



Road to Google Cloud Certification

Study Group - Week 2

-  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 2

Professional Cloud Architect

Tous les mardi de 13h à 13h45



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

RSVP aux events de votre GDG



```
let filteredStudies = studies.filter(study => {  
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})
```

“

Tour de table
GDG
GDE
...et vous !



Vous êtes 287+ inscrits ! 🎉

”





Eric Briand

GDE Cloud

Principal SRE / Amadeus



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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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Road to Certification

Overview

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Partir d'

Un apprentissage



Vers

Un nouveau rôle
(travail) et expertises



Certification Learning Journey

Apprendre ensemble !

- **Certification Study group:** weekly live sessions for 6 weeks to go through content and exam prep questions 🖱️ **C'est nous maintenant !** ❤️
- **On-demand resources:** Access to Cloud Skills Boost courses and labs, and additional learning material on certification content and exam questions. 🖱️ **Cloudskillsboost** 🎓
- **Deeper engagement** through instructor led sessions. 🖱️ **Posez vos questions !** 📌
- **Community support:** Learn together with a local community to get support from experts and other fellow developers. 🖱️ **Slack pour vous** 💬



1

Où en sommes-nous ?

2

Revue de l'examen

3

Sample Question Review

4

Q&A

5

Preview actions for next week

Où en sommes-nous ?

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Professional Cloud Architect

Learning Journey

Pre-work	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Exam weeks
Have real world hands on experience Review the PCA Exam Guide Review the PCA Sample Questions	A FAIRE AVANT LE 18 AVRIL On-demand training: Preparing for the Professional Cloud Architect Exam Google Cloud Fundamentals: Core Infrastructure Hands On Lab Practice:  Create and Manage Cloud Resources Skill Badge (5 hrs)	A FAIRE AVANT LE 25 AVRIL On-demand training: Essential Google Cloud Infrastructure: Foundation Essential Google Cloud Infrastructure: Core Services Hands On Lab Practice:  Perform Foundational Infrastructure Tasks in Google Cloud Skill Badge (4 hrs)	A FAIRE AVANT LE 02 MAI On-demand training: Elastic Google Cloud Infrastructure: Scaling and Automation Hands On Lab Practice:  Set Up and Configure a Cloud Environment in Google Cloud Skill Badge (6 hrs)	A FAIRE AVANT LE 09 MAI On-demand training: Reliable Cloud Infrastructure: Design and Process Hands On Lab Practice:  Automating Infrastructure on Google Cloud with Terraform Skill Badge (6 hrs)	A FAIRE AVANT LE 16 MAI On-demand training: Getting Started with Google Kubernetes Engine Hands On Lab Practice:  Deploy and Manage Cloud Environments with Google Cloud Skill Badge (8 hrs)	A FAIRE AVANT LE 23 MAI On-demand training: Logging, Monitoring and Observability in Google Cloud Hands On Lab Practice:  Optimize Costs for Google Kubernetes Engine Skill Badge (6 hrs) Check Readiness: PCA Sample Questions	Self study (and potential exam)
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Revue de l'apprentissage de la semaine

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Week 2 Study Group

- **Designing and planning a cloud solution architecture**
 - Designing a solution infrastructure that meets business requirements.
 - Designing a solution infrastructure that meets technical requirements.
 - Designing network, storage, and compute resources.
 - Creating a migration plan (i.e., documents and architectural diagrams).
 - Envisioning future solution improvements.

Essential Cloud Infrastructure: Foundation

(Last Week's Material Review)

Introduction to GCP

Virtual Networks

Virtual Machines

PRIORITIES

- 1.
- 2.
- 3.

Essential Cloud Infrastructure: Foundation

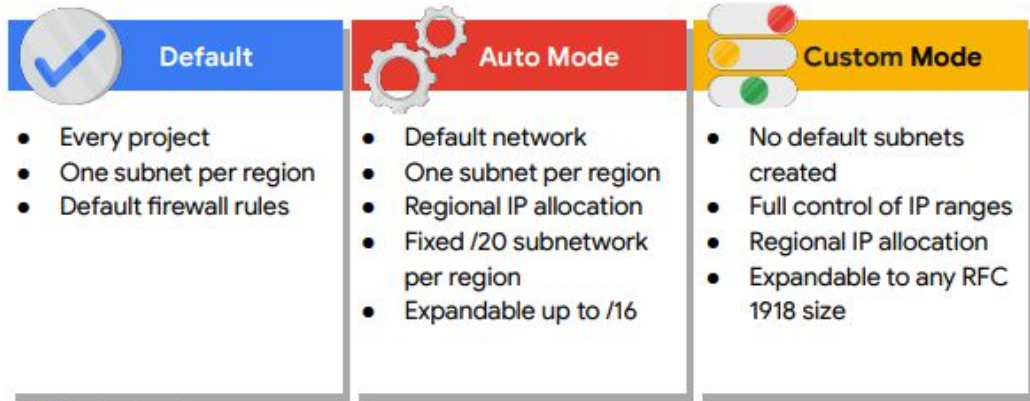
(Last Week's Material Review)

us-west1-b	The Dalles, Oregon, North America
us-west1-c	The Dalles, Oregon, North America
us-west2-a	Los Angeles, California, North America
us-west2-b	Los Angeles, California, North America
us-west2-c	Los Angeles, California, North America
us-west3-a	Salt Lake City, Utah, North America
us-west3-b	
us-west3-c	
us-west4-a	Las Vegas, Nevada, North America
us-west4-b	
us-west4-c	



