



#GCPSketchnotes

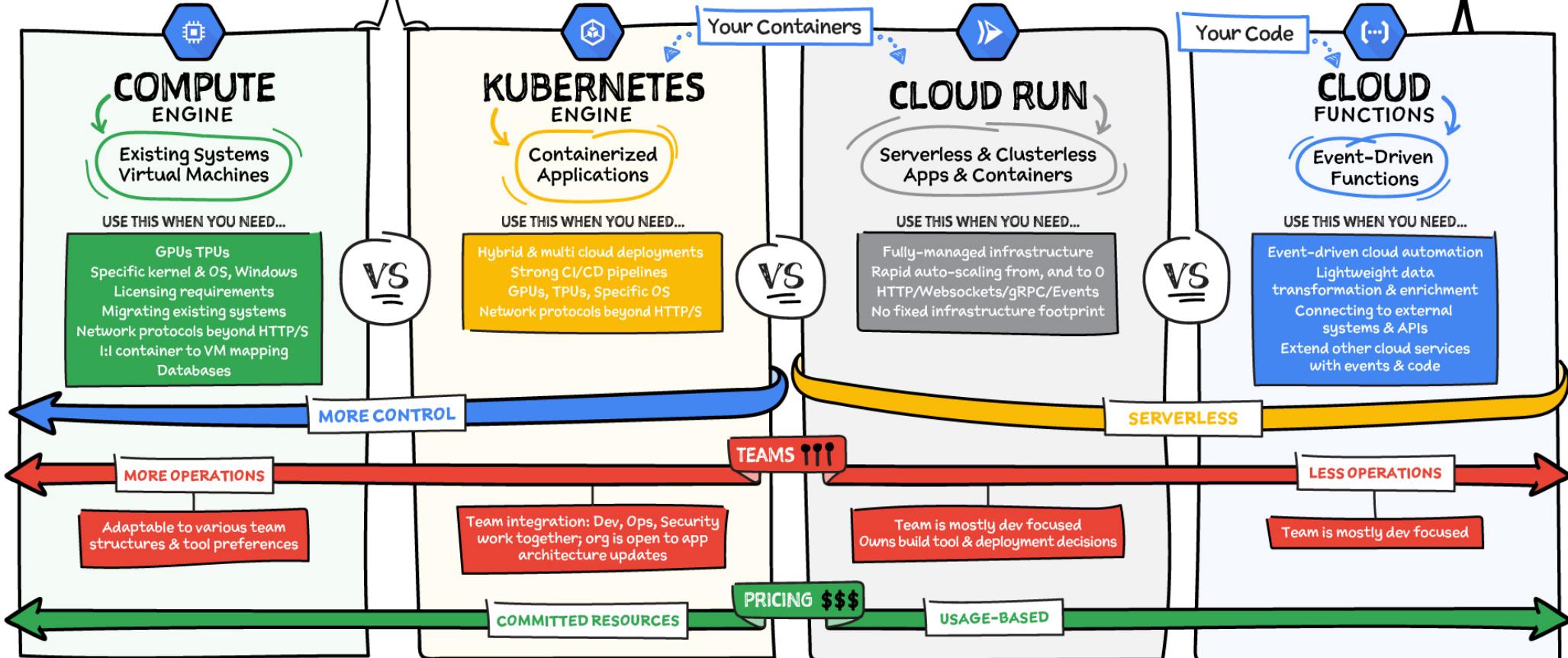
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# Where should I run my stuff? IT DEPENDS...



PRO TIP: YOU CAN USE THEM TOGETHER



# Virtual Private Cloud (VPC)

#GCPSketchnote

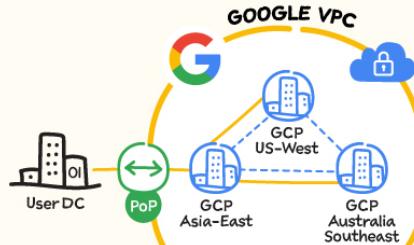
 

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## What is VPC network?

### MANAGED NETWORKING

- ✓ SHAREABLE across org
- ✓ EXPANDABLE increase IP space
- ✓ SECURITY Firewall & IAM
- ✓ CONNECTIVITY to on-prem



25+ REGIONS, 1 GLOBAL VPC

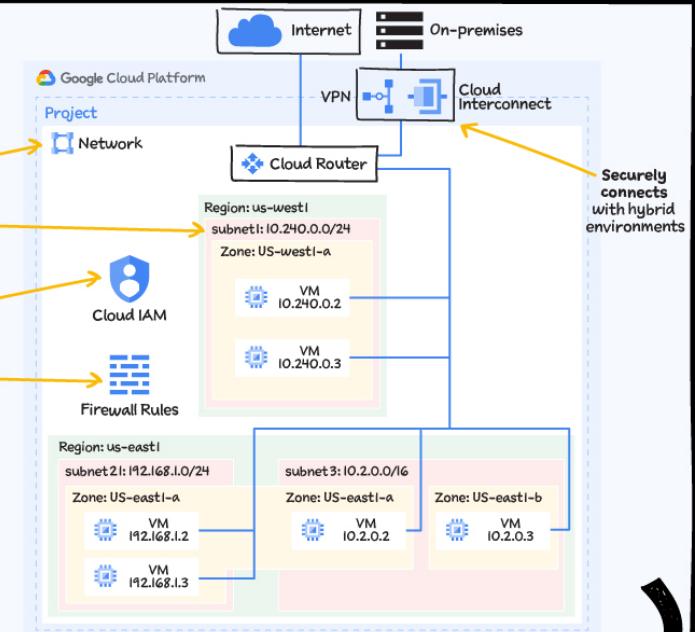
## FEATURES OF VPC NETWORK

VPC Networks: Global resource

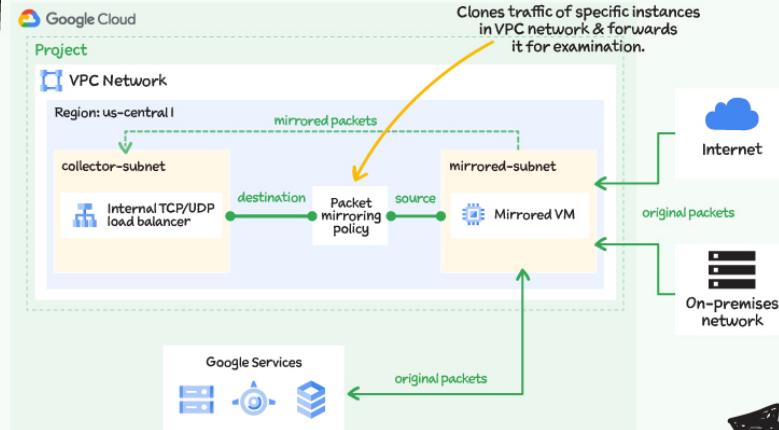
Subnets: Regional IP Address range connected by global WAN

Network Admin: Secure using IAM

VPC Firewall Rules: Allow/deny connections to/from VMs



## VPC PACKET MIRRORING

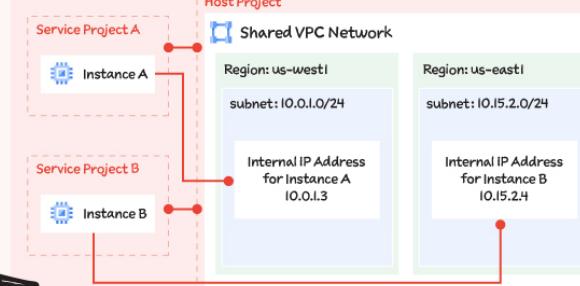


## VPC NETWORK SHARING & PEERING

### SHARED VPC

A Shared VPC Admin for the organization has created a host project and attached two service projects to it.

Host Project



### PEERING

VPC Peering allows internal IP address connectivity across two mutually authorized VPC networks regardless of whether they belong to the same project or the same organization.

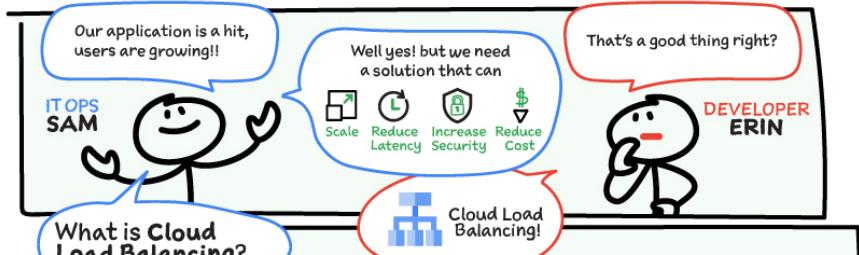




# Cloud Load Balancing

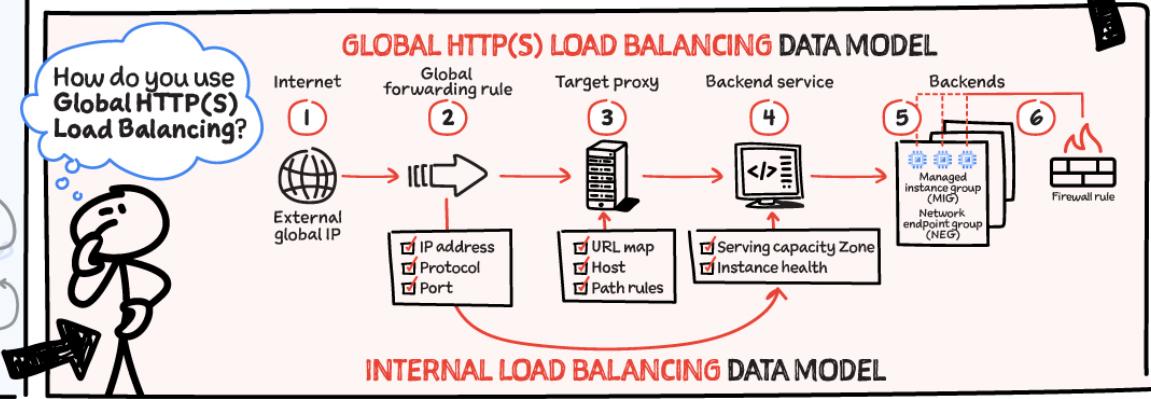
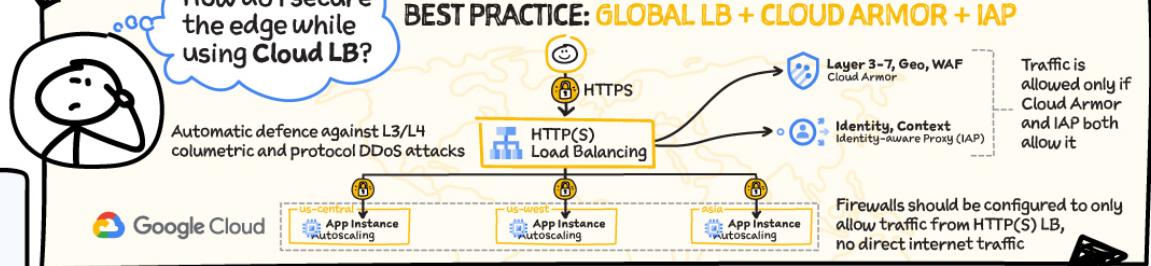
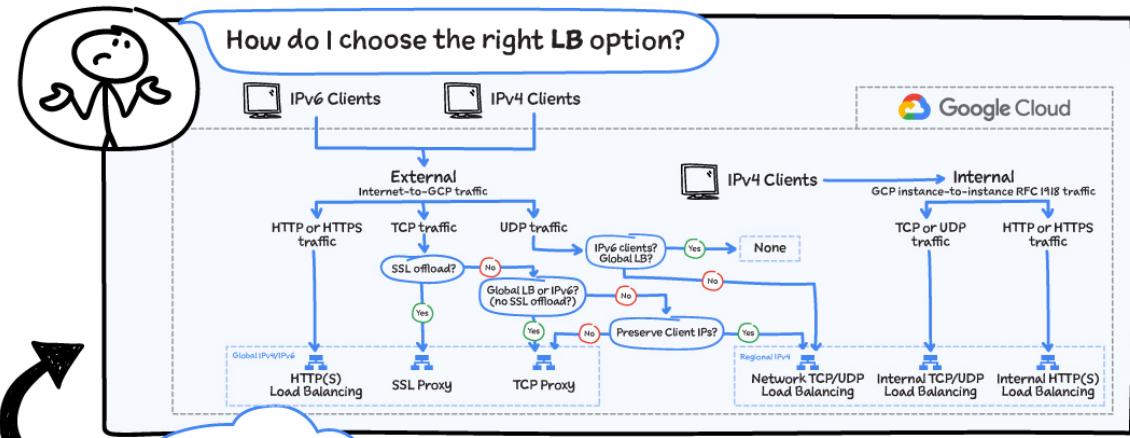
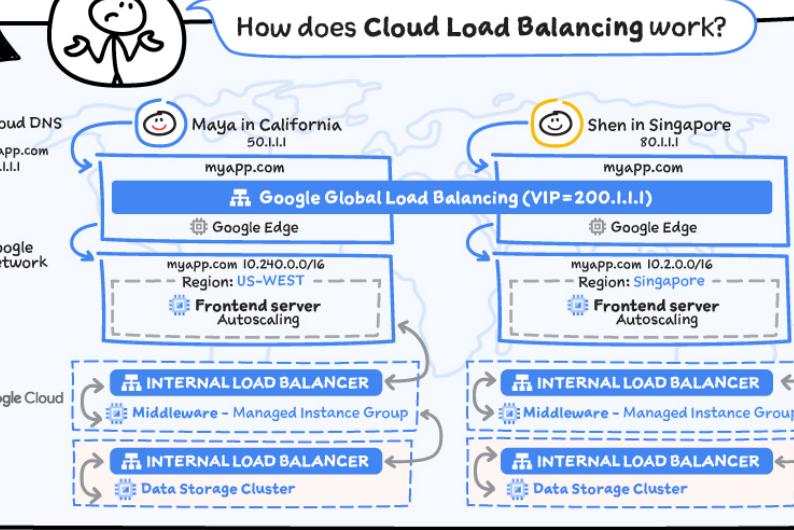
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10.5.2020



