

## Google Cloud Platform

Google Cloud Platform is a collection of cloud computing services offered by Google, including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) products. These services are designed to provide businesses with the tools and resources they need to run their applications and data on Google's infrastructure.

The GCP services are built on top of Google's global network of data centers, which are designed to provide low latency and high performance for users.

## Modes To Access GCP Services

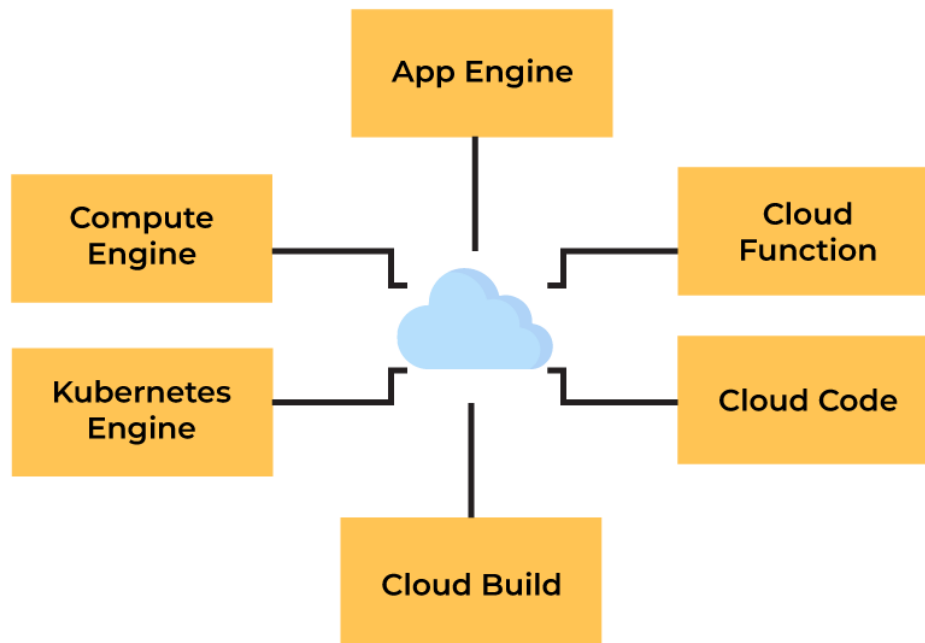
There are six ways to access Google Cloud Platform (GCP) services:

1. The **Google Cloud Console**: A web-based user interface that provides a simplified, easy-to-use interface for managing GCP services.
2. The **gcloud CLI Tool**: It allows you to interact with GCP services using the command line.
3. The **Cloud SDK**: A set of tools for developing and deploying applications to GCP, which includes the gcloud command-line tool.
4. **Google Cloud API**: It allows to access GCP services programmatically.
5. **Cloud Marketplace**: It offers pre-configured and ready-to-use solutions from ISVs, SaaS providers, and Google which can be easily deployed, integrated and managed.
6. **Cloud Shell**: It is an online command-line interface that provides a secure and pre-configured environment for running GCP commands directly in a web browser.

## Services Provided by the GCP

### 1. Application Development Process

- **App Engine** for building and deploying web and mobile Google Cloud Platform's App Engine is a fully managed platform for building and hosting web applications. With App Engine, developers can easily create and deploy their applications without having to worry about infrastructure management, server maintenance, or scaling issues.
- **Cloud Functions** is a serverless computing platform provided by Google Cloud Platform (GCP) that lets developers build and run event-driven applications and microservices without having to manage infrastructure. It is a cost-effective, fully managed, and scalable solution for building and running cloud-based applications.
- **Cloud Code** is a set of tools provided by Google Cloud Platform (GCP) to enhance the development experience of cloud-based applications. It is designed to simplify the deployment, management, and scaling of applications across GCP services. Cloud Code provides a unified experience for developers working with different cloud resources, allowing them to manage their infrastructure and write code for different applications and services. Code for developing cloud-native applications.

