Architecting Apps for GCP

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Architecting Apps for GCP

- Architecting for the cloud is different than classic Software Architecture
- Two main differences:
  - Use existing services
  - Consider cost

Use Existing Services

- GCP contains hundreds of services
- Whenever possible – use them
- Usually:
  - Managed
  - Reliable and Scalable
  - Cost effective

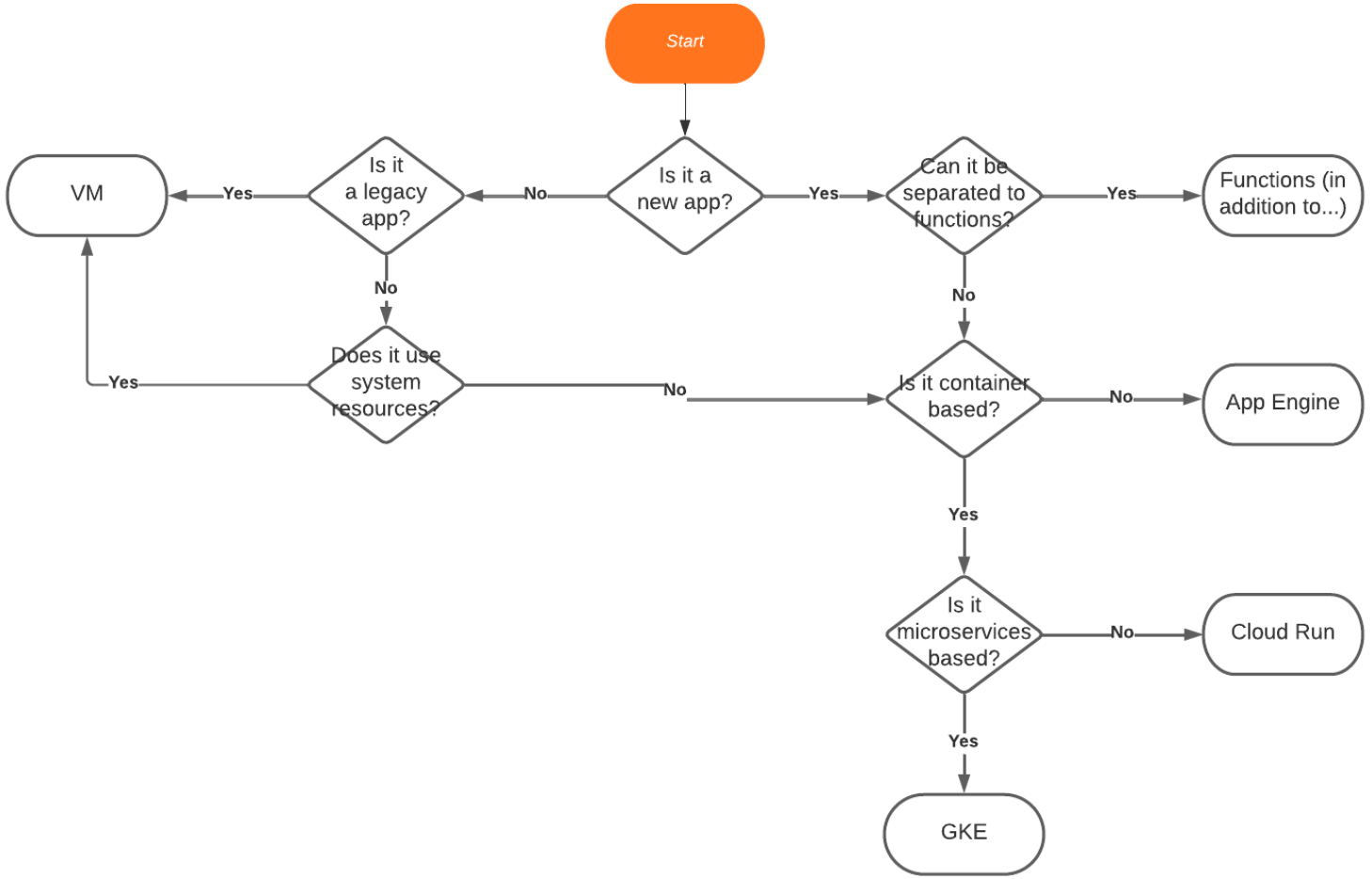
Consider Cost

- Cloud Architecture is cost oriented
- Always factor in the cost of the cloud service
- You'll sometimes go for limited service due to cost reasons
  - eg. Cloud SQL vs AlloyDB

Cloud Architecture

- In this section we'll review the various services we used and explain how to select the right one
- We'll discuss:
  - Compute
  - Data
  - And some more…

Choosing Compute Platform



Choosing Data Platform

Service	Data type	Use for…	Cost
Cloud SQL	Relational (SQL)	Relational, transactional data	$
Spanner	Relational (SQL)	Relational, transactional data, requires distribution	$$$
AlloyDB	Relational (SQL)	Relational, transactional data, high performance, PostgreSQL compatibility	$$
BigTable	NoSQL, columnar	NoSQL data with schema, high volume	$$$
BigQuery	NoSQL	Analytics	$$
Firestore	NoSQL, document	Backend for mobile and web apps, offline and sync support required	$
Memorystore	NoSQL	Fast, distributed cache	$$
Cloud Storage	NoSQL, unstructured	Unstructured data such as files, docs etc.	$

Implementing Security

- Extremely important in the cloud
- Use the best practices discussed in the Security section
- Mainly:
  - Restrict access to VMs and App Engine / Cloud Run
  - Use Firewall Rules
  - Use encryption in data stores
  - Use strong authentication

Logging and Monitoring

- GCP offers various logging and monitoring tools
- Utilize alerts to notify on any exceptional situation
- Create dashboards to visualize the system state
- Configure data access logs as needed

Google Cloud Architecture Center

- Central hub for all-things GCP architecture
- How-tos, documents, design guidelines, case studies
- Fresh content, updated regularly

Cloud Architecture Center

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https://cloud.google.com/architecture