## FULLY DISTRIBUTED SOFTWARE DEFINED NETWORKING (SDN)

- Single Global Anycast VIP (IPv4/IPv6) across region
- Fast autoscaling
- Worldwide Capacity
- Single point to apply global policies
- Cross-region failover and fallback
- 1 Million+ QPS





# Cloud CDN

#GCPSketchnote

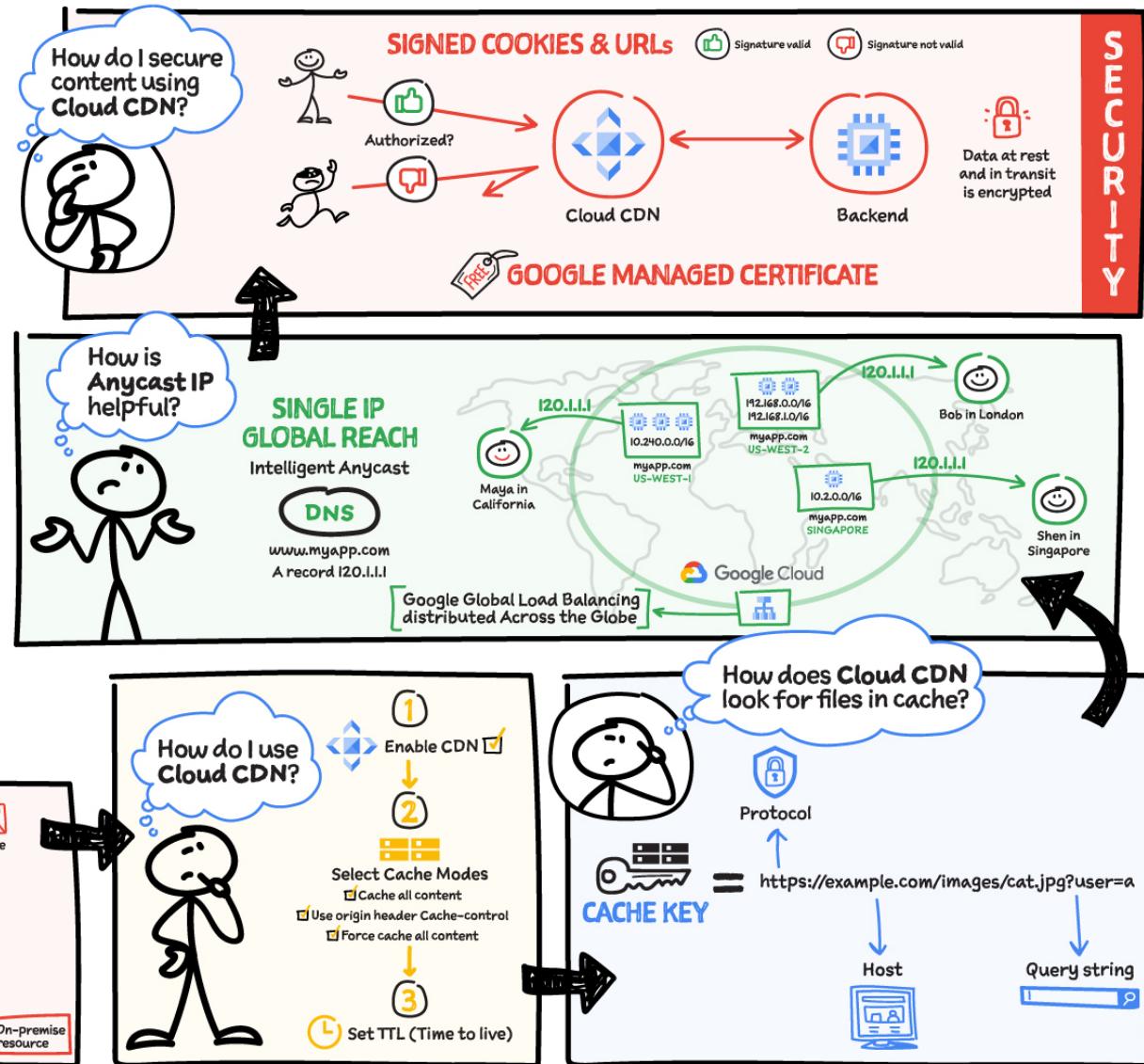
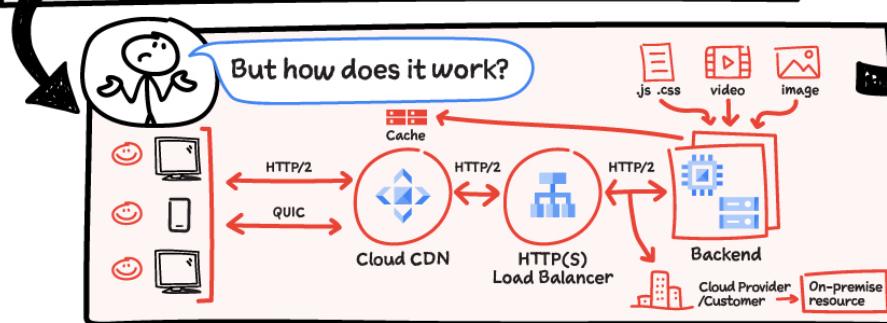
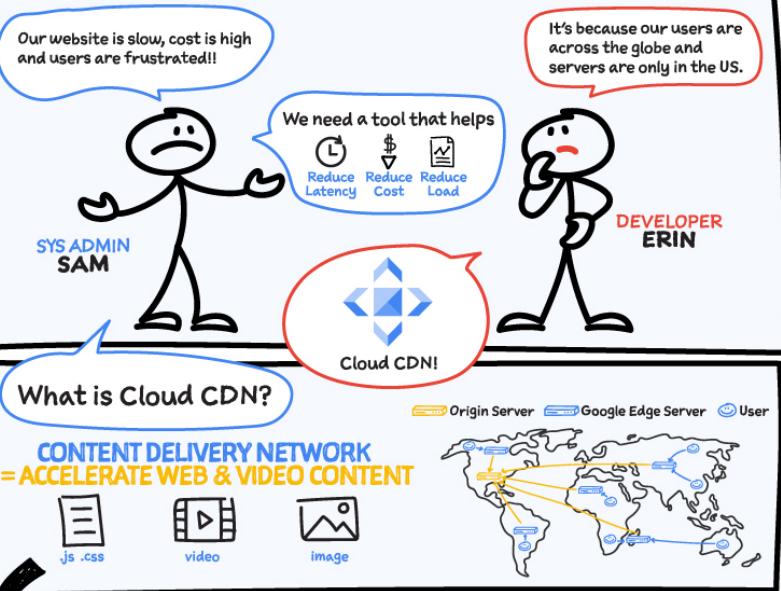


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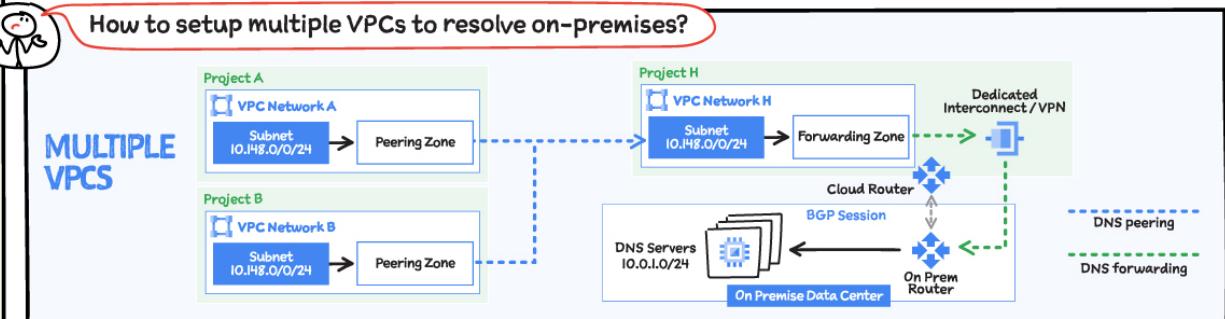
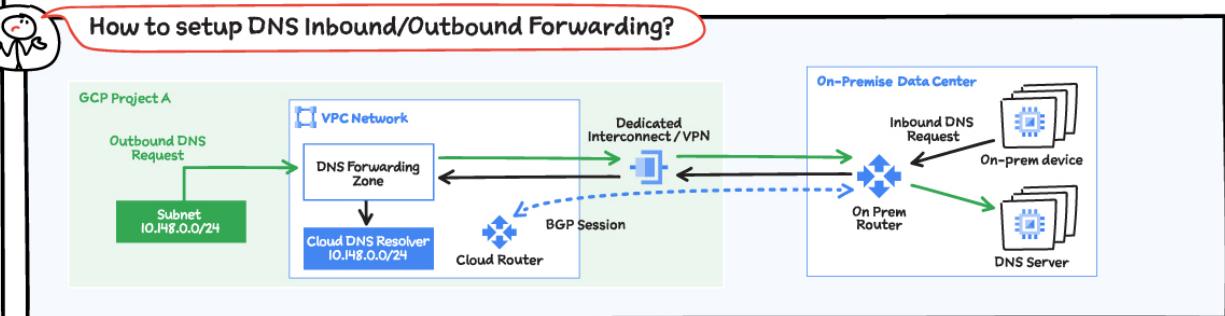
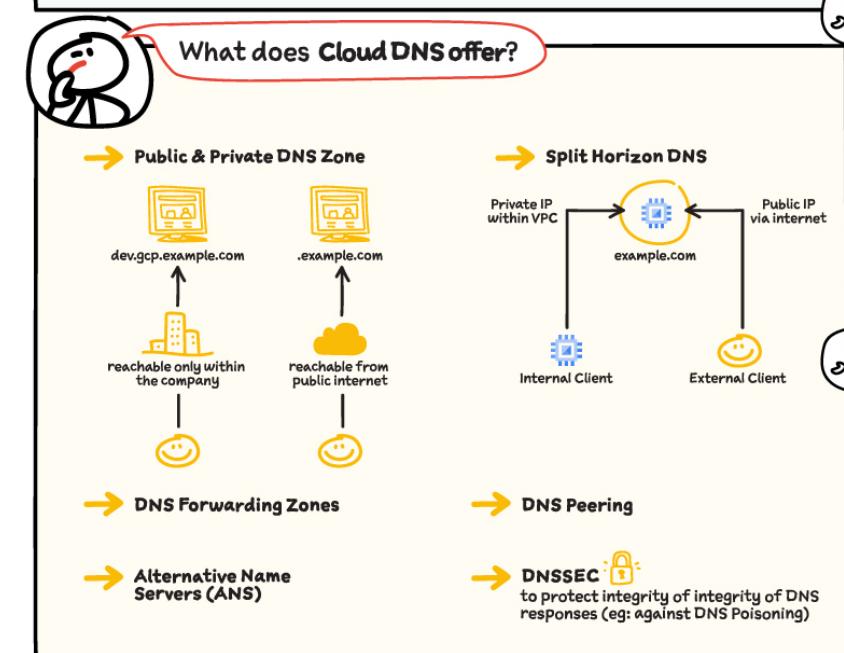
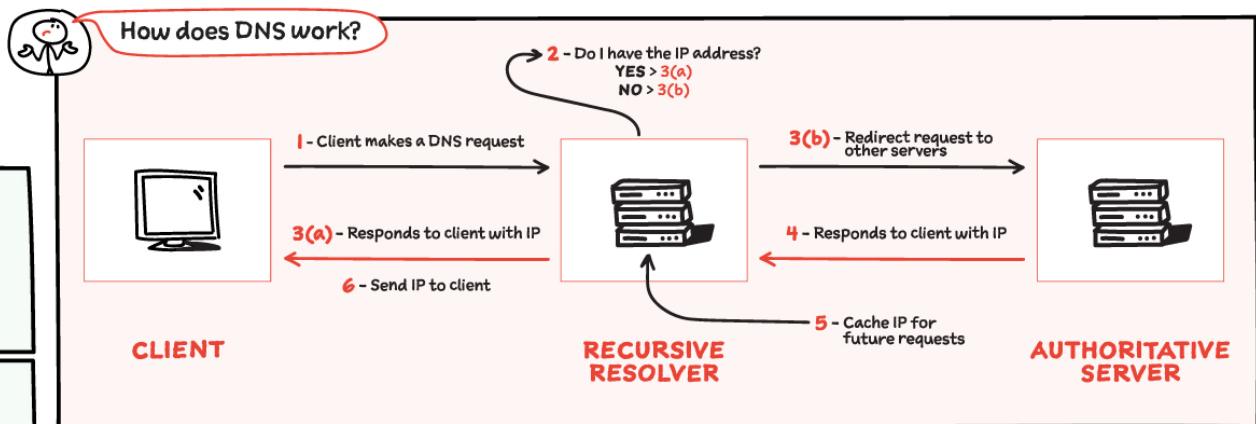
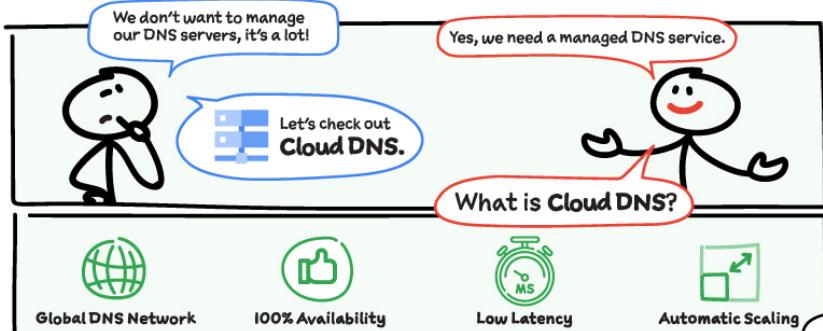
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# Cloud DNS #GCPSketchnote

