

# Ir sin servidor con Google Cloud Functions

DevFest Buenos Aires

Google Cloud



# Sobre Grant

Developer Programs Engineer  
on Google Cloud Platform  
– San Francisco, California



Amo el Node , GitHub, saxophone 



@granttimmerman



@grant



自拍！

# Eventos

- 09/26 [SantiagoJS](#)
- 10/02 Partner: Endeavor, Peru
- 10/04 [DevFest Santiago](#)
- **10/12 [DevFest Buenos Aires](#)**
- 10/19 [DevFest Cusco](#)
- 11/09 [DevFest Lima](#)
- 11/13 [Cloud Summit Mexico](#)
- 11/16 [DevFest Medellin](#)
- 11/23 [DevFest Cali](#)
- 11/30 [DevFest MX](#)



# Agenda

¿Que es Serverless?

Cloud Functions

Functions Framework

Cloud Run

Cloud Tasks, Cloud Scheduler

Demo

¡Feedback!

# What is Serverless?

Scale from **0** to **∞** (Escala de **0** a **∞**)

¿Qué es sin servidor?

# Servers (Servidoras)

- Hardware
- Maintenance (Spare parts, staff, devops) Mantenimiento
- Server rooms, electricity, cooling Habitación
- Operation (Idle time, downtime) Operación
- Requires overprovisioning to handle traffic spikes Sobreprovisión



# Serverless (Sin servidora)

- Focus only on great code, not infrastructure. (Centrarse en la programación, no en la infraestructura
- Use **open source**, and run workloads anywhere. (Usar código abierto
- Automatically **scale** from 0 to  $\infty$ . () Escalar automáticamente
- Pay for what you use. Paga por lo que usas ()

# Use Cases (Casos de uso)



Web Applications  
Aplicaciones web



Asynchronous backend  
processing  
Procesamiento  
asincrónico de backend



Mobile backends  
Backends móviles



APIs



Periodic operations  
Operaciones periódicas



Rapid prototyping and API  
stitching  
Creación rápida de  
prototipos y costuras API



Running provider-agnostic  
containers  
Ejecutar contenedores



Combine serverless and  
stateful workloads  
combinar con estado y sin  
estado

¿Por qué pensamos en los servidores?   
¿Por qué no centrarse () en nuestra aplicación?



Google Cloud



# Google Cloud Functions

Plataforma de cómputo sin servidor basada en eventos



# Cloud Functions

Plataforma de cómputo  
sin servidor basada en eventos

# No Estado

*HTTP*

Evento emitido



$f(x)$

Tu código ejecutado

Función  
activada



# Demo – Hola, mundo!

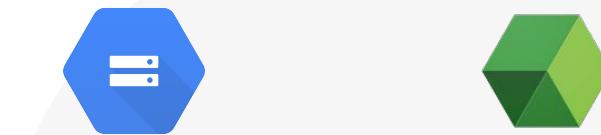


# Activadores

## Funciones HTTP



## Funciones en segundo plano



Cloud Storage

Stackdriver



Google Cloud



Cloud Pub/Sub



Firebase

# Localizaciones

- **us-central1** (Iowa)
- **us-east1** (South Carolina)
- **us-east4** (Northern Virginia)
- **europe-west1** (Belgium)
- **europe-west2** (London)
- **asia-east2** (Hong Kong)
- **asia-northeast1** (Tokyo)



# Writing Functions

- Request
  - URL: <https://us-central1-myproject.cloudfunctions.net/hello-world>
  - body (application/json): { name: 'Grant' }
- Response
  - status code: 200
  - body: { text: 'Hola, Grant!' }

HTTP

Event emitted

{...}

$f(x)$

Your code  
executed

# Entorno de ejecución

- Node 8, 10<sup>beta</sup>
- Python 3.7
- Go 1.11, 1.12<sup>alpha</sup>
- Java 11<sup>alpha</sup>

