



Road to Google Cloud Certification

Study Group - Week 5



Week 5

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 => {  
  const matchOrg = filterByOrg ? study.lead_organization  
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  if (matchOrg && matchStatus) {  
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  }  
  return false  
})
```

“

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



udies,
udies.
erByOrg
filterBy
hStatus

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Julien Landuré

GDG Cloud Nantes & GDE Cloud
CTO / Zenika



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Louis Tournayre

GDG Cloud &IoT Lyon
Consultant / Zenika



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1

Où en sommes-nous ?

2

Revue de l'apprentissage de la semaine

3

Initiatives de la communauté

4

Quizz

5

Actions pour la semaine prochaine

6

Séance de questions / réponses

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)
	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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Week 5 Study Group

- **Managing implementation**
 - Advising development/operation team(s) to ensure successful deployment of the solution.
 - Interacting with Google Cloud using GCP SDK (gcloud, gsutil, and bq).
- **Ensuring solution and operations reliability**
 - Monitoring/logging/profiling/alerting solution
 - Deployment and release management
 - Assisting with the support of solutions in operation
 - Evaluating quality control measures

Create and Manage Cloud Resources

1. To **create a cluster**, run the following command, replacing `[CLUSTER-NAME]` with the name you choose for the cluster (**for example**: `my-cluster`).

```
gcloud container clusters create [CLUSTER-NAME]
```

1. To **create a new Deployment** `hello-server` from the `hello-app` container image, run the following [kubectl create](#) command:

```
kubectl create deployment hello-server --image=gcr.io/google-samples/hello-app:1.0
```

1. To **delete** the cluster, run the following command:

```
gcloud container clusters delete [CLUSTER-NAME]
```

Create and Manage Cloud Resources

1. Create three new virtual machines in your default zone and give them all the same tag. The code provided sets the zone to `us-central1-a`. Setting the tags field lets you reference these instances all at once, such as with a firewall rule. These commands also install Apache on each instance and give each instance a unique home page.

```
gcloud compute instances create www1 \  
  --image-family debian-9 \  
  --image-project debian-cloud \  
  --zone us-central1-a \  
  --tags network-lb-tag \  
  --metadata startup-script='#!/bin/bash  
    sudo apt-get update  
    sudo apt-get install apache2 -y  
    sudo service apache2 restart  
    echo '<!doctype html><html><body><h1>www1</h1></body></html>' | tee  
    /var/www/html/index.html'
```

2. Create a firewall rule to allow external traffic to the VM instances:

```
gcloud compute firewall-rules create www-firewall-network-lb \  
  --target-tags network-lb-tag --allow tcp:80
```

Create and Manage Cloud Resources

1. Create a static external IP address for your load balancer:

```
gcloud compute addresses create network-lb-ip-1 \
--region us-central1
```

(Output)

```
Created [https://www.googleapis.com/compute/v1/projects/qwiklabs-gcp-03-
xxxxxxxxxx/regions/us-central1/addresses/network-lb-ip-1].
```

2. Add a legacy HTTP health check resource:

```
gcloud compute http-health-checks create basic-check
```

Enter the following command to view the external IP address of the www-rule forwarding rule used by the load balancer:

```
gcloud compute forwarding-rules describe www-rule --region us-central1
```

Use `curl` command to access the external IP address, replacing `IP_ADDRESS` with an external IP address from the previous command:

```
while true; do curl -m1 IP_ADDRESS; done
```

3. Add a target pool in the same region as your instances. Run the following to create the target pool and use the health check, which is required for the service to function:

```
gcloud compute target-pools create www-pool \
--region us-central1 --http-health-check basic-check
```

4. Add the instances to the pool:

```
gcloud compute target-pools add instances www-pool \
--instances www1,www2,www3
```

5. Add a forwarding rule:

```
gcloud compute forwarding-rules create www-rule \
--region us-central1 \
--ports 80 \
--address network-lb-ip-1 \
--target-pool www-pool
```