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# Which Database or Storage should I use?

#GCPSketchnotes

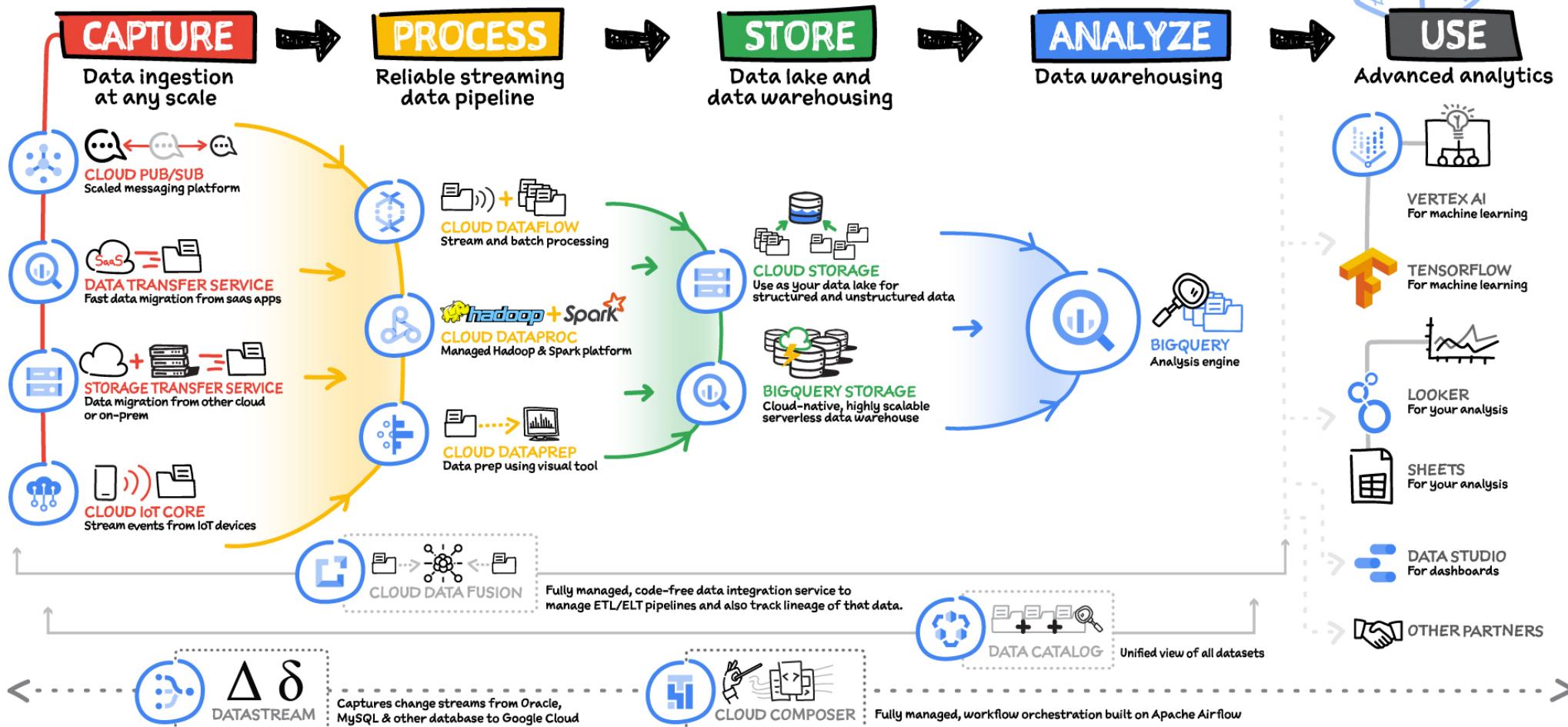


RELATIONAL	NON-RELATIONAL (NO SQL)		IN MEMORY	WAREHOUSE	OBJECT	BLOCK
Cloud SQL Managed MySQL, PostgreSQL, SQL Server	Cloud Spanner Cloud-native with large scale, consistency, 99.999% availability	Bare Metal Lift and shift Oracle workloads to Google Cloud	Firestore Cloud Native, serverless, NoSQL document database, backend-as-a-service, global strong consistency, 99.999% SLA	Cloud Bigtable Cloud-native NoSQL wide-column store for large scale, low-latency workloads	Memory Store Fully managed Redis and Memcached for sub-millisecond data access	BigQuery Serverless, scalable, cost-effective multi-cloud data warehouse
Good For:	Good For:		Good For:	Good For:	Good For:	Good For:
General purpose SQL DB	RDBMS+ scale, HA, HTAP	RDBMS+ scale, HA, HTAP	Large scale, complex hierarchical data	Heavy read + write, events	In-memory and Key-value store	Enterprise data warehouse & Datalake
Use Case:	Use Case:		Use Case:	Use Case:	Use Case:	Use Case:
Web frameworks ERP CRM Ecommerce and web SaaS application	Gaming Global financial ledger Supply chain/inventory management	Legacy applications Data center retirement	Mobile/web/IoT applications Real-time sync Offline sync Personalized apps	Personalization Adtech Recommendation engines Fraud detection	Caching Gaming Leaderboard Social chat or news feed Session store Personalization Adtech	Predictive Analytics Real-time SQL based Machine Learning Session store Dashboards NLP based
Stream videos Image and web asset libraries Data lakes Backups/archives Long-tail content	Disks for VMs Share read-only data across VMs Rapid, durable backups of running VMs	Flash-optimized databases Hot caching layer for analytics Application scratch disk				



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# How to build a scalable DATA ANALYTICS PIPELINE





