Overview of Google Cloud Platform

-Kusuma Seshavarapu

Agenda

- What is cloud?
- Why Google cloud?
- What is Google cloud?

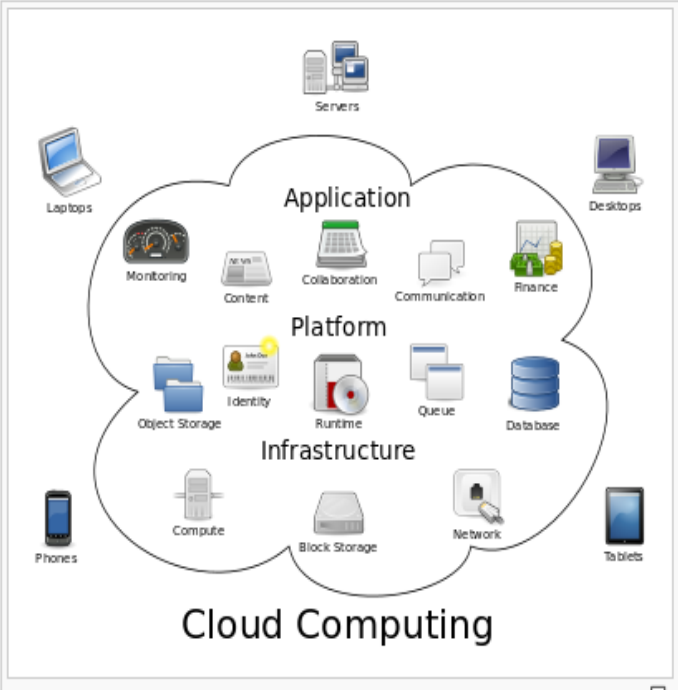
On-premise product development / Hosted deployment

