Google Cloud

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DEVELOPERS & PRACTITIONERS

Where should I run my stuff? Choosing a Google Cloud compute option

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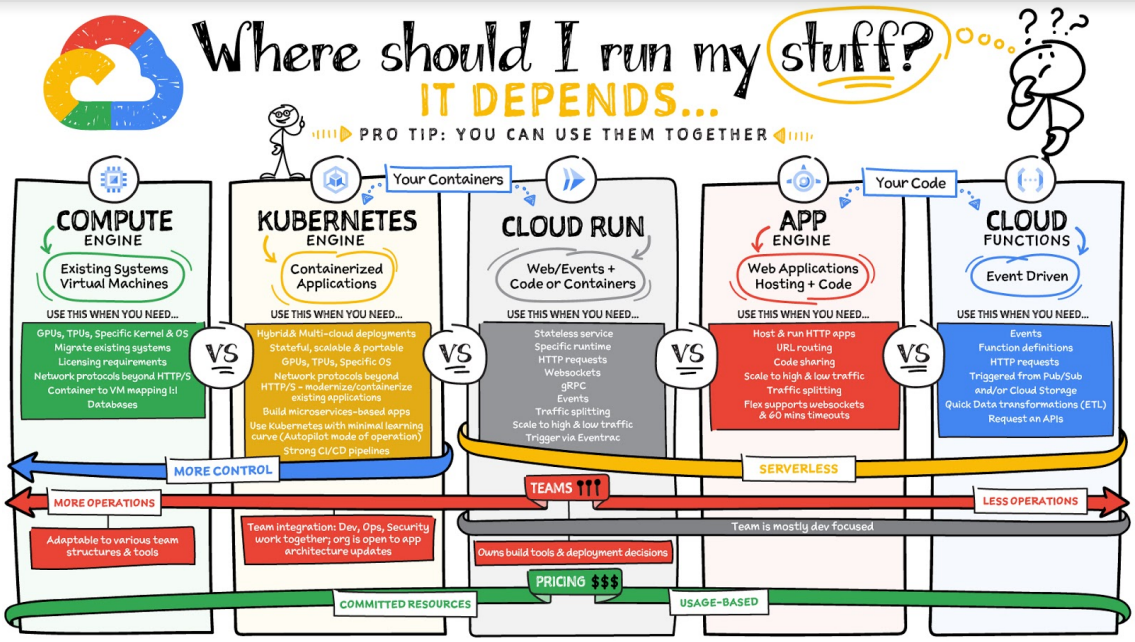

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What are these services?

- Compute Engine - Virtual machines. You reserve a configuration of CPU, memory, disk, and GPUs, and decide what OS and additional software to run.
- Kubernetes Engine - Managed Kubernetes clusters. Kubernetes is an open-source

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Engine. This is a typical path for legacy application migrations and existing systems that require a specific OS.

- Containers provide a way to virtualize an OS so that multiple workloads can run on a single OS instance. They are fast and lightweight, and they provide portability. If your applications are containerized then you have two main options.
  - You can use Google Kubernetes Engine, or GKE, which gives you full control over the container down to the nodes with specific OS, CPU, GPU, disk, memory, and networking. GKE also offers Autopilot, when you need the flexibility and control but have limited ops and engineering support.
  - If, on the other hand, you are just looking to run your application in containers without having to worry about scaling the infrastructure, then Cloud Run is the best option. You can just write your application code, package it into a container, and deploy it.
- If you just want to code up your HTTP-based application and leave the scalability and deployment of the app to Google Cloud then App Engine — a serverless, fully-managed option that is designed for hosting and running web applications — is a good option for you.
- If your code is a function and just performs an action based on an event/trigger, then deploying it with Cloud Functions makes sense.

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- Use Cloud Functions if your code is a function and just performs an action based on an event/trigger from Pub/Sub or Cloud Storage. Example: Kick off a video transcoding function as soon as a video is saved in your Cloud Storage bucket.

Need portability with open source?

If your requirement is based on portability and open-source support take a look at GKE, Cloud Run, and Cloud Functions. They are all based on open-source frameworks that help you avoid vendor lock-in and give you the freedom to expand your infrastructure into hybrid and multi-cloud environments. GKE clusters are powered by the Kubernetes open-source cluster management system, which provides the mechanisms through which you interact with your cluster. Cloud Run for Anthos is powered by Knative, an open-source project that supports serverless workloads on Kubernetes. Cloud Functions use an open-source FaaS (function as a service) framework to run functions across multiple environments.

What are your team dynamics like?

If you have a small team of developers and you want their attention focused on the code, then a serverless option such as Cloud Run or App Engine is a good choice because you won't have to have a team managing the infrastructure, scale, and operations. If you have bigger teams, along with your own tools and processes, then Compute Engine or GKE

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