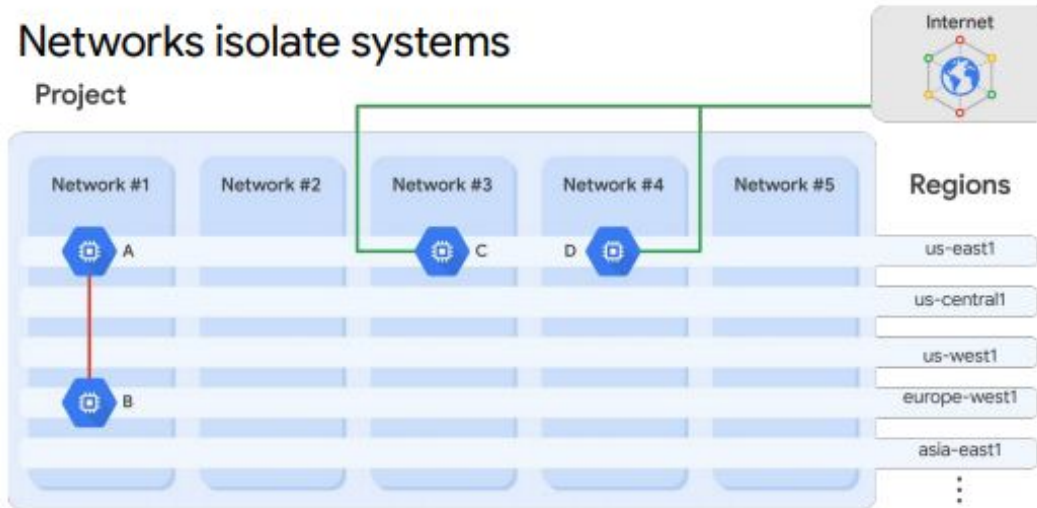
Essential Cloud Infrastructure: Foundation

3 VPC network types



Essential Cloud Infrastructure: Foundation

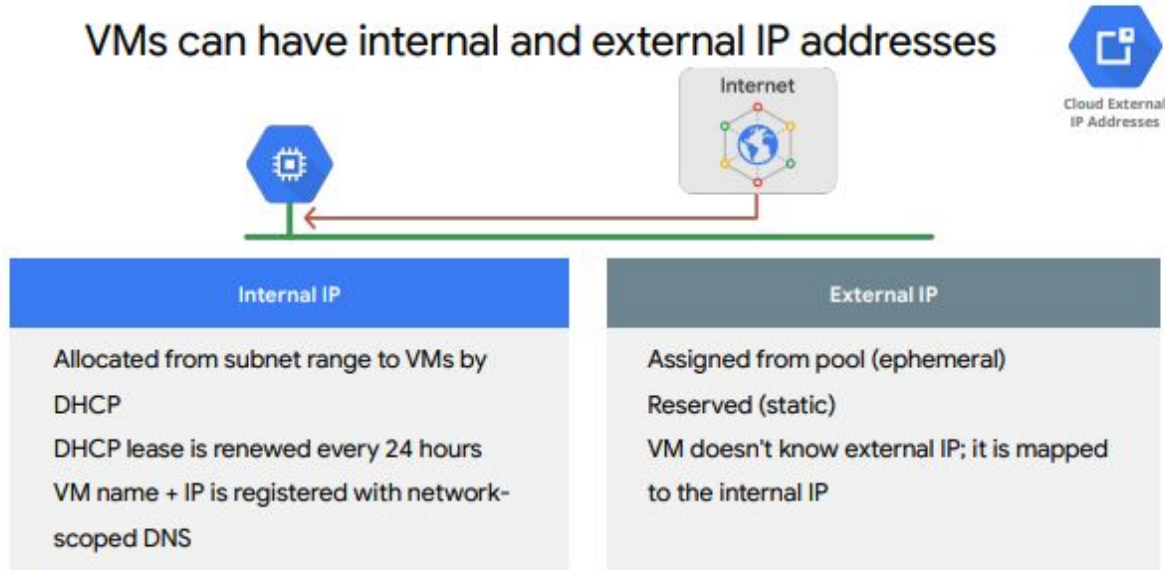
Networks isolate systems



- A and B can communicate over internal IPs even though they are in different regions.
- C and D must communicate over external IPs even though they are in the same region.

Essential Cloud Infrastructure: Foundation

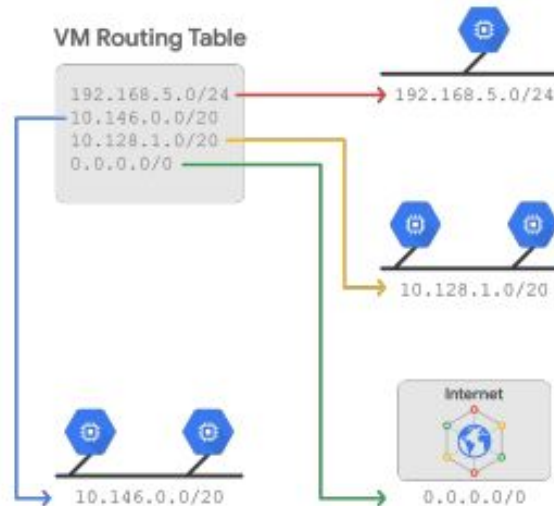
VMs can have internal and external IP addresses



Essential Cloud Infrastructure: Foundation

Routes map traffic to destination networks

- Apply to traffic egressing a VM.
- Forward traffic to most specific route.
- Are created when a subnet is created.
- Enable VMs on same network to communicate.
- Destination is in CIDR notation.
- Traffic is delivered only if it also matches a firewall rule.