You manage everything

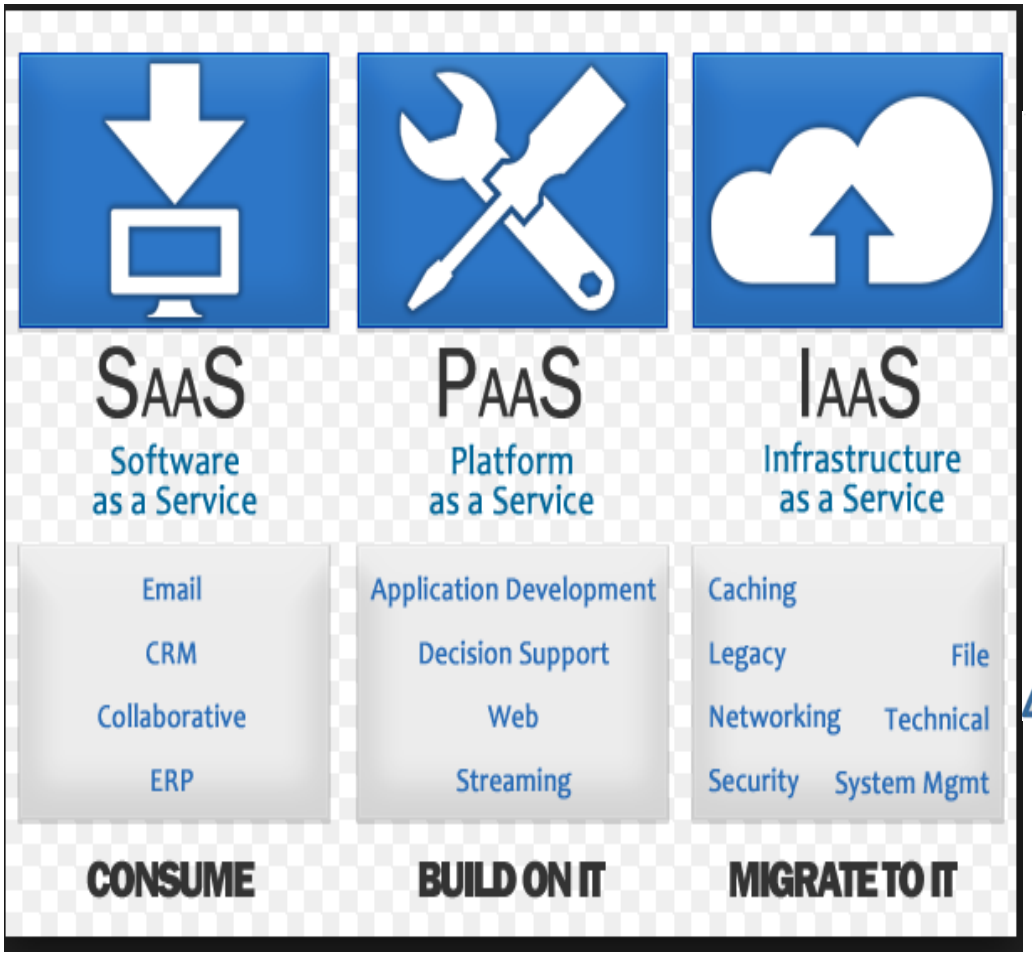
Managing Everything is Hard

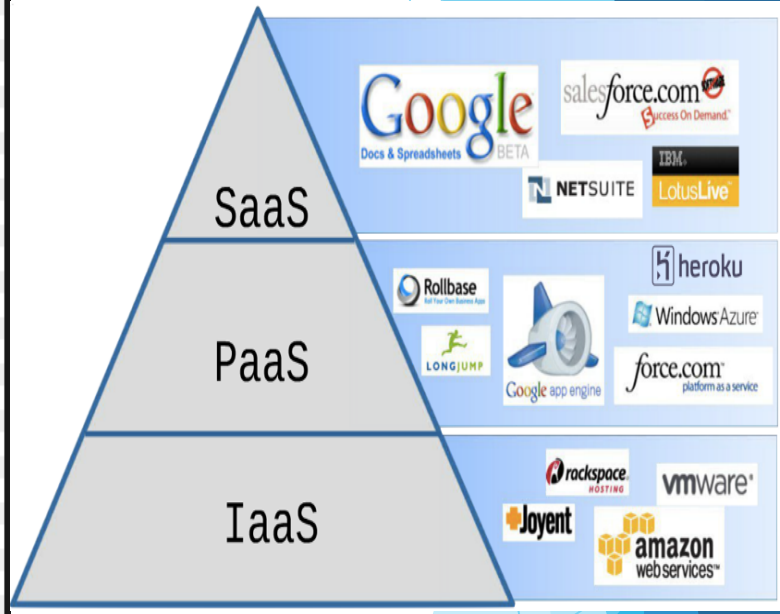
Welcome to Cloud computing

- **Cloud computing** is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort.



Cloud Computing Service Models

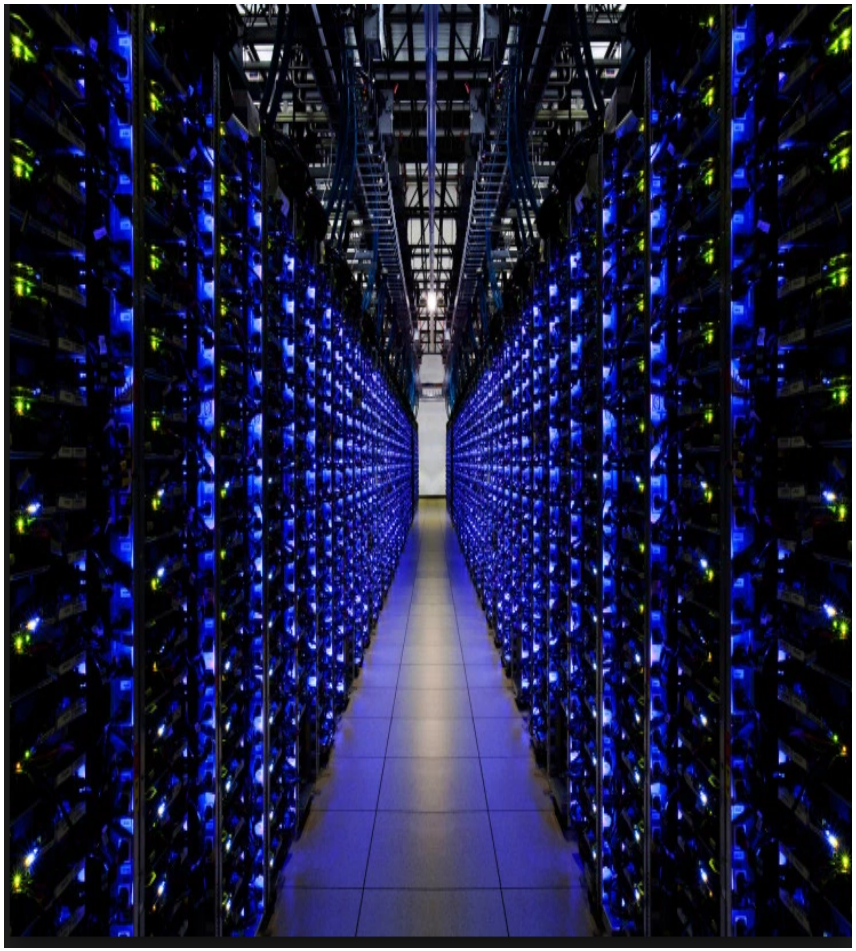




More Flexibility

Lower Operating Cost

Why Google Cloud?

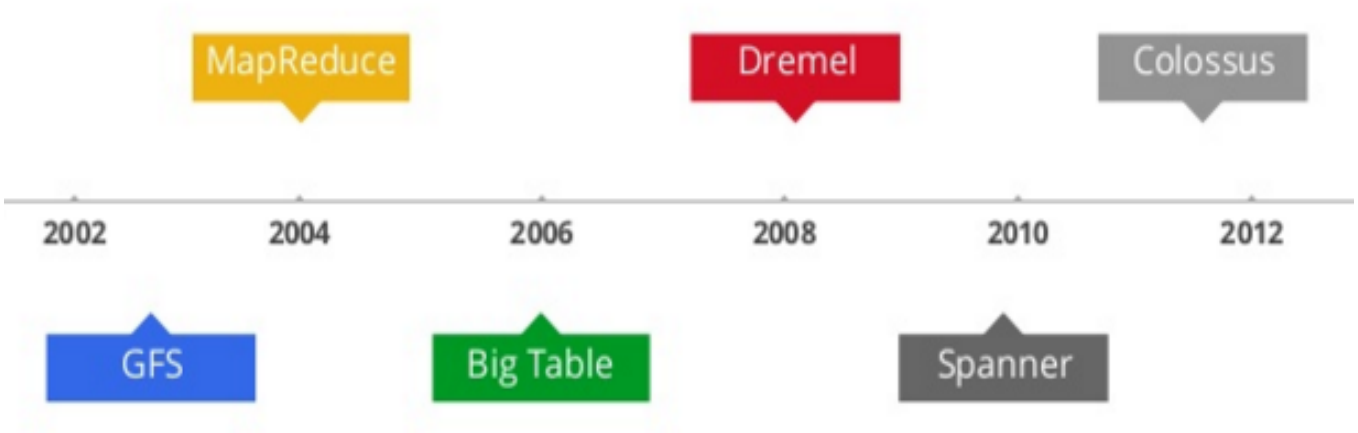


- 10 billion on cloud infrastructure
- A network that spans the globe
- Google DNA: Speed, Scale, Secure, Reliable

