



Road to Google Cloud Certification

Study Group - Week 4

-  GDG Cloud Paris
-  GDG Cloud Nantes
-  GDG Cloud IoT Lyon
-  GDG Cloud Abidjan

-  GDG Paris
-  GDG Bordeaux
-  GDG Le Mans
-  GDG Mons
-  GDG Abomey-Calavi

Week 4

Professional Cloud Architect

Tous les mardi de 13h à 13h45



[Slack: Rejoignez le canal #cloud-architect-french](#)

RSVP aux events de votre GDG



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})
```

“

Tour de table
GDG
GDE
...et vous !



Vous êtes 287+ inscrits !



Beaucoup moins de monde sur Slack!

”





Jb Cotard

GDG Le Mans & Kahoot Organizer
Lead Tech / CNAM

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Julien Landuré

GDG Cloud Nantes & GDE Cloud
CTO / Zenika



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Ambre Person

Promo 2021 & 2023 Cloud Architect
Tech Lead / Sopra Steria



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1

Où en sommes-nous ?

2

Revue de l'apprentissage de la semaine

3

Quizz

4

Actions pour la semaine prochaine

5

Séance de questions / réponses

Où en sommes-nous ?

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Professional Cloud Architect

Learning Journey

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	EXAM GUIDE REVIEW + STUDY GROUP Mardi 18 Avril	EXAM GUIDE REVIEW + STUDY GROUP Mardi 25 Avril	EXAM GUIDE REVIEW + STUDY GROUP Mardi 02 Mai	EXAM GUIDE REVIEW + STUDY GROUP Mardi 09 Mai	EXAM GUIDE REVIEW + STUDY GROUP Mardi 16 Mai	EXAM GUIDE REVIEW + WRAP UP Mardi 23 Mai	

Revue de l'apprentissage de la semaine

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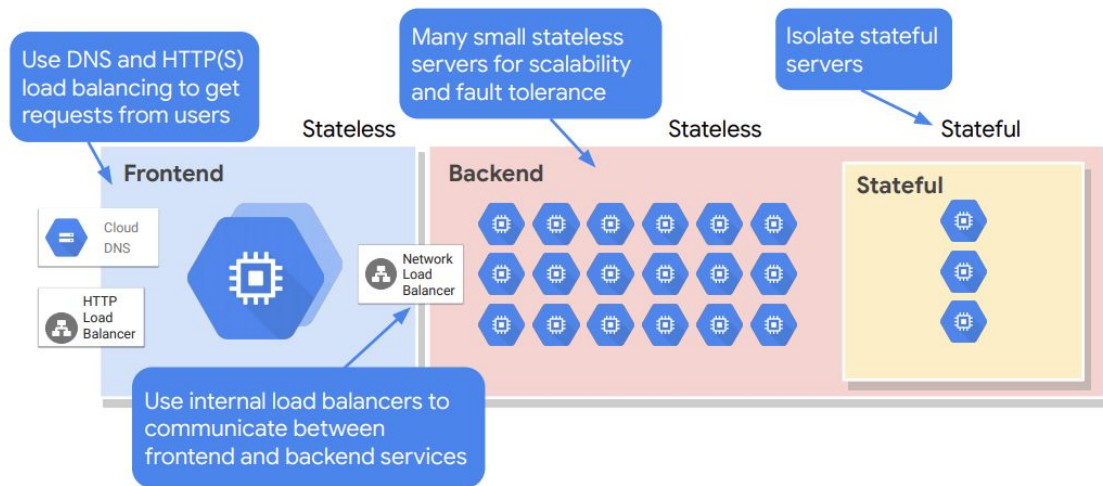
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Week 4 Study Group

- **Designing for security and compliance**
 - Designing for security.
 - Designing for compliance.
- **Analyzing and optimizing technical and business processes**
 - Analyzing and defining technical processes.
 - Analyzing and defining business processes.
