
Intro Into
Google Cloud Functions
Grant Timmerman
Google Cloud

About Grant

Developer Programs Engineer
on **Google Cloud Platform**

Previously he led open source for **G Suite APIs**. He loves **Node**, **GitHub**, and plays the alto **saxophone** in his spare time.

Google Cloud

Selfie!

Google Cloud

Agenda

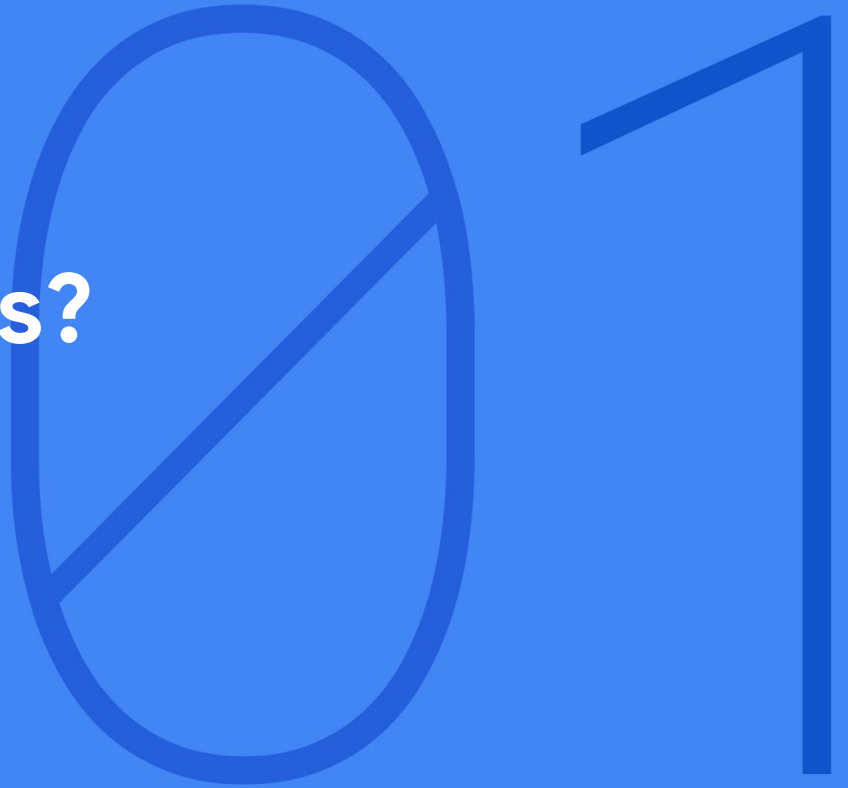
What is Serverless?

Google Cloud Functions

Python Functions

Demo!

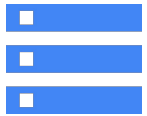
What is Serverless?