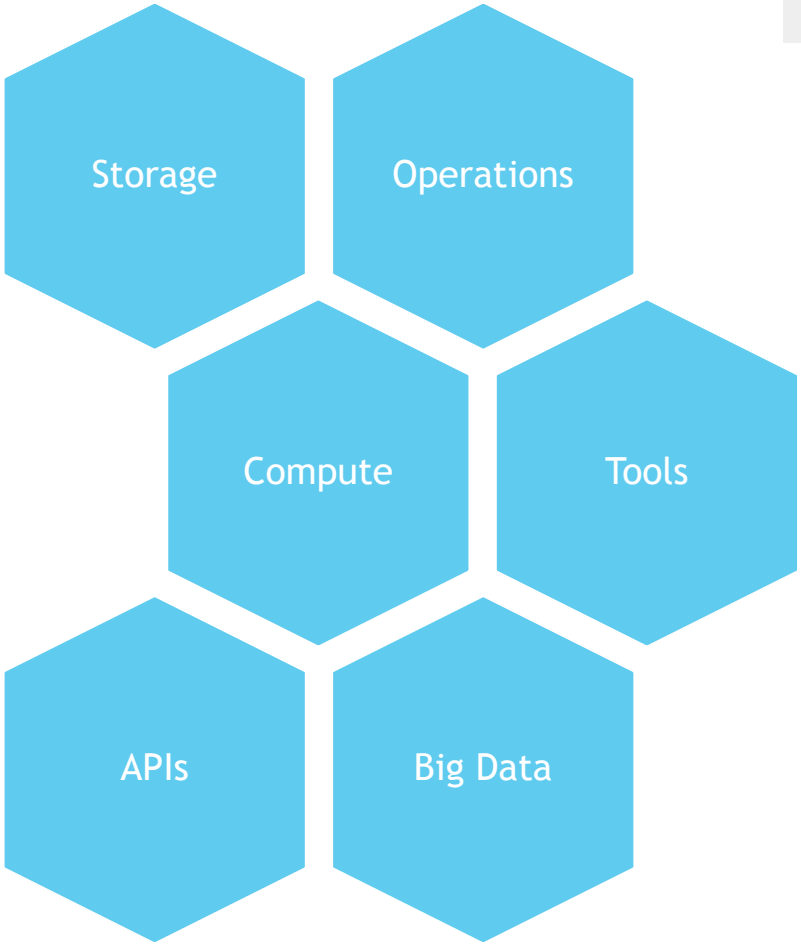
World's fastest, most powerful, highest quality infrastructure

Same infrastructure as their products

Google innovations in Software

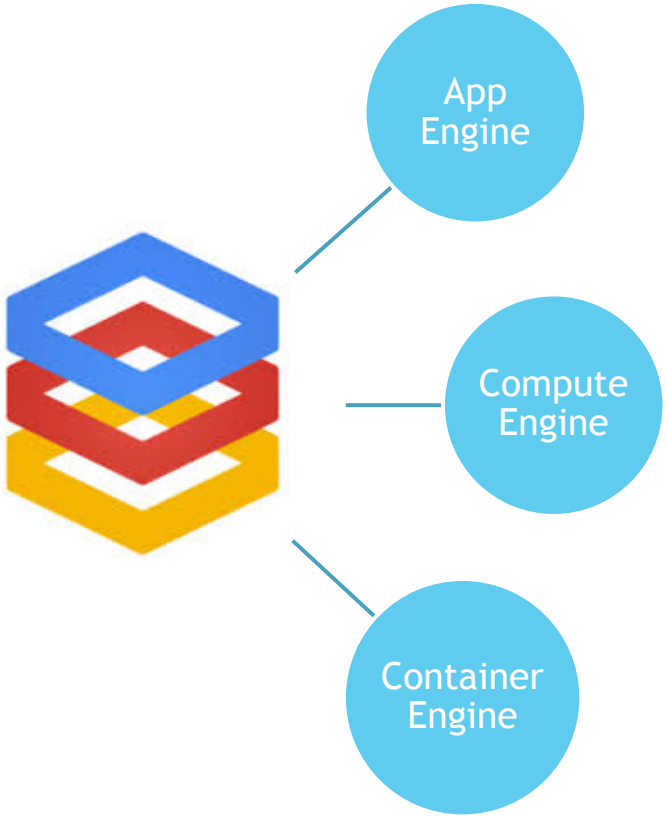


Google Cloud Platform



Comprehensive, integrated platform and an extension of Google internal infrastructure