 - Developing procedures to ensure resilience of solution in production (e.g., chaos engineering)

Microservice Design and Architecture

A general solution for large-scale cloud-based systems



Microservice Design and Architecture

Google Cloud provides two tools, Cloud Endpoints and Apigee, for managing APIs

Both provide tools for:

- User authentication
- Monitoring
- Securing APIs
- Etc.

Both support OpenAPI and gRPC



Apigee API
Platform



Cloud
Endpoints

Microservice Design and Architecture

REST Resource: [v1.firewalls](#)

Methods	
delete	DELETE /compute/v1/projects/{project}/global/firewalls/{resourceId} Deletes the specified firewall.
get	GET /compute/v1/projects/{project}/global/firewalls/{resourceId} Returns the specified firewall.
insert	POST /compute/v1/projects/{project}/global/firewalls Creates a firewall rule in the specified project using the data included in the request.
list	GET /compute/v1/projects/{project}/global/firewalls Retrieves the list of firewall rules available to the specified project.
patch	PATCH /compute/v1/projects/{project}/global/firewalls/{resourceId} Updates the specified firewall rule with the data included in the request.
update	PUT /compute/v1/projects/{project}/global/firewalls/{resourceId} Updates the specified firewall rule with the data included in the request.

Choosing Storage and Data Solutions

Google Cloud storage and database portfolio

Relational		NoSQL		Object	Warehouse	In memory
 Cloud SQL	 Cloud Spanner	 Firestore	 Cloud Bigtable	 Cloud Storage	 BigQuery	 Memorystore
Good for: Web frameworks	Good for: RDBMS+scale, HA, HTAP	Good for: Hierarchical, mobile, web	Good for: Heavy read + write, events	Good for: Binary object data	Good for: Enterprise data warehouse	Good for: Caching for Web/Mobile apps
Such as: CMS, eCommerce	Such as: User metadata, Ad/Fin/MarTech	Such as: User profiles, Game State	Such as: AdTech, financial, IoT	Such as: Images, media serving, backups	Such as: Analytics, dashboards	Such as: Game state, user sessions
