



INTRODUCTION TO GOOGLE CLOUD PLATFORM



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1. Core concepts of GCP:

- Google Cloud Platform provides infrastructure as a service, platform as a service, and server less computing environments. Google Cloud Platform is a set of cloud computing services that Google offers, which runs on the same infrastructure that Google uses for its end-user products.
- GCP is a public cloud vendor — like competitors Amazon Web Services (AWS) and Microsoft Azure. With GCP and other cloud vendors, customers are able to access computer resources housed in Google's data centers around the world for free or on a pay-per-use basis.
- Google Cloud Platform (which provides public cloud infrastructure for hosting web-based applications.
- Google Cloud Platform is a set of cloud computing services that Google offers.

2. Benefits of Cloud

Feature	On premises	Cloud
Scalability	You may more for on-premises setup & get lesser options too. Heavy losses in terms of infrastructure and maintenance loss.	Allows you to only pay for the resources you use with much provision of scaling up and scaling down.
Server storage	Need a lot of space for systems + notwithstanding the power	Cloud computing solutions are offered by cloud servers' providers such as AWS, GCP & Azure saving both money and space
Data security	Provides less security	More security with no security protocols
Data loss	Chance of data recovery is very less	Robust recovery system
Maintenance	Requires team for hardware and software	Cloud computing solutions are offered by cloud servers' providers such as AWS, GCP & Azure.

3. Services of GCP

1. Compute

➤ **Compute engine**

- Secure and customizable compute service that lets you create and run virtual machines on Google's infrastructure.
- This is the Infrastructure as a Service component of Google Cloud Platform, which runs Google's search engine, Gmail, YouTube, and other services. Google Compute Engine enables users to launch virtual machines on demand.

2. Storage and Database

➤ **Cloud storage**

Cloud Storage is a managed service for storing unstructured data. Store any amount of data and retrieve it as often as you like.

➤ **Cloud SQL**

Fully managed relational database service for MySQL, PostgreSQL, and SQL Server with rich extension collections, configuration flags, and developer ecosystems.

3. Big Data

➤ **Big Query**

Big Query is a server less and cost-effective enterprise data warehouse that works across clouds and scales with your data.

➤ **Google Cloud Pub/Sub**

- Services communicate with each other.
- Asynchronous messaging service which means it helps your tool send, receive and filter events.
- With Pub/Sub data producers don't need to change anything when consumer's data change.
- It is really handy for notification when something bad happens so you can page the right teams if servers go down.
- **Want to connect multiple services, applications or data sources try Pub/Sub.**
- Google Cloud Pub/Sub provides messaging between applications. Cloud Pub/Sub is designed to provide reliable asynchronous messaging between applications.

4. Data flow

Unified stream and batch data processing that's serverless, fast, and cost-effective.

4. Components of GCP

1. Identity and security

➤ IAM (Identity and Access Management)

Permission management system for Google Cloud Resources.

5. ETL Pipeline in GCP

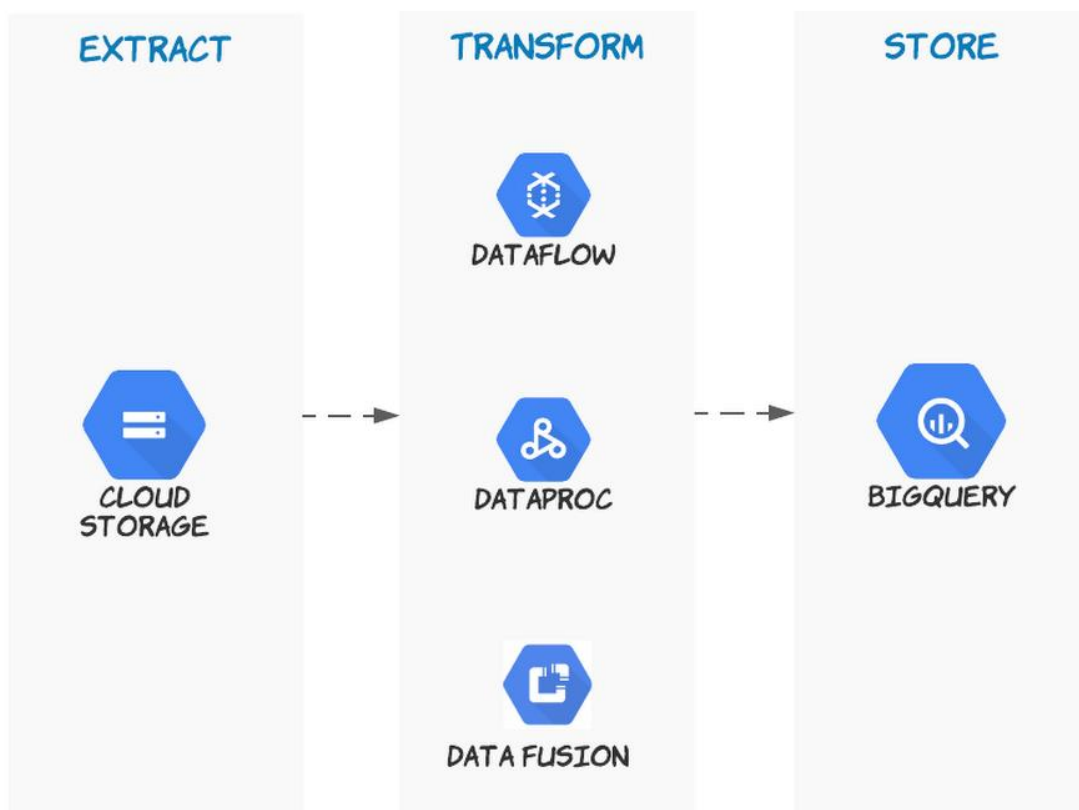


Fig 5 GCP ETL