Compute

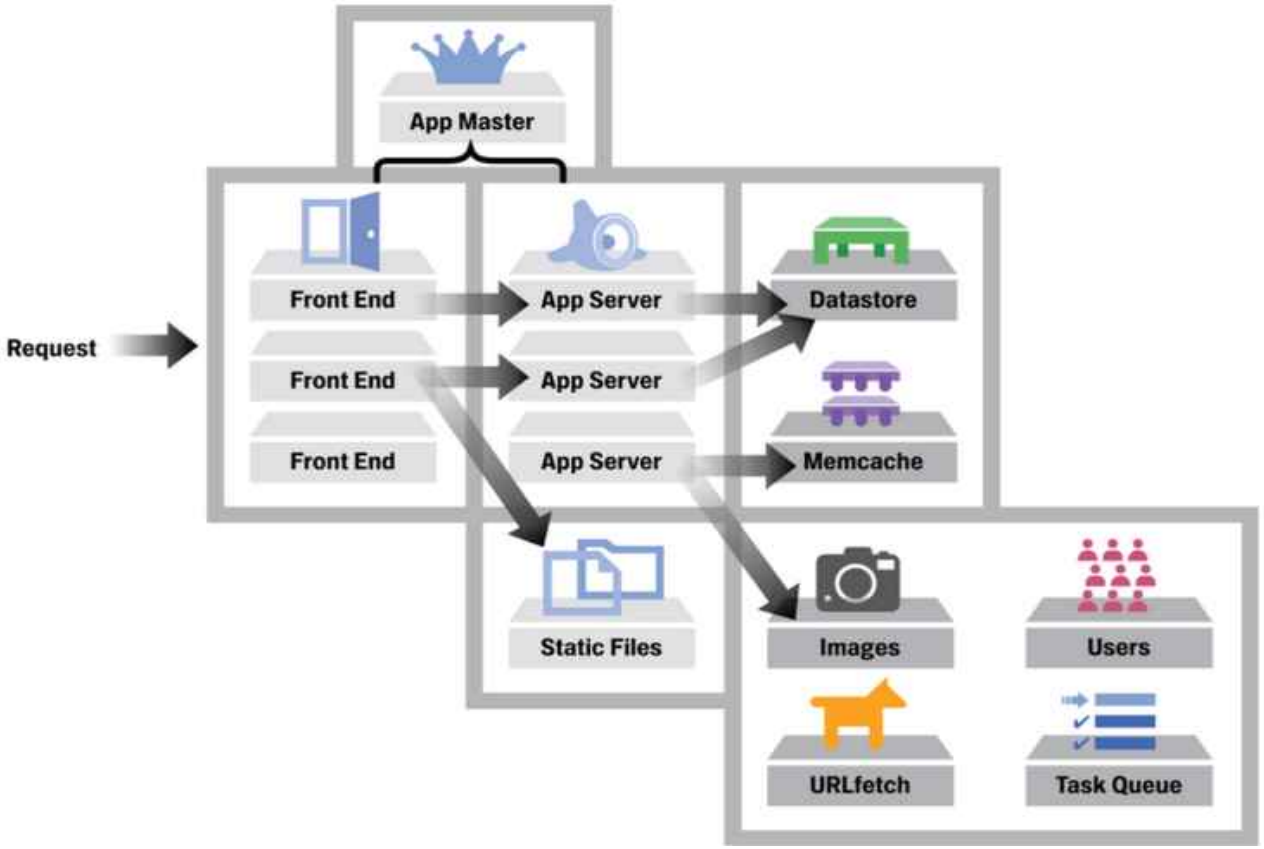


AppEngine-Cloud Development in a box

- SDK
- Infrastructure
- Application Runtime
  - Java
  - Python
  - Go
  - PHP
- Static File serving
- Integrated Services
- Fault tolerance
- Auto Scaling
- Load Balancing
- Versioning and Traffic splitting

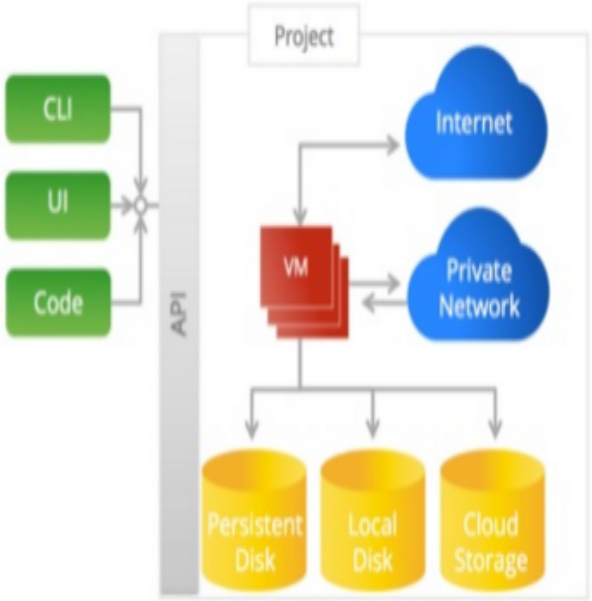
Google App Engine is a platform as a service (PaaS) cloud computing platform for developing and hosting web applications in Google-managed data centers

AppEngine-How does it work?



Compute Engine

- IaaS: VMs, Network, Storage
- On-demand VMs
  - Fast provisioning
  - Consistent Performance
  - Live migration
  - Private VM network
  - Automatic restart
- Enterprise Ready
  - 24X7 support
  - 99.95% monthly SLA
  - ISO27001,SSAE-16,SOC1,2,3



What is a container?