Google Cloud

Serverless enhances dev productivity

Operational model



No servers

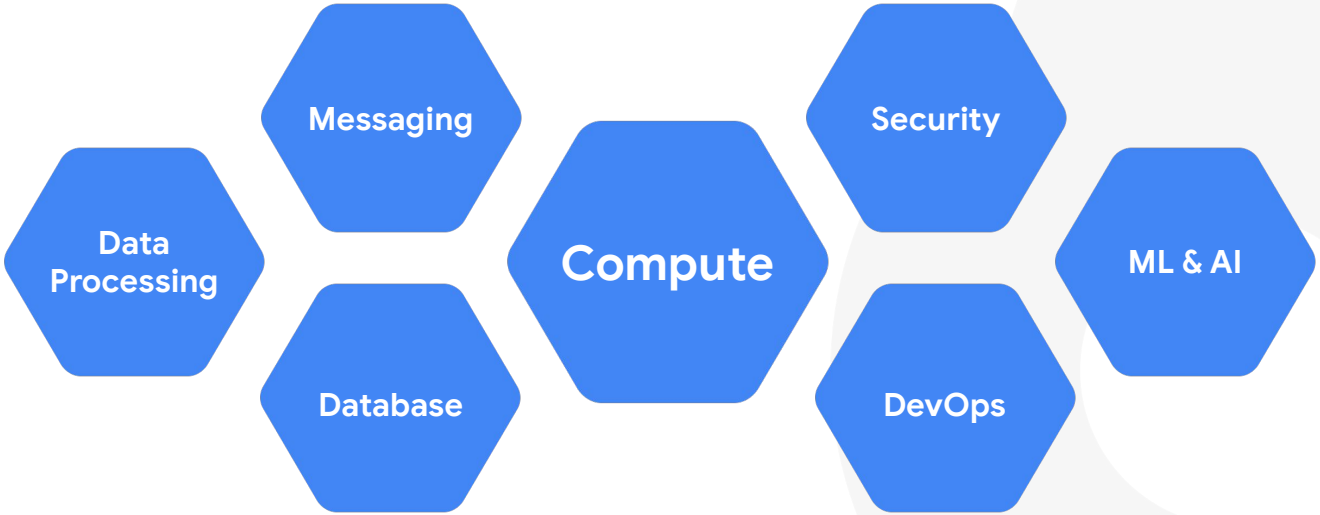
Fully managed security

Pay only for usage

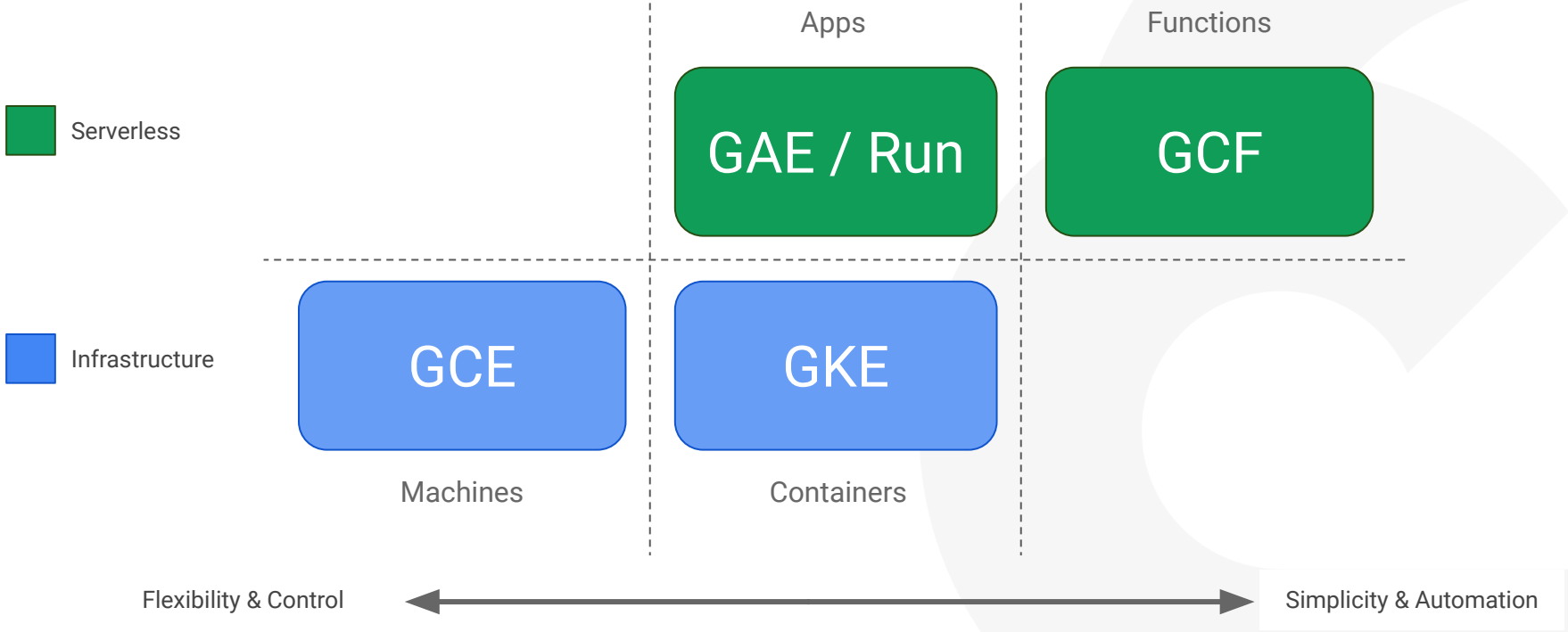
Deep Kapadia
Executive Director,
The New York Times