```
<!doctype html><html><body><h1>www1</h1></body></html>
<!doctype html><html><body><h1>www2</h1></body></html>
<!doctype html><html><body><h1>www1</h1></body></html>
<!doctype html><html><body><h1>www2</h1></body></html>
<!doctype html><html><body><h1>www3</h1></body></html>
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<!doctype html><html><body><h1>www3</h1></body></html>
<!doctype html><html><body><h1>www3</h1></body></html>
<!doctype html><html><body><h1>www2</h1></body></html>
<!doctype html><html><body><h1>www3</h1></body></html>
```

Create and Manage Cloud Resources

1. First, create the load balancer template:

```
gcloud compute instance-templates create lb-backend-template \
  --region=us-central1 \
  --network=default \
  --subnet=default \
  --tags=allow-health-check \
  --image-family=debian-9 \
  --image-project=debian-cloud \
  --metadata=startup-script='#!/bin/bash
apt-get update
apt-get install apache2 -y
a2ensite default-ssl
a2enmod ssl
vm_hostname="$(curl -H "Metadata-Flavor:Google" \
http://169.254.169.254/computeMetadata/v1/instance/name)"
echo "Page served from: $vm_hostname" | \
tee /var/www/html/index.html
systemctl restart apache2'
```

2. Create a managed instance group based on the template:

```
gcloud compute instance-groups managed create lb-backend-group \
  --template=lb-backend-template --size=2 --zone=us-central1-a
```

3. Create the `fw-allow-health-check` firewall rule. This is an ingress rule that allows traffic from the Google Cloud health checking systems (130.211.0.0/22 and 35.191.0.0/16). This lab uses the target tag `allow-health-check` to identify the VMs.

```
gcloud compute firewall-rules create fw-allow-health-check \
  --network=default \
  --action=allow \
  --direction=ingress \
  --source-ranges=130.211.0.0/22,35.191.0.0/16 \
  --target-tags=allow-health-check \
  --rules=tcp:80
```



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4. Now that the instances are up and running, set up a global static external IP address that your customers use to reach your load balancer.

```
gcloud compute addresses create lb-ipv4-1 \
  --ip-version=IPv4 \
  --global
```

Note the IPv4 address that was reserved:

```
gcloud compute addresses describe lb-ipv4-1 \
  --format="get(address)" \
  --global
```

5. Create a healthcheck for the load balancer:

```
gcloud compute health-checks create http http-basic-check \
  --port 80
```

6. Create a backend service:

```
gcloud compute backend-services create web-backend-service \
  --protocol=HTTP \
  --port-name=http \
  --health-checks=http-basic-check \
  --global
```

7. Add your instance group as the backend to the backend service:

```
gcloud compute backend-services add-backend web-backend-service \
  --instance-group=lb-backend-group \
  --instance-group-zone=us-central1-a \
  --global
```

8. Create a URL map to route the incoming requests to the default backend service:

```
gcloud compute url-maps create web-map-http \
  --default-service web-backend-service
```

9. Create a target HTTP proxy to route requests to your URL map:

```
gcloud compute target-http-proxies create http-lb-proxy \
  --url-map web-map-http
```

10. Create a global forwarding rule to route incoming requests to the proxy:

```
gcloud compute forwarding-rules create http-content-rule \
  --address=lb-ipv4-1 \
  --global \
  --target-http-proxy=http-lb-proxy \
  --ports=80
```

