App Engine

INTRODUCTION

This Module

What is Google App Engine

The Standard Environment

The Flexible Environment

GKE vs GCE

GKE - Google's CaaS Offering

GKE - Provides Container orchestration

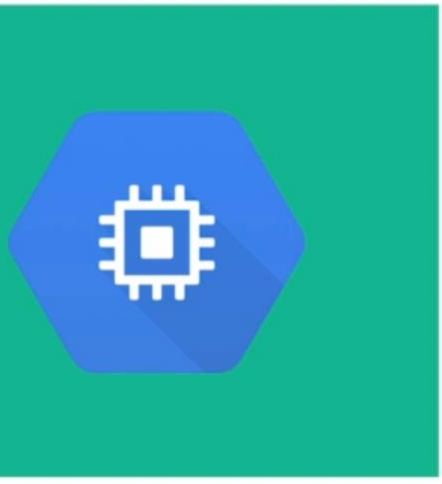
GCE - Google's IaaS Offering

GCE - Provides VMs

GCE

Compute Engine

- GCE VM, DISK, Network
- Load Balancer
- Instance Group

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App Engine

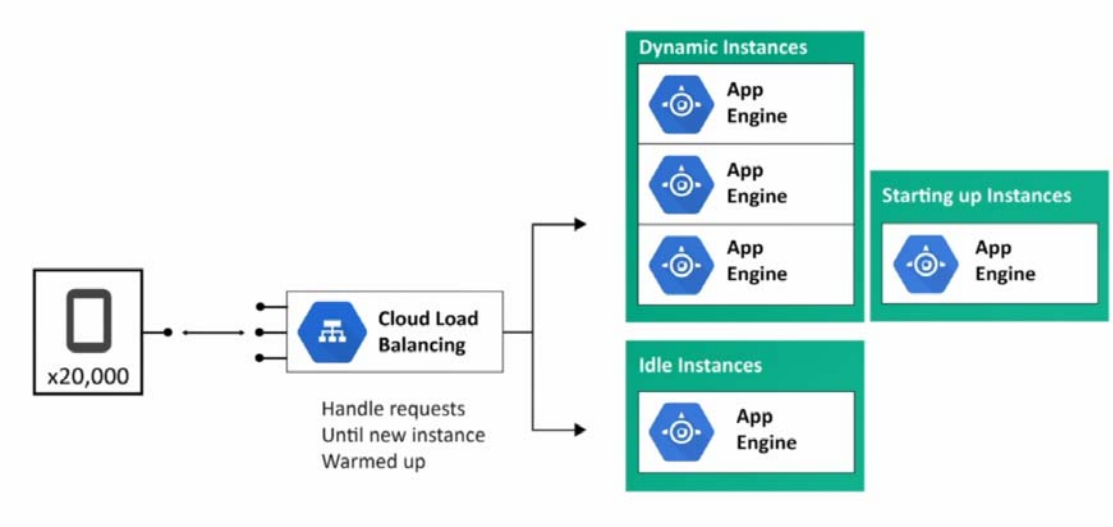
Compute Engine	Kubernetes Engine	App Engine	Cloud Functions
Virtual infrastructure Raw compute Granular control	Containerized apps Data center as PC	PaaS Preset run-times Focus on app logic	FaaS Event-driven architecture Glue pieces together
Configurability ⟷ Agility			
Think about it as			
Base layer Unit = VM	Managed Kubernetes Unit = container	Serverless before it was cool Unit = application	Event-driven compute Unit = functions
Good for			
Existing systems	Running in multiple environments	Web-facing applications	Extending services with code, HTTP glue, lightweight ETL
Pros & cons			
[+] Very fast network interconnect [+] Any machine shape [+] Provisioned under 30 seconds [+] SW licensing requirements [+] Low-latency storage options [+] Non-HTTP network protocols [+] Live migration [-] Slow scaling speed [-] Need to handle updates	[+] Open source [+] Logical level representation [+] Non-HTTP protocols [-] Must use containers	[+] Code first, HTTP req/res [+] Production version mgmt. [-] Constrained runtimes	[+] Events via Pub/Sub, GCS… [+] Fully-managed environment [+] Pay only for what you use [+] Standard Node.js runtime [-] Must interact via events [-] Function-level granularity