“Google Cloud’s serverless platform allows us to focus on building product features without having to worry about provisioning, scaling and configuration management for the underlying infrastructure. The tools and abstractions have been a game changer, allowing teams to iterate and scale with ease”

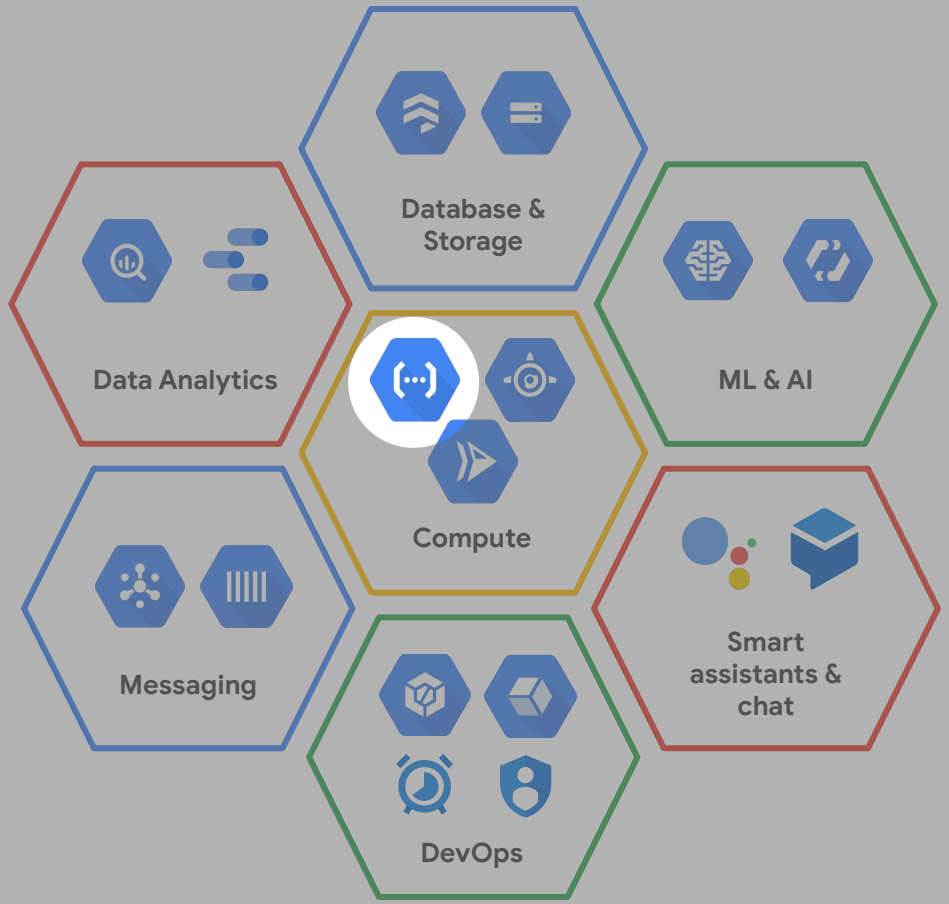
Serverless is more than a set of functions



Compute Options



Full-stack serverless on Google Cloud



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Cloud Functions

Google Cloud Functions

Event-driven serverless compute platform

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What are Cloud Functions?

Lightweight **compute** solution

to create **single-purpose functions**

that respond to **events**.

When to use Cloud Functions?

- I want to execute **code** in response to **events**
- I **do not** want to bother with any server setup

Languages

- Node 10
- Express module
- Functions Framework

- Python 3.7
- Flask microframework

- Go 1.11.6
- Native net/http module

Events

HTTP

Listen to a HTTP request
- POST
- PUT
- GET
- DELETE
- OPTIONS

https://YOUR_REGION-YOUR_PROJECT_ID.cloudfunctions.net/FUNCTION_NAME

Example:

```
https://us-central1
-myproject.cloudfunctions.net
/my_function_name
```

Cloud Pub/Sub

Listen to a Pub/Sub topic:

You'll get...