```
while true; do curl -m1 34.120.20.251:80; done
```

```
Page served from: lb-backend-group-mlpd
Page served from: lb-backend-group-67p0
Page served from: lb-backend-group-67p0
Page served from: lb-backend-group-mlpd
Page served from: lb-backend-group-67p0
Page served from: lb-backend-group-mlpd
Page served from: lb-backend-group-67p0
Page served from: lb-backend-group-mlpd
Page served from: lb-backend-group-67p0
```

Create and Manage Cloud Resources

Load balancers Backends Frontends						
Filter by forwarding rule name or IP						
☐ Forwarding rule name ^	Scope	Address	Protocol	Network Tier	Load balancer	Labels
☐ http-content-rule	Global	34.120.20.251:80	HTTP	Premium	web-map-http	
☐ www-rule	Regional (us-central1)	104.154.222.168:80	TCP	Premium	www-pool	

Hosts ^

Paths

All unmatched (default)

All unmatched

Backend

Backend services

1. web-backend-service

Endpoint protocol: HTTP Named port: http Timeout: 30 seconds Cloud CDN: disabled Traffic policy: disabled Health check: http-basic-check

Advanced configurations

Name ^	Type	Zone	Healthy	Autoscaling	Balancing mode	Capacity	Selected ports ?
lb-backend-group	Instance group	us-central1-a	2 / 2	No configuration		100%	None

☐ Name ^	Type	Scope	Protocol	Load balancer
☐ web-backend-service	Backend service	Global	HTTP	web-map-http
☐ www-pool	Backend service	Regional (us-central1)		www-pool

☐ Name	Protocol ^	Region	Backends
