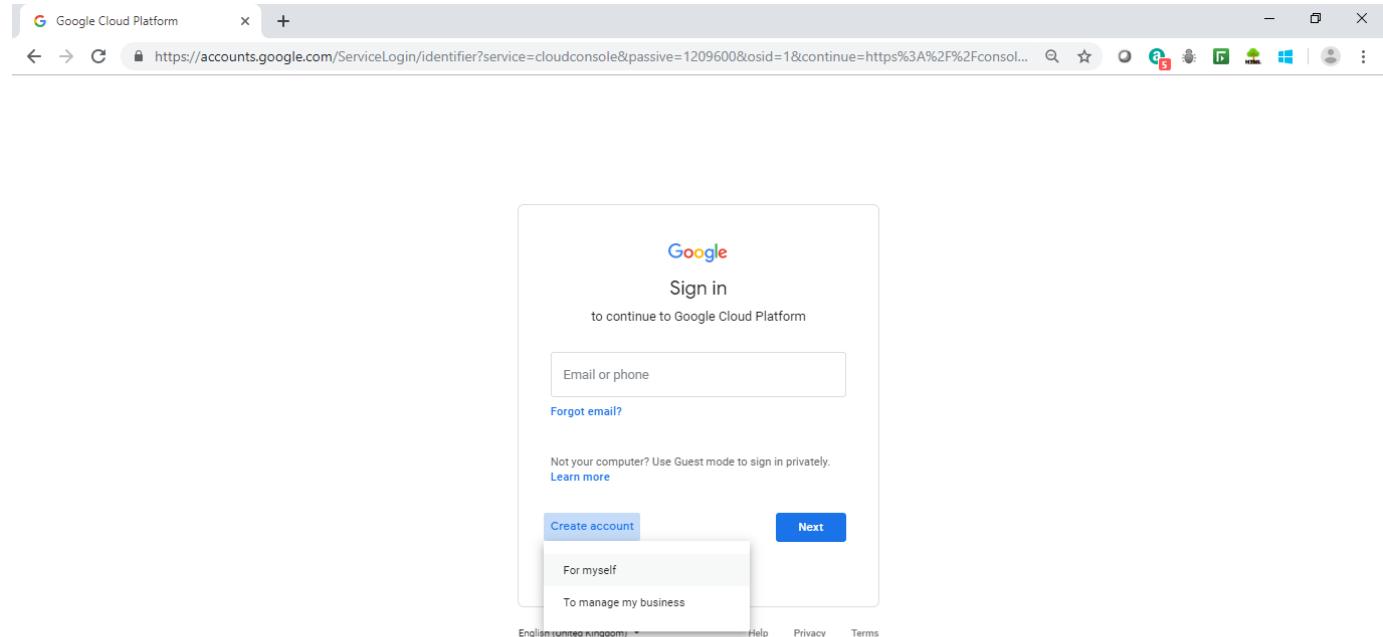
Register for FREE Trial



\$300 Credit
(Validity 12-Months)



Google Cloud Platform
Console



Create a FREE account using Gmail ID (contd.)

The screenshot shows a web browser window for "Step 2 of 2 – Free Trial – Google". The URL is <https://console.cloud.google.com/freetrial/signup/billing>. The page displays a "How you pay" section with a "Monthly automatic payments" option selected. A yellow box highlights the "Payment method" section, which includes fields for Card number (# 4321 1111 2222 3333, VISA logo), MM (03) and YY (22), Cardholder name (Harish Chauhan), and a checked checkbox for "Credit or debit card address is same as above". Below this, a note states: "The personal information you provide here will be added to your payments profile. It will be stored securely and treated in accordance with the [Google Privacy Policy](#)." To the right, a large blue sidebar highlights "Access to all Cloud Platform Products", "\$300 credit for free", and "No autocharge after free trial ends". A call-to-action button at the bottom left says "START MY FREE TRIAL". An orange arrow points to this button with the text "Click Here".

How you pay

Monthly automatic payments

You pay for this service on a regular monthly basis, via an automatic charge when your payment is due.

Payment method ⓘ

Card number

4321 1111 2222 3333 VISA

MM YY
03 / 22

Cardholder name
Harish Chauhan

Credit or debit card address is same as above

The personal information you provide here will be added to your payments profile. It will be stored securely and treated in accordance with the [Google Privacy Policy](#).

START MY FREE TRIAL

Access to all Cloud Platform Products

\$300 credit for free

No autocharge after free trial ends

Click Here

GCP Console

[GCP Console](#)

The screenshot shows the Google Cloud Platform dashboard for the project "Cloud academy-1000184377".

Project info:

- Project name: Cloud academy-1000184377
- Project ID: cloud-academy-1000184377
- Project number: 910525767076

ADD PEOPLE TO THIS PROJECT

[Go to project settings](#)

Resources:

- App Engine: 3 versions
- Compute Engine: 10 Instances

App Engine:

Summary (count/sec)

No data is available for the selected time frame.

[Go to the App Engine dashboard](#)

Compute Engine:

Google Cloud Platform status:

All services normal

[Go to Cloud status dashboard](#)

Billing:

Estimated charges: USD \$445.19
For the billing period Apr 1 – 28, 2020

[View detailed charges](#)

Error Reporting:

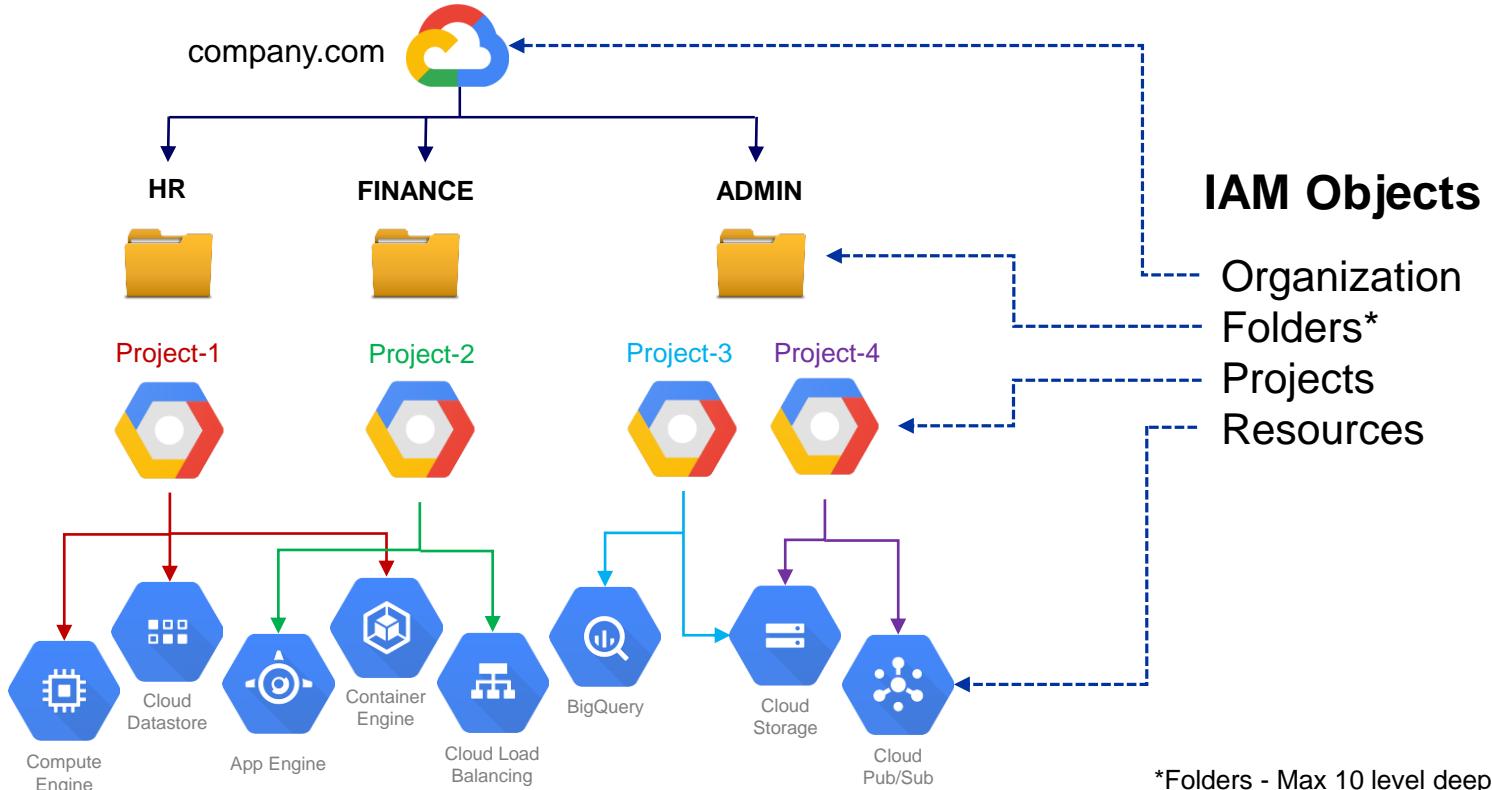
No application errors in the last 24 hours

[Go to Error Reporting](#)