`data` - dict w/ event data
`context`
- event_id - unique event id
- timestamp - date/time
- event_type - string type
- resource - the source

Example: New user sign-up

Cloud Storage

Listen to changes on storage:
- new object created
- object permanently deleted
- versioned object archived/deleted
- object metadata changed

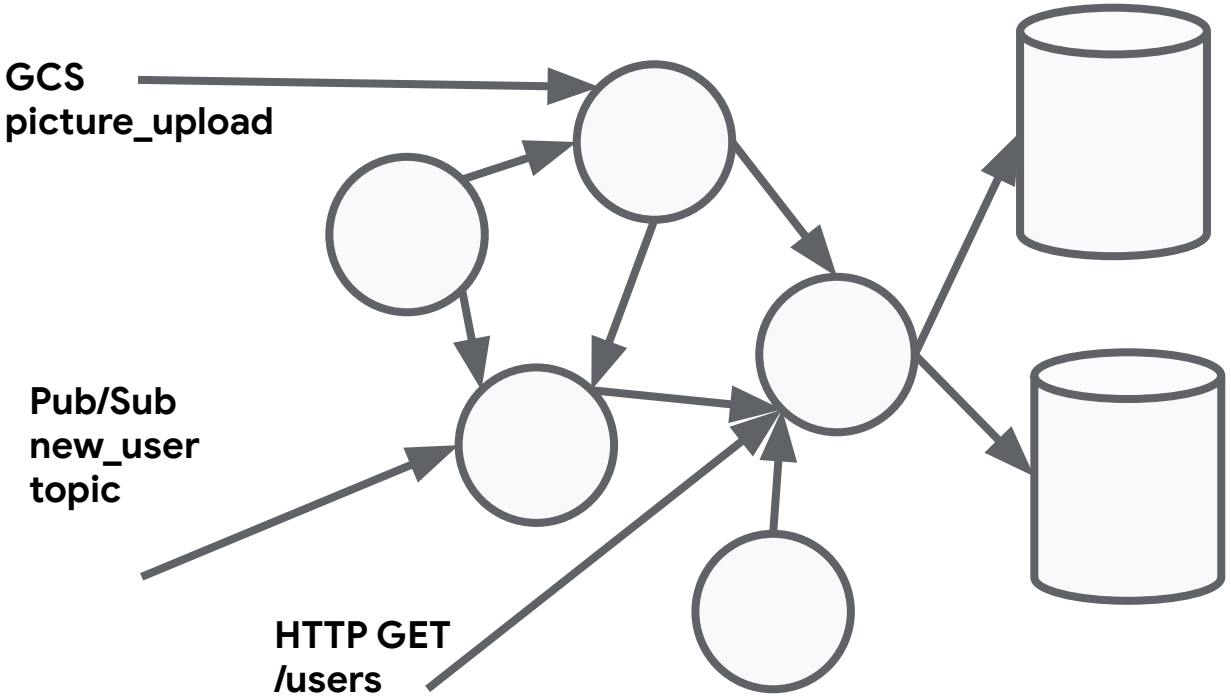
Example: Photo upload into GCS

Firebase

Listen to Firebase:
- firestore changes
- analytics for firebase
- firebase realtime db
- firebase auth

Example: New blog post in the Firebase RTDB

Points of Entry Example



Hello World!

```
def hello_world(request):
    if request.args and 'message' in request.args:
        return request.args.get('message')
    else:
        return f'Hello World!'
```

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Pricing?

- First 2 million/month = FREE
  - Additional 1 million/month = $0.40
- Compute Time: $0.0001386 / min (charged per 100ms)
- Networking: $0.12 / GB (egress), FREE ingress

Python Functions

Flask in the Cloud

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Dependencies

- Python 3.7.1
- requirements.txt, i.e.
  - `requests==2.20.0`
  - `numpy`

Pre-installed

```
click==6.7
Flask==1.0.2
itsdangerous==0.24
Jinja2==2.10
MarkupSafe==1.0
pip==18.0
requests==2.21.0
setuptools==40.2.0
Werkzeug==0.14.1
wheel==0.31.1
```

Demo!

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Feedback!

forms.gle/ScfFdV1x5tL7KKQVA


Thank you
TWEET QUESTIONS!
@granttimmerman
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