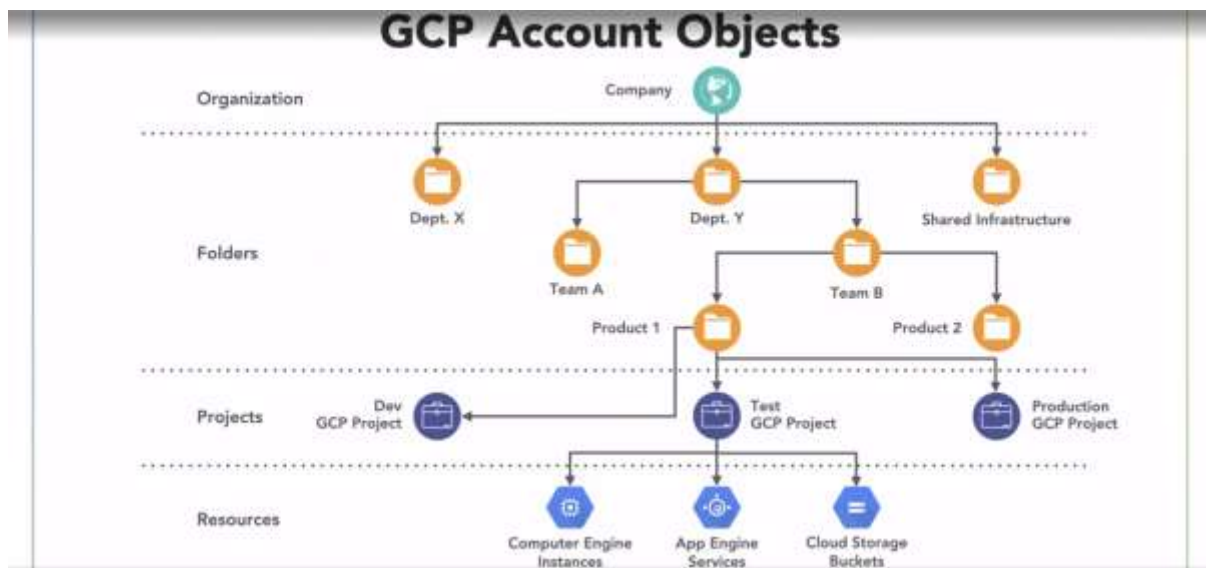


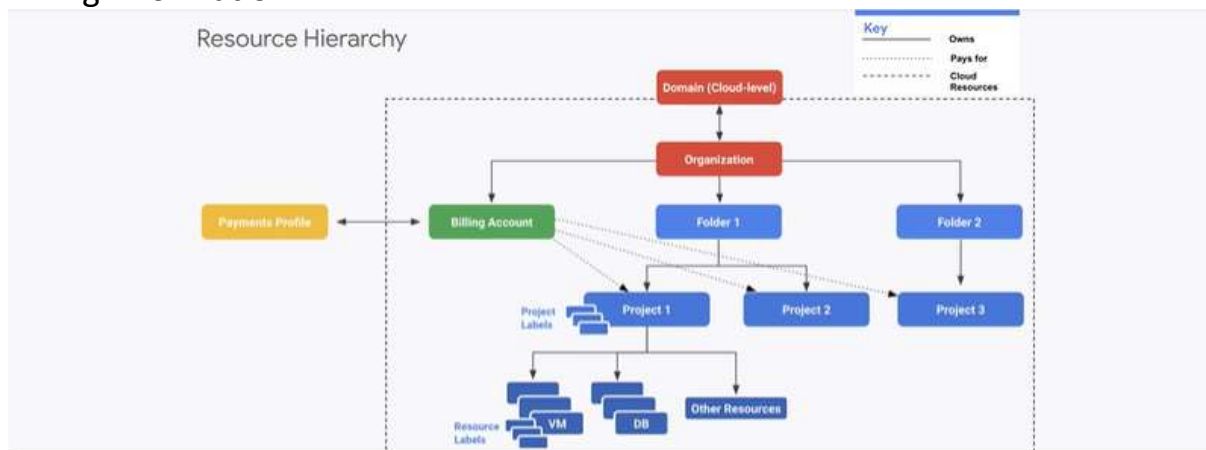
Google Cloud Essential for Administrators



Regions and Zones:

- While creating a VM instance we need to decide where our instance resources will reside.
- Depending upon the zone the cost of VM instance change.