Scales to 30 TB MySQL PostgreSQL SQL Server	Scales infinitely Regional or multi-regional	Completely managed Document database	Scales infinitely Wide-column NoSQL	Completely managed Infinitely scalable	Completely Managed SQL analysis	Managed Redis DB
Fixed schema	Fixed schema	Schemaless	Schemaless	Schemaless	Fixed schema	Schemaless

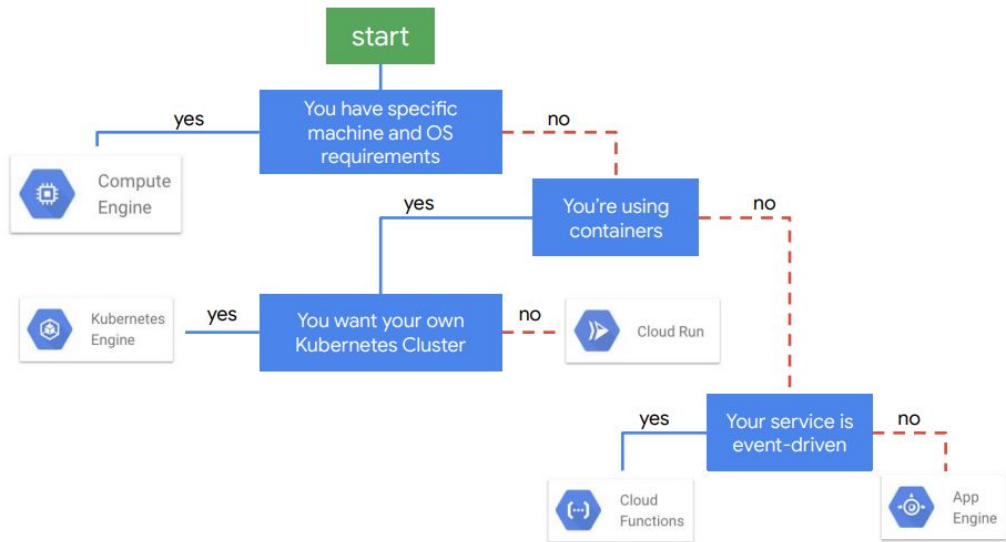
Choosing Storage and Data Solutions

Transferring data into Google Cloud can be challenging

	1 Mbps	10 Mbps	100 Mbps	1 Gbps	10 Gbps	100 Gbps
1 GB	3 hrs	18 mins	2 mins	11 secs	1 sec	0.1 sec
10 GB	30 hrs	3 hrs	18 mins	2 mins	11 secs	1 sec
100 GB	12 days	30 hrs	3 hrs	18 mins	2 mins	11 secs
1 TB	124 days	12 days	30 hrs	3 hrs	18 mins	2 mins
10 TB	3 years	124 days	12 days	30 hrs	3 hrs	18 mins
100 TB	34 years	3 years	124 days	12 days	30 hrs	3 hrs
1 PB	340 years	34 years	3 years	124 days	12 days	30 hrs
10 PB	3,404 years	340 years	34 years	3 years	124 days	12 days
100 PB	34,048 years	3,404 years	340 years	34 years	3 years	124 days

Deploying Applications to Google Cloud

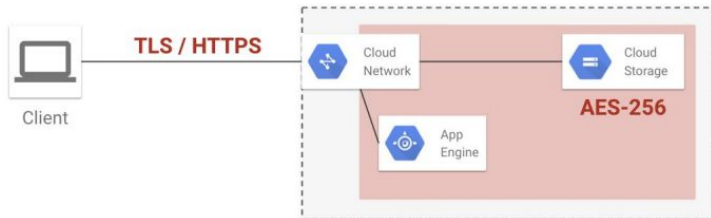
Choosing a Google Cloud deployment platform



Security

Google Cloud provides server-side encryption of data at rest by default

- Data Encryption Key (DEK) uses AES-256 symmetric key.
- Keys are encrypted by Key Encryption Keys (KEK).
- Google controls master keys in Cloud KMS.
- Keys are automatically periodically rotated.
- On-the-fly decryption by authorized user access with no visible performance impact



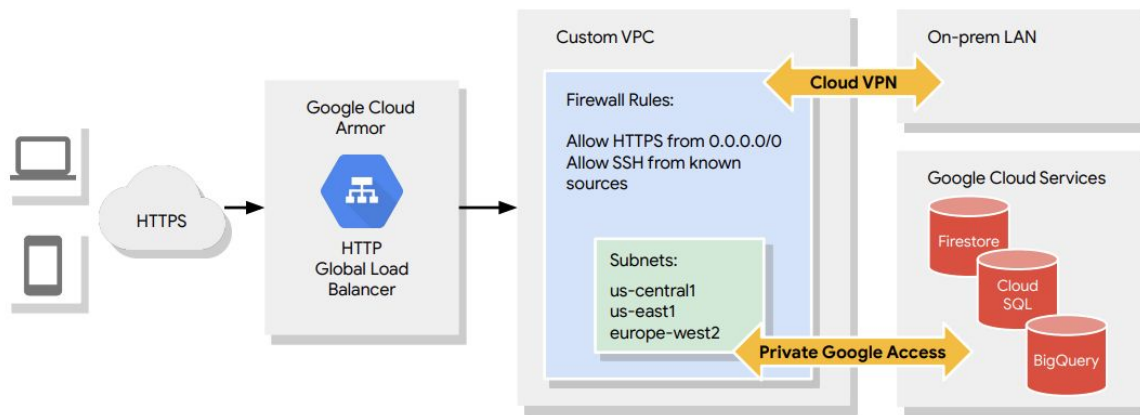
Security

The Data Loss Prevention API can be used to protect sensitive data by finding it and redacting it

- Scans data in Cloud Storage, BigQuery, or Datastore.
- Can also scan images.
- Detects many different types of sensitive data, including:
 - Emails
 - Credit cards
 - Tax IDs
- You can add your own information types.