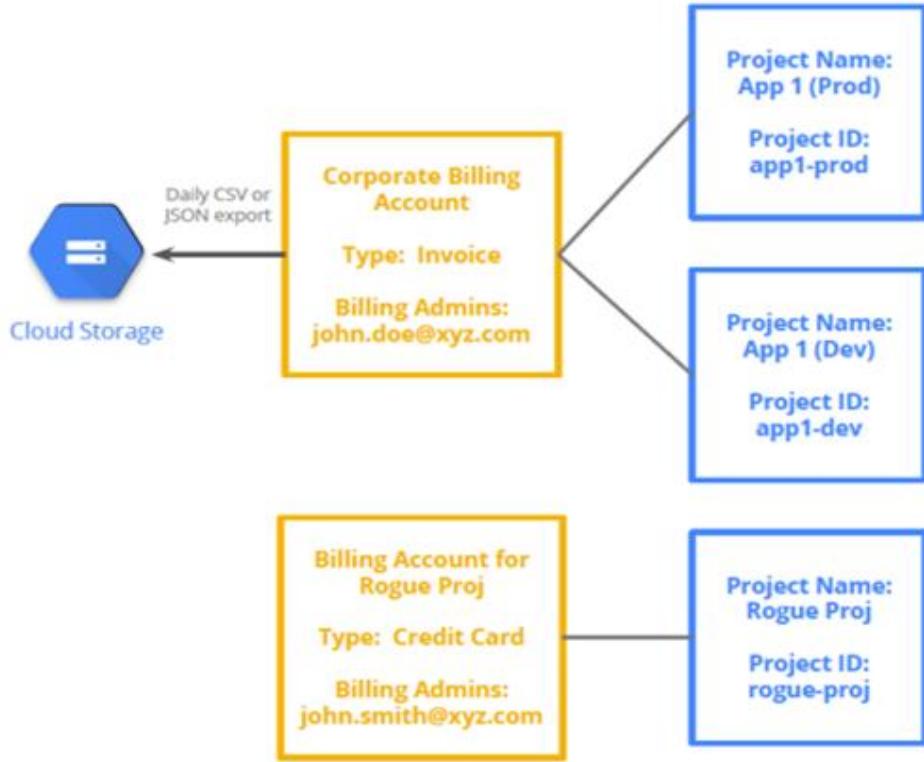
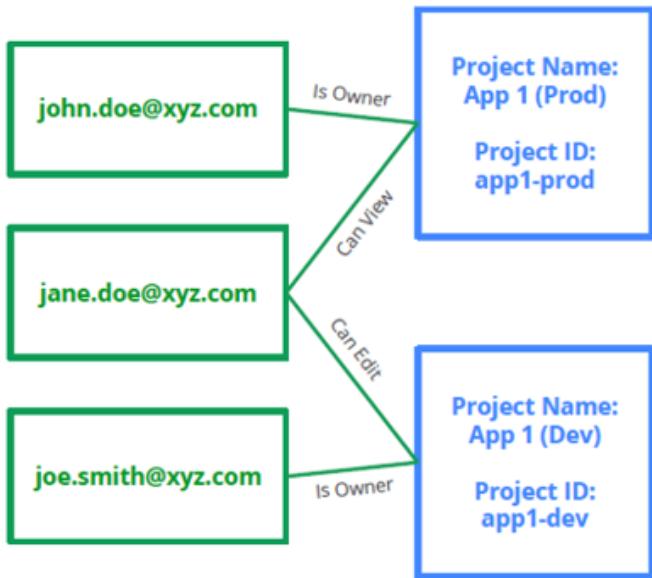
How is GCP organized?



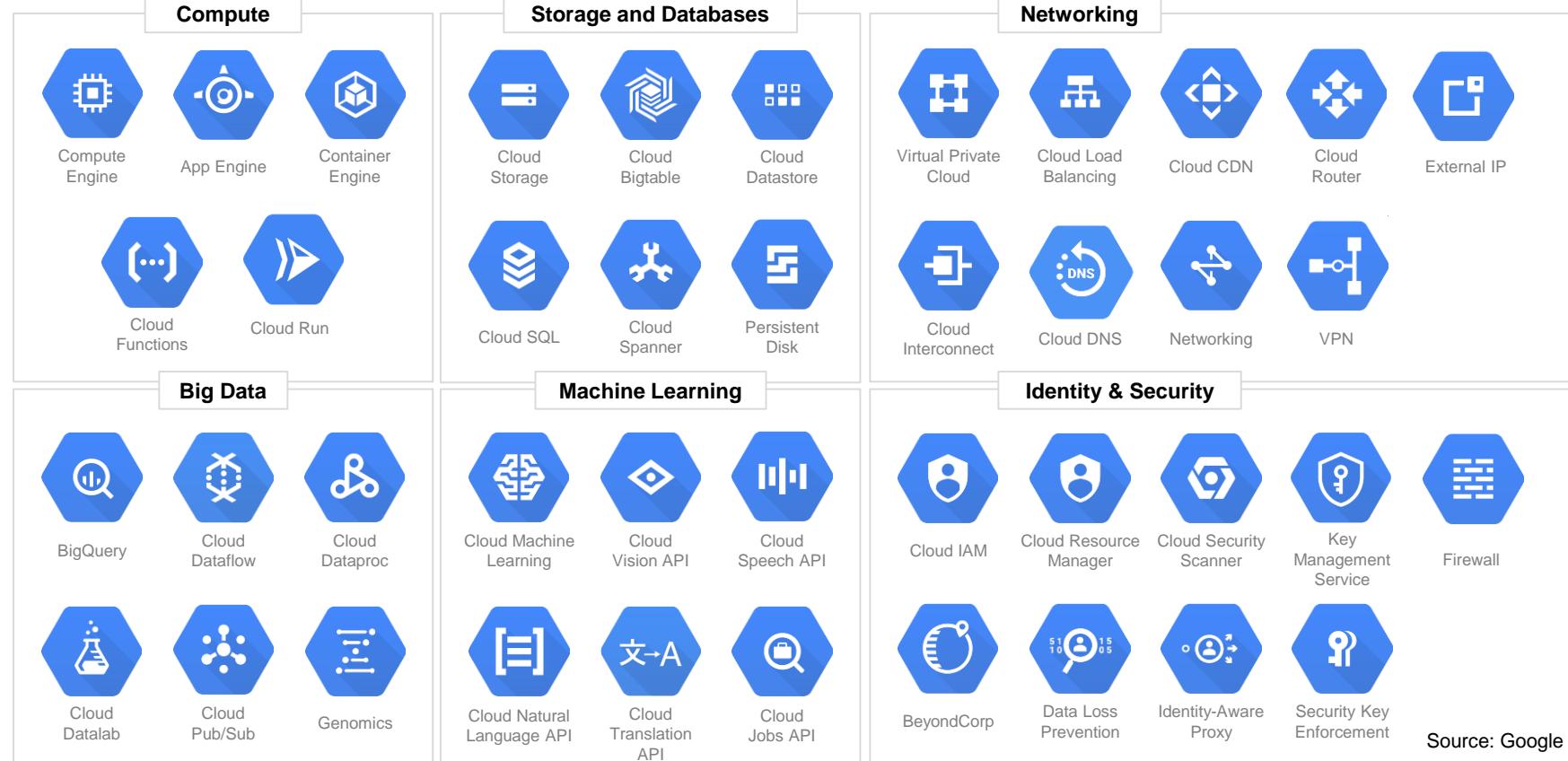
Organization | Folders | Projects | Resources