node
GO
php 7.2
Ruby
python
Java
.NET
Core

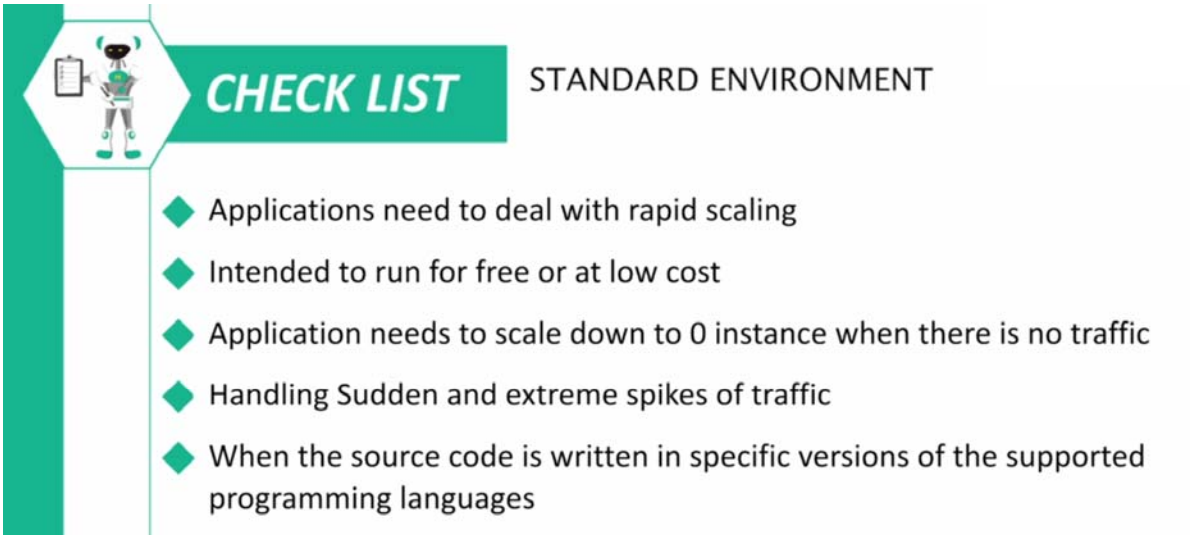

REMEMBER
Standard Environment
Flexible Environment

App Engine Standard vs Flexible Environment

	Standard Environment	Flexible Environment
Instance startup	Milliseconds	Minutes
SSH access	No	Yes (not default)
Scaling	Manual, basic, automatic	Manual, automatic
Write to local disk	No	Yes (ephemeral)
Support for 3rd party binaries	No	Yes
Network access	Via App Engine services	Yes
Customizable stack	No	Yes



FLEXIBLE	STANDARD
Run into Docker containers	Run in specialized sandbox
Supported languages: **Python, Java, Node.js, Go, Ruby, PHP** and **.NET** or other **programming languages** Running custom runtime in another Docker container	Supported languages: **Python 2.7, Java 7, PHP 5.5, Go 1.6**
Paid	Free or low cost (Pay as you Go)
Fit for dependencies from other software, including operating system packages such as imagemagick, ffmpeg, etc...	Fit for experiences with sudden and extreme spikes of traffic which require immediate scaling



CHECK LIST

FLEXIBLE ENVIRONMENT

- Applications receives consistent traffic at all times
- Source code is written in any supported languages
- When you need to run a docker container that includes custom runtime
- If your application wants to access the resources or services of your project that reside in the Compute Engine Network

Summary

What is Google App Engine

The Standard Environment

The Flexible Environment