- Can delete, mask, tokenize, or just identify the location of the sensitive data.



Security



Maintenance and Monitoring

Google Cloud unifies the tools you need to monitor your service SLOs and SLAs



Monitoring



Logging



Trace



Debugger



Error
Reporting



Profiler

Week 4 Preview



Introduction to Google Cloud

Cloud computing has five fundamental attributes



**On-demand
self-service**

No human
intervention
needed to get
resources



**Broad network
access**

Access from
anywhere



**Resource
pooling**

Provider shares
resources to
customers



**Rapid
elasticity**

Get more
resources
quickly as
needed

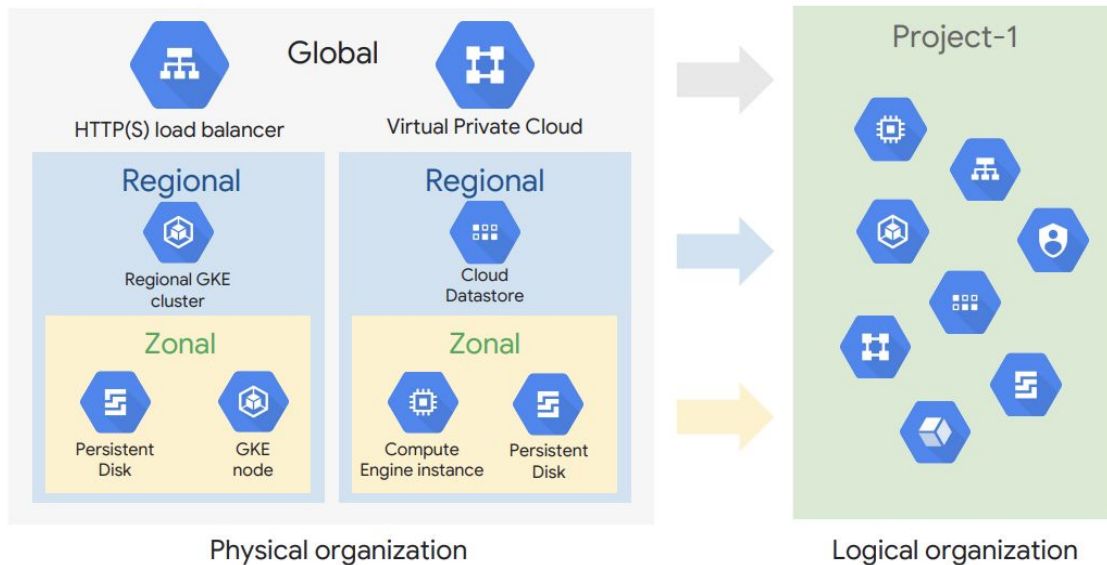


**Measured
service**

Pay only for
what you
consume

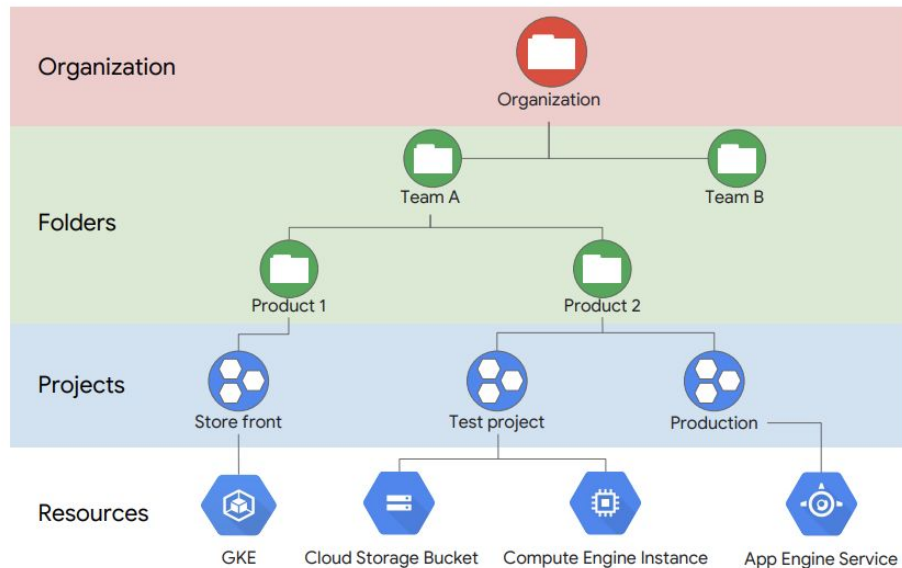
Introduction to Google Cloud

Resources are organized both physically and logically



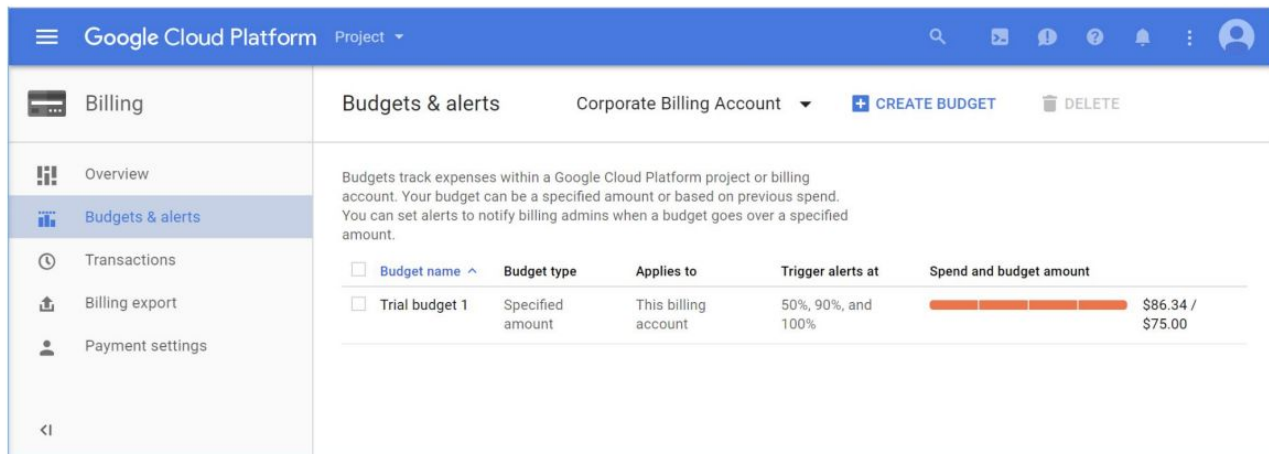
Introduction to Google Cloud

Resources have hierarchy



Introduction to Google Cloud

Budgets and alerts keep your billing under control



The screenshot shows the Google Cloud Platform Billing console. The left sidebar contains a menu with options: Billing, Overview, Budgets & alerts (selected), Transactions, Billing export, and Payment settings. The main content area is titled 'Budgets & alerts' and shows the 'Corporate Billing Account'. It includes a '+ CREATE BUDGET' button and a 'DELETE' button. Below this, there is a table listing budgets. The table has columns: Budget name, Budget type, Applies to, Trigger alerts at, and Spend and budget amount. A single budget is listed: 'Trial budget 1' with a 'Specified amount' type, applying to 'This billing account', with trigger alerts at 50%, 90%, and 100%. The spend and budget amount is shown as a progress bar and text: '\$86.34 / \$75.00'.