Billing Account | Billing Administrators

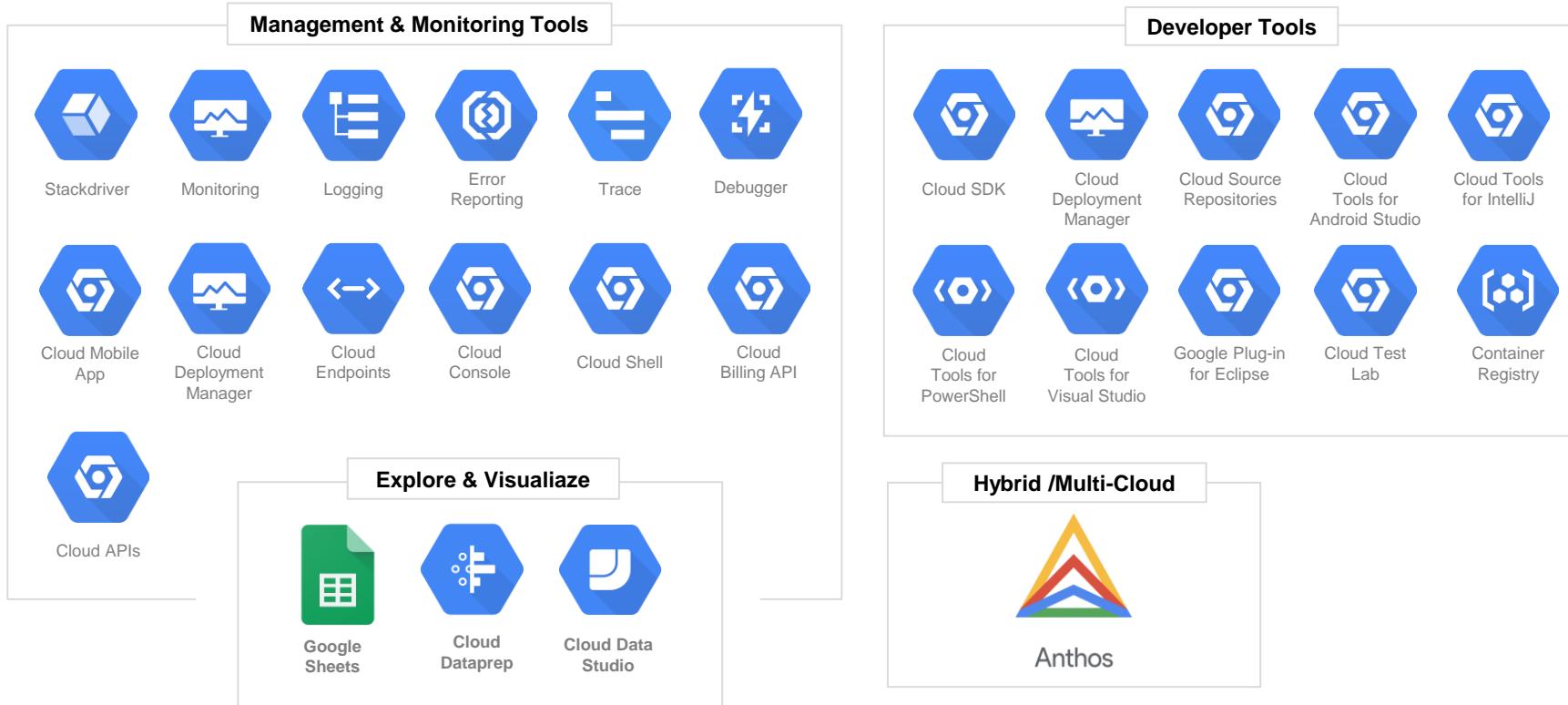


Google Cloud Platform has >65 services



Source: Google

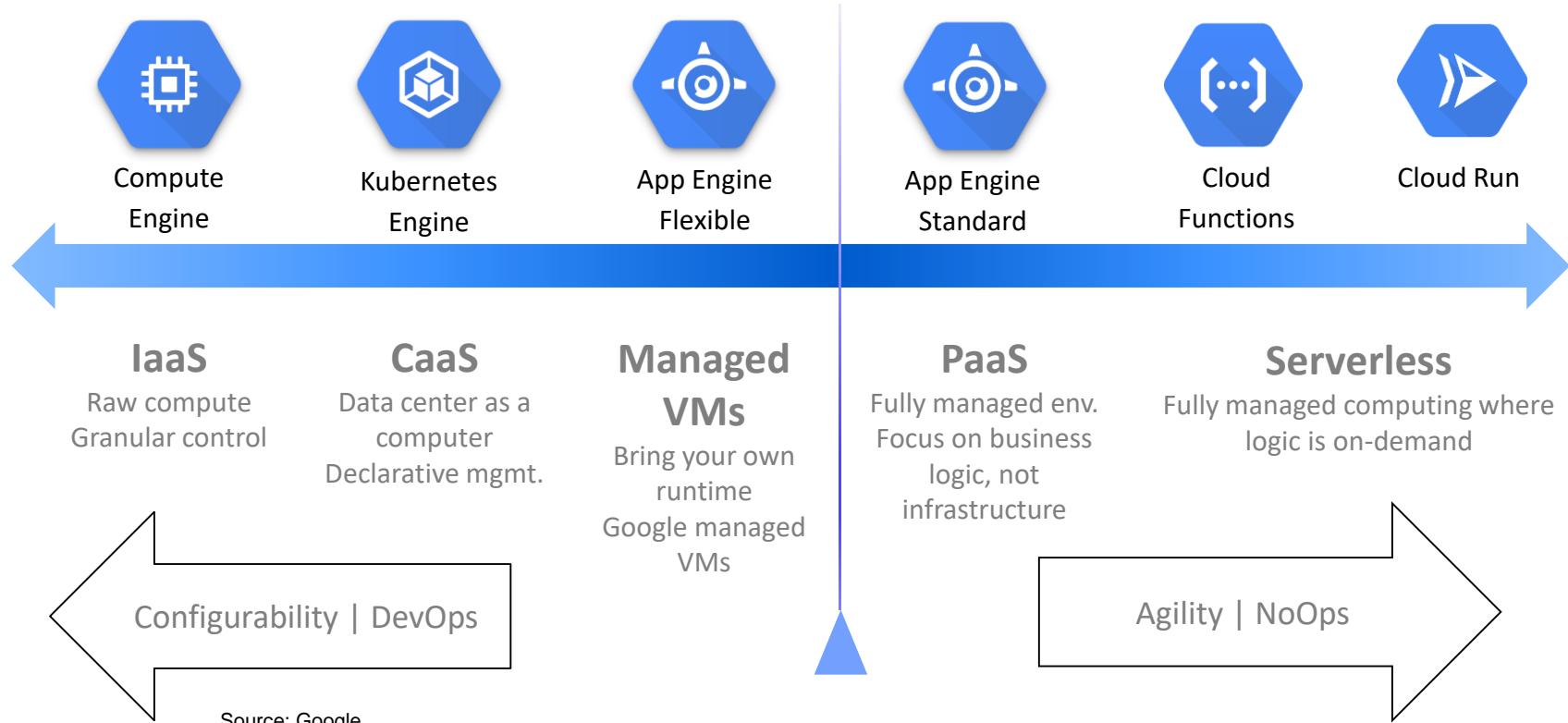
Google Cloud Platform has >65 services (contd.)



Source: Google

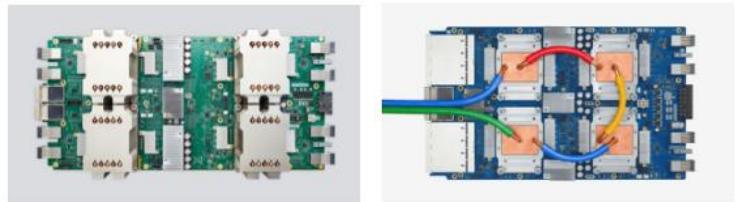
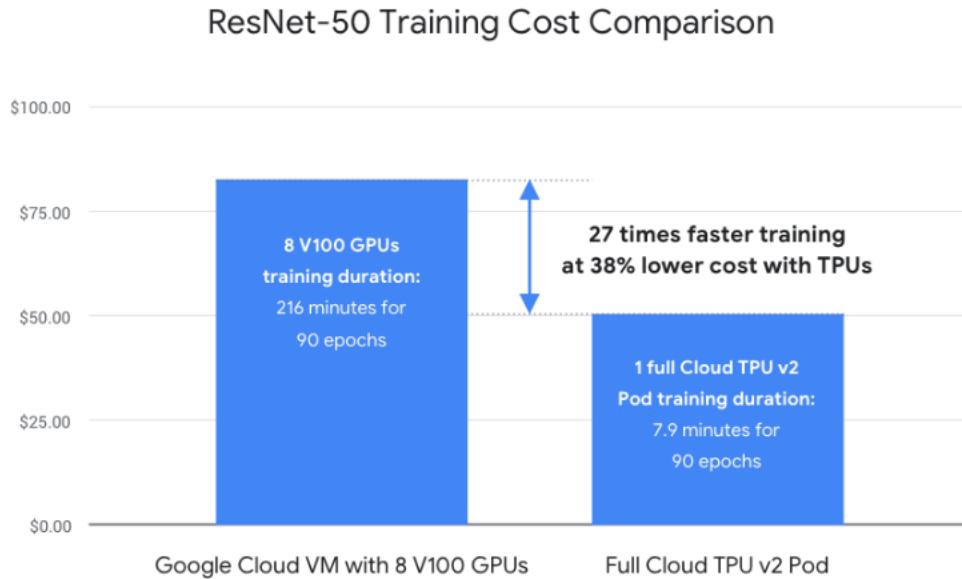
Google Compute Services