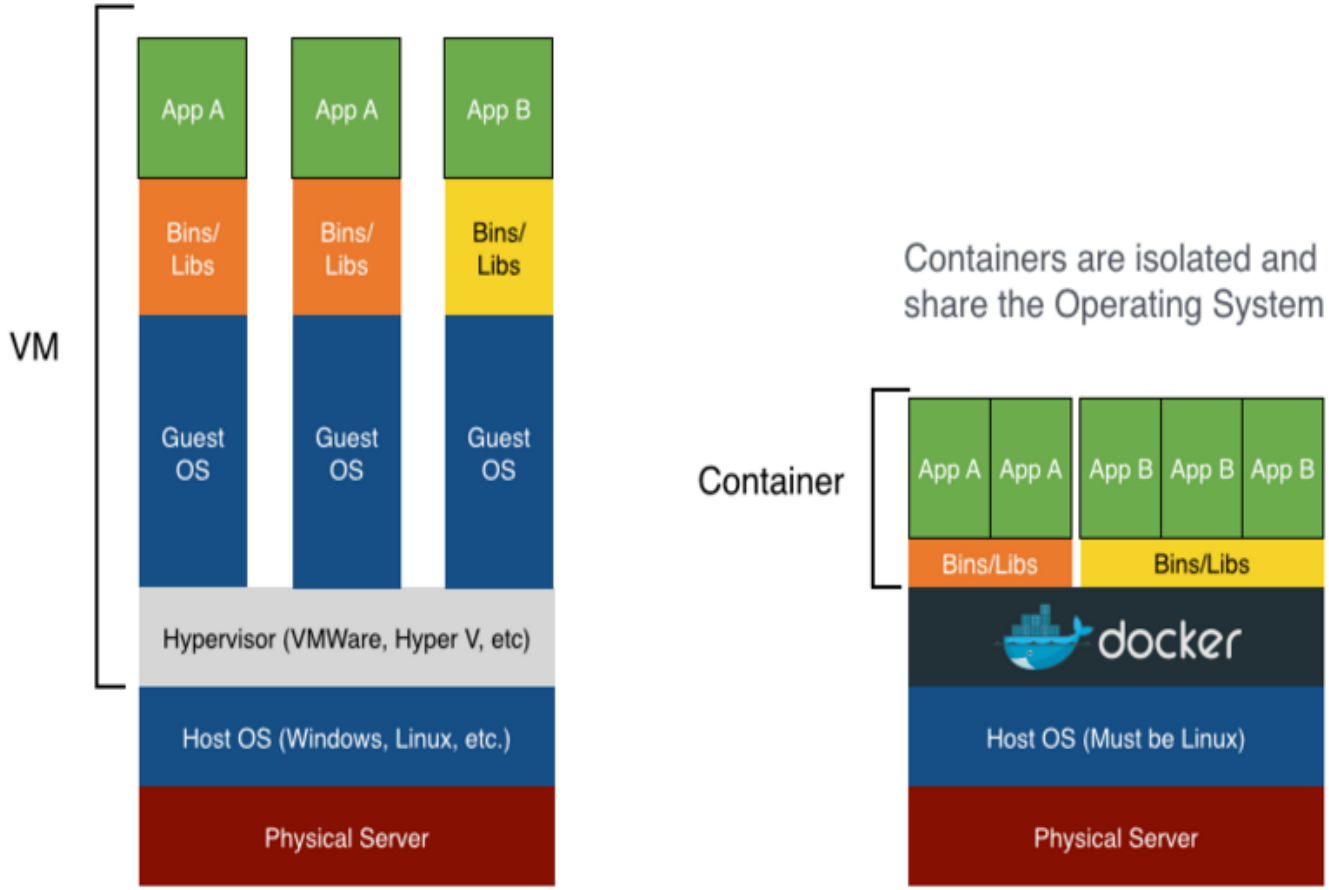


- A container consists of an entire runtime environment: an application, plus all its dependencies, libraries and other binaries, and configuration files needed to run it, bundled into one package.

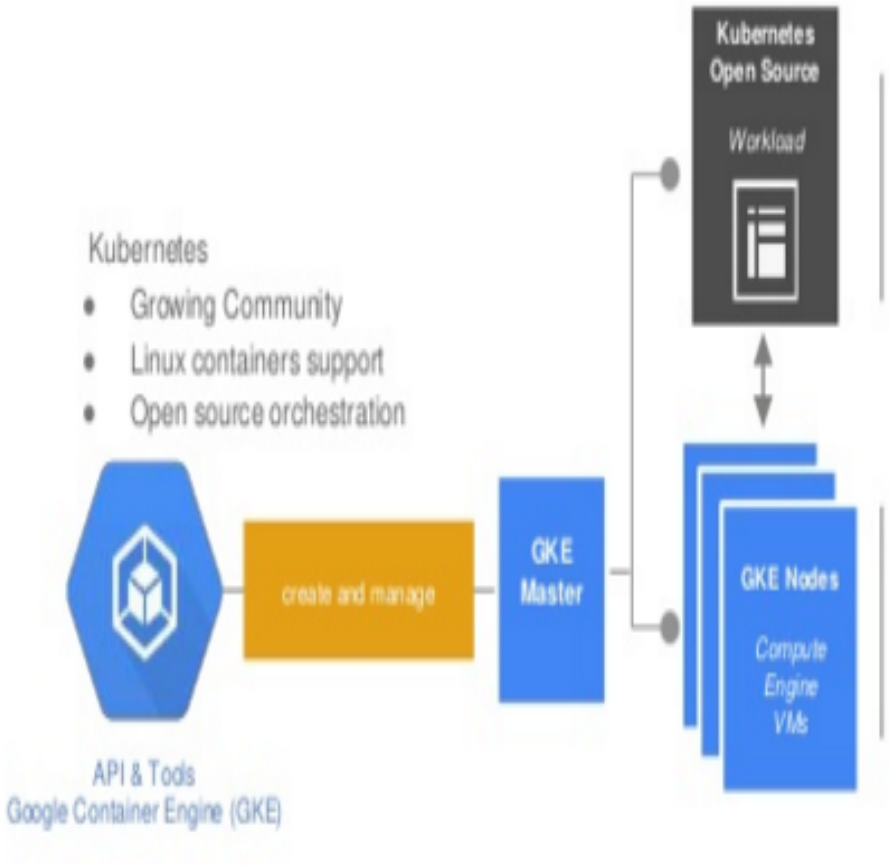
Why do we need a container?