Budget name	Budget type	Applies to	Trigger alerts at	Spend and budget amount
Trial budget 1	Specified amount	This billing account	50%, 90%, and 100%	\$86.34 / \$75.00

Introduction to Google Cloud

There are four ways to interact with GCP



**Google Cloud
Platform Console**

Web user
interface



**Cloud SDK and
Cloud Shell**

Command-line
interface



**Cloud Console
mobile app**

For iOS and
Android



**REST-based
API**

For custom
applications

Introduction to Google Cloud

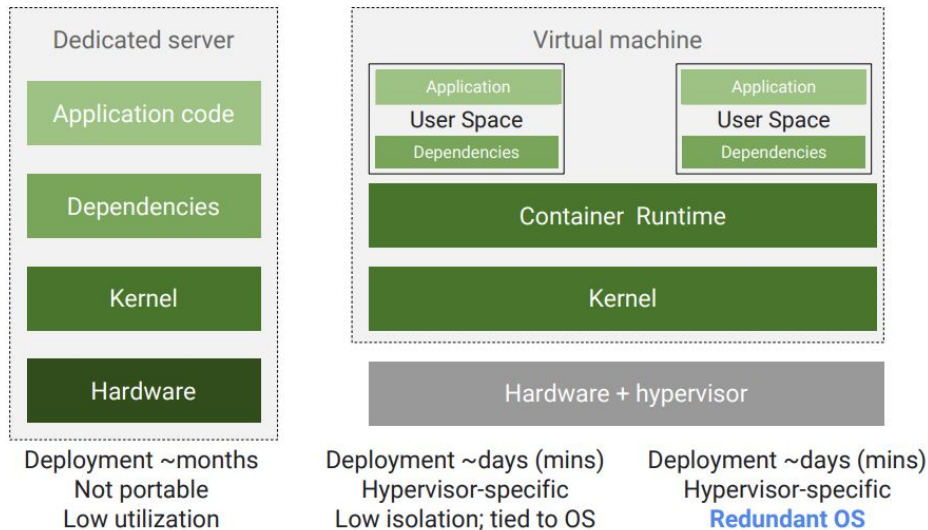
The Cloud SDK contains a set of command-line tools for GCP



- gcloud
- kubectl
- gsutil
- bq

Containers and Kubernetes in Google Cloud

User space abstraction and containers



Containers and Kubernetes in Google Cloud

How can you get or create containers?



Download containerized software from a container registry such as gcr.io.

docker

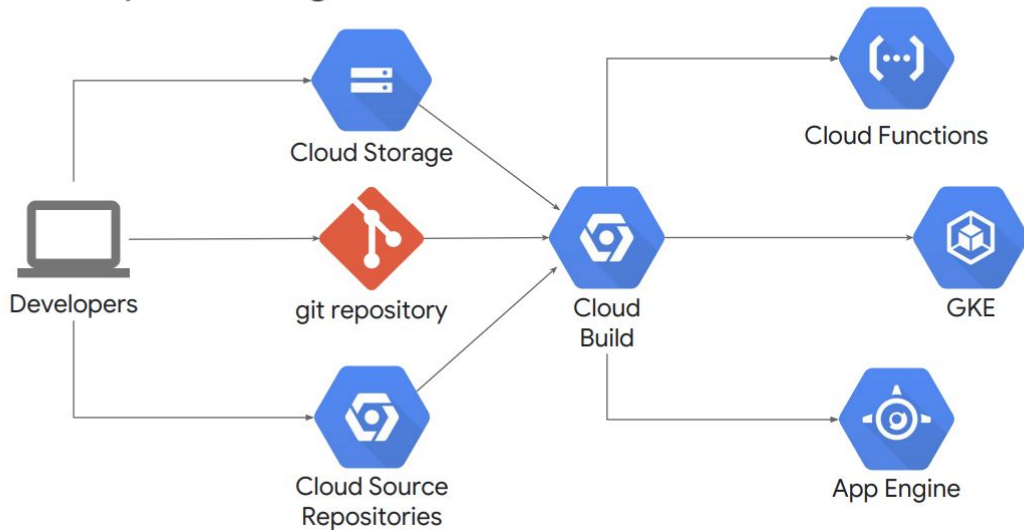
Build your own container using the open-source docker command.



Build your own container using Cloud Build.