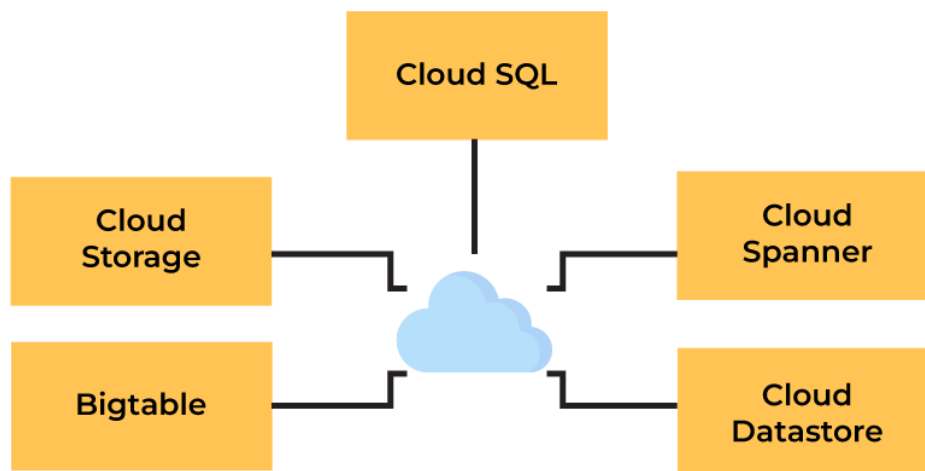


- **Cloud Build** is a fully managed build service provided by Google Cloud Platform (GCP) that automates the process of building, testing, and deploying software. With Cloud Build, developers can quickly and easily compile and package their code, create Docker images, run tests, and deploy the software to various environments such as GCP, Kubernetes, or other cloud providers.
- **Kubernetes Engine** is a managed, production-ready environment for deploying, managing, load balancing, and scaling containerized applications. It is built on the open-source Kubernetes system and is a part of the Google Cloud Platform (GCP). With Kubernetes Engine, developers can easily deploy, manage, and scale their applications in a cloud-based environment without worrying about infrastructure management.
- **Compute Engine** provides scalable and highly-available computing resources. It is a cloud-based infrastructure-as-a-service platform that enables organizations to run virtual machines and applications on Google's infrastructure. Compute Engine supports a wide range of operating systems, including Windows, Linux, and more.

## 2. Storing and Managing Data

- **Cloud SQL** is a fully managed relational database service provided by Google Cloud Platform (GCP) that allows developers to store, manage, and access their data in the cloud. This service is designed to be highly scalable and highly available, making it a great choice for businesses that require a robust and reliable database solution.
- **Cloud Spanner** is a fully managed, horizontally scalable relational database service provided by Google Cloud Platform (GCP). It is designed to handle large amounts of structured and semi-structured data with high

availability and reliability. Spanner is a global scale database that supports ACID transactions, SQL, and multi-region replication.



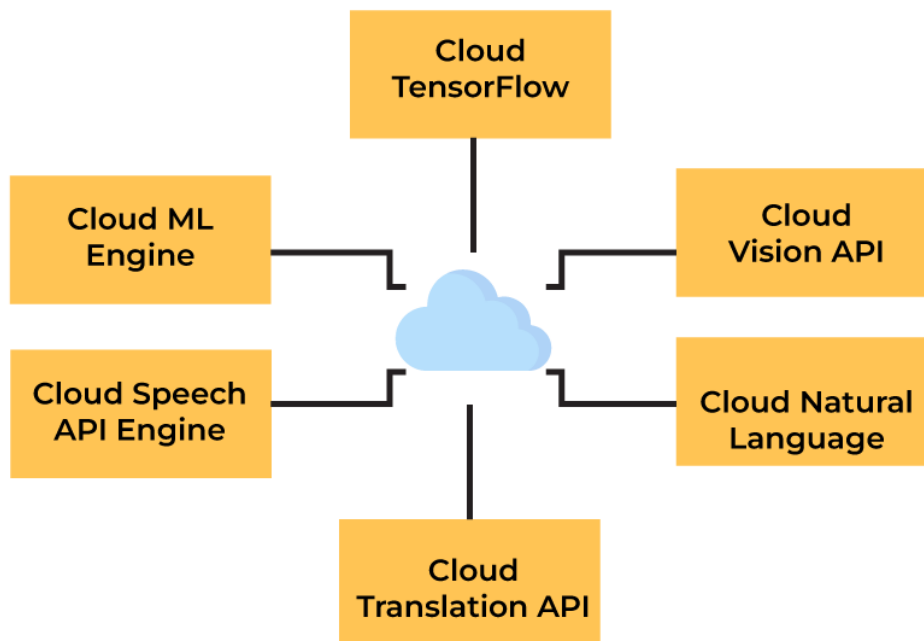
- **Cloud Datastore** allows developers to store and retrieve data in a flexible and scalable manner, eliminating the need for complex data storage infrastructure. It supports multiple data types such as strings, numbers, dates, and binary data, and provides indexing and querying capabilities. This makes it ideal for use cases that require fast and flexible access to data, such as real-time analytics and gaming applications.
- **Bigtable** is a distributed, column-oriented NoSQL database designed for handling large amounts of data across many commodity servers, providing a scalable and low-latency solution for handling massive data workloads in the Google Cloud Platform (GCP). It provides efficient access to massive amounts of structured data, using a combination of efficient data structures, load balancing, and dynamic indexing.
- **Cloud Storage** provides scalable, durable, and high-performance data storage options to organizations and businesses. With Google Cloud Storage, users can store their data in the form of objects, blobs, files, or data archives. The platform offers different storage classes to suit the specific needs of businesses, including standard storage, nearline storage, and cold-line storage.