Google Compute Services



Cloud TPU

- **Cloud TPU** e.g. Tensor Flow Processing Unit meant for ML processing



Cloud TPU v2

180 teraflops

64 GB High Bandwidth Memory (HBM)

Cloud TPU v3

420 teraflops

128 GB HBM

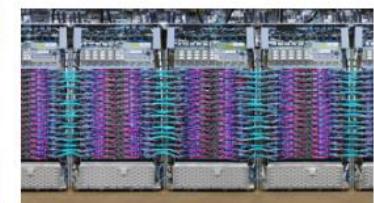


Cloud TPU v2 Pod

11.5 petaflops

4 TB HBM

2-D toroidal mesh network



Cloud TPU v3 Pod

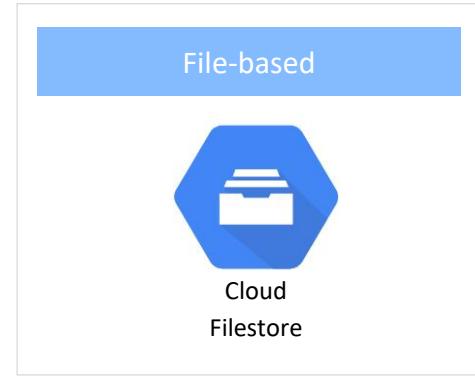
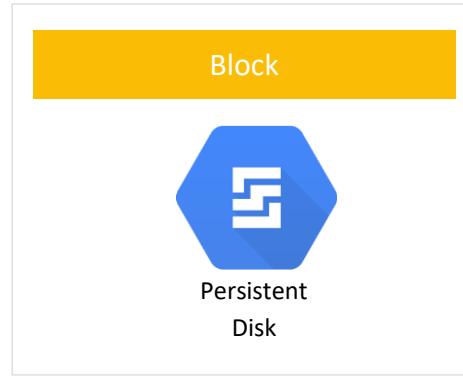
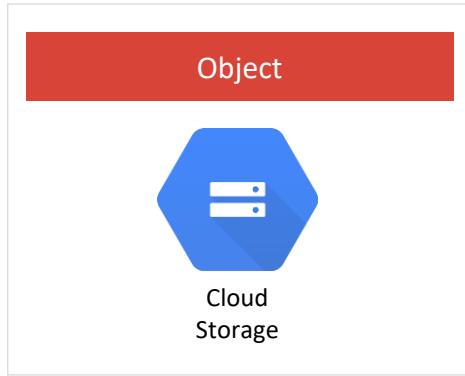
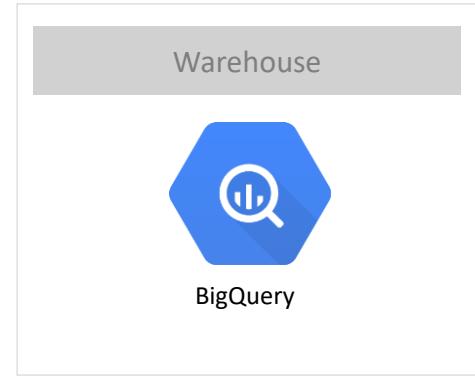
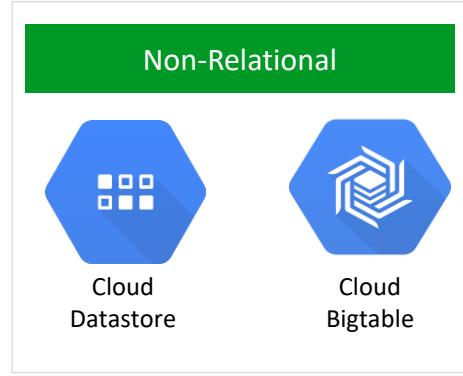
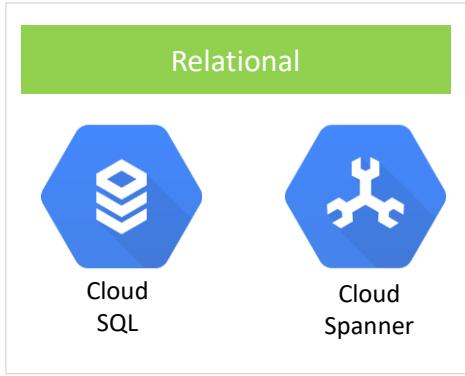
100+ petaflops

32 TB HBM

2-D toroidal mesh network

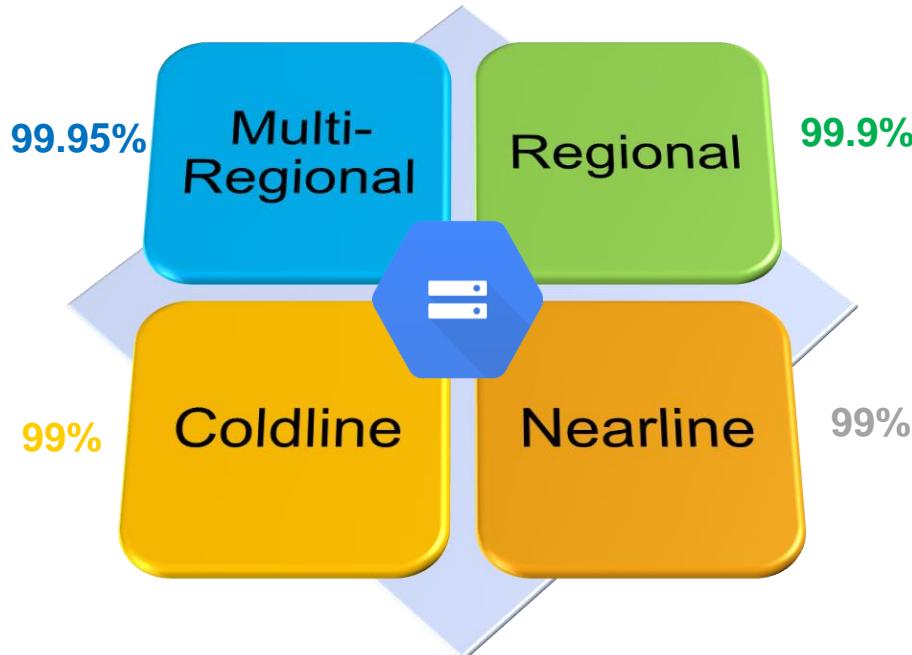
Google Storage Services

Google Storage Services



Cloud Storage Classes

Best suited for storing frequently accessed data which provides geo-redundancy and highest SLA



Best suited for storing frequently accessed data which provides zone-level redundancy with lower latency

Best suited for storing the data which is accessed once a year

[Read More](#)

Durability of 99.99999999 across all storage options

DRA option is also available which provides 99% availability as compared to "Regional" option

Cloud Storage - Lifecycle Management | Bucket Lock

Cloud Storage offers the Object Lifecycle Management feature

Condition	:	Days CreatedBefore IsLive MatchesStorageClass NumberOfNewerVersions
Action	:	Delete SetStorageClass

Sample Policy File

```
{  
  "lifecycle": {  
    "rule": [  
      {  
        "action": {"type": "Delete"},  
        "condition": {"age": 365}  
      }  
    ]  
  }  
}
```

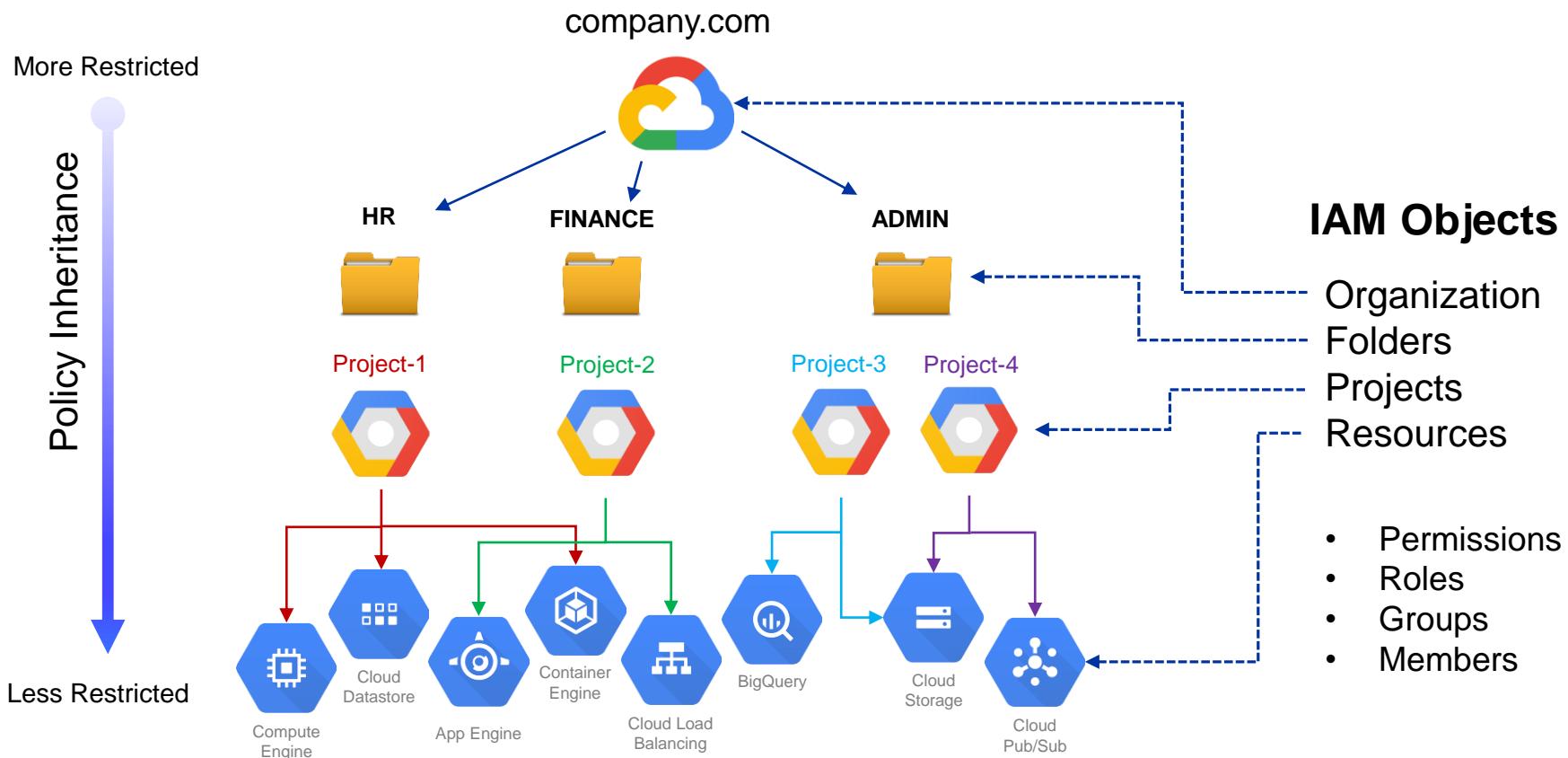
Bucket Lock feature allows you to configure a data retention policy for a Cloud Storage bucket that governs how long objects in the bucket must be retained

- Retention Policy
- Lock Policy
- Temporary Hold
- Event-based

Policy Flow | Roles | User Synchronization



IAM & Policy Inheritance



Types of Roles



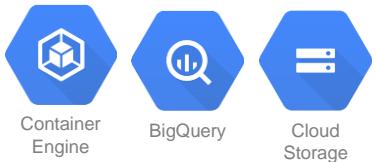
Primitive Roles



	Owner	Invite members Remove members Can delete project Includes Editor rights
	Editor	Deploy applications Modify code Configure services Includes Viewer rights
	Viewer	Read-only access
	Billing administrator	