PCA Case Studies

- [EHR Healthcare](#)
- [Helicopter Racing League](#)
- [Mountkirk Games](#)
- [TerramEarth](#)



CASESTUDIES

Astuces

- [Professional Cloud Architect Certification Learn](#)
- N'apprenez pas par coeur les PDFs : ils sont disponibles pendant l'examen
- Travaillez les Case Studies : Vous aurez à coup des questions dessus !



CASESTUDIES

EHR Healthcare



Key business points

Online health records site

Due to rapid changes in the healthcare and insurance industry, EHR Healthcare's online health records software business has been growing exponentially year over year..

Core values

Provide highly available services to customers

Maintain regulatory Compliance

Stay current on industry trends

Immediate business goals

- Scale their environment
- Adapt their disaster recovery plan, and
- Roll out new continuous deployment capabilities to update their software at a fast pace
- Provide consistent logging, monitoring, and alerting capabilities

Technical evaluation

Existing Environment	Technical Watchpoints	Proposed Product/Solution
Customer-facing applications are web-based, and many have recently been containerized to run on a group of Kubernetes clusters.	Compute • Containerized applications • Needs to run in the cloud and integrate with on-premises systems • Autoscaling, low latency • Robust logging, monitoring and alerting required	
Software is currently hosted in multiple colocation facilities. The lease on one of the data centers is about to expire.	Storage • Currently in multiple databases including MySQL, MS SQL Server, Redis, and MongoDB	
Data visualization • Nonexistent or minimal	Data needs • Fast on-boarding of insurance providers and their data • Data Analytics needed to predict industry and health care trends • 99.9% availability for customer-facing data systems	

A screenshot from the game Minecraft showing a large, dimly lit room with stone walls and floors. On the left, there are several bookshelves filled with books. In the center, a large, glowing torch stands on the floor, casting a bright light. In the background, there are windows with glass panes and a small wooden structure. The overall atmosphere is dark and mysterious.

Mountkirk Games

Key business points

Online games platform

After initial success with Google Cloud, now want to build all-new games using cloud-native design
Online session-based multiplayer games

Core values

Analyze player behavior and game telemetry
Online session-based multiplayer games
Use managed services and pooled resources
Minimize cost

Immediate business goals

Support new gaming platforms beyond mobile
Rapidly iterate on deployments
Support hundreds of simultaneous players with global leaderboard

Technical evaluation

Existing Environment	Technical Watchpoints	Proposed Product/Solution
Existing games migrated to Google Cloud using lift-and-shift VM migrations	Compute • New game backend to be Google Kubernetes Engine • Need to scale across regions • Use GPU processing to render graphics for multi-platform • Eventual migration of existing games to new platform	
Separate environments for development and testing	Storage • New game to using a multi-region cluster for global leaderboard	
	Data ingestion • Live metrics from game server • Game logs stored in structured files for future analysis	



Ro

Helicopter Racing League



Key business points

Competitive racing league

Helicopter Racing League (HRL) is a global sports league for competitive helicopter racing. HRL holds the world championship and several regional league competitions where teams compete to earn a spot in the world championship.

Core values

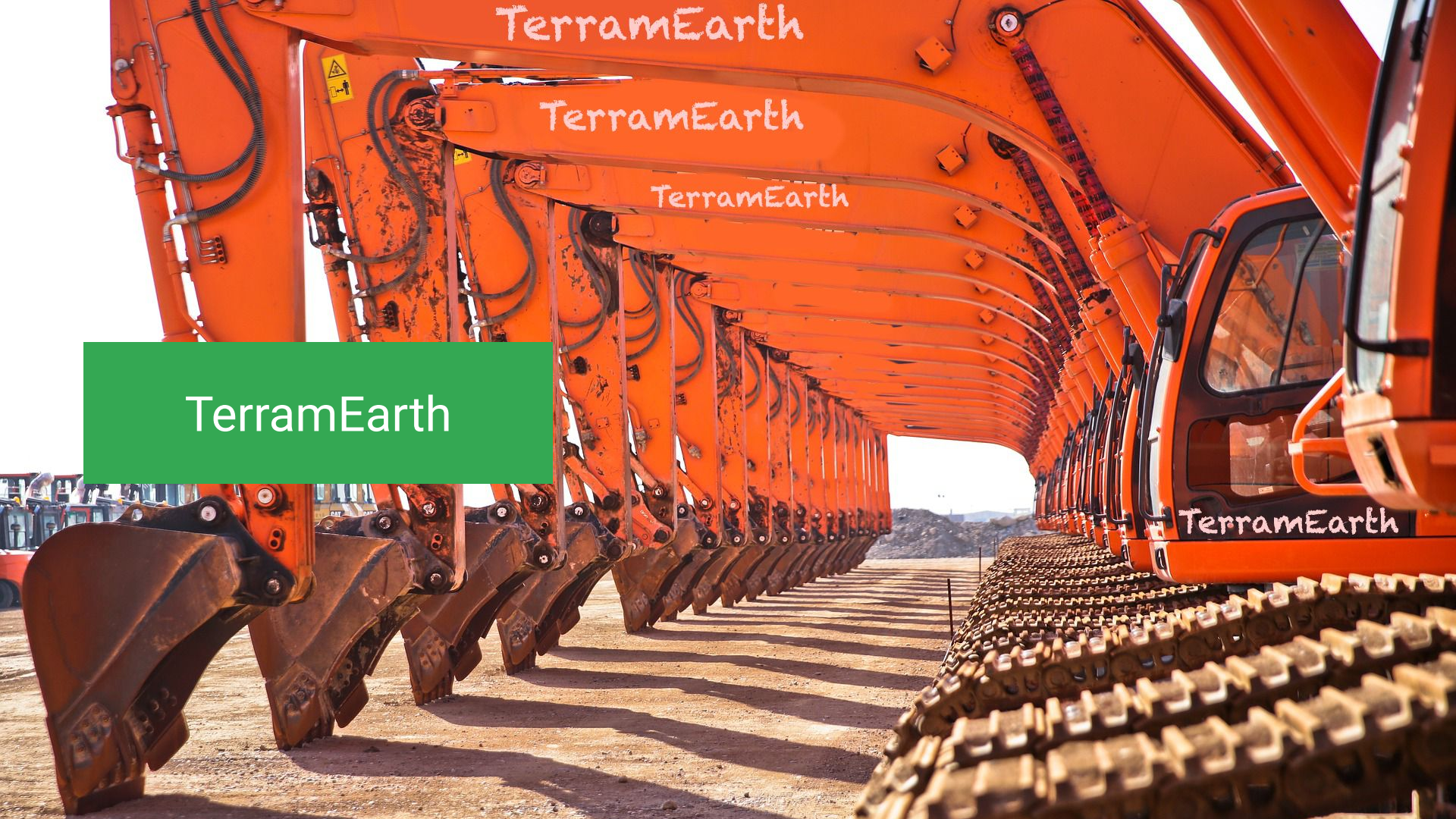
High-adrenaline coverage to fans all over the world
Enhanced video streaming with integrated real-time race predictions
Season long interest and results for the sport

