Exam tips & tricks

- READ questions (at least) TWICE, look for key statements, details matter!!!
- The exam does not have a fixed, public pass score, although people say it should be around 70%.
  - Do not think about the math too much. Focus on the exam, don't get disturbed by a few questions in a row you found difficult.
- How to boot a docker container faster? Use alpine slim linux distro
- GCS and Spanner are multi regional for data sync
- Cloud VPN is a regional service.
- Know most popular IAM roles for each service (with special focus on GCE, GCS, GKE and BigQuery)
- Datastore/Firestore is great backend for App Engine, Storing Game state
- Analytics and SQL = BigQuery
  - Make sure to understand BigQuery table partitioning and clustering.
- Make sure to have as much skills about GKE and Kubernetes as possible (you can expect questions about deployments, GKE-related gcloud commands, container use-cases etc).
- Examples of simple Back out / Roll out Plan:
  - Enable object versioning on the website's static data files stored in GCS
  - Use managed instance groups with the "update-instances" command when starting a rolling update
- GCP Projects can be billed separately (different billing accounts).
- Each resource can be zonal, regional, multi-regional or global. And it has to be assigned to a SINGLE project.
- Custom roles can only be applied at orgs or projects, not folders!
- Service Account User role allows a person to use the specified role on a vm, if they have access to it.
  - That means a user can have elevated privileges (for example, to delete other VMs) if the Service Account of a VM has adequate privileges.

Exam tips & tricks

- IAP's short definition: API gateway that authenticates and authorizes HTTPS requests using IAM.
  - IAP is often related to questions, where users need to log in to applications deployed to GCP (instead of accessing GCP resources like GCE, App Engine etc directly)
- You can download/upload files to/from your local machine using Cloud Shell or browser-based ssh connection to a VM.
- In order to use Global Load Balancing and CDN, premium network tier must be chosen.
- Auto mode network can be converted to custom, but custom mode network cannot be converted to auto.
- Subnet CIDR range: First IP address reserved for network (0), second address reserved for gw (1), Second to last reserved, last reserved for broadcast.
  - It adds up to 4 unusable IP addresses in each subnet -> might play a role when sizing small subnets.
- Firewall Priority: first matching rule applied, no further rules are evaluated.
- Standard FQDN of a GCP VM: hostname.zone.c.project-id.internal.
- Cloud VPN: max 3 Gbps, can be aggregated.
  - Supports both ikev1 and ikev2
  - Max MTU 1460 (max and recommended value at the same time)
- Partner Interconnect: up to 10 Gbit; Dedicated Interconnect: From 10G to 100G (or multipliers)
- Global Load Balancers support IPv6 (Proxy; 2nd session inside GCP uses IPv4 anyway)
  - Https load balancer natively supports websockets
- Audit logs are kept for 30 days. If needed, they can be exported to cloud storage, bigquery and cloud pub/sub.
- PD encryption: HDDs uses AES128, SSDs uses AES256
- Know how to share PD snapshots with a different project (snapshot created directly from destination project).

Google Cloud

Exam tips & tricks

- Common PD snapshot use cases:
  - Upgrade/downgrade disk type
  - Migrate machines to other zones
  - Reduce disk size
  - Can be converted to images, which can then be used to create VMs also in other projects / regions
- Once a MIG is deployed, it's possible to update instances using the "rolling-action start-update" feature. Support also canary updates.
  - New template is needed for instance update -> it's not possible to update existing VM template.
- Querying metadata from inside the VM:
  curl -H "Metadata-Flavor: Google"
  http://169.254.169.254/computeMetadata/v1/instance/network-interfaces/0/access-configs/0/external-ip && echo
- How to move a VM to another zone:
  - Use gcloud compute instances move
    OR:
  - Snapshot disk, restore snapshotted disk in other zone, create new vm and reattach persistent disk restored, re-assign static IP if needed, delete old backups and vms if needed
- GCS public ACL scopes:
  - allUsers: anyone, even without Google account
  - allAuthenticatedUsers: anyone authenticated with a Google account
- Pub/Sub:
  - Messages can be up to 10MB
  - Messages not delivered are stored up to 7 days
  - Ensures "at least once" message delivery. If "exactly once" is needed, messages need to be streamed through Dataflow

Exam tips & tricks

- Firestore:
  - Schema-less
  - A document is a collection of key, value pairs
  - Documents are grouped in collections
  - For mobile, web, IoT apps at global scale
  - Supports ACID transactions
  - Backwards compatible with cloud datastore (firestore is the new generation of Datastore)
- Feel free to sign-up for free 300$ worth of GCP credits to deploy your own project and play around without time pressure
  - Details here
  - You still need to provide credit card details
  - Credits valid for 90 days
  - You can use some free GCP resources regardless of the 300$ / 90 day offer.

Google Cloud

Useful gcloud commands

- [GCP Command Cheat Sheet from medium.com](#)
- List vnet: *gcloud compute networks list*
- List subnets *gcloud compute networks subnets list --sort-by=NETWORK*
- List firewall rules: *gcloud compute firewall-rules list --sort-by=NETWORK*
- Create vnet *gcloud compute networks create privatenet --subnet-mode=custom*
- Create subnet *gcloud compute networks subnets create privatesubnet-us --network=privatenet --region=us-central1 --range=172.16.0.0/24*
- Create firewall rules *gcloud compute firewall-rules create <FIREWALL_NAME> --network privatenet --allow tcp,udp,icmp --source-ranges <IP_RANGE>*
- Create project: *gcloud projects create [--folder=FOLDER_ID] [--labels=[KEY=VALUE,...]] [--name=NAME] [--organization=ORGANIZATION_ID] [--set-as-default] [--enable-cloud-apis x,y,z]*
- Set project in console: *gcloud config set project [PROJECT_ID]*
- Create role: *gcloud iam roles create*
- Bind role to user/SA/group: *gcloud projects add-iam-policy-binding PROJECT_ID --member=EMAIL --role=ROLE*
- Create deployment: *gcloud deployment-manager deployments create my-first-depl --config mydeploy.yaml*
- Update deployment: *gcloud deployment-manager deployments update my-first-depl --config mydeploy.yaml*
- Create GKE cluster: *gcloud container clusters create MYCLUSTER --zone MY_ZONE --num-nodes 2*
- Resize GKE cluster: *gcloud container clusters resize NAME --size=SIZE [--async] [--node-pool=NODE_POOL] [--region=REGION | --zone=ZONE, -z ZONE] [GCLOUD_WIDE_FLAG ...]*
- Get credentials to GKE cluster: *gcloud container clusters get-credentials echo-cluster --zone=us-central1-a*
- Create App Engine app: *gcloud app create --project=$DEVSHELL_PROJECT_ID*
- Execute app locally *dev_appserver.py $(pwd)*

Useful gcloud commands

- Deploy App Engine app: *gcloud app deploy YOUR_APP_MANIFEST.yaml*
- Create BigQuery table with partition that expires: *bq mk --time_partitioning_type=DAY --time_partitioning_expiration=259200 DATASET.TABLE*
- Query BigQuery table: *bq query "select * as name_of_my_query from mydataset.mytable"*
- List BigQuery jobs: *bq ls -j -a PROJECT (-j = jobs, -a = all users)*
- Cloud Build: trigger build and store image: *gcloud builds submit --tag gcr.io/$DEVSHELL_PROJECT_ID/devops-image:v0.1* .
- Cloud Build: trigger build using a config file: *gcloud builds submit --config cloudbuild.yaml* .

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