☐ web-map-http	HTTP	Global	1 backend service (1 instance group, 0 network endpoint groups)
☐ www-pool	TCP	us-central1	1 target pool (3 instances)

Google Developer Groups

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lb-backend-group

rs

Details

Monitoring

Errors

Instance templates

lb-backend-template

Instances by status

2 in total

2

Location

us-central1-a

Group members

?

Columns

	Creation time	Template	Per instance config	Health check status	Internal IP	External IP	Connect
lb-backend-group-67p0	Feb 11, 2021, 11:46:31 AM	lb-backend-template			10.128.0.5 (nic0)	34.69.32.40	SSH
lb-backend-group-mlpd	Feb 11, 2021, 11:46:31 AM	lb-backend-template			10.128.0.6 (nic0)	34.72.91.105	SSH

www-pool

Frontend

Health checks

CREATE HEALTH CHECK

REFRESH

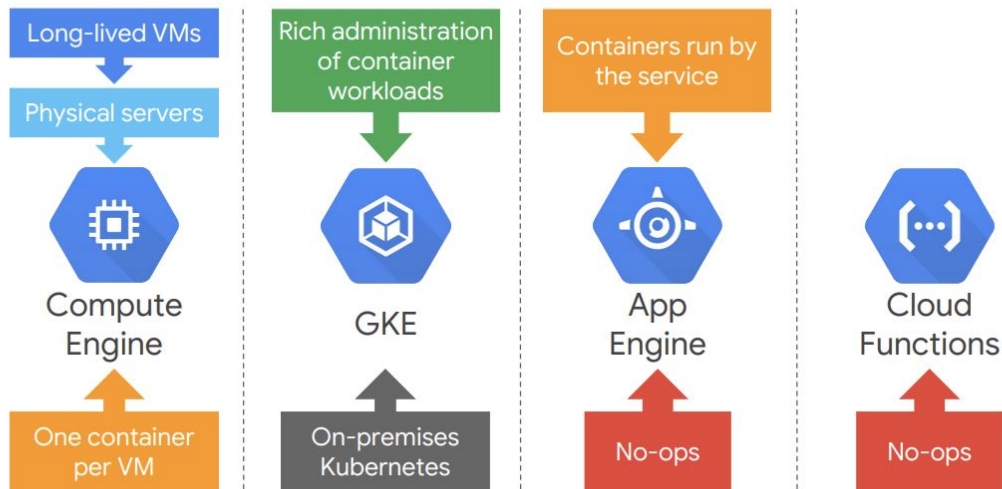
DELETE

Filter Filter table

☐	Name ↑	Scope	Region	Host	Path	Protocol	Port	In use
☐	basic-check  (legacy)	Global			/	HTTP	80	www-p
☐	http-basic-check	Global			/	HTTP	80	web-b

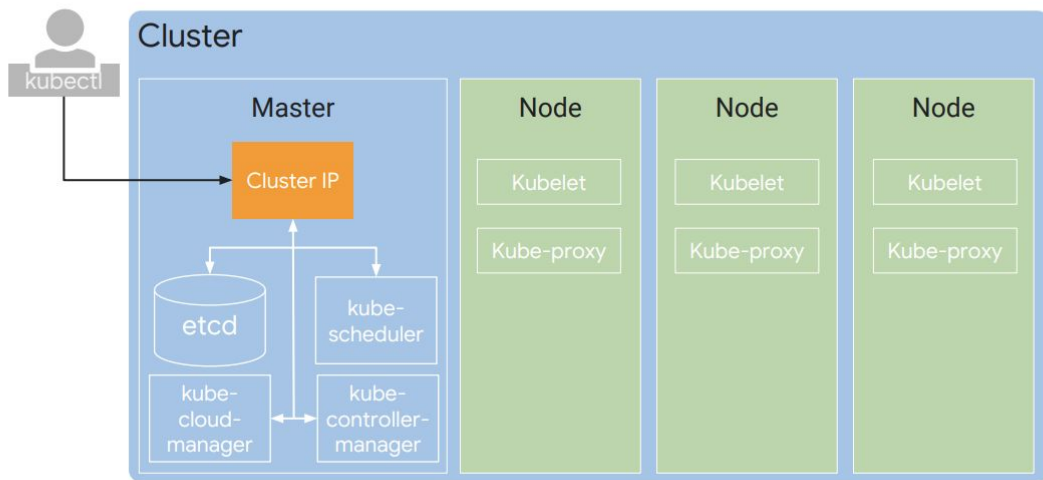
Containers and Kubernetes in Google Cloud

Which compute service should you adopt?



Kubernetes Architecture

GKE manages all the control plane components



Kubernetes Architecture

GKE: More about nodes



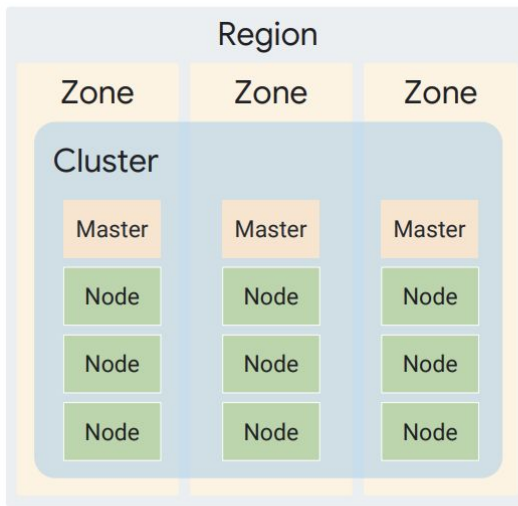
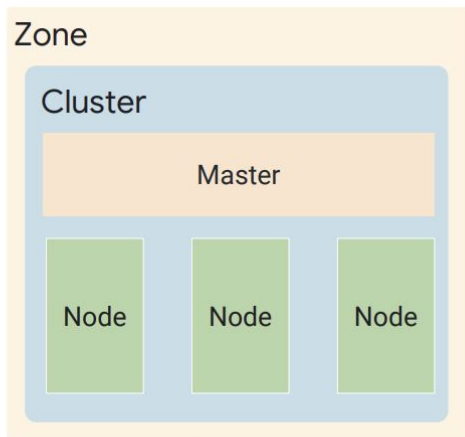
Kubernetes doesn't create nodes.
Cluster admins create nodes and add them to Kubernetes