Immediate business goals

Migrate existing service to a new platform.
Expand use of AI and ML services to facilitate race predictions
Serve content closer to users (lower latency)

Technical evaluation

Existing Environment	Technical Watchpoints	Proposed Product/Solution
Core of their mission-critical applications runs on their current public cloud provider. Video recording and editing is performed at the race tracks, and the content is encoded and transcoded, where needed, in the cloud.	Compute Video encoding and transcoding is performed on VMs created for each job.	
Content is stored in an object storage service on their existing public cloud provider.	Storage Large file object storage (BLOB)	
Low latency streaming for large numbers of viewers Race predictions use TensorFlow on VMs	Data (videos) - Large number of concurrent streaming video viewers - Ability to create “datamart”	



TerramEarth

TerramEarth

TerramEarth

TerramEarth

TerramEarth

Key business points

Family-owned business	Core values	Immediate business goals
500 dealers, service centers in 100 countries. 20% yearly growth	Excellent customer service Minimize vehicle downtime	Provide best-in-class online fleet management services to our customers Improve operations of our dealerships and enable access to data Predict and detect vehicle malfunction

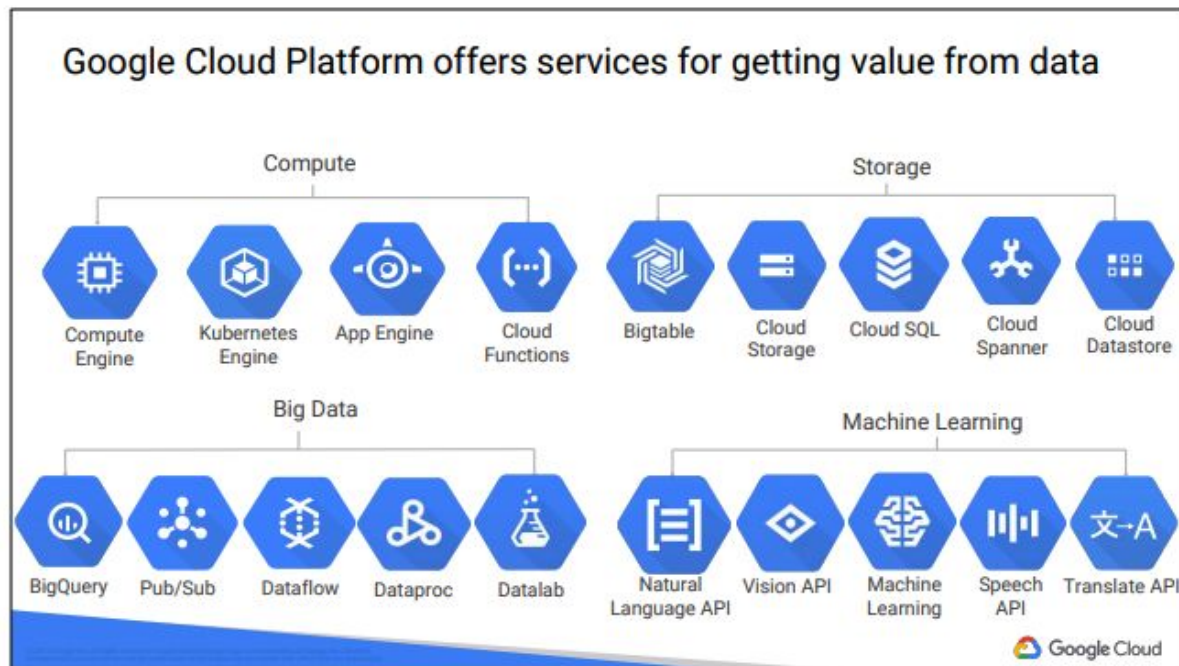
Technical Evaluation

Existing Environment	Technical Watchpoints	Proposed Product/Solution
- Multiple systems run in Google Cloud; some legacy systems still - Web frontend for dealers and customers is in Google Cloud and allows access to stock management and analytics	Applications - Container-based workloads - Highly scalable - Cloud-native solutions for keys and secrets management	
Vehicles 2 million vehicles x 200 to 500 MB/day	Migration and Partner Access Create abstraction layer for HTTP API	
Manufacturing - Sensor data is captured from two plants and sent to private data centers - legacy inventory and logistics systems - Private data centers have network interconnects to Google Cloud	Development - Modernize CI/CD pipelines - Create self-service portal for project and resource mgmt	