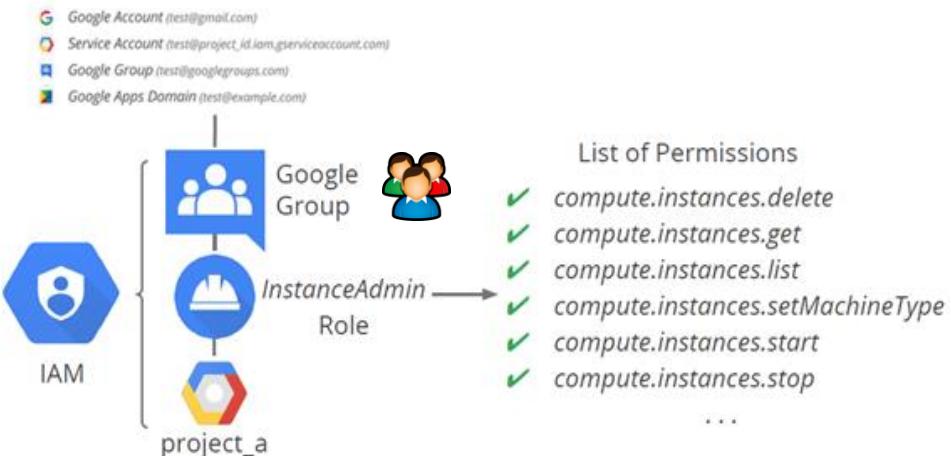
A project can have multiple owners, editors, viewers and billing administrators.

Predefined Roles



- ✓ Storage Object Creator
- ✓ Storage Object Viewer
- ✓ Storage Object Admin
- ✓ Storage HMAC Key Admin
- ✓ Storage Admin

Custom Roles (Curated)



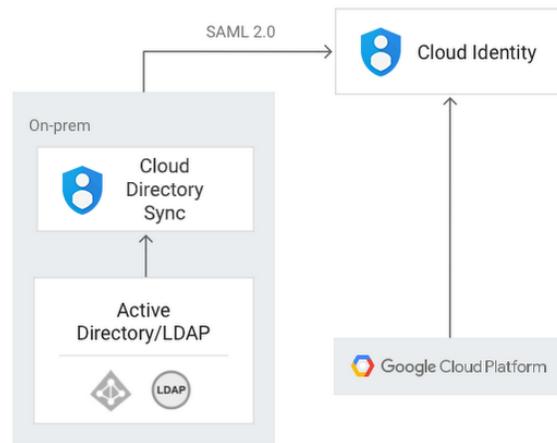
How Enterprise Users get Synchronized?



Google Cloud
Directory Sync

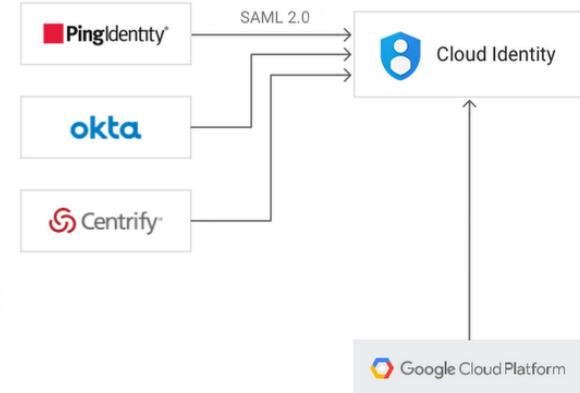
[Cloud Identity Feature Comparison](#)

On-prem directory as source of truth



Source: Google

IdaaS as Virtual Directory

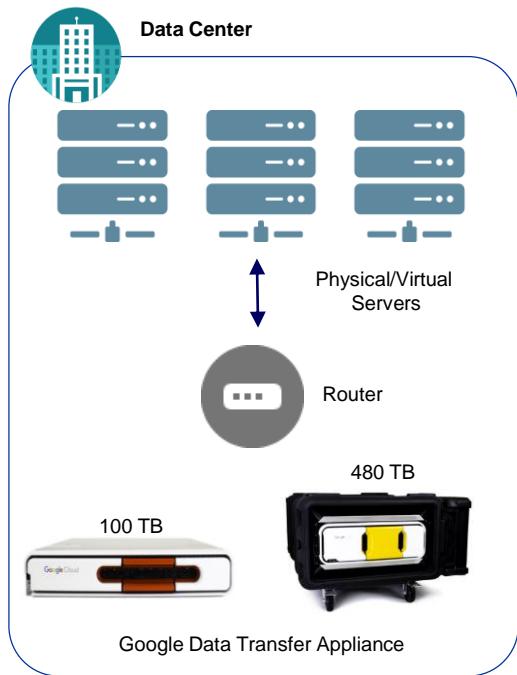


[Read More](#)

Many identity management vendors (e.g. Ping | Okta) provide a connector for GSuite and Cloud Identity Global Directory, which sync changes to users via the [Admin SDK Directory API](#).

Data Transfer Services

Data Migration (Offline)