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

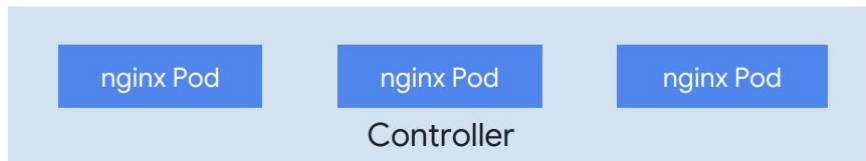
Kubernetes Architecture

Zonal versus regional clusters



Kubernetes Architecture

Pods and Controller Objects



Road to Certification

Initiatives de la communauté

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Vouchers : coupons de réductions

> 31 demandes !

 **Julien Landuré - Admin (GDG Cloud Nantes)** 15:11

 **@channel** Semaine 3 - 02/05 | Road to certification Cloud Architect 🇫🇷

 Info du 02/05

-  Enregistrement Youtube: <https://www.youtube.com/watch?v=gimKqDYa6EY>
-  Lien vers les slides



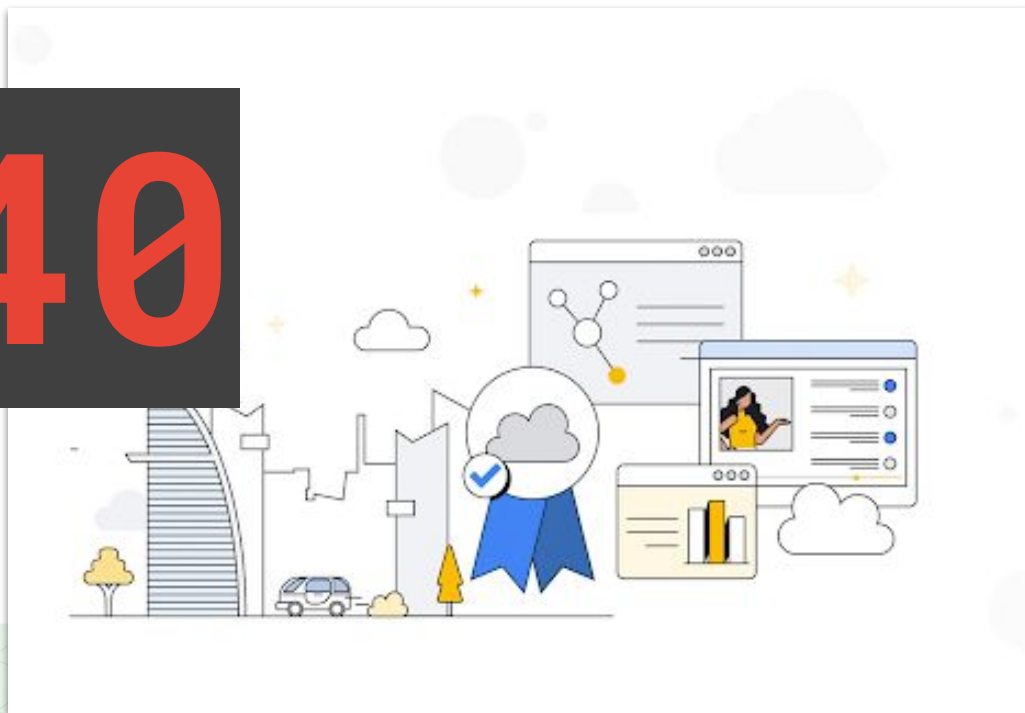
You, Anne-Laure Jouhanneau, Fabien D., Julien Bardonnnet, Dylan CLINCHAMP, Bouchra ABIDAR, TELLEC HERLUC, Baptiste Lecat, Cheikh Badiane, Alexis Dalle, Pierrick Jadeau, Cyril Luong, Christophe Chevalier, Reza ADLE, Quentin FOUGERON, BINGZHI QIAO, Robin, Alamara Labs, Alexandre Tabot, David Aparicio, Aimeric Sorin, Floura Dania Hammadi, Frederic Marand (FGM), Alexis, BrunoSeznec, Achille MONGA TCHEUCHEU, Sam, Oussama HASNI, BOKOVE Ezekias, Nicolas Gourdon and Joffrey Jougon reacted with :admission_tickets:

 31  2 



Vouchers : coupons de réductions

> Bonne nouvelle !!



Google

Road to

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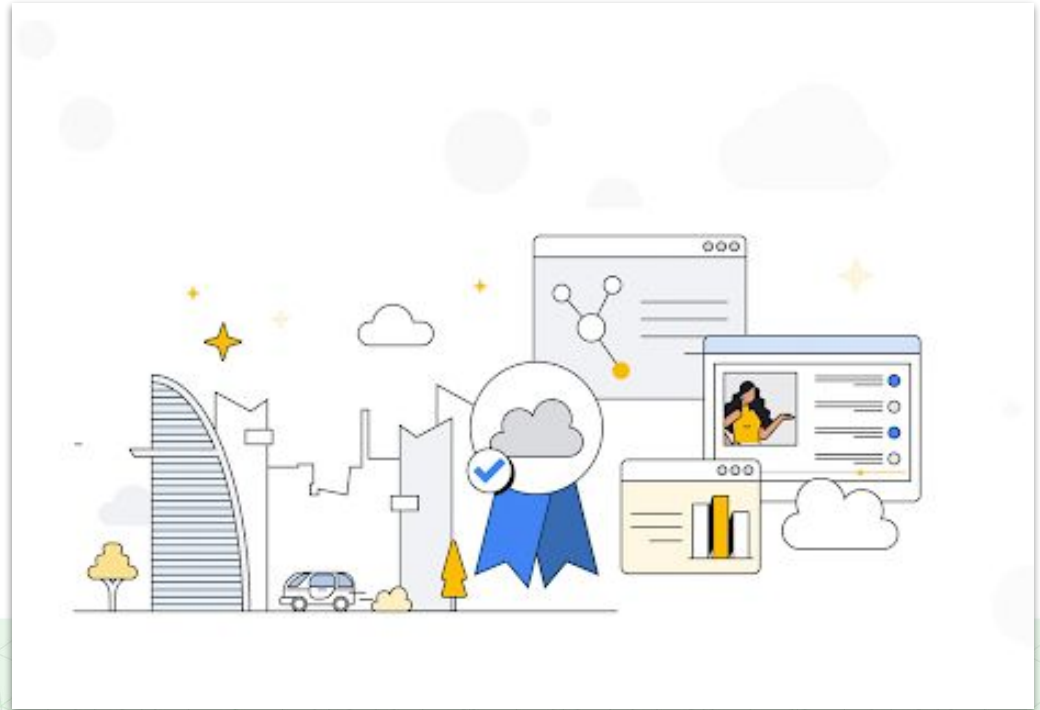
Quizz !

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Gagnez un voucher 50% pour la certif !