# Pick Your AI/ML Path



#GCPSketchnote

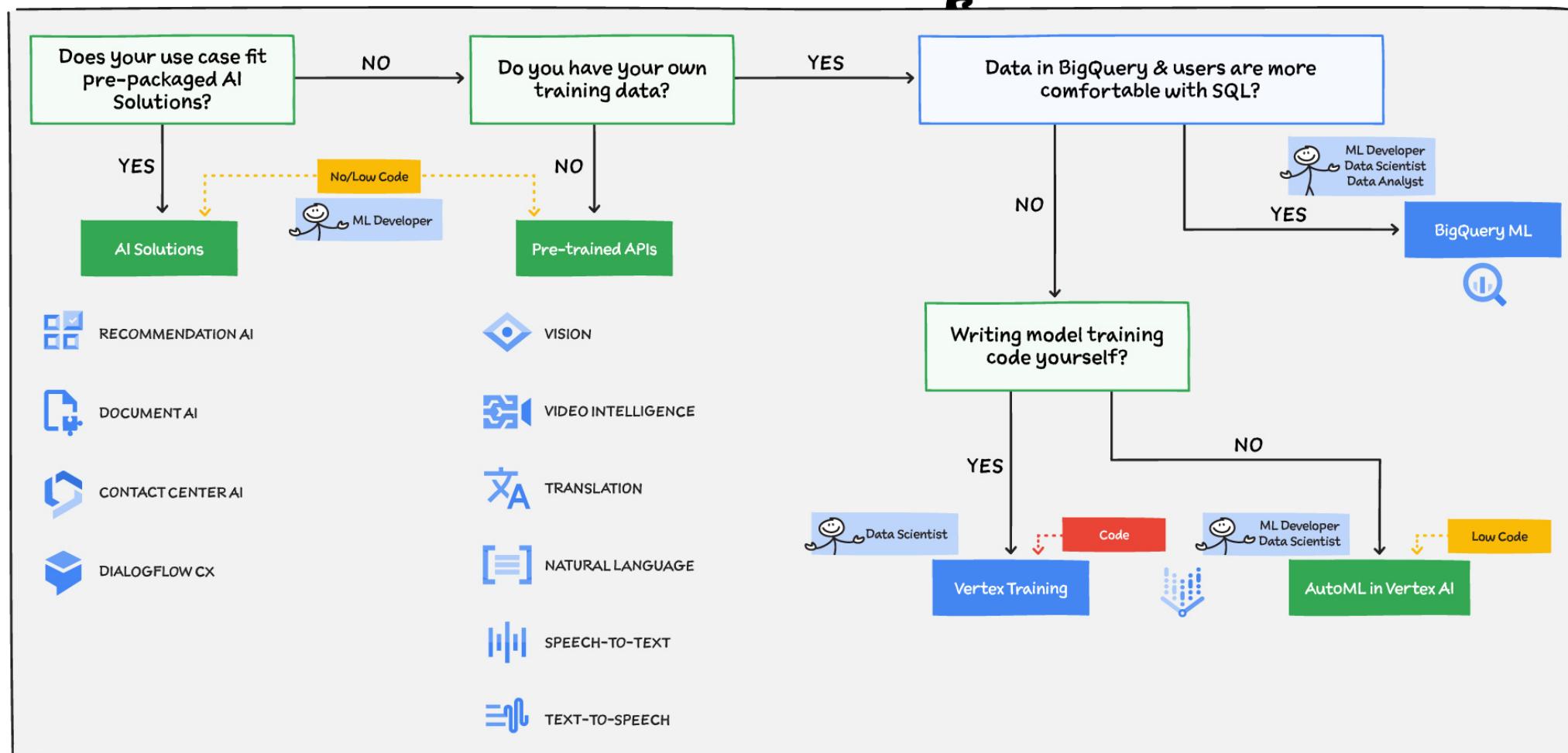


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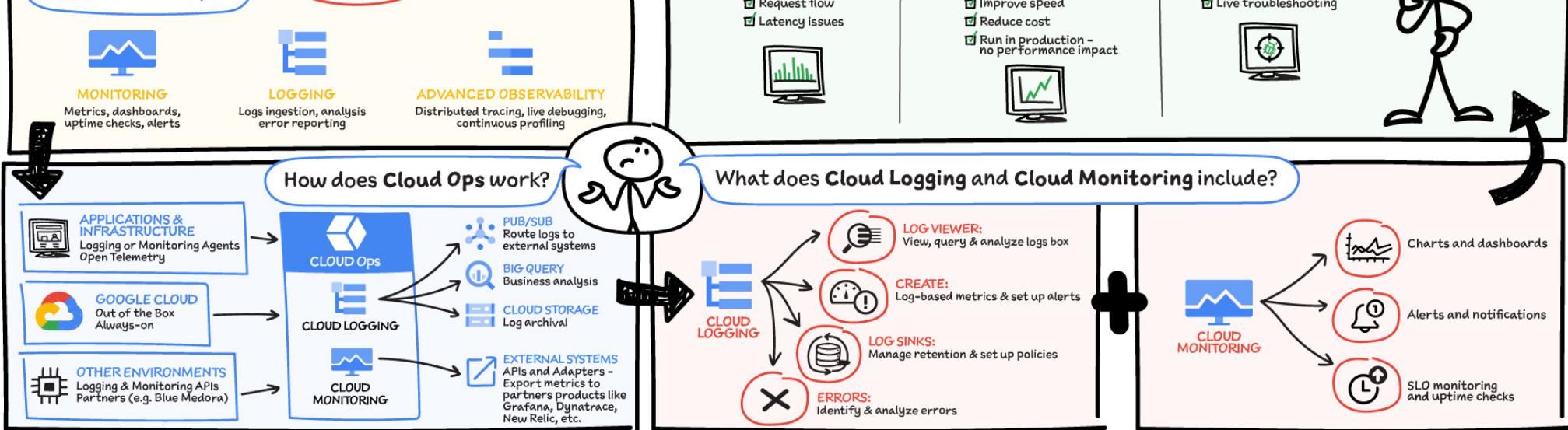
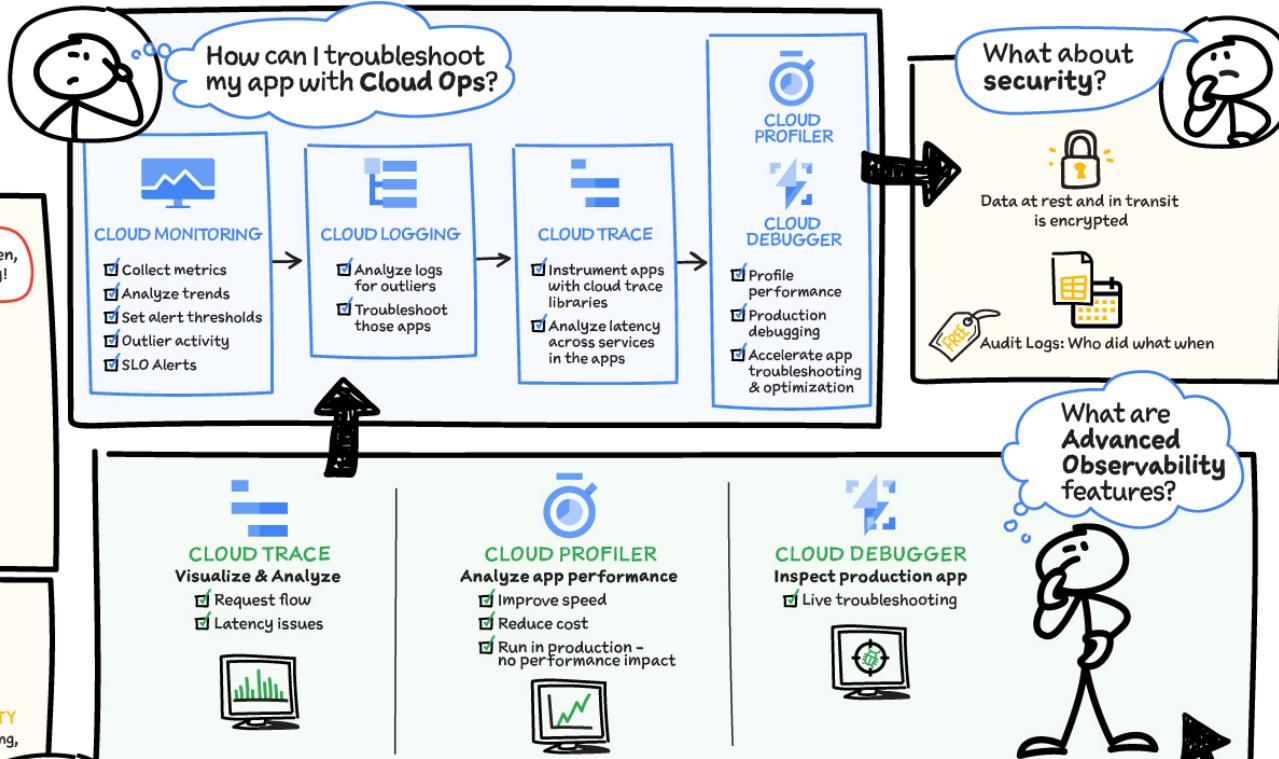
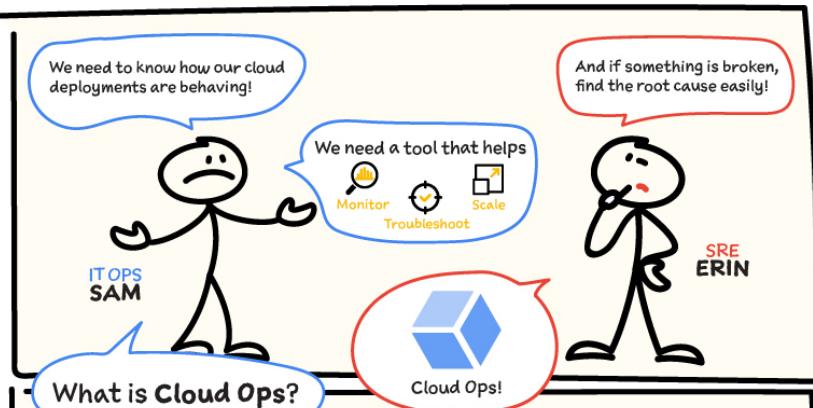
# Cloud Operations

#GCPsketchnote

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# Google Cloud Security Controls



#GCPSSketchnote



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## GOVERNANCE, RISK & COMPLIANCE

Third-party audits and certifications  
Google Vault for G Suite

## IDENTITY & ACCESS MANAGEMENT



Cloud Identity | Cloud IAM | Cloud IAP | CICP  
Titan Security Key | Cloud Resource Manager | BeyondCorp Enterprise



## ENDPOINT SECURITY



Safe Browsing



Device Management



## DATA SECURITY



Encryption at Rest | Cloud KMS | Secret Manager | EKM | HSM | VPC SC | Cloud DLP



## SECURE SOFTWARE SUPPLY CHAIN



Binary Authorization



## APPLICATION SECURITY



Apigee



reCAPTCHA



## NETWORK SECURITY



Cloud VPCs



Encryption in Transit



Cloud Armor



Cloud Load Balancing



## INFRASTRUCTURE SECURITY

Cloud Infrastructure



Purpose-built Chips



Purpose-built Servers



Purpose-built Storage



Purpose-built Network



Purpose-built Data Centers



## SECURITY MONITORING & OPERATIONS



Cloud Logging

Cloud Audit Logging



Cloud Security Command Center



Cloud IDS

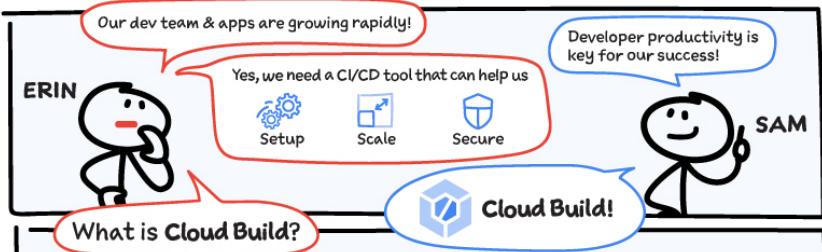
G Suite Security Center  
Access Transparency

Forseti



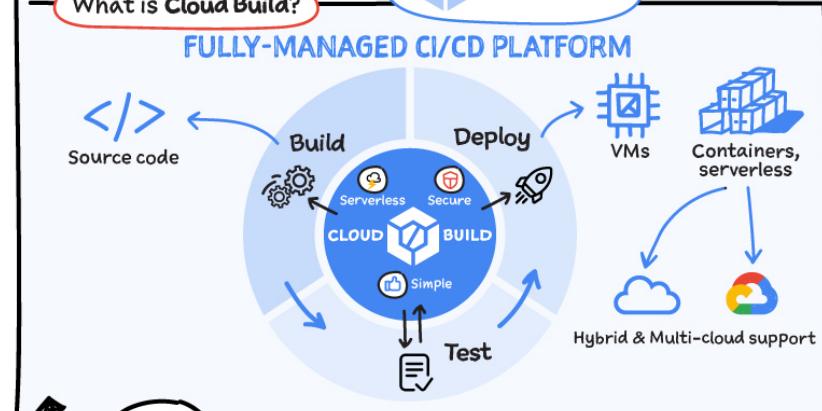
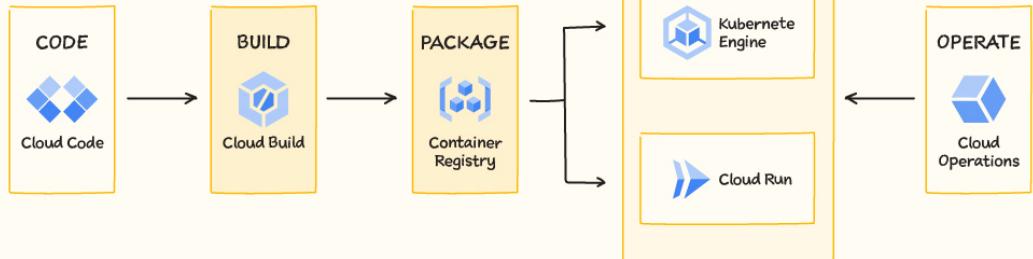
# Cloud Build #GCPsketchnote

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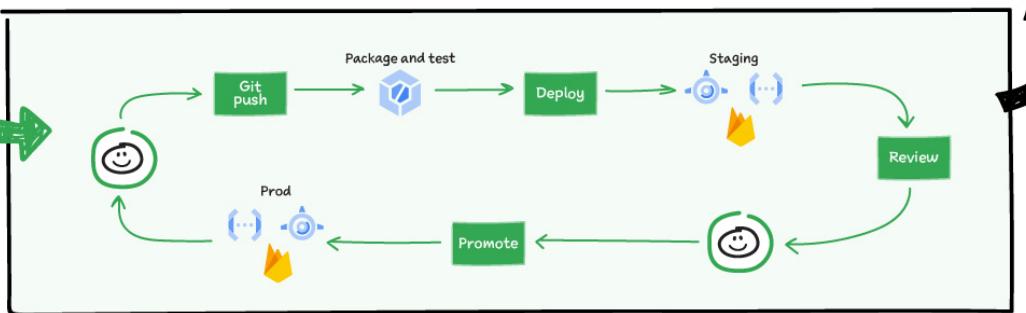
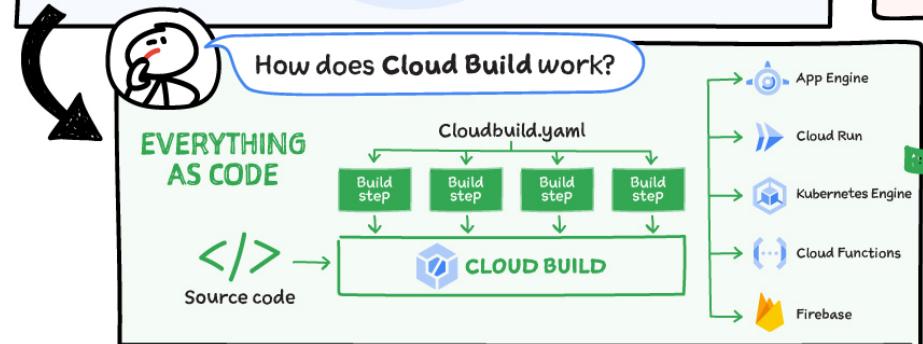
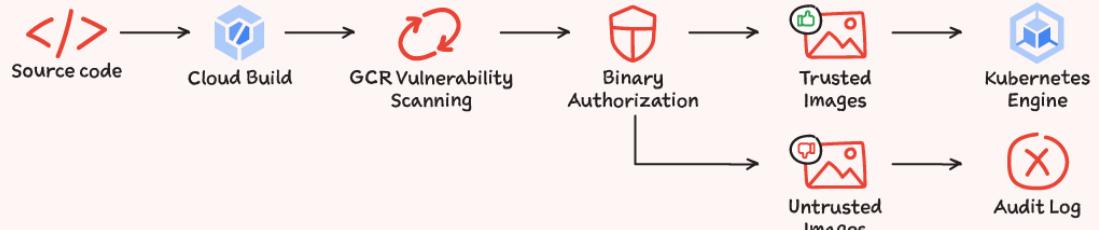


How do I create a cloud native CI/CD pipeline for containers?