# Node.js 10

index.js

```
exports.helloWorld = (req, res) => {
  let message = req.query.message || 'Hola Mundo!';
  res.status(200).send(message);
};
```

# Python 3.7

main.py

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

# Go 1.12

## function.go

```
// Import "encoding/json", "fmt", "html", "net/http"
func HelloWorld(w http.ResponseWriter, r *http.Request) {
    var d struct {
        Message string `json:"message"`
    }
    if err := json.NewDecoder(r.Body).Decode(&d); err != nil {
        fmt.Fprint(w, "Hola Mundo!")
        return
    }
    if d.Message == "" {
        fmt.Fprint(w, "Hola Mundo!")
        return
    }
    fmt.Fprint(w, html.EscapeString(d.Message))
}
```

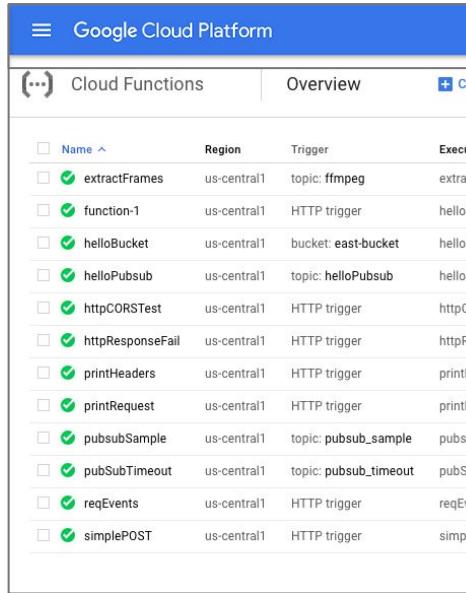
# Java 11

## Example.java

```
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpServletRequest;
import java.io.PrintWriter;
import java.io.IOException;

public class Example {
    public void helloWorld(HttpServletRequest request, HttpServletResponse response)
throws IOException {
        PrintWriter writer = response.getWriter();
        writer.write("Hello world!");
    }
}
```

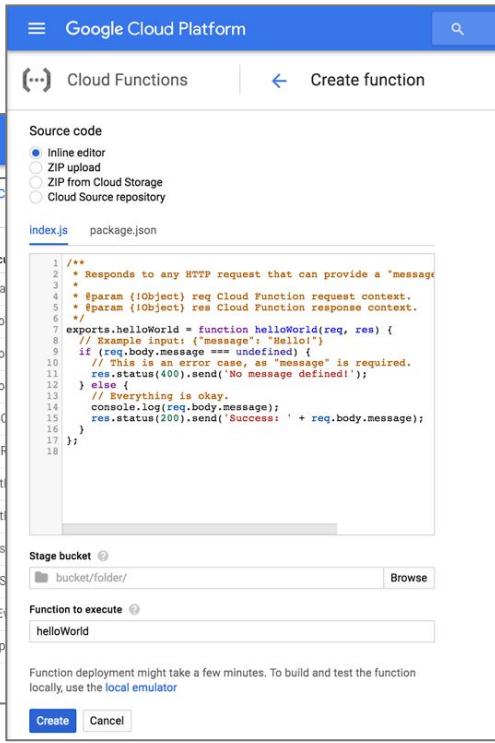
# Deploy from...



The screenshot shows the Google Cloud Platform Overview page for Cloud Functions. It lists 15 functions across various regions (us-central1) with different triggers and execution details. The functions include extractFrames, function-1, helloBucket, helloPubsub, httpCORSTest, httpResponseFail, printHeaders, printRequest, pubsubSample, pubSubTimeout, reqEvents, and simplePOST.