- Containers are used to create completely portable environment across local and cloud infrastructure.
- They also simplify creating different environments like Dev, QA, Stage, Prod etc by orders of magnitude

How is it different from a VM?

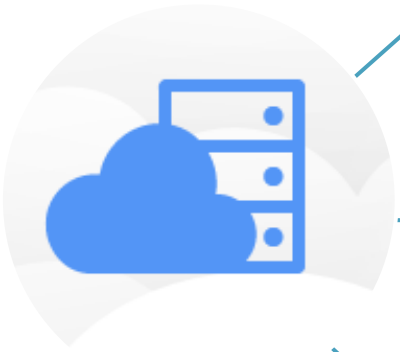


Container Engine



- Container Engine
  - Provisioned cluster in seconds
  - Optimized cluster environment
  - Runs and manages Kubernetes

Storage



- SQL
  - CloudSQL
  - Spanner
- NoSQL
  - CloudDataStore
  - CloudBigtable
- Blob
  - CloudStorage

Cloud SQL

- Fully Managed MySQL instance
- Highly Reliable
- Security, Availability, Durability
- Easy Migration & Data Portability
- Flexible charging

Cloud DataStore 

- Massively scalable distributed NoSQL DB
- SQL like GQL query language
- Supports composite indexes
- Support for JDO/JPA
- ACID transactions
- High Availability of reads and writes
- Strong Consistency / Eventual Consistency

RDBMS	Table	Row	Column
Datastore	Kind	Entity	Property

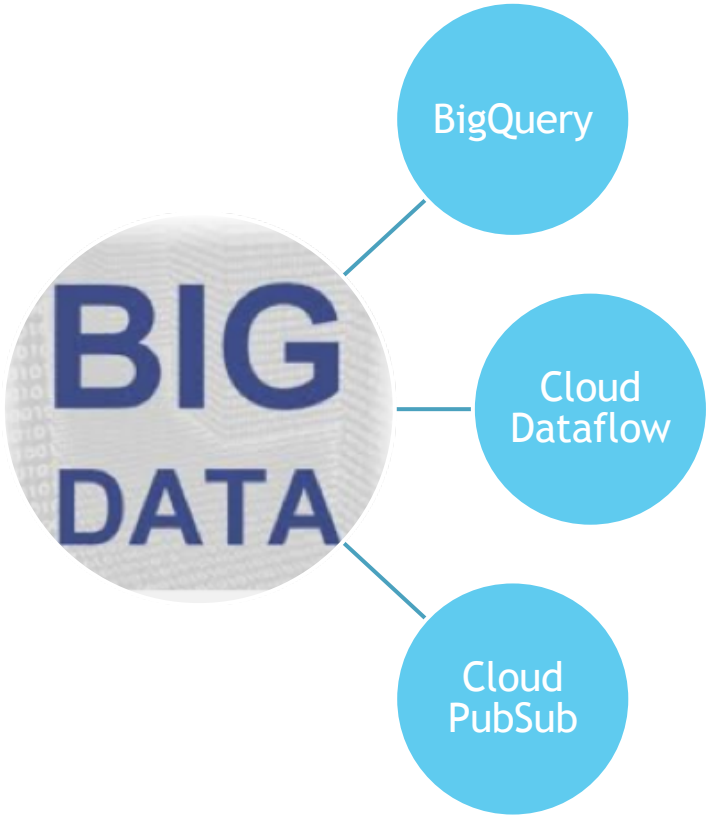
Cloud Bigtable

- A NoSQL(no-join) distributed key value store designed to scale out
- Has only one index(row key)
- Data is represented as a multi-dimensional Sorted Map
- Supports single row atomic transaction
- Handles peta bytes of data and millions of QPS
- Has an Hbase client API
- High throughput, low latency and low cost

Cloud Storage

- Unlimited object storage service
- High level of Durability & Availability
- High performance data archiving, online backup and disaster recovery