## CI/CD FOR CONTAINERS WITH GCP



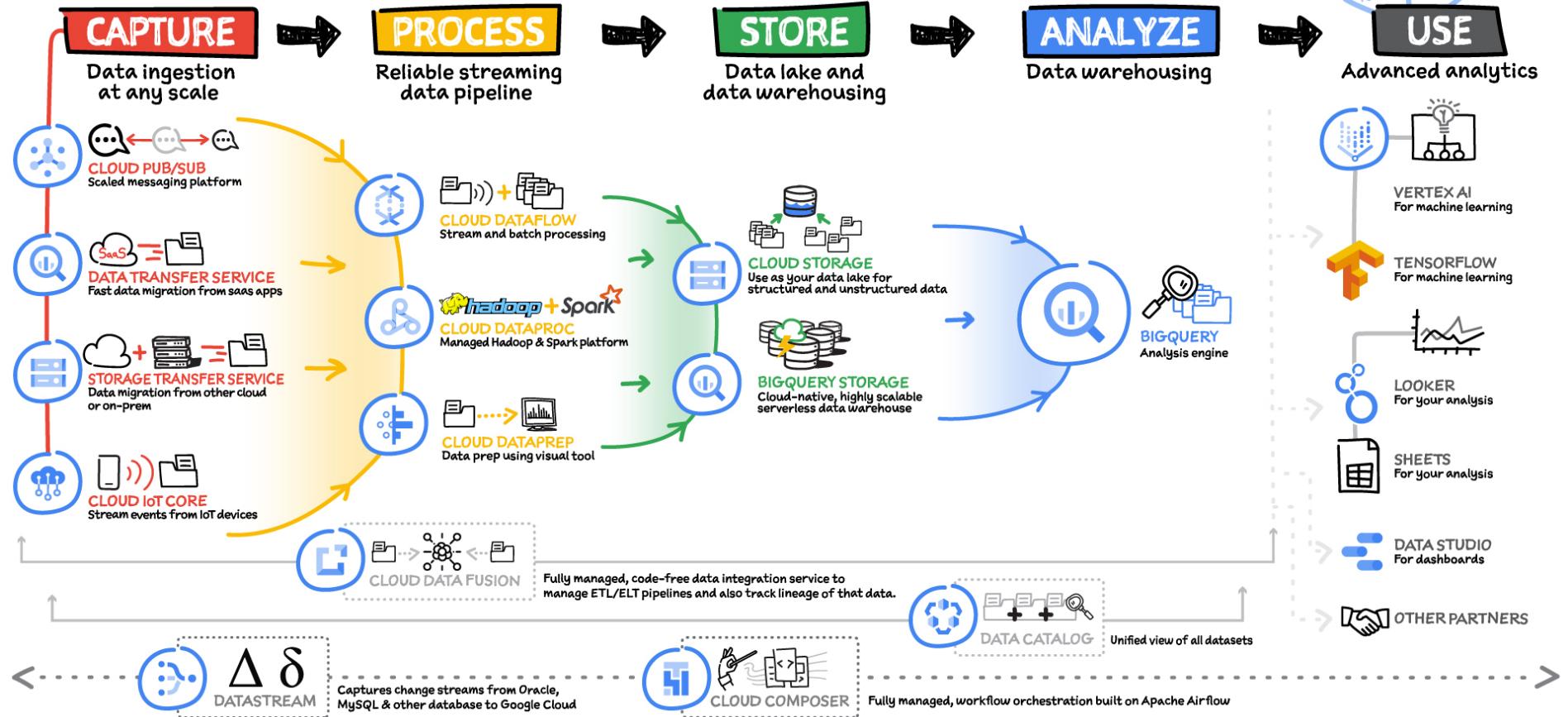
How does it help with Security?





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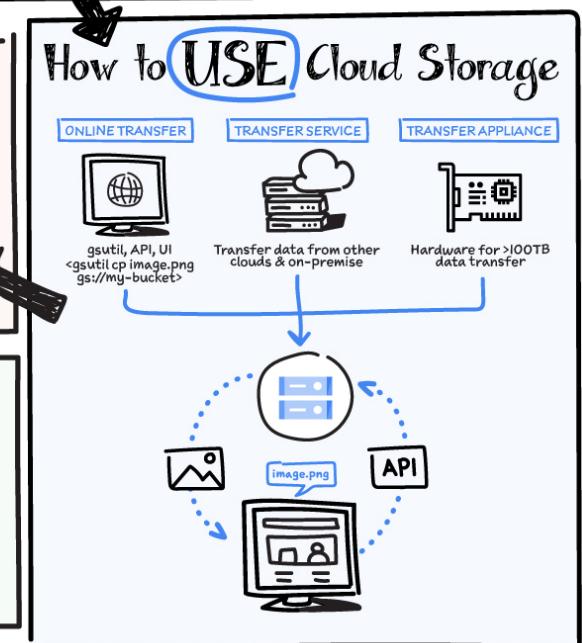
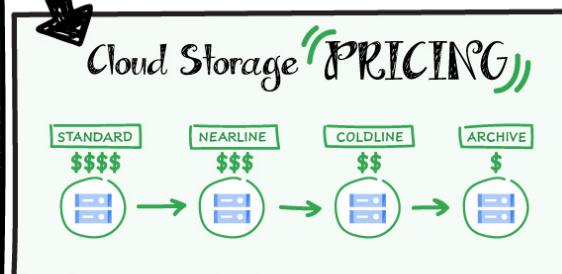
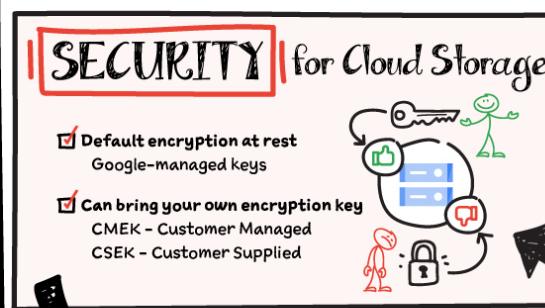
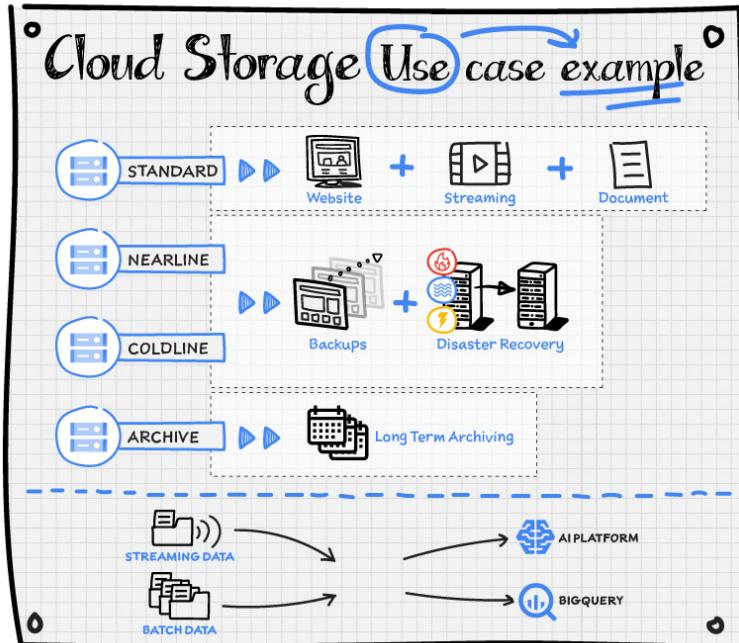
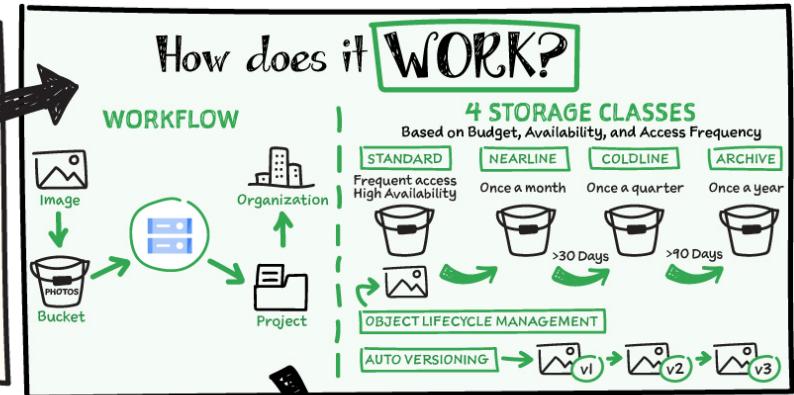
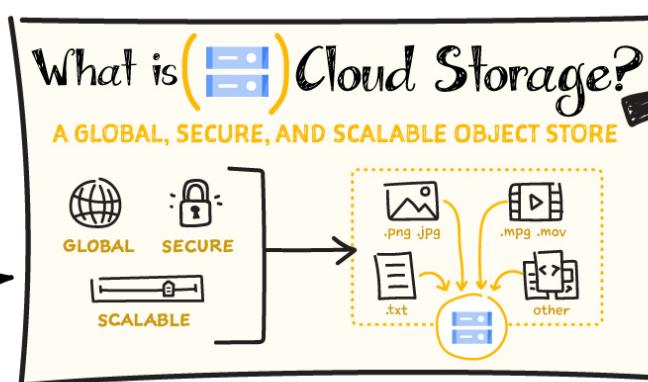
# How to build a scalable DATA ANALYTICS PIPELINE



# Cloud Storage

#GCPSketchnote

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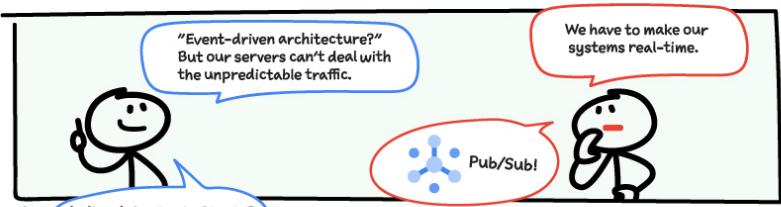
# Cloud Pub/Sub

#GCPsketchnote

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## What is Pub/Sub?