 Google Developer Groups

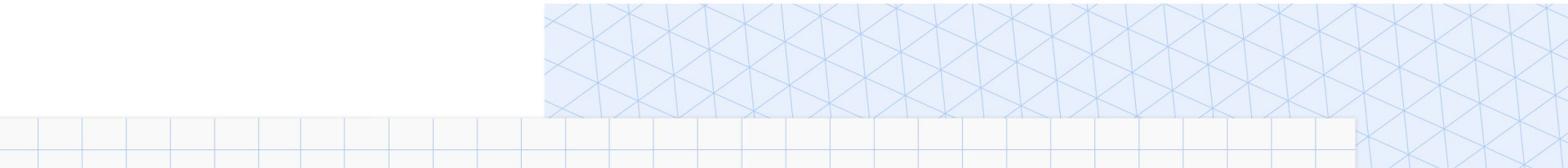
Road to Google Developers Certification

 Google Cloud

QUIZZ time !

<https://kahoot.it/>
Code Pin: 688 681

<https://kahoot.it/?pin=688681>

A decorative graphic at the bottom of the slide consisting of a light blue grid pattern. The grid is composed of small squares, some of which are filled with a darker blue color, creating a subtle geometric design.

Actions pour la semaine prochaine

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filterByStatus = false }) {  
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For Next week

Reading a Question

[Practice Exam Questions](#)

1. Problem Statement
2. Constraints
 - a. Cost effective
 - b. Scalable/Future proof
 - c. No rewrite
 - d. NoOps / Managed Services
3. Current Solution

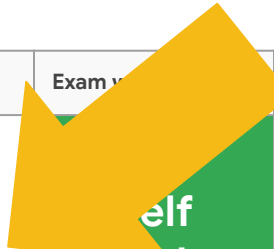
Answering a Question: Possible Approach

1. Read the complete question
2. Read the complete answers
3. Use the answers
 - a. Eliminate
4. Revisit the question and answers
5. Don't assume
6. Mark for review
 - a. No pen/paper provided

Professional Cloud Architect

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Self study (and potential exam)

Séance de questions & réponses

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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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