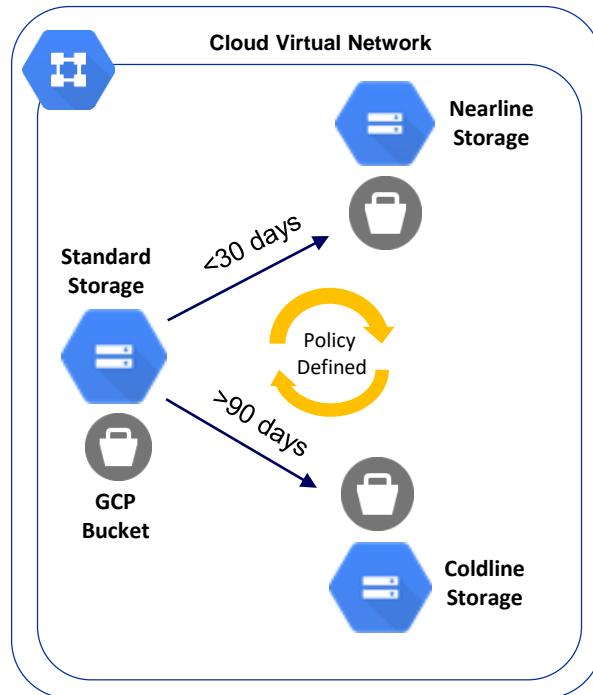


Offline Data Import/Export*

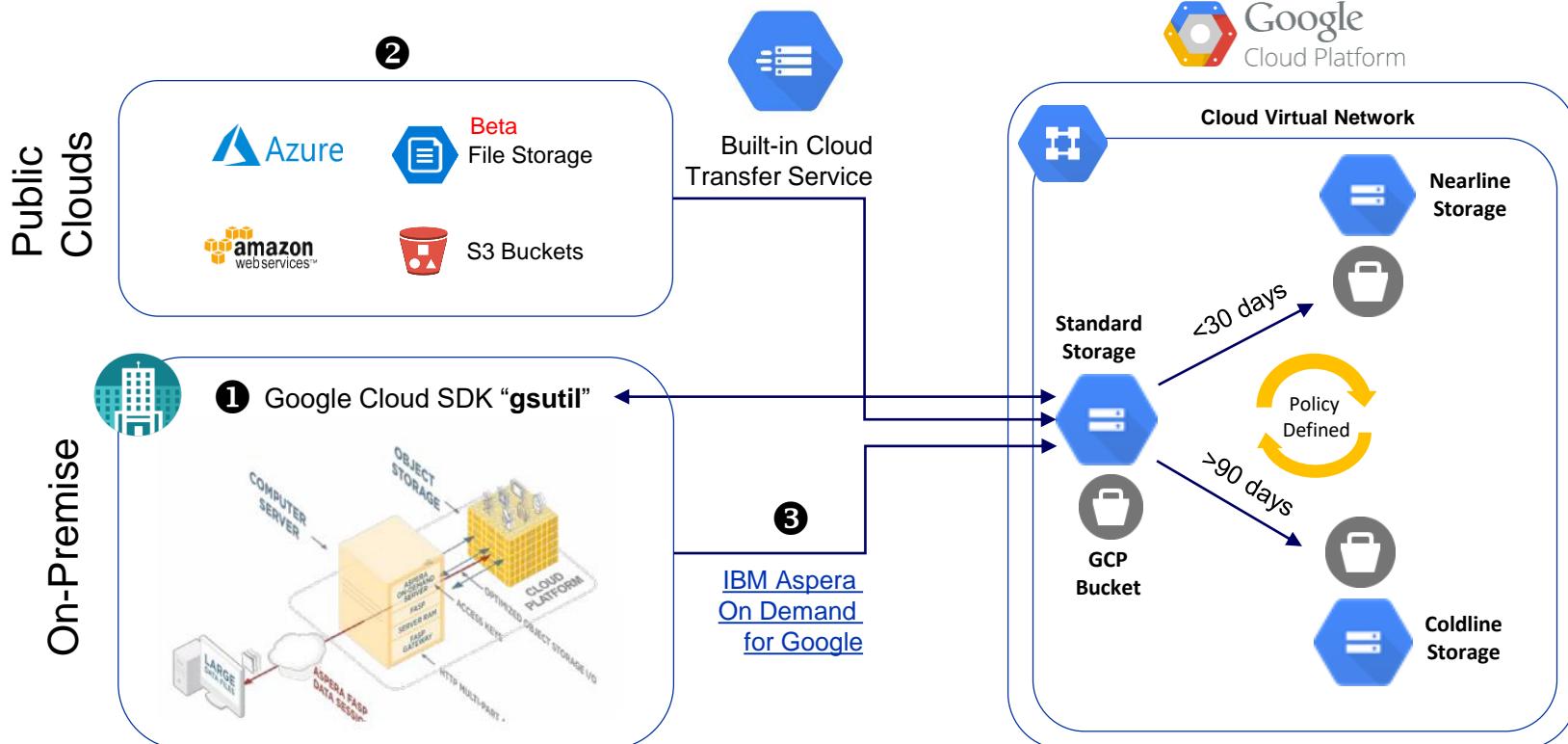


AWS : Snowball
Azure : Data Box

<https://cloud.google.com/transfer-appliance/docs/2.0/>

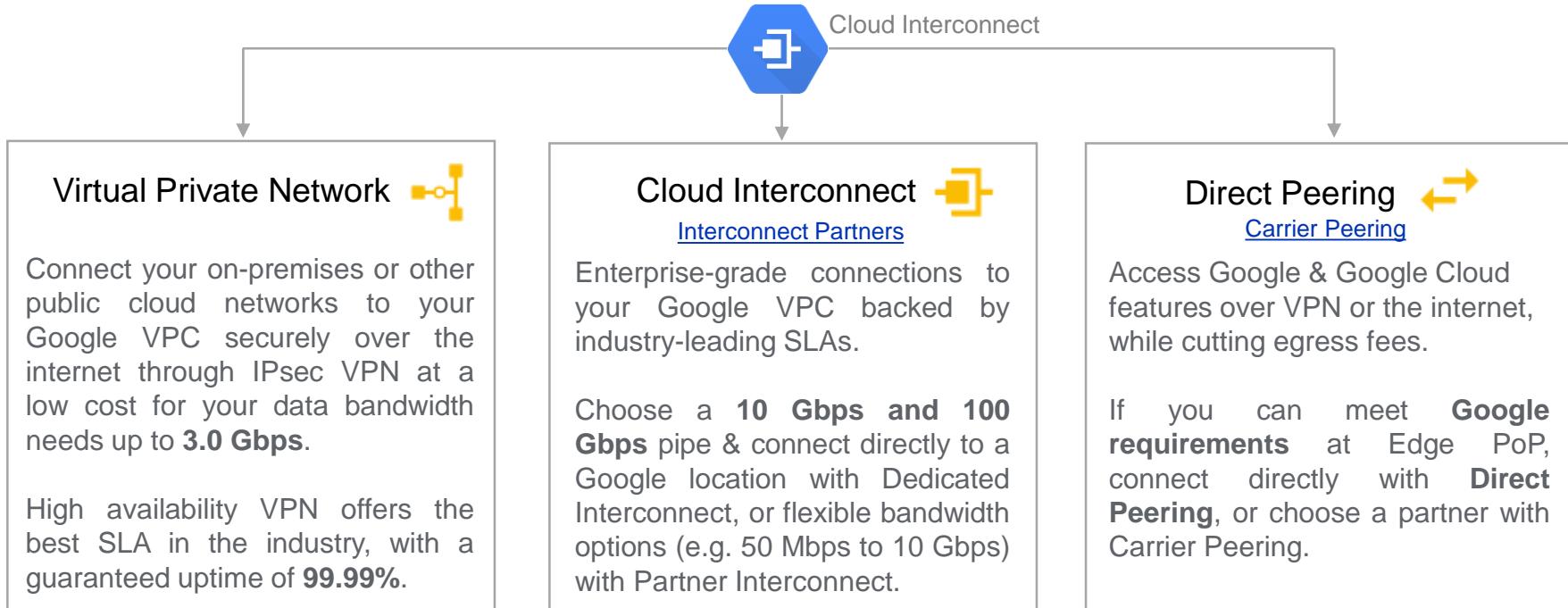


Data Migration (Online)



Google Network Services

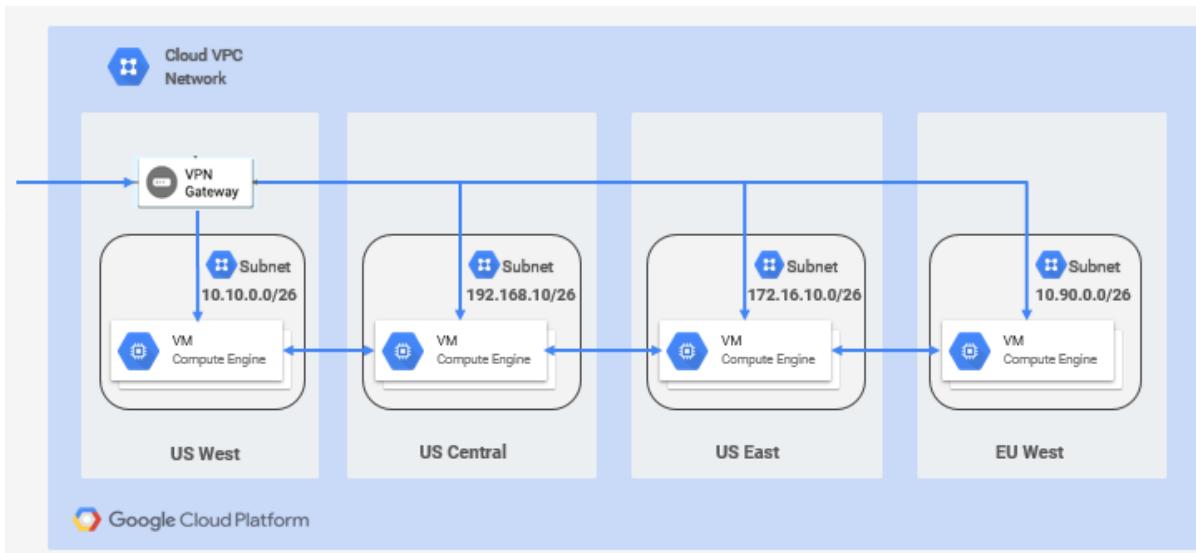
Google Connectivity Options



Google Virtual Private Cloud



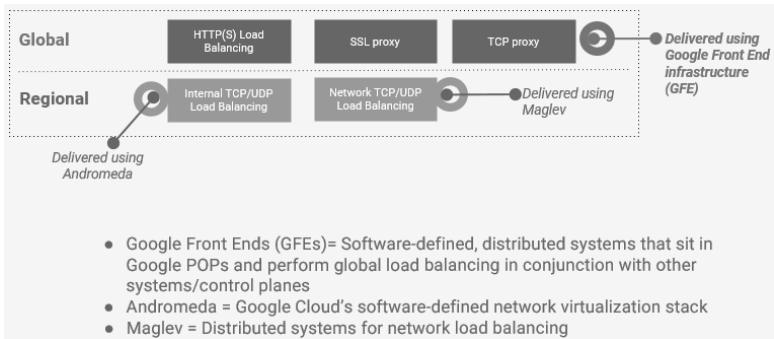
Global	Shareable	Expandable	Private
Single VPC across regions	Single VPC shared across your organization	Expandable VPC IP ranges	VPC private access to Google managed services



Google Load Balancer | CDN | DNS



Google Load Balancer



- High Performance & Scalable
- Single Frontend VIP across the Globe
- Global Presence and High-Availability
- Low Latency for all users



Google Cloud CDN



Level(3)[®]
COMMUNICATIONS

verizon[®]



Limelight[®]
NETWORKS



Google Cloud DNS

Domain Name to IP resolution

- Publish your domain names in high-volume
- Suitable for production applications.
- Fully Managed
- Low Latency, High Availability & cost-effective

Cognizant

Google Security Services

Google Security Services



Key Management Service

Data Encryption

- Generate/Rotate/Destroy
- CMEK
- CSEK



Data Loss Prevention API

Sensitive Data Masking



Cloud Security Scanner

Security Scanner for GAE

- XSS
- Flash Injection
- Outdated Library



Cloud Armor

Protection Against DDoS attack

- Works with GLB*
- Whitelisting
- Flexible Rules
- Security Partners



Security Command Center

Monitoring Command Center

- Detect
- Prevent
- Respond

*Global Load Balancer

Environment Observability & Marketplace



Google Stackdriver



Monitoring



Trace



Logging



Error Reporting



Profiler



Debug



Google Cloud



**Bind Plane by
Blue Medora**
(On-Premise Resources)

Google Marketplace

Infrastructure
57 solutions



SUREdge Migrator
Sureline

Any application, any data, any source to Google Cloud



Techila Distributed Computing
Techila

Rocket speed to simulation and analysis



Cassandra
Bitnami

Scalable Open Source database with high availability



NGINX Plus
NGINX

Load balancing, acceleration and high availability for web



PHP 5.6 - Zend Server Developer
Zend

PHP with Z-Ray debugger, Zend Gallery, and deployment tools



Spinaker
Spinnaker (Google CLI)

Smoother cloud deployments

[See all 57 solutions](#)

OS
13 solutions



Ubuntu Trusty
Canonical

Ubuntu Trusty Linux (14.04 LTS)



Windows Server 2012 R2
Microsoft

Windows Server 2012 R2 Datacenter Edition



Red Hat Enterprise Linux 7
Red Hat

Red Hat Enterprise Linux 7



Ubuntu Xenial
Canonical

Ubuntu Xenial Linux (16.04 LTS)



Developer Tools
25 solutions



PHP 5.6 - Zend Server Developer
Zend

PHP with Z-Ray debugger, Zend Gallery, and deployment tools



Jenkins
Bitnami

Integration server supporting SCM tools: CVS, Subversion and



GitLab
Bitnami

Fast, secure Git management software



Redmine
Bitnami

Powerful project management web app



Xplenty
Xplenty

Data Integration Cloud Service



Kafka
Bitnami

Powerful distributed publish-subscribe messaging system

Deploy common database, application or an infrastructure related resource in a single click

Google Anthos

The latest innovation in hybrid and multi-cloud computing is that it allows you to modernize applications, automate policy, provide security at scale, and can run on-premise or in the Cloud

- Lift & shift into GCE or Modernize into GKE
- Streaming migration in minutes, at scale
- Multiple sources: VMware, Physical, AWS, Azure
- Auto-containerize w/ persistent data migration
- Modernize operation with CSP & GCP services
- Integrated with CSM/Istio for GKE & GCE



Anthos



Kubernetes
Engine



GKE
On-Prem



Anthos Config
Management



Istio



Migrate
for Anthos



Marketplace

GCP Pricing Calculator

The screenshot shows the Google Cloud Platform Pricing Calculator. At the top, there's a navigation bar with links like Google Cloud, Why Google, Solutions, Products, Pricing, and Getting Started. On the right, there are buttons for Contact Sales and Get started for free.