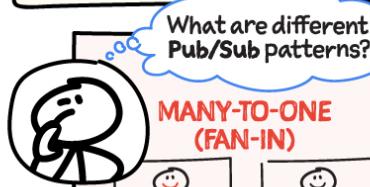
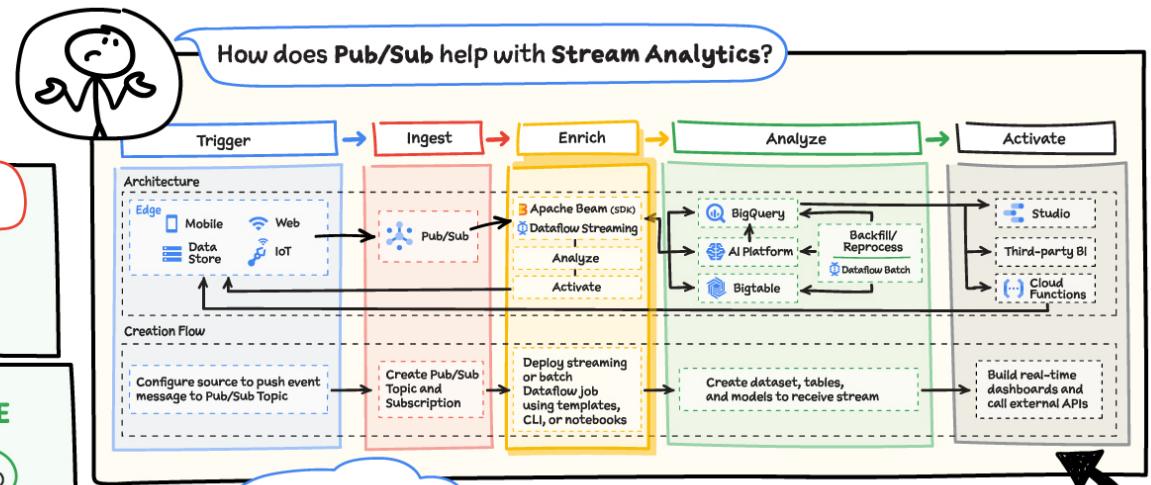
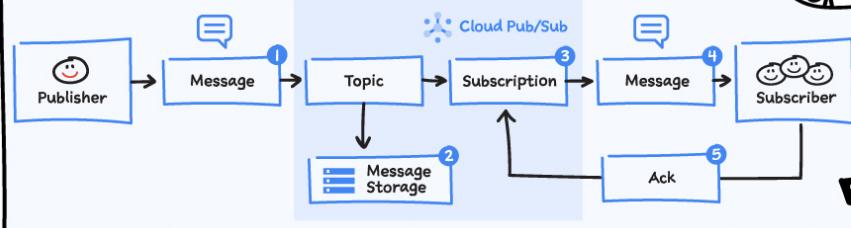
### EVENT DRIVEN ASYNCHRONOUS MESSAGING SERVICE

- Service (Produce event) → → Service (Process event)
- In-order delivery at scale
  - Exactly once processing
  - Dead letter topics
  - At-least-once delivery in conjunction with Dataflow
  - Filtering
  - Seek & Replay
  - Pub/Sub Lite Cost optimized delivery
  - Offline message inspection



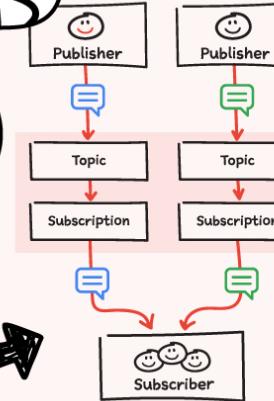
## How does Pub/Sub work?

### PUB/SUB MESSAGE FLOW

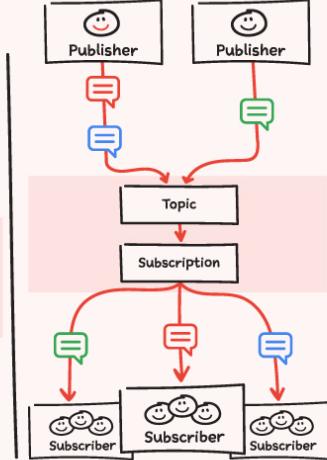


## What are different Pub/Sub patterns?

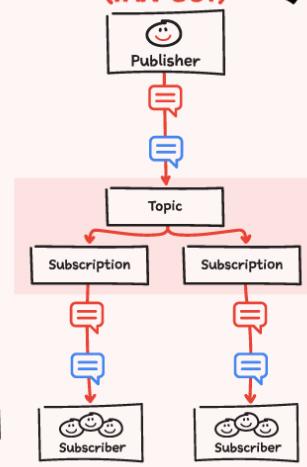
### MANY-TO-ONE (FAN-IN)



### MANY-TO-MANY



### ONE-TO-MANY (FAN-OUT)

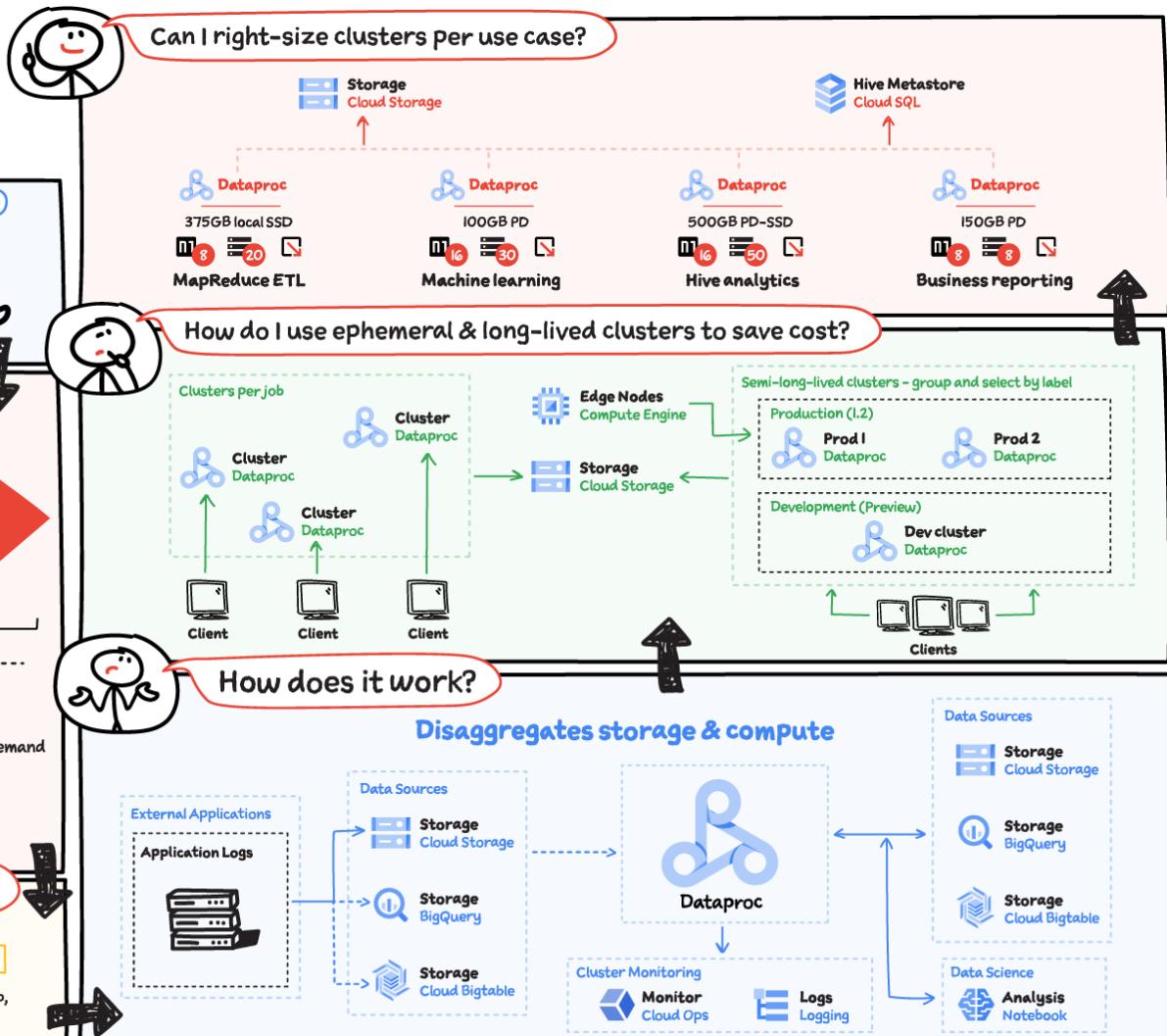
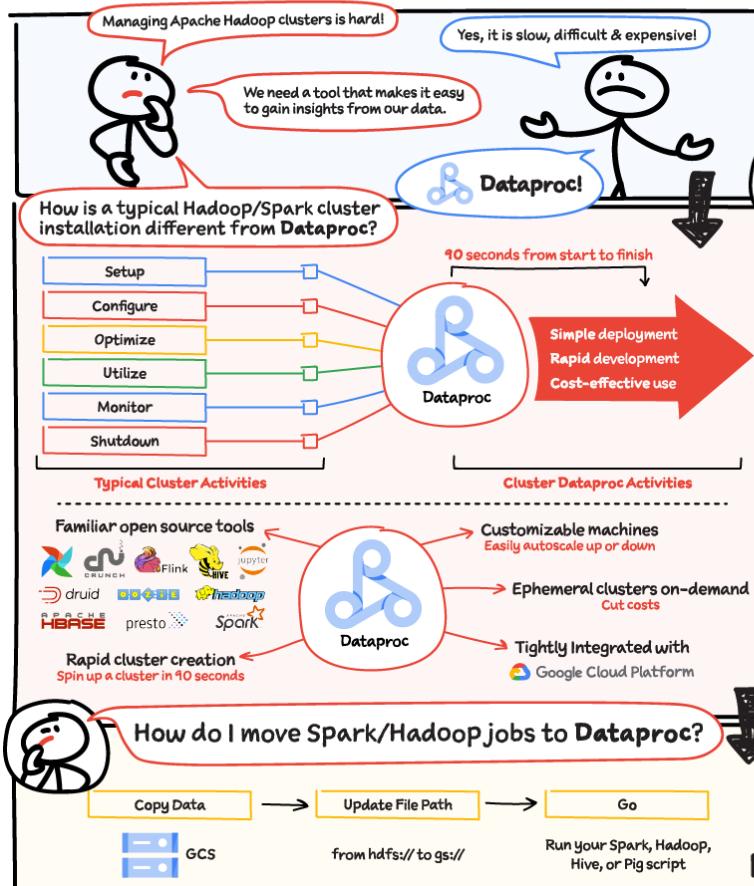


### LOAD BALANCING



# Dataproc #GCPSketchnote

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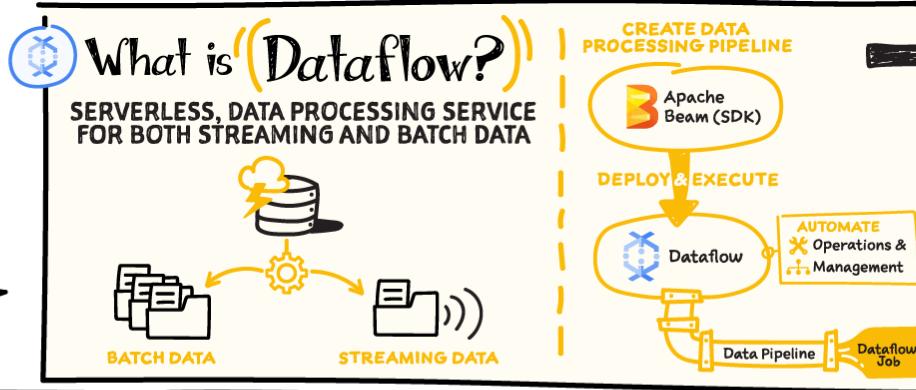
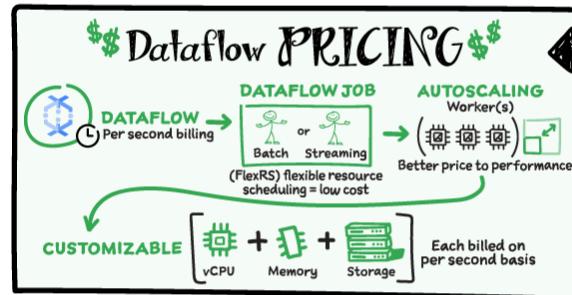


# Dataflow

#GCPsketchnote

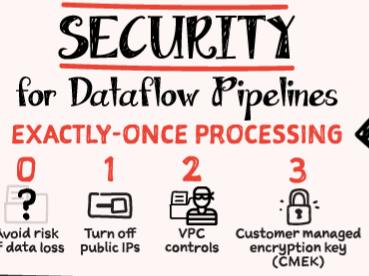
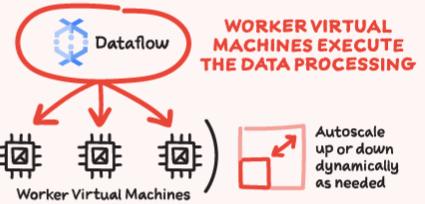
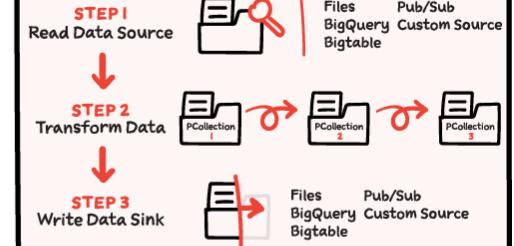
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04.05.2021