Week 2

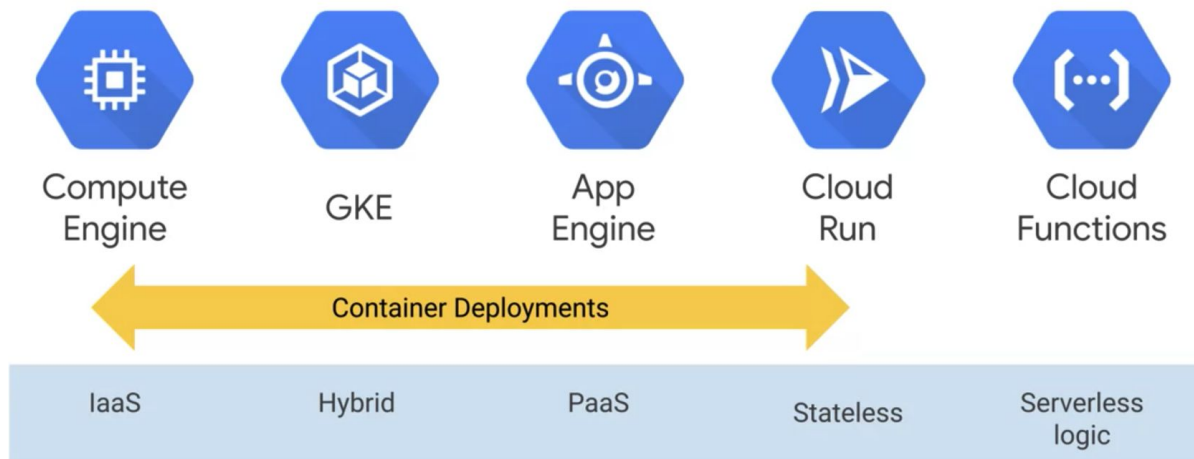


GCP Fundamentals: Core Infrastructure

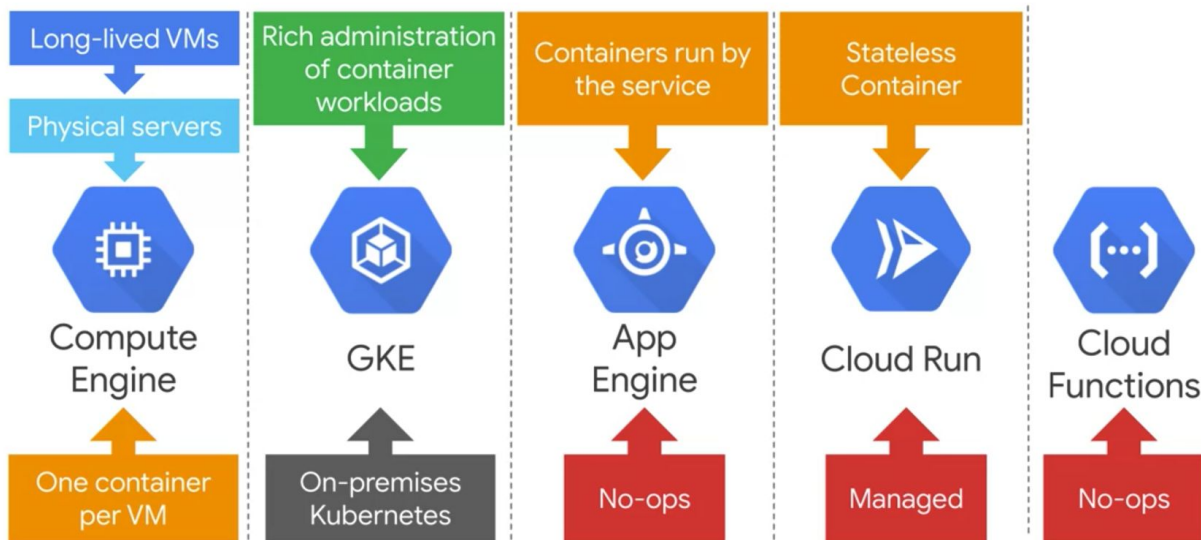


Virtual Machines in the Cloud

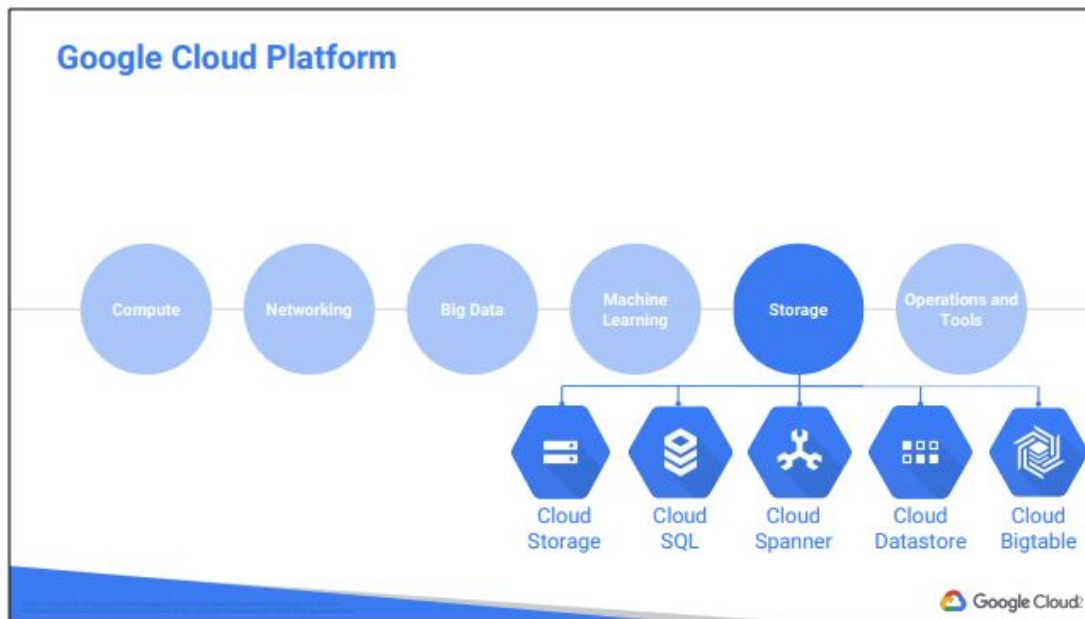
Comparing Google Cloud computing solutions