The main area is titled "Google Cloud Platform Pricing Calculator" and includes a note that "Prices are up to date. Last update: 23-April-2020". Below this, there's a horizontal menu with icons for COMPUTE ENGINE, APP ENGINE, KUBERNETES ENGINE, CLOUD RUN, CLOUD STORAGE, NETWORKING EGRESS, LOAD BALANCING, INTERCONNECT & VPN, and BIG.

A search bar says "Search for a product you are interested in." To its right is a "Compute Engine" section with the following details:

- 20 x Development & Testing
- 14,600 total hours per month
- VM class: regular
- Instance type: n1-standard-4
- Region: Northern Virginia
- Paid OS Cost: USD 876.00
- GCE Instance Cost: USD 2,186.93
- Sustained Use Discount: 30%
- Effective Hourly Rate: USD 0.210
- Estimated Component Cost: USD 3,062.93 per 1 month
- Total Estimated Cost: USD 3,062.93 per 1 month

On the left, there's a sidebar for "Instances" with fields for "Number of instances" (set to 20), "What are these instances for?", "Operating System / Software" (set to Free: Debian, CentOS, CoreOS, Ubuntu, or other User Provided OS), "Machine Class" (set to Regular), "Machine Family" (set to General purpose), and "Usage" (set to 24X7).

On the right, there's a vertical column of text mapping calculator settings to specific values:

No. of VM	:	20
Instance OS	:	RHEL
Region	:	North Virginia
Configuration	:	n1-standard-4
Usage	:	24X7

[GCP Calculator](#)

GCP - Success Stories

GCP - Success Stories

American Restaurant Franchise

- Build a reliable and reproducible environment with scaled parity of production
- Applications to be hosted across the cloud with minimal effort
- Improve business agility and speed of innovation through rapid provisioning of new resources

Sports Good Discount Store Chain

- Engaged for Designing and implementing Interconnect(s) to Datacenter, setup basic resource hierarchy, host projects, VPCs, Global Load Balancer(s), routes
- Helped InfoSec team in setup Next Generation Firewall (Configuration of Next Generation firewall is done by InfoSec team). Sapient is engaged for designing and implementing GK

America's largest department Store chain

- Leveraged google cloud services to Offset 30% server growth during 2017 holiday season by providing temporary capacity for peak using OMS bursting to Google Cloud Platform
- Moved data to MongoDB, Google Store buckets which are more cloud friendly thus reducing dependency on Oracle database. Additional Information Service now

US based Insurance Company

- Leveraging GCP to offload some compute engine instances
- GCE is used for some applications, integrated Stack driver monitoring with Zenoss

Retail Grocery based out of USA

- Setting Kubernetes environment on GCP, with rolling updates
- Configured Ingress Load Balancer for GKE
- Setting up Container Registry
- Securing GKE environment
- Configuring Cloud Endpoints
- Setting up of Application Gateway

Global Education Leader

- Enterprise Data Warehouse on BigQuery
- Build a reporting system (unified data warehouse) on a cloud-based global data service platform with large scale storage and compute capacity
- Unifying data distributed across different Oracle servers
- Build a robust cloud based reporting platform

American Restaurant Franchise (End-to-End Kubernetes implementation)

SUMMARY: A leading fast food chain wanted to move out of the existing MapQuest to leverage Google Maps for Geo coding and Geo mapping and build their apps on headless, decoupled architecture where each layer interacts with another via well-defined interfaces.

BUSINESS CHALLENGE

- The solution should **improve business agility** and speed of innovation through **rapid provisioning** of resources.
- To build a reliable and reproducible environment with scaled parity of production.

SOLUTION HIGHLIGHTS

- Controlled DevOps environment on Cloud implemented with the ability to build/test/deploy **automatically** from source code commit
- Self service CI/CD for Dev and **integration with Stackdriver Error Reporting** to monitor the stability of the release.

SCALE & COMPLEXITY

- Six Microservices for store locator, geo coding, customer location etc.
- API End-Points are exposed through GLB and are available only for the on-premise systems

IMPACT/BENEFITS



Zero Downtime for Microservices



Frequent Code Release with zero errors

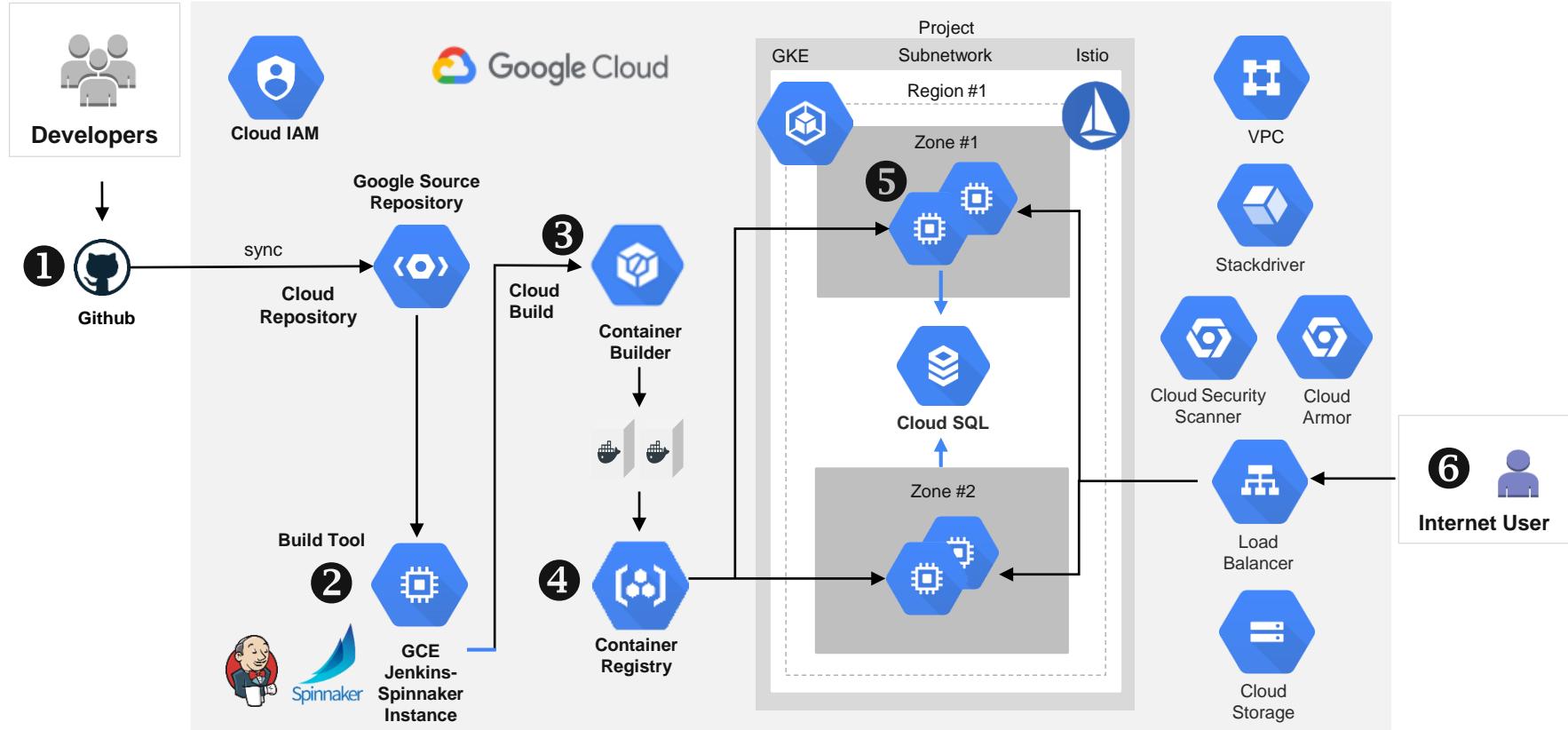


Shorter Deployment Cycles



Handled 10x more traffic than the existing setup

American Restaurant Franchise (Deployment Architecture)



Sports Good Discount Store Chain (eCommerce Platform Transformation)

SUMMARY: A leading sporting goods retail store chain wanted to modernize their existing Ecommerce platform to a micro service based CMS application on GCP platform interacting with the underlying WCS platform.