## How does it WORK?

### DATA PROCESSING PIPELINE



## HOW TO USE Dataflow

1



DATAFLOW SQL VIA BIGQUERY

2



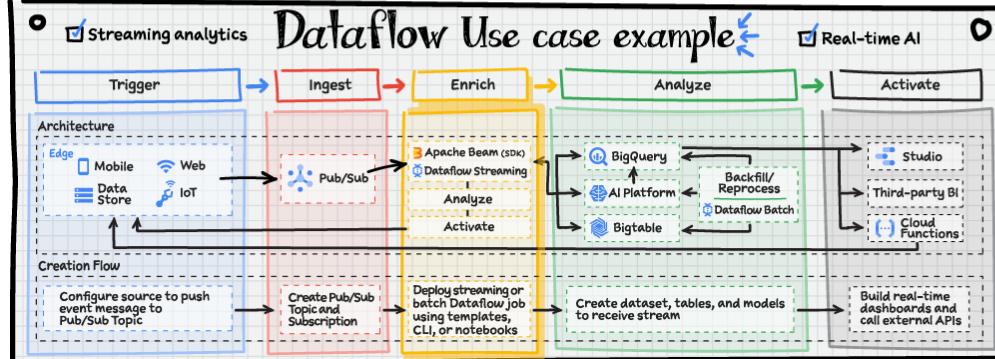
DATAFLOW TEMPLATES

3



AI PLATFORM NOTEBOOKS

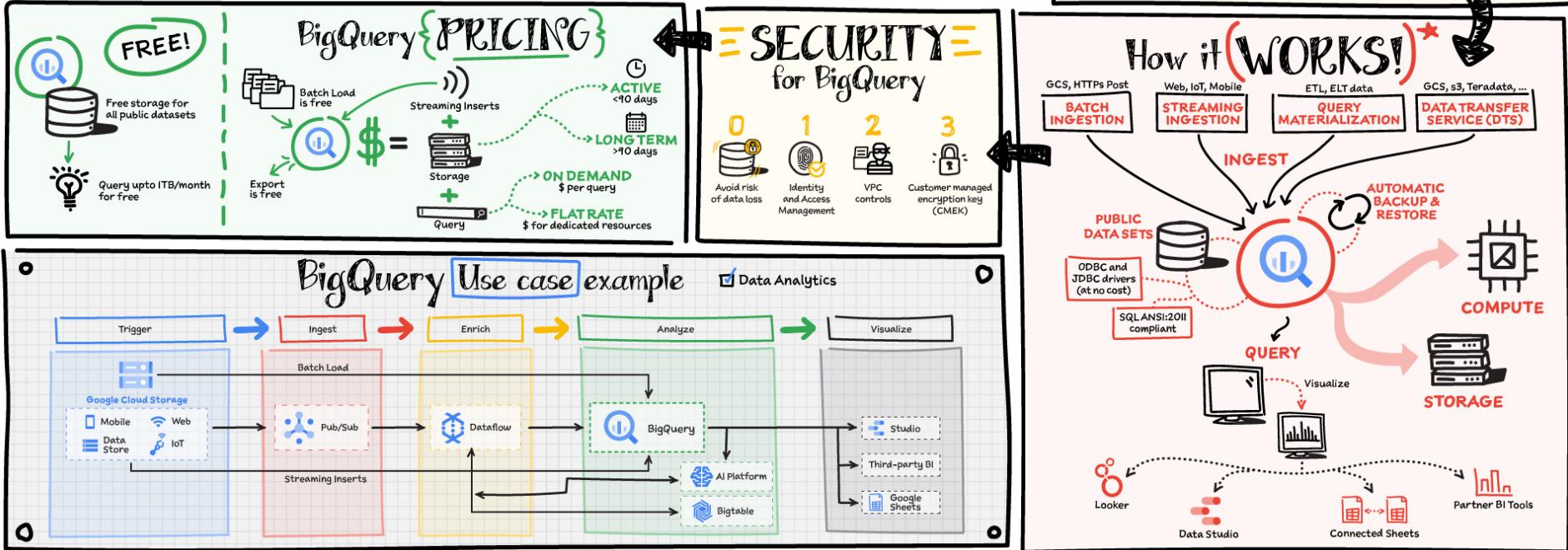
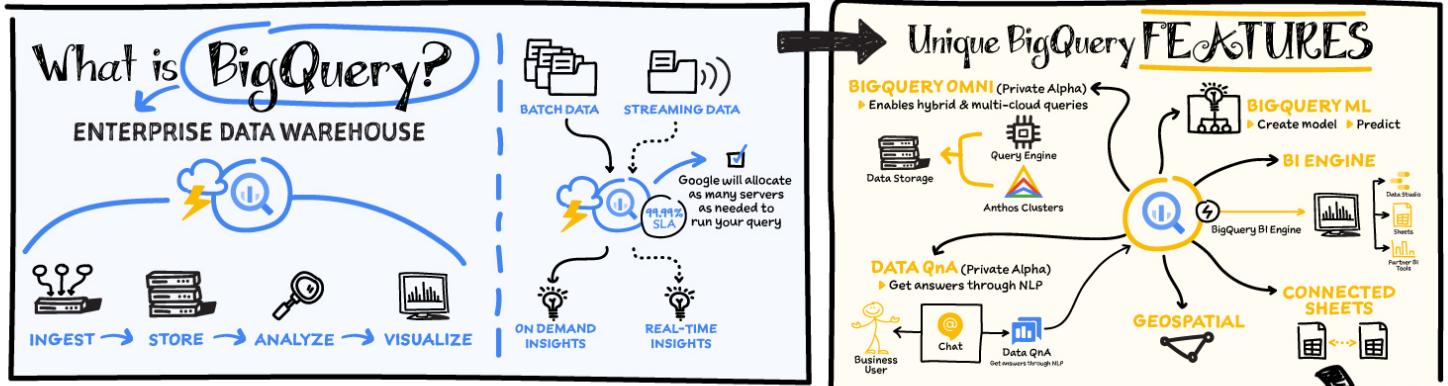
BATCH PIPELINES SCALE SEAMLESSLY, WITHOUT ANYTUNING REQUIRED.



# BigQuery

#GCPsketchnote

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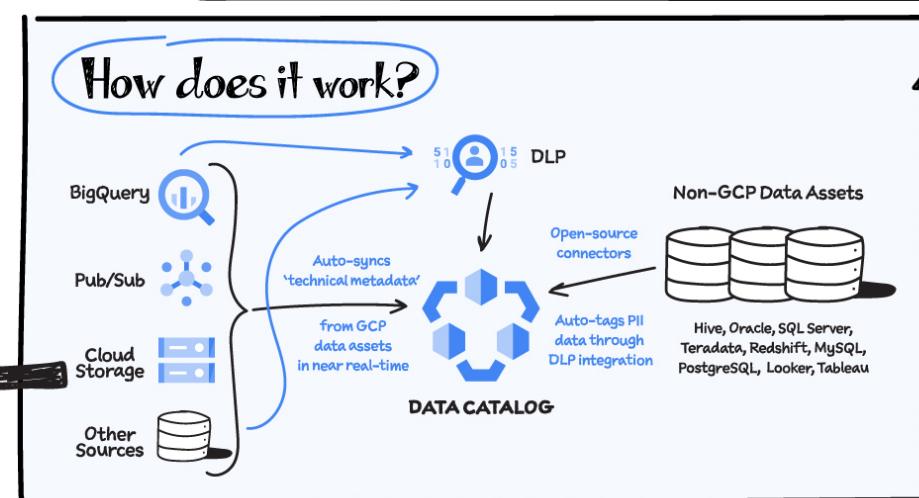
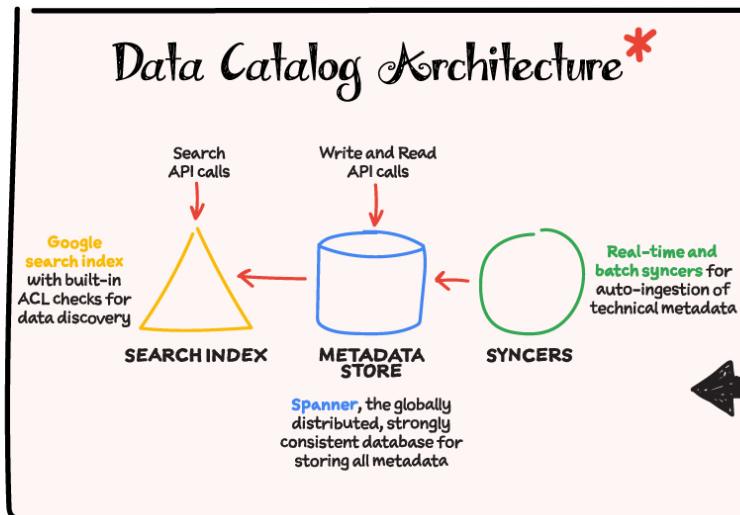
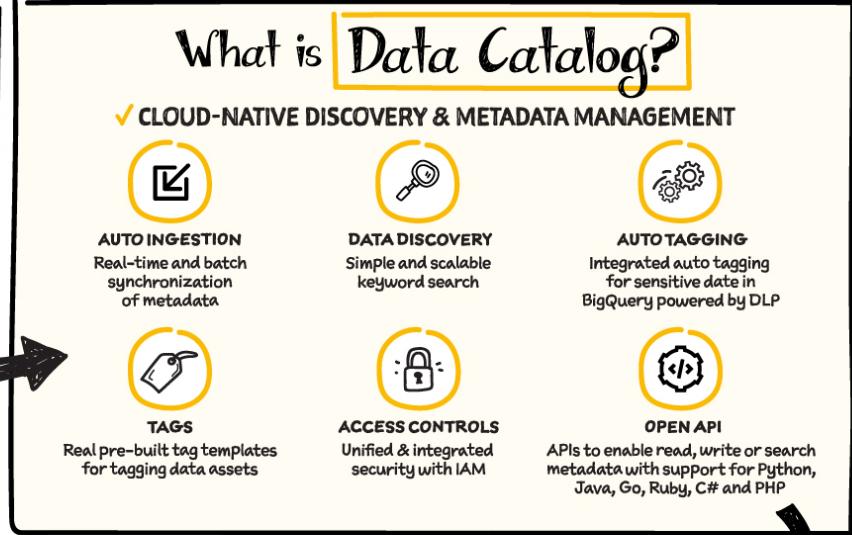
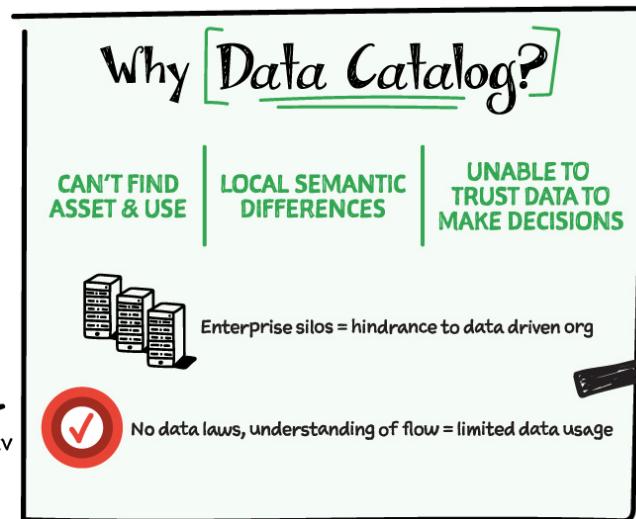