How to decide?



Storage in the Cloud

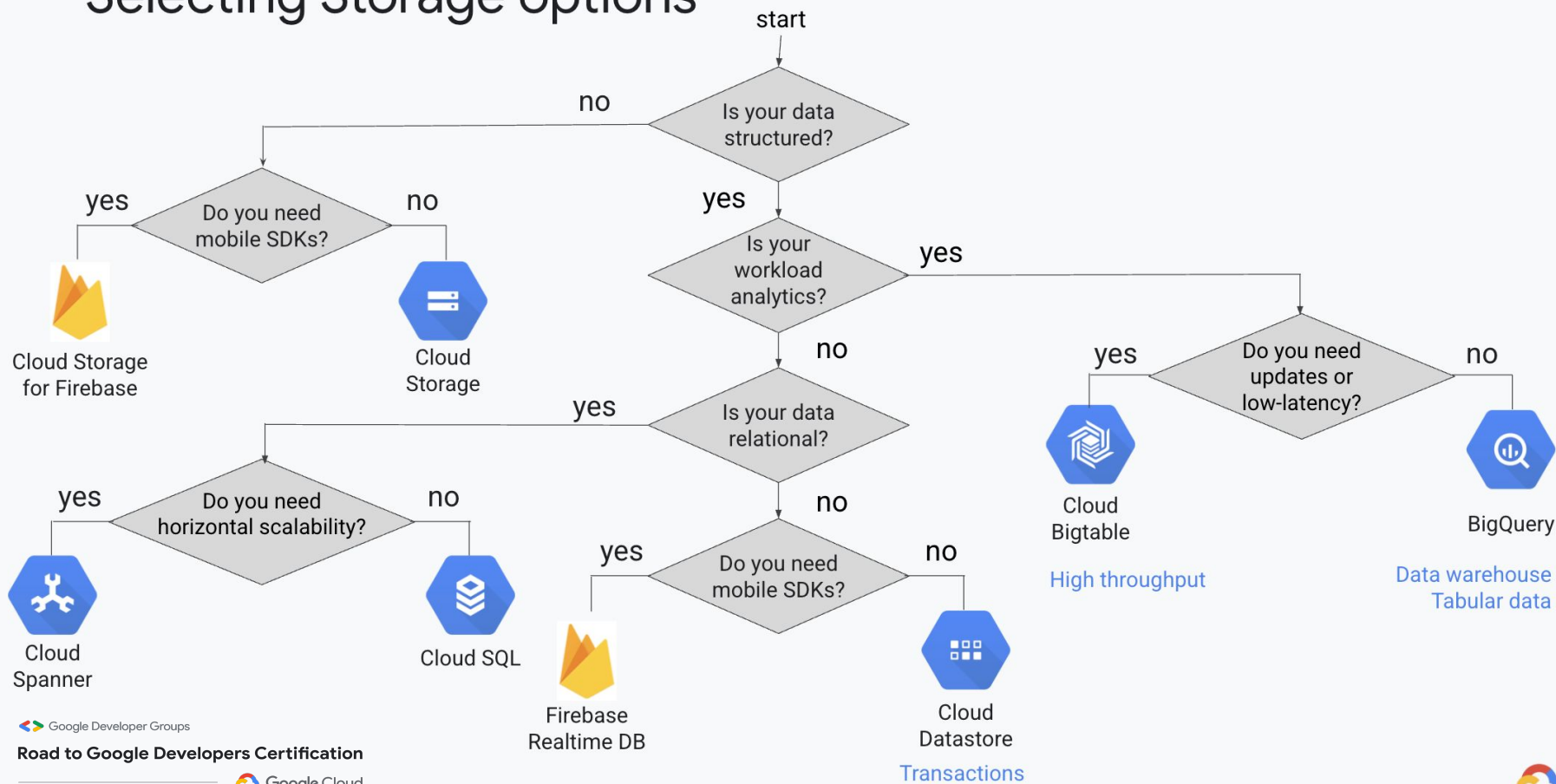


Storage in the Cloud

Comparing storage options: technical details

	Cloud Datastore	Bigtable	Cloud Storage	Cloud SQL	Cloud Spanner	BigQuery
Type	NoSQL document	NoSQL wide column	Blobstore	Relational SQL for OLTP	Relational SQL for OLTP	Relational SQL for OLAP
Transactions	Yes	Single-row	No	Yes	Yes	No
Complex queries	No	No	No	Yes	Yes	Yes
Capacity	Terabytes+	Petabytes+	Petabytes+	Up to ~10 TB	Petabytes	Petabytes+
Unit size	1 MB/entity	~10 MB/cell ~100 MB/row	5 TB/object	Determined by DB engine	10,240 MiB/row	10 MB/row

