Google Cloud Function: Serverless

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Serverless execution environment for connecting and building the cloud services.

Single purpose functions : This works when events occurs from cloud services or infrastructure.

Short snippet of code : Developers only need to focus on writing functions(short snippets of code) which is supported by Faas provider.

Eg. To send email or sms whenever user uploads a file to your application. So when a user uploads a file to google cloud storage using the application, an event is fired. Now GCF will invoke a function and pass all the details of the event to the function (like file uploaded, size, id, time, date etc.)

Functions have a limit to execution time and startup latency (cold start). All FaaS providers will time out your function if they run for more than the default timeout.

Cloud functions can be triggered not only by http requests but also by events in the cloud environment or services.

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Supports Multiple RunTime

Node.js v6.14.0 (GA)

Node.js v8.11.1 (Beta)

Python 3.7.0 (Beta)

Go (Alpha).

How to invoke Cloud Function ?

Events: Occurs from google cloud services eg. http invocation, file upload/update/delete to storage, message published to queue etc.

Triggers: Events can be responsed using triggers, trigger = event + data related to the event

Event Data : Data passed on to your GCF when the trigger results in function execution.

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Types of GCF :

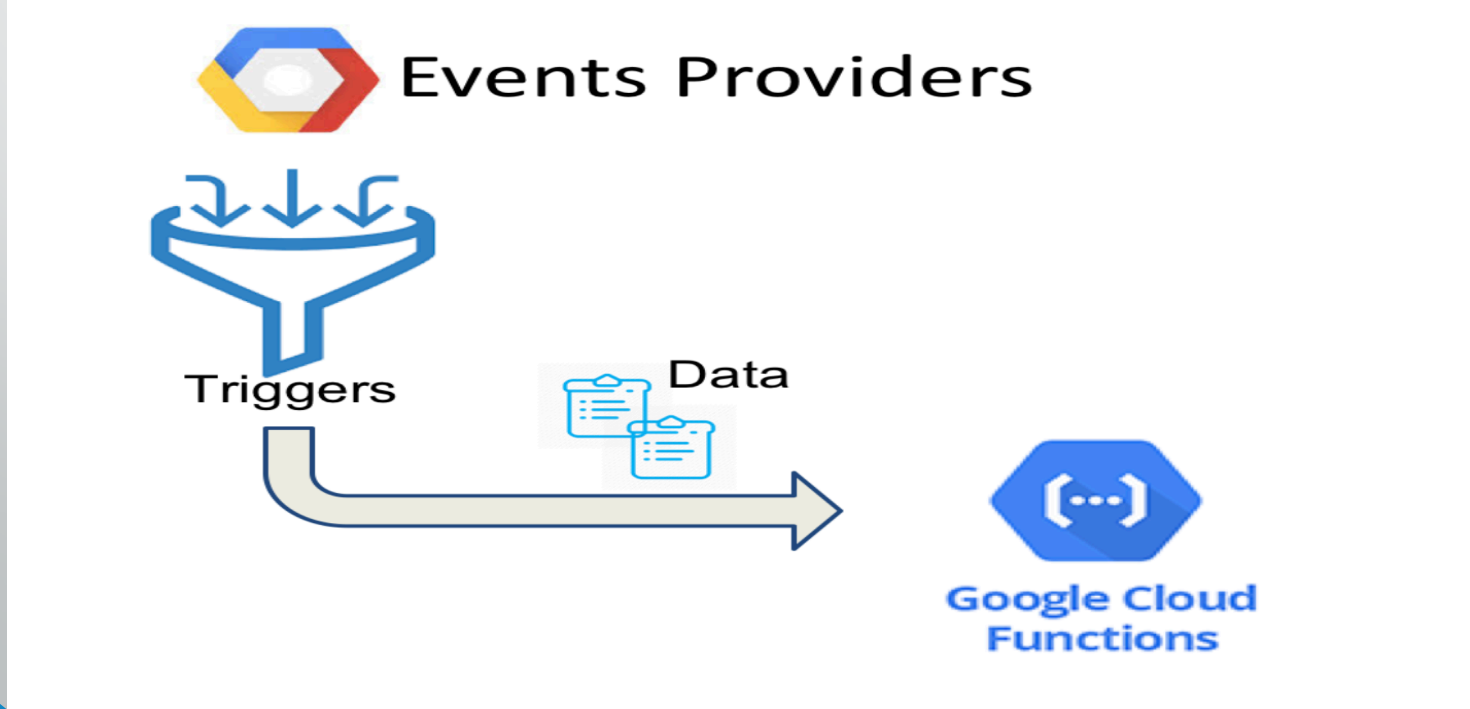
There are currently two types of Google Cloud Functions that are supported:

Synchronous (Foreground Functions): directly invoked via http endpoint provided to your function.

Also known as http triggered function. Later we will use the example during the practical section.

Background functions (Asynchronous) : indirectly invoked via an event that triggers the function. Currently only google cloud storage and pub/sub events are the supported events for now.

Also known as pub/sub or google storage based functions. Later in the practical section on the usage and handson part.



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Merits:

- ✓ **Fully managed:** As a serverless offering, handles all the annoying and frustrating parts of managing your IT infrastructure.
- ✓ Compatible with multiple running languages eg. JavaScript, Python or Go.
- ✓ **Simple pricing:** Pay only when functions are running. The clock starts when the function is spun up, and ends immediately once it's finished executing.
- ✓ **Automated scalling :** Google Cloud Functions removes the need to provision servers or scale resources up and down.

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De-Merits:

- ✓ **Alpha & Beta Phase :** Things may change until the final version is rolled out.
- ✓ Runtime environment limited to JavaScript, Python or Go. That too limited versions defined by them.
- ✓ Some customers may experience restrictions with services for particular regions.
- ✓ For example, Cloud Functions cannot be used by some business to process data as it cannot be deployed to specific regions, for example, australia-southeast1.

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The free monthly quotas for Google Cloud Function are as follows:

- requests are billed at $0.40 the million of requests after the 2 millions of free quota
- GCF can only handle one request at time for an instance. So it has to create instances based on concurrent requests. Eg if 8 concurrent requests it will create 8 instances for GCF
- Waiting time is more compared to cloud run for customers processing.