BigData

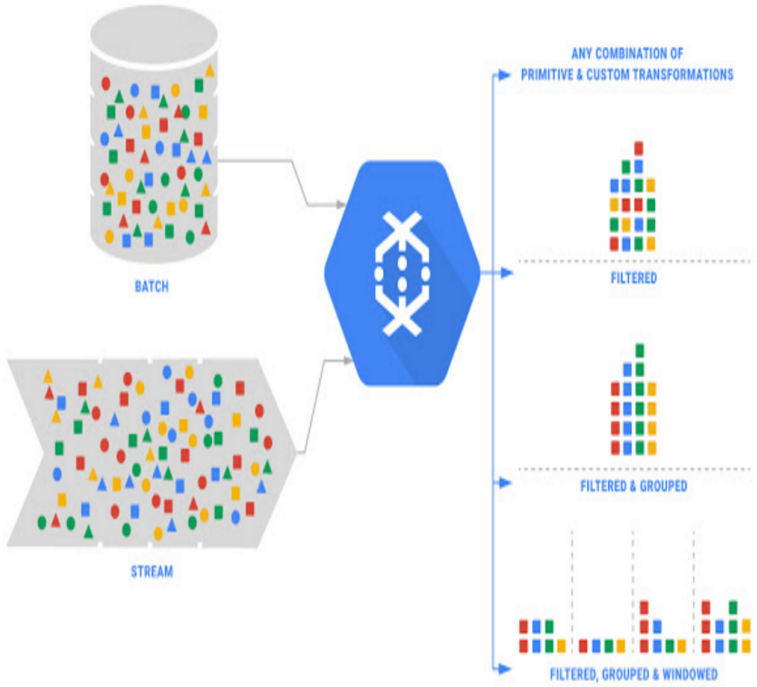


BigQuery

- TB level data analysis tool
- High speed data ingestion and query execution
- Zero administration
- Unlimited storage
- SQL like Query language, Nested field support
- Support for Aggregation and user defined functions
- Columnar storage with read only support

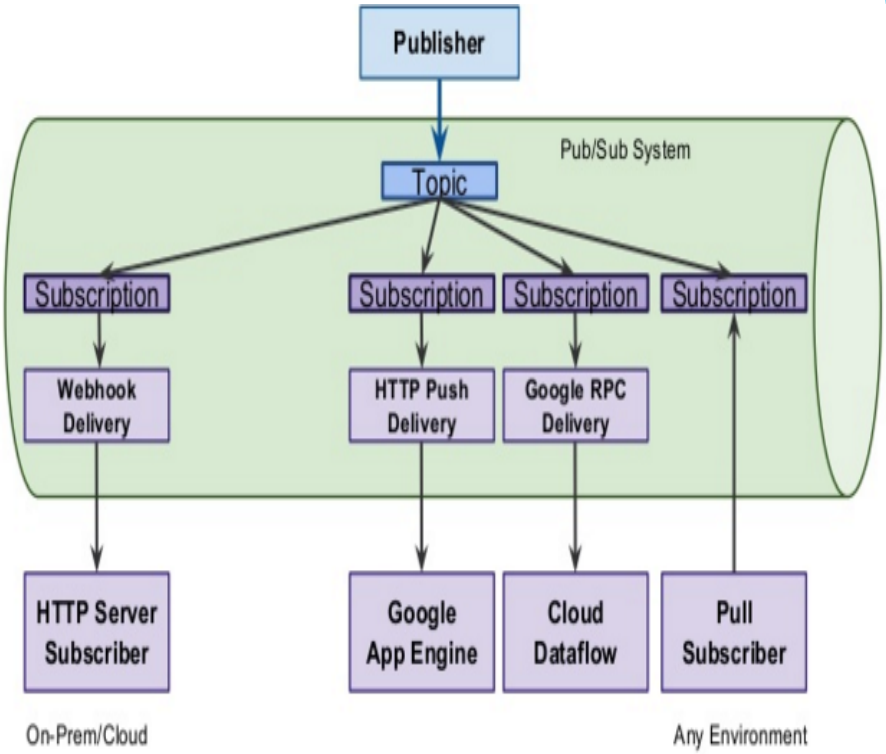
Cloud Dataflow

- Intuitive data processing framework
- Both batch and stream processing
- A fault tolerant, highly available, SLA-backed service
- Cloud Dataflow is 2-3x faster and cheaper than Hadoop