Containers and Kubernetes in Google Cloud

Retrieve the source code for your builds from a variety of storage locations



Containers and Kubernetes in Google Cloud

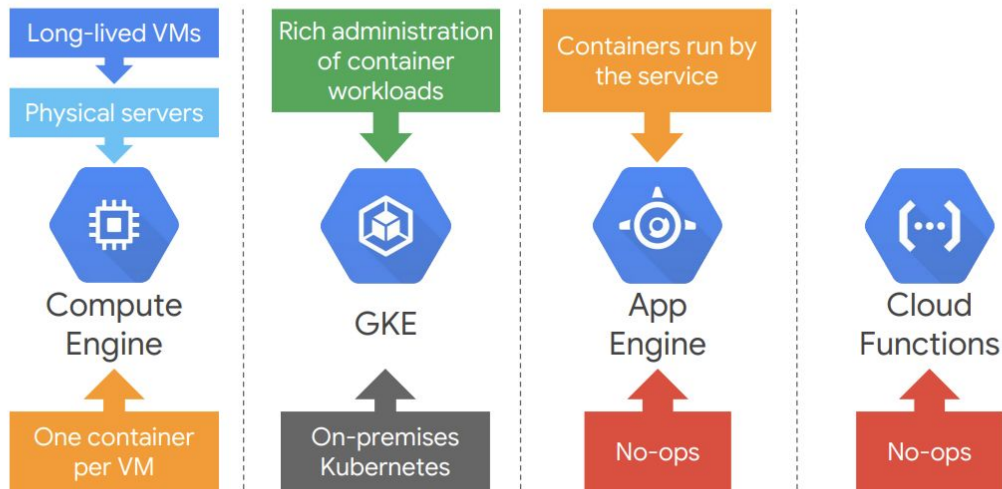
Google Kubernetes Engine



- ✓ Fully managed Kubernetes platform
- ✓ Supports cluster scaling, persistent disks, automated upgrades, and auto node repairs
- ✓ Built-in integration with GCP services
- ✓ Portability across multiple environments
 - Hybrid computing
 - Multi-cloud computing

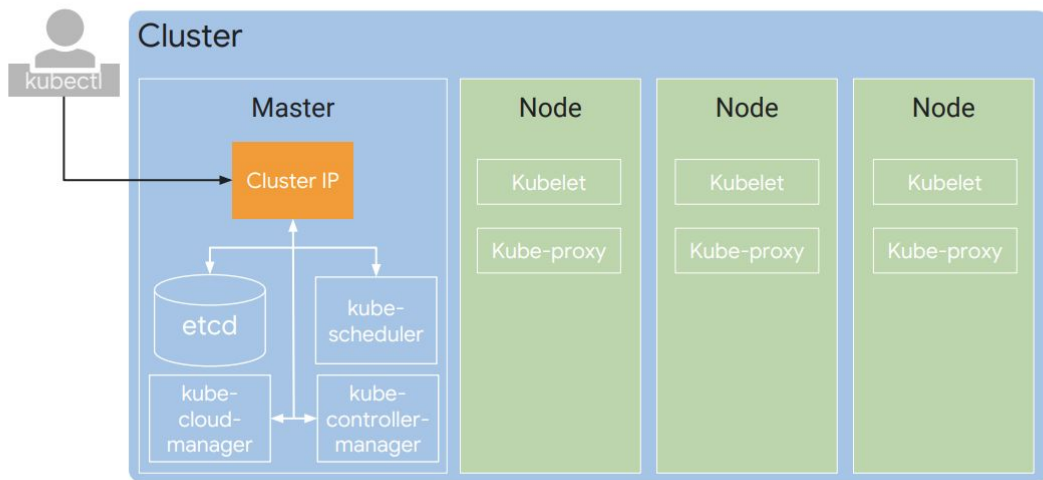
Containers and Kubernetes in Google Cloud

Which compute service should you adopt?