Billing Information:



Example GCP Billing Account Setup

Reference: <https://cloud.google.com/billing/docs/concepts>

LinkedIn Learning

- Type billing in GCP search and go to billing.
- There you can select which resources you want to see.

IAM (Identity access management)

- View by principals: principals are email id. There are service account and user account in IAM.
- View By role: role is collection of permissions. There are Built in roles and custom roles.
- To provide access for this project click on grant access and provide details along with type of role you want to provide.

Console:

- Console helps in running various commands.

Google cloud Storage

Bucket:

- Buckets are for storage in GCP.
- You can upload any kind of files in the bucket however all of them cannot be viewed from the web UI.
- To edit a file
 - Open the console
 - Copy the file to the env through gsutil cp "path" .
 - Path is the gs path of the file in the bucket which can be retrieved by clicking on the file and copying the path.
 - Eg "gsutil cp gs://simple-storage-bucket1/FileZillaport.txt ."
 - Click on open editor
- GCS has 4 different storage classes.

Hosting RDBMS in GCP:

- Create a SQL cloud instance.
- Select DB from MySQL(free), PostgreSQL(free) and SQL Server(licensed).
- You can configure much more details there.

BigQuery:

- GCP allows to use data warehousing capabilities through big query.
- We can run the SQL commands and get much detailed information about our result through "query result" tab.
- We can also check the amount of information being processed by clicking on more option and then format query.

- To add data click Add Data > public datasets > market place will be opened where you can choose from available databases.

Google firestore:

- Used for semi-structured data.
- Google provide options such as Native mode and datastore mode.
- You can add your own collection enter the data into it.
- You can write query to retrieve data.
- Often used to store JSON type of data.

Google Pub/Sub:

- Message passing middleware.
- 2 version: Pub/Sub and Pub/Sub lite.
- We need to create a topic in this.
- Helps distributed system

Compute

GCP Compute Architecture Concepts		
Type	Service	Notes
Virtual machines	Google Compute Engine (GCE)	Configuration, scaling complexity
Functions	Google Cloud Functions	Serverless Verify Programming Language support
Managed container clusters	Cloud Run Google App Engine (GAE)	Container testing Simple websites
Raw container clusters	Google Kubernetes Engine (GKE)	Configuration complexity

VM:

- You can add new column to get more information.
- You can create a VM instance.
- This VM instance if linux can be started using SSH.
- They belong to a single region.
- You can use available images or make your own machine image to create a VM instance.

Google Cloud Function:

- Server less execution environment for building and connecting cloud services
- You can directly deploy the code that is present with you. No need to worry about scaling

Google cloud run:

- Bring your own container and google supplies infrastructure for scaling that container.

Developers tools

Developer Tools		
Type	Service	Notes
Logging	Cloud Logging	Install agent on VMs for verbose logging
Schedule jobs	Cloud Scheduler	Schedule cron jobs
IDE add-in	CloudCode for VSCode	GCE, CloudRun, Cloud Functions, and more

Cloud logging (Operations Logging)

- Central home for loggings

Data Evaluation

Data Evaluation Services		
Type	Service	Notes
Clean data	Dataprep DataFusion	Visual data wrangling, formerly Trifacta Creates data flows, pipeline management
Explore data	BigQuery	Ad hoc visuals and machine learning

Google DataPrep:

- Intelligent data preparation web application offered by trifacta a privately owned company.
- For visualizing, cleaning, preparing structure and unstructured data for analysis, reporting and ML.
- Apache beam is used

Google cloud data fusion:

- Fully managed cloud native enterprise data integration service for quickly building and managing data pipelines.
- Apache spark is used.

Machine Learning

Machine Learning Architectures

Type	Service	Notes
Explore Models	Colabs Notebooks	SaaS: free or paid version
Use Notebooks	Vertex AI Notebooks	Managed Jupyter notebooks or User managed (most control)
Use APIs	Vision API AutoML	Use Endpoint or Pay for model development hours

Udacity Learning

Google colab:

- Free and paid version
- Free version used for running existing ML models.