BUSINESS CHALLENGE	IMPACT/BENEFITS
<ul style="list-style-type: none">New platform should provide similar experience for both desktop and mobile applications with high performance, high availability and support for continuous delivery and deployment through a strong DevOps pipeline.	
<ul style="list-style-type: none">Resilient cloud platform.Palo Alto Firewalls for packet filtering.Setup Monitoring and Alerting in Stackdriver.Akamai caching/routing configurations.NGNIX for WAF to whitelist requests from Akamai.	 99% Infrastructure Availability
<ul style="list-style-type: none">Cloud interconnect from 2 regions, 3 global load balancers with 99.95% availability.	 Secure, isolated, multi-regional deployment

US based Insurance Company (Field inspection scheduling solution on GCP)

SUMMARY: A leading insurance firm needed a cloud native application to enable optimal utilization of triage and claim adjusters through efficient scheduling and deployment.

BUSINESS CHALLENGE

- Mobility – Enabling the field personnel to access the scheduling/assignment functionality through a mobile app.
- Integration with claims handling software such as GWCC, etc.

SOLUTION HIGHLIGHTS

- Incorporating live drive time provided by Google Maps API.
- Server-less computing with Google Load Balancer
- Google Cloud SQL 2nd Gen with high availability enabled with failover and replication.
- Cloud SQL Proxy for Secured and Encrypted connection.

SCALE & COMPLEXITY

- Used by both Catastrophe and Non-catastrophe claims teams

IMPACT/BENEFITS



Efficient distribution of workload resulting in 20-30% cuts in expenses

Reduced costs for application deployment



Shorter IT development cycle

24x7x365 monitoring & incidence management

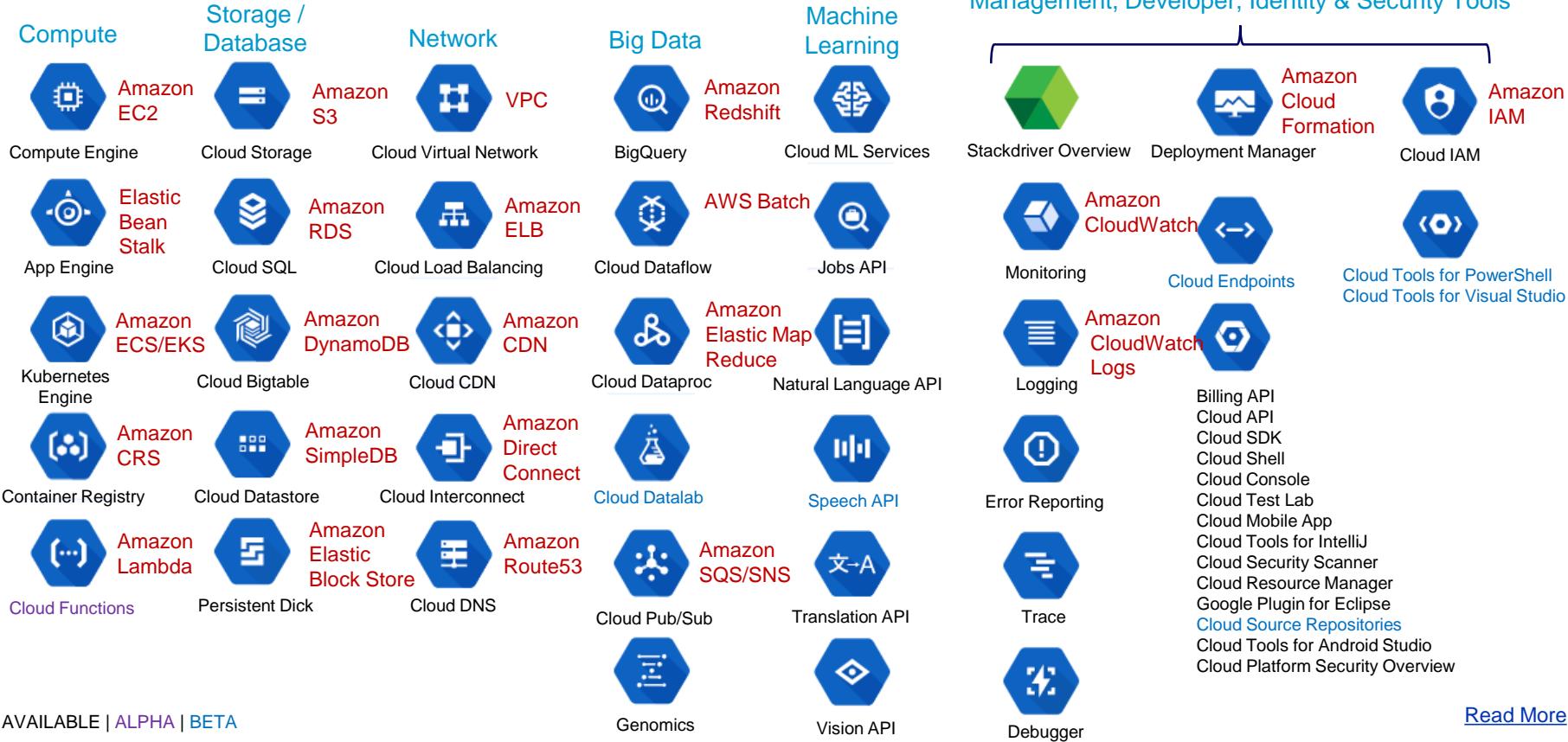
Thank You

Harish Chauhan

harish.chauhan@cognizant.com

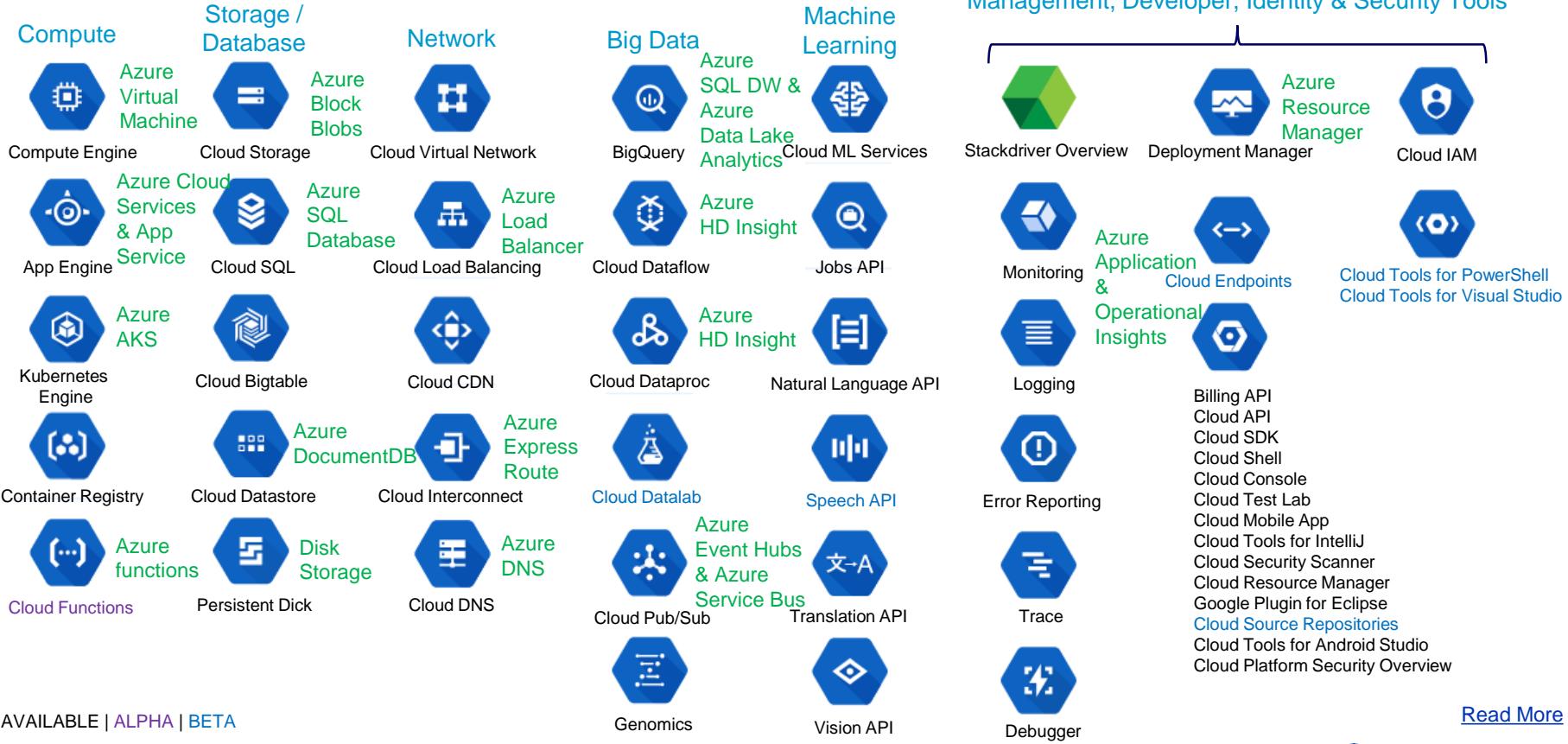
Cognizant®

Google Cloud Platform Services mapping with Amazon Web Services



AVAILABLE | ALPHA | BETA

Google Cloud Platform Services mapping with Microsoft Azure Services



AVAILABLE | ALPHA | BETA