Kubernetes Architecture

GKE manages all the control plane components



Kubernetes Architecture

GKE: More about nodes



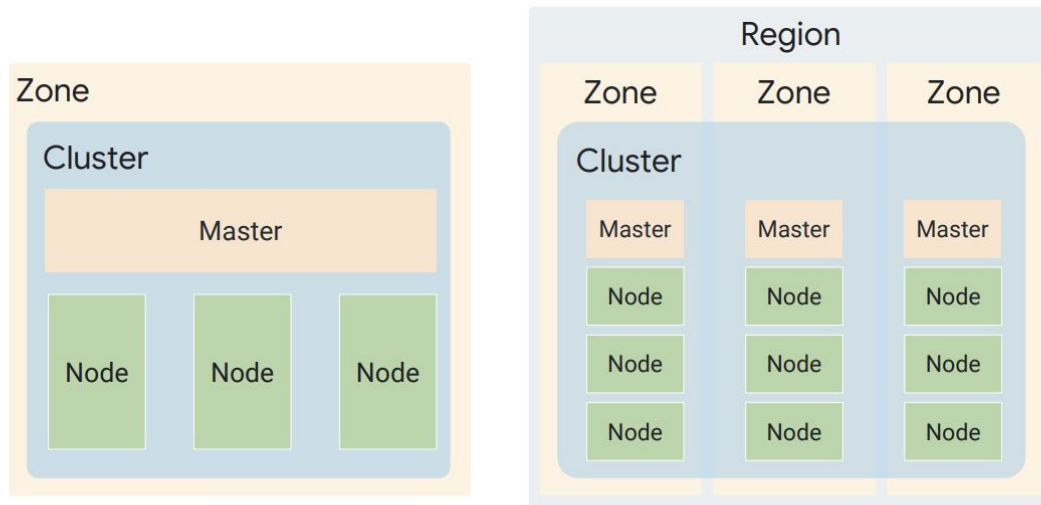
Kubernetes doesn't create nodes.
Cluster admins create nodes and add them to Kubernetes



GKE manages this by deploying and registering Compute Engine instances as nodes

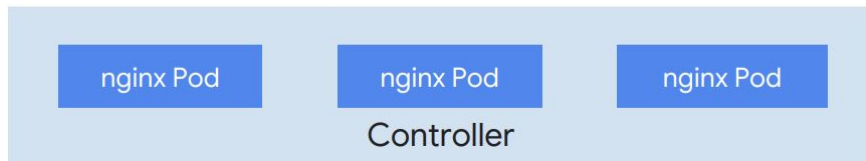
Kubernetes Architecture

Zonal versus regional clusters



Kubernetes Architecture

Pods and Controller Objects



Road to Certification

Initiatives de la communauté

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Partage

> [Codelab pour comprendre les concepts](https://codelabs.developers.google.com/codelabs/ipv4-ipv6-addressing/)

B

Bouchra ABIDAR 10:16

Bonjour à tous, Je me permets de partager avec vous ce lien, il m'a beaucoup aidé pour comprendre certaines concepts:

<https://codelabs.developers.google.com/codelabs/ipv4-ipv6-addressing/>

IP addressing options IPv4 and IPv6

About this codelab

☰ Last updated Apr 18, 2023

👤 Written by Ammett Williams

 Google Developer Groups

Road to Google Developers Certification

 Google Cloud

Fonctionnement d'un Codelab Challenge

> Fin de semaine 1 : load balancing challenge



Jeremy Voisin - GDG Le Mans 3 days ago

J'ai bien constaté ce conflit dans l'énoncé aussi, où quand tu dois créer ton LB tu es perdu par le besoin annoncé d'un target pool. Pour moi il faut bien que tu crées un global LB, avec une forwarding rule, une url map, un proxy, un backend, une fw rule et ton MIG (edited)

Vouchers : coupons de réductions

> Cela dépend de vous !

👉 Merci de cliquer sur  si vous souhaitez avoir un voucher. 😊

 17  2 



 Google Developer Groups

Road to Google Developers Certification

 Google Cloud

Quizz !

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Actions pour la semaine prochaine

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Professional Cloud Architect

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Thank you for tuning in!

For any operational questions about access to Cloud Skills Boost or the Road to Google Developers Certification program contact:

gdg-support@google.com



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