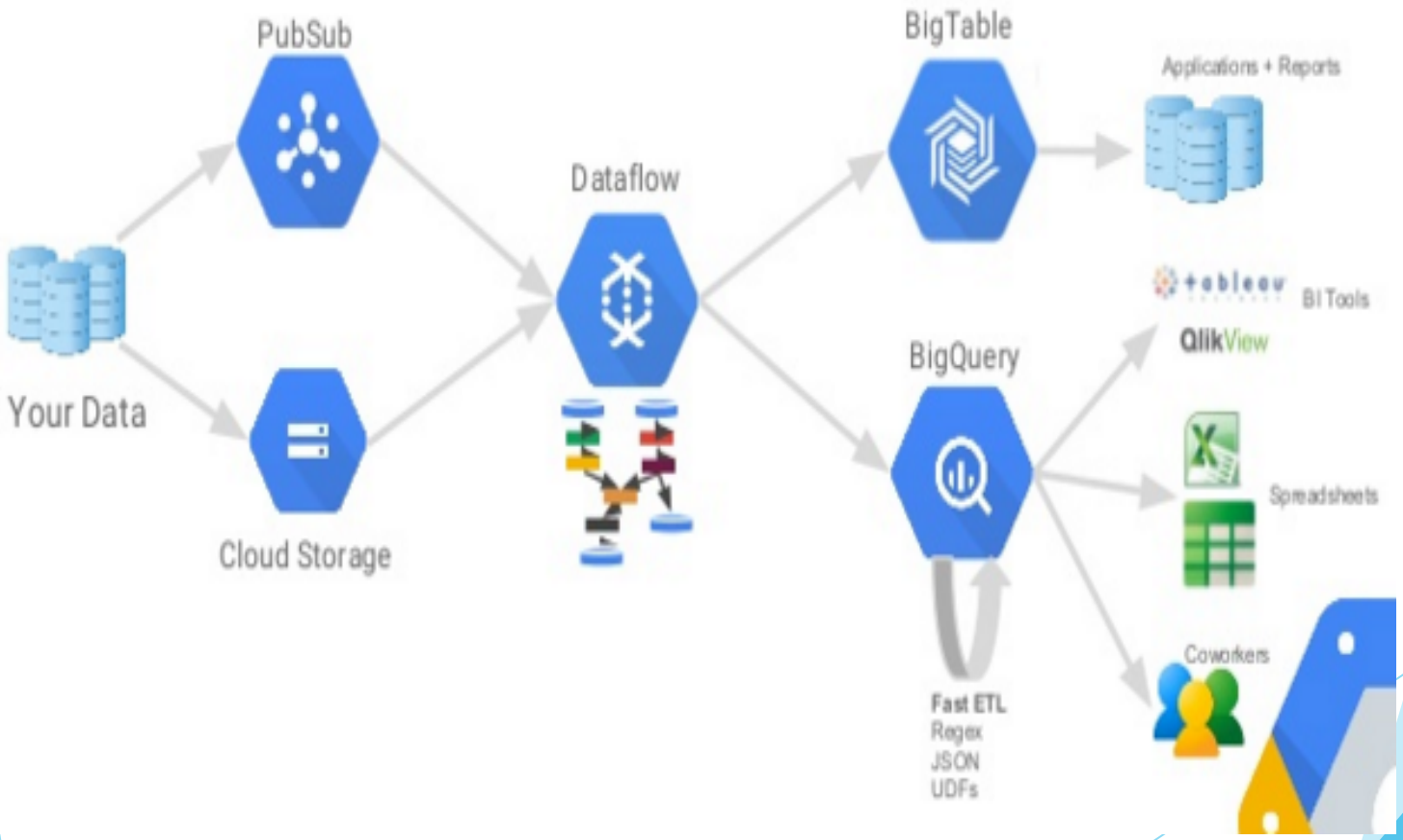


Cloud PubSub

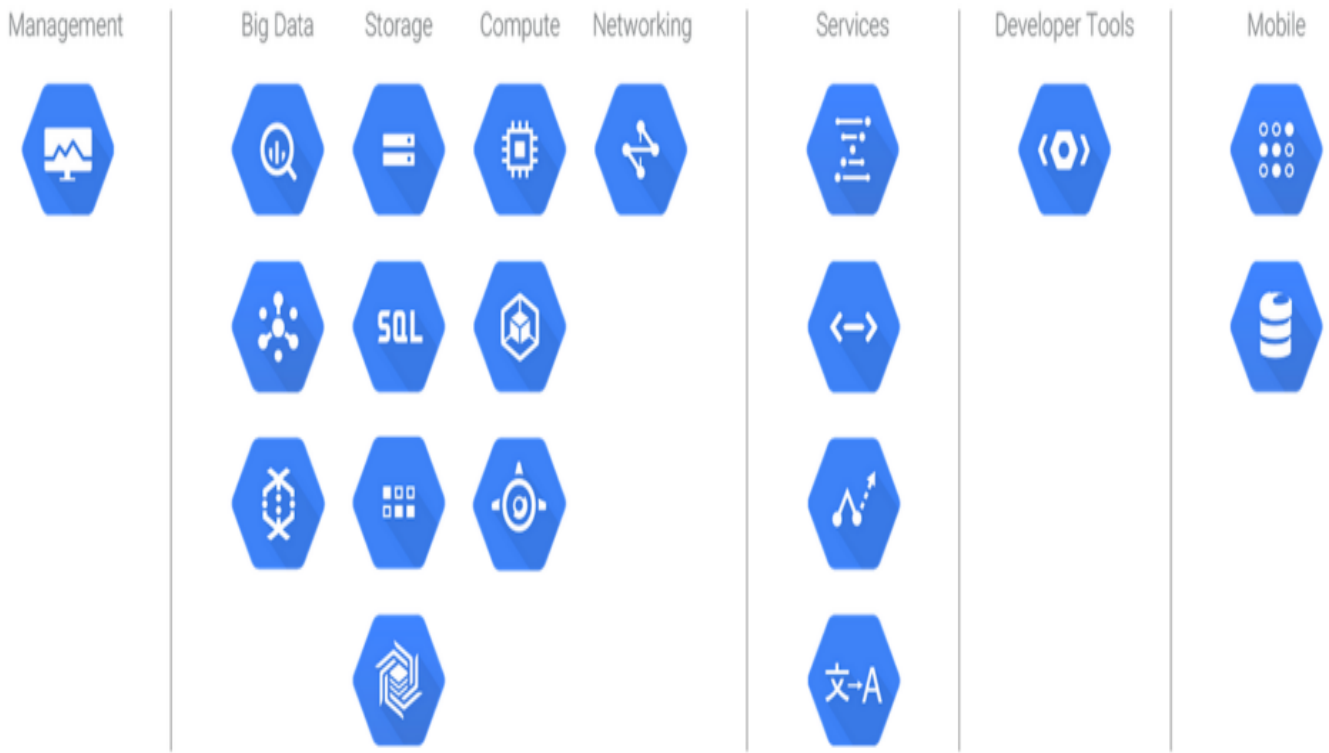
- Real time and reliable messaging
- Connect services anywhere in the world
- Both push and pull style subscriptions supported
- Encryption of data



Big Data Architecture on Google



Recap


Management
Big Data
Storage
Compute
Networking
Services
Developer Tools
Mobile
SQL

Thank You