### 3. Machine Learning and Artificial Intelligence

- **Cloud TensorFlow** is a cloud-based platform that is used to run TensorFlow machine learning models on Google Cloud Platform (GCP). It is designed to help data scientists and developers build and deploy machine learning models with ease. With Cloud TensorFlow, users can run their models on GCP's scalable infrastructure, reducing the time and effort required to set up and maintain a TensorFlow environment.
- **Cloud Vision API** provides advanced image and video analysis for developers. It allows developers to easily integrate computer vision

technology into their applications and analyze images, videos, and documents in real-time. With this API, developers can detect and recognize objects, logos, faces, and texts from images and videos.

- **Cloud Natural Language API** is a tool that enables developers to process and analyze text data in a quick and accurate manner. This API leverages the power of machine learning algorithms to extract information and insights from unstructured text, such as customer reviews, news articles, or social media posts. It can perform various text analysis tasks, including sentiment analysis, entity recognition, part-of-speech tagging, and syntax analysis.

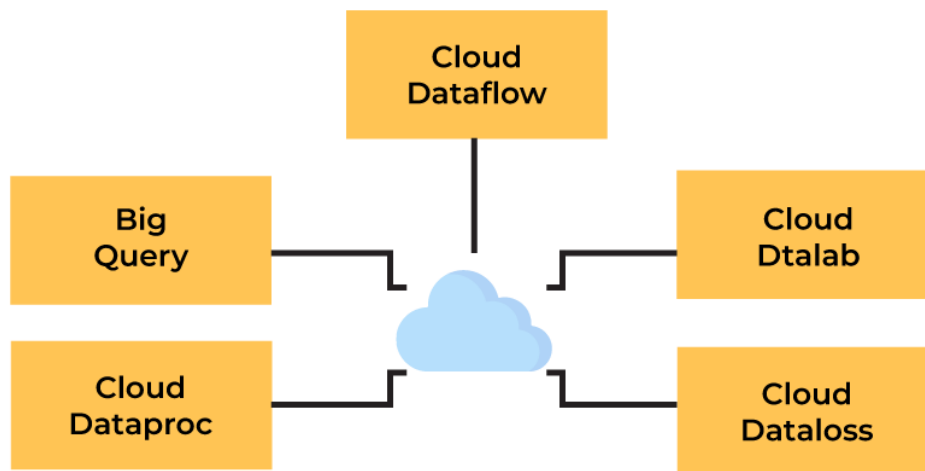


- **Cloud Translation API** is designed to enable developers to translate text from one language to another. The API uses neural machine translation technology to translate the text with high accuracy and fluency. It supports multiple languages, including but not limited to English, Spanish, French, German, Japanese, and Chinese. The API can be used to translate website content, chatbot responses, and other types of text content.
- **Cloud Speech API** is a powerful tool for converting speech to text. It allows developers to convert spoken words into written text, making it easier for users to interact with applications, services, and devices. The API is designed to work with a wide range of languages and accents, making it a versatile tool for global applications. The API uses machine learning algorithms to accurately transcribe speech, making it a reliable option for businesses and organizations looking to improve their speech recognition capabilities.
- **Cloud ML Engine** provides businesses and organizations with a highly scalable, fast, and easy-to-use cloud-based solution for training and

deploying their machine learning models. This platform helps organizations to reduce the complexity and cost of building and maintaining an in-house machine-learning infrastructure.

#### 4. Managing and Analyzing Data

- **Cloud Dataflow** is a fully managed service for transforming and processing big data in the cloud. It is a cloud-based data processing system that is designed to handle large-scale data processing and analytics workloads. The system provides a simple and intuitive user interface, enabling users to process and analyze data in real-time, without having to worry about managing infrastructure and hardware.
- **Cloud Datalab** provides an environment for exploring, transforming, and visualizing data, allowing developers and data scientists to work with big data in an easy and efficient way. With Cloud Datalab, you can easily connect to various data sources, process and store large amounts of data, and perform complex analysis tasks.
- **Cloud Data loss** refers to the situation when data stored on Google Cloud Platform (GCP) is lost, deleted or corrupted due to various reasons such as hardware failure, human error, security breaches, or natural disasters. This can lead to a significant impact on the operations of businesses that rely on the data stored in the cloud.



- **Cloud Dataproc** is a fast, easy-to-use, fully managed cloud service for running Apache Hadoop and Apache Spark jobs on Google Cloud Platform (GCP). It provides a powerful, yet simple and cost-effective way to process and analyze large amounts of data. Cloud Dataproc makes it possible to quickly spin up Hadoop and Spark clusters, process large datasets in minutes, and store the results in a variety of data storage solutions.
- **BigQuery** is a cloud-based data warehousing solution that is used for storing and analyzing large amounts of data within the Google Cloud Platform (GCP). It is a serverless, highly scalable, and low-cost data

warehouse designed for businesses and organizations to process and analyze data quickly and efficiently. With BigQuery, users can store and analyze vast amounts of data without having to worry about the technical complexities of managing hardware and software..