Selecting Storage options



Applications in the Cloud

Comparing the App Engine environments

	Standard Environment	Flexible Environment
Instance startup	Milliseconds	Minutes
SSH access	No	Yes (although not by default)
Write to local disk	No	Yes (but writes are ephemeral)
Support for 3rd-party binaries	No	Yes
Network access	Via App Engine services	Yes
Pricing model	After free daily use, pay per instance class, with automatic shutdown	Pay for resource allocation per hour; no automatic shutdown



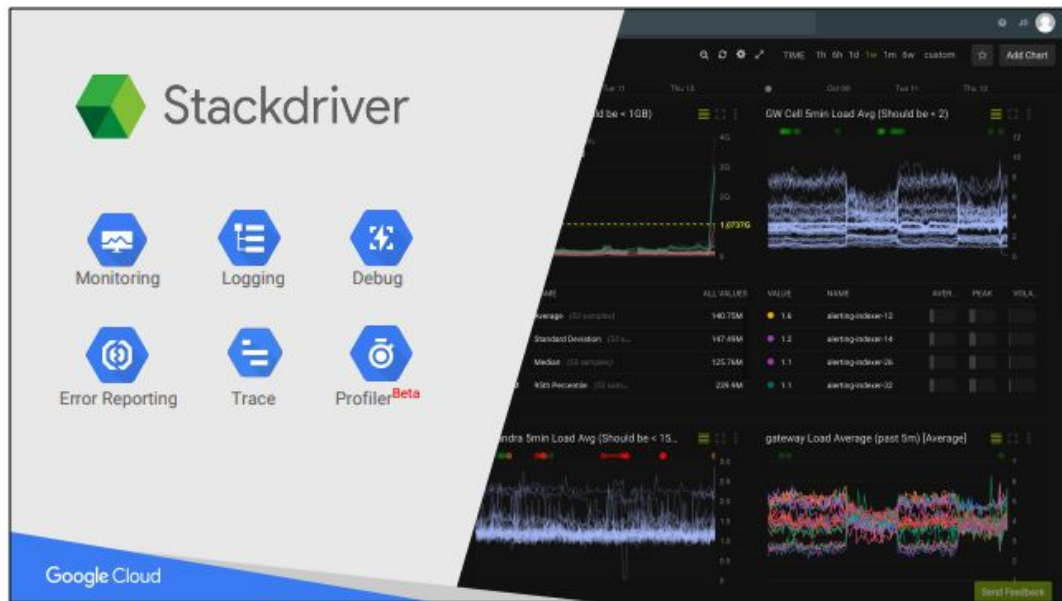
Deploying Apps: Kubernetes Engine vs App Engine

	Kubernetes Engine	App Engine Flexible	App Engine Standard
Language support	Any	Any	Java, Python, Go, PHP
Service model	Hybrid	PaaS	PaaS
Primary use case	Container-based workloads	Web and mobile applications, container-based workloads	Web and mobile applications