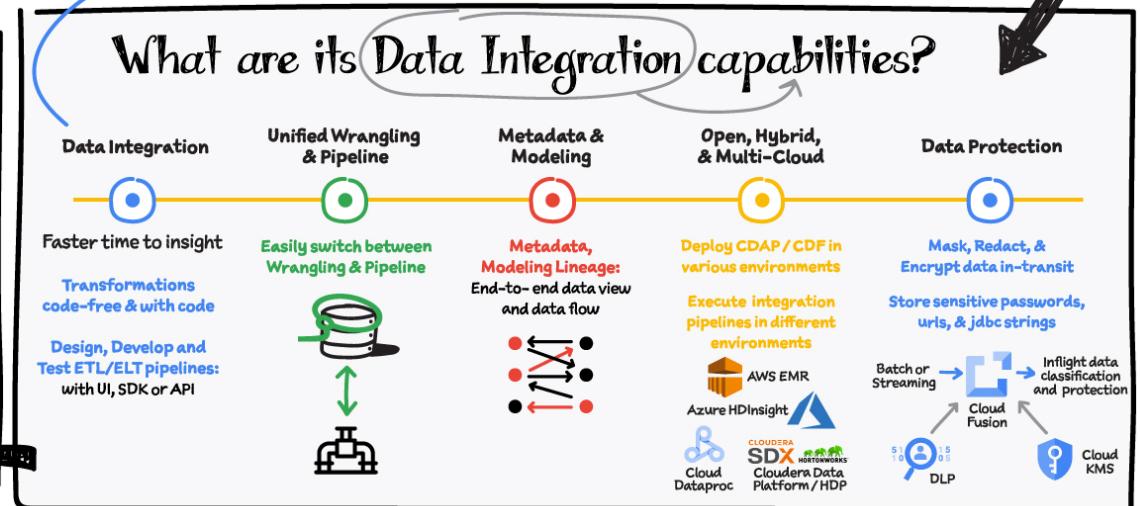
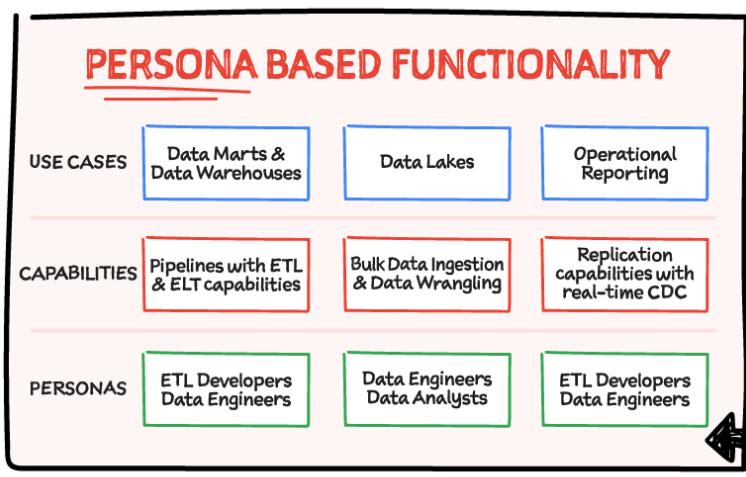
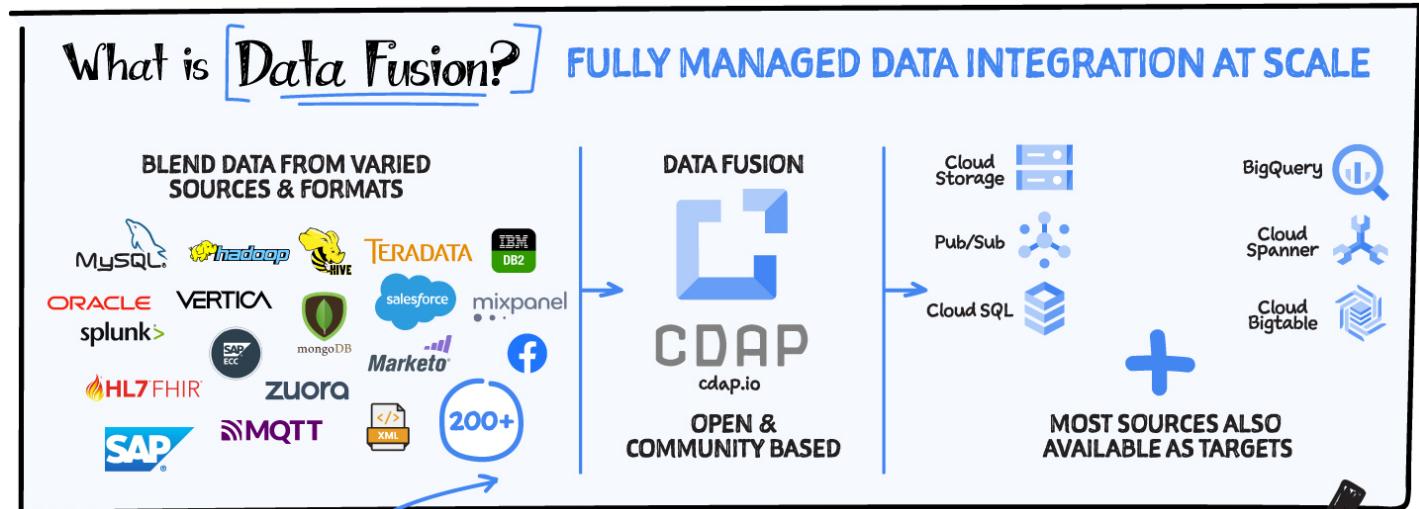
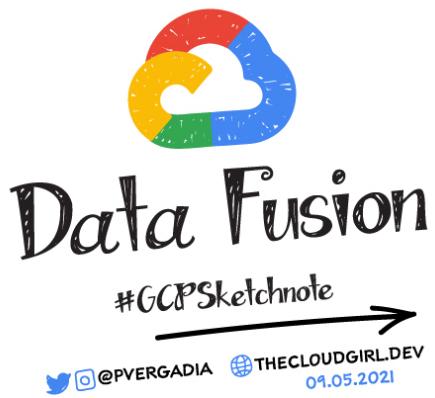
# Data Catalog

#GCPSketchnote

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7.7.2021

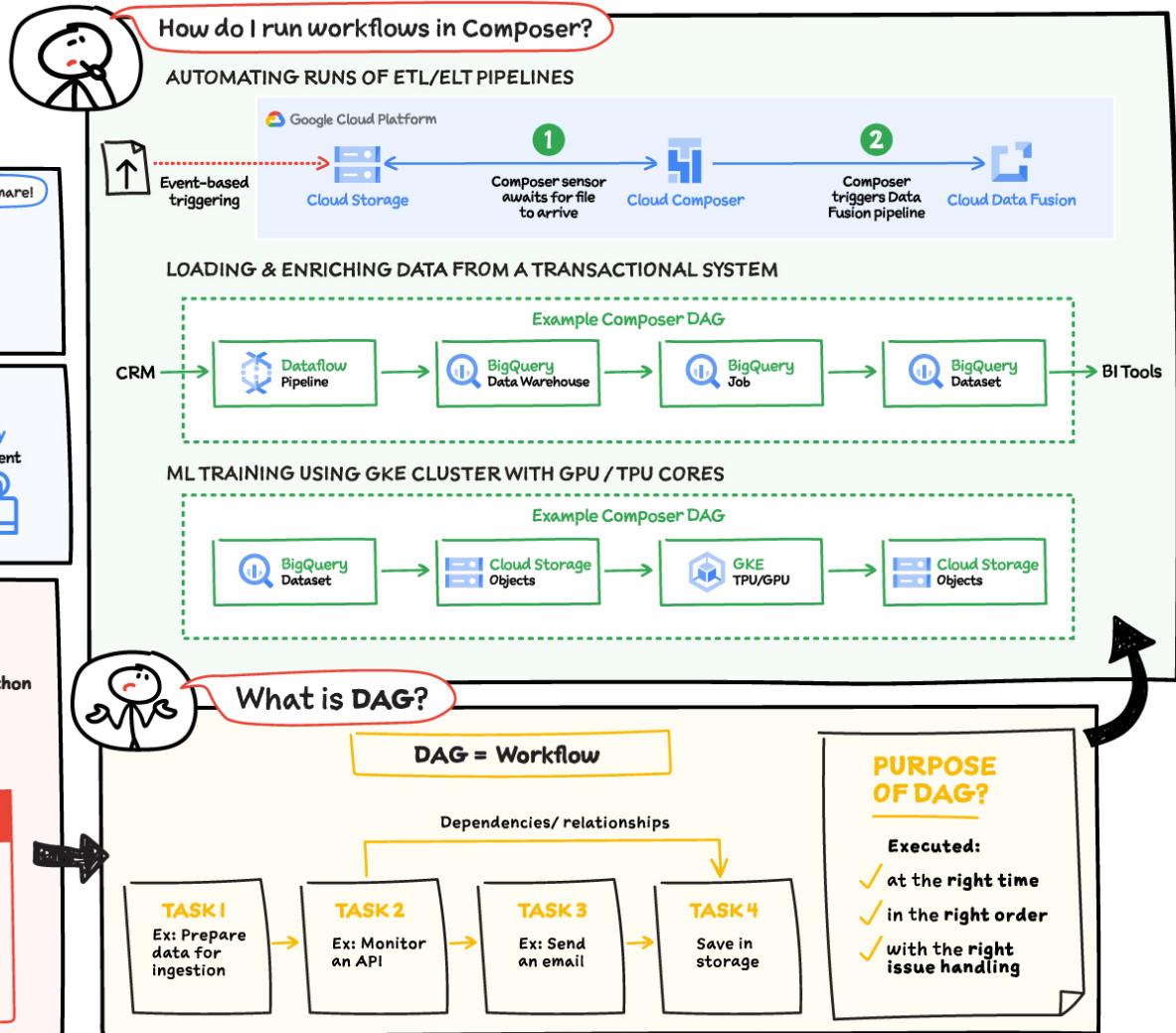
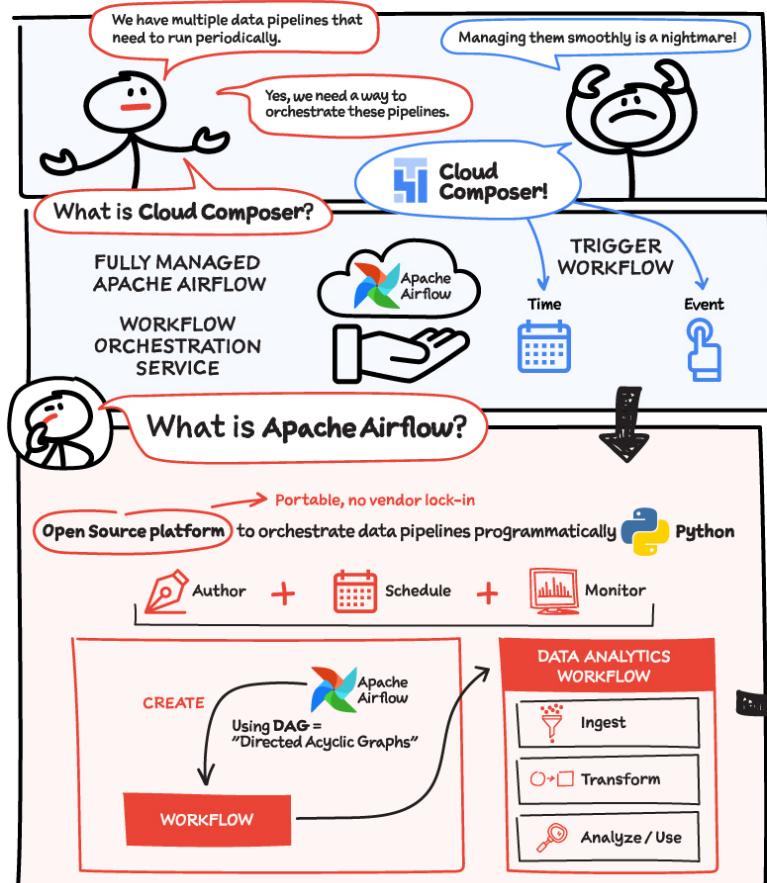






# Cloud Composer

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#GCPSketchnote  
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Hey

# Look! It's Looker



Real-time dashboards, reports, self service data exploration



Embed analytics into existing applications (CRMs, chat applications, etc)



Automate multicloud workflow through smart alerts and data delivery



Build a custom analytics experience

Modern BI & Analytics

Integrated Insights

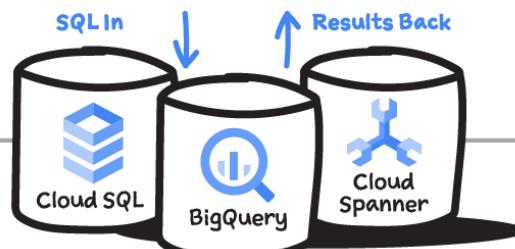
Data-driven Workflows

Custom Applications



Looker

- API-first & cloud native for integrating into existing workflows
- Semantic modeling layer for enterprise-wide governance
- In-database architecture for access to real-time data





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# How to build a **scalable** DATA ANALYTICS PIPELINE