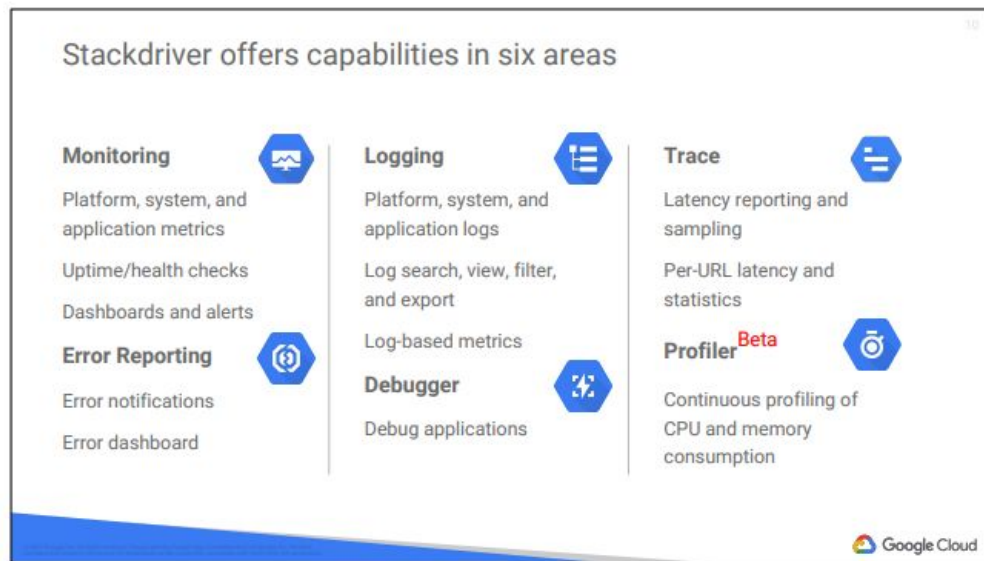
Toward managed infrastructure

Toward dynamic infrastructure

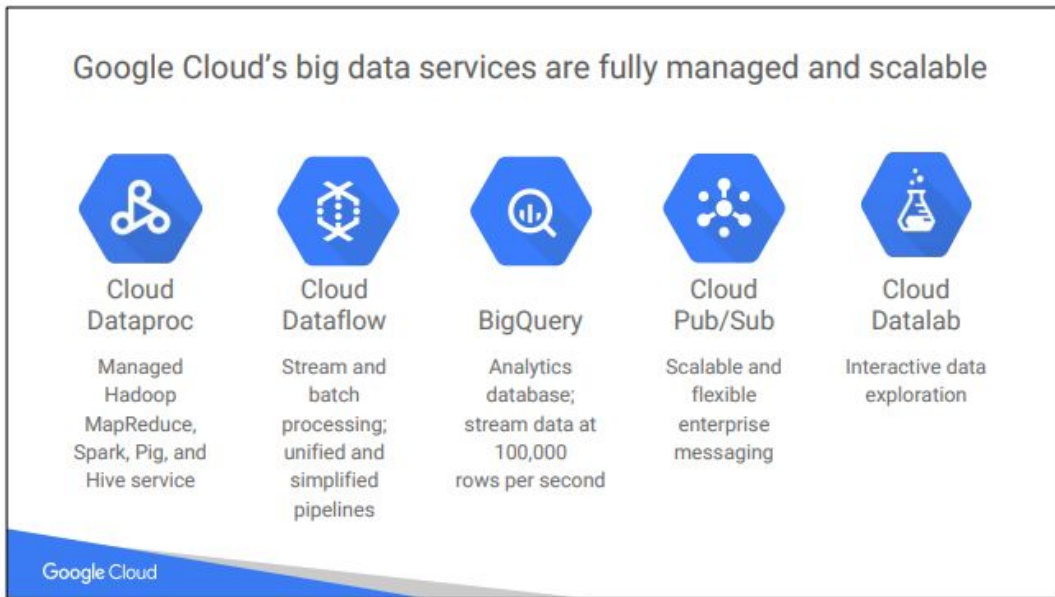
Developing, Deploying, and Monitoring in the Cloud (Stackdriver = Google Cloud Operations Suite)



Developing, Deploying, and Monitoring in the Cloud



Big Data and Machine Learning in the Cloud



Road to Certification

Initiatives de la communauté

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Notes de vidéos

> [lien vers le gDoc](#)

 Google Developer Groups

Road to Google Developers Certification

 Google Cloud



Joffrey Jougon 15:16

Hello tout le monde,

Juste pour vous partager un tips auquel j'ai pensé pour mieux réviser en utilisant Chat GPT 🤖

Dès que j'ai fini une vidéo, je copie colle le texte manuscrit des vidéos et lui envoie le contenu en lui demandant de me faire des notes (voir photos)

Je me suis dis que ça pouvait être pas mal plutôt que d'investir dans un bouquin, et puis comme ça, je suis sur que les infos sont à jour 😊

Faites juste attention de bien relire, on est jamais à l'abri des mauvaises surprises, mais globalement il renvoie toujours du bon contenu 😊

2 files ▼



3



2



1



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Questions

> [lien vers le Slack](#)



Frederic Marand (FGM) 22 hours ago

There's something I cannot find on Cloud Source repositories: is it actually missing a pull/merge request review features like the ones in github/gitlab/gogs ? Is there a recommended practice to add Gerrit or something similar to every cloud project using Cloud Source ?

Exemple de questions !

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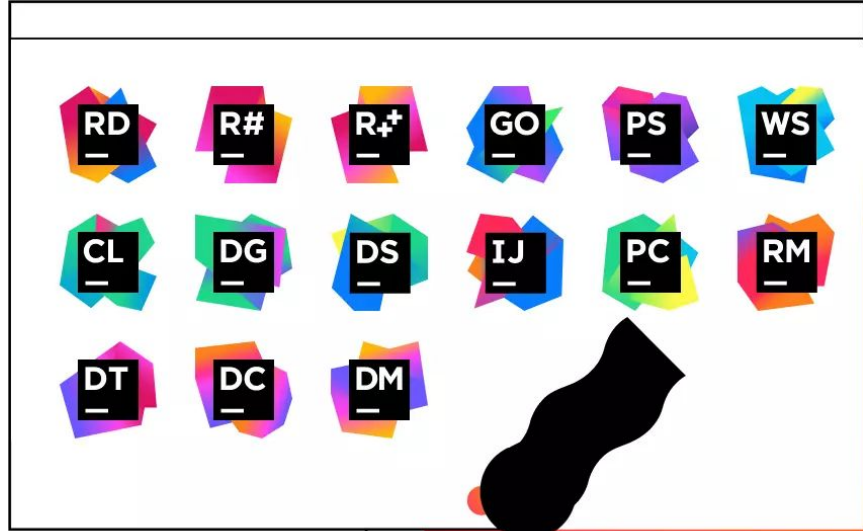
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Gagnez une licence JetBrains

> c'est cadeau 🎉



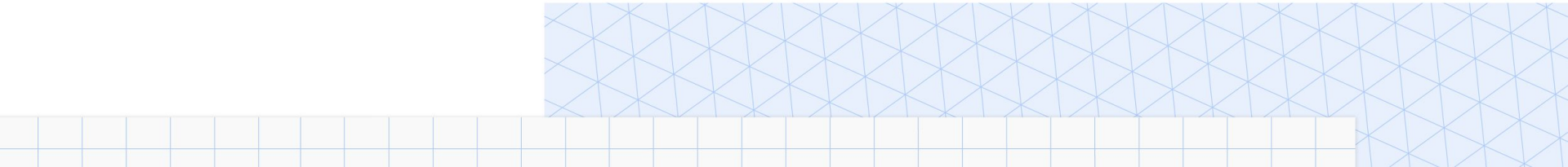
 Google Developer Groups

Road to Google Developers Certification

 Google Cloud

QUIZZ time !

<https://kahoot.it>



Q&A

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La suite... Semaine 3 !

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Professional Cloud Architect

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Communauté en ligne

Posez vos questions au fil de l'eau !

Rejoignez-nous



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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