Name	Region	Trigger	Execution
extractFrames	us-central1	topic: ffmp4	extra
function-1	us-central1	HTTP trigger	hello
helloBucket	us-central1	bucket: east-bucket	hello
helloPubsub	us-central1	topic: helloPubsub	hello
httpCORSTest	us-central1	HTTP trigger	httpC
httpResponseFail	us-central1	HTTP trigger	httpR
printHeaders	us-central1	HTTP trigger	print
printRequest	us-central1	HTTP trigger	print
pubsubSample	us-central1	topic: pubsub_sample	pubs
pubSubTimeout	us-central1	topic: pubsub_timeout	pubS
reqEvents	us-central1	HTTP trigger	reqE
simplePOST	us-central1	HTTP trigger	simp

Google Cloud



The screenshot shows the "Create function" dialog in the Google Cloud Platform. It allows users to upload source code via an inline editor, ZIP upload, ZIP from Cloud Storage, or Cloud Source repository. The "index.js" file is shown with the following code:

```
1 /**
2  * Responds to any HTTP request that can provide a "message"
3  * @param {Object} req Cloud Function request context.
4  * @param {Object} res Cloud Function response context.
5  */
6 exports.helloWorld = function helloWorld(req, res) {
7   // Example input: {"message": "Hello!"}
8   if (!req.body.message === undefined) {
9     // This is an error message; "message" is required.
10    res.status(400).send('No message defined!');
11  } else {
12    // Everything is okay.
13    console.log(req.body.message);
14    res.status(200).send(`Success: ${req.body.message}`);
15  }
16};
17
18
```

The "Stage bucket" field is set to "bucket/folder/" and the "Function to execute" field is set to "helloWorld". A note at the bottom states: "Function deployment might take a few minutes. To build and test the function locally, use the local emulator".



```
gcloud functions deploy myFunction \
--runtime=nodejs10 \
--region=us-east4 \
--trigger=http
```

# Behind the scenes...

- HTTP server endpoint Servidor HTTP
- Fully qualified domain Dominio totalmente calificado
- SSL cert Certificado SSL
- Autoscaling Autoescalado
- Logging & Error reporting (via StackDriver)  
Informes de registro y error



## Demo – Google Sheets



# Functions Framework

Proyecto de código abierto



# Functions Framework



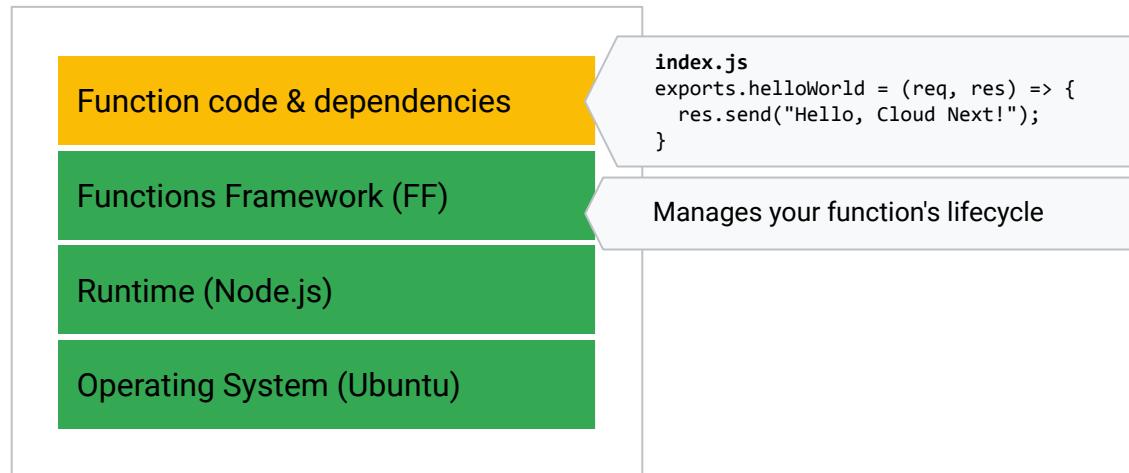
git.io/gcf-ff

- Nueva **columna vertebral** de las **Cloud Functions** 
- **Fuente abierta** 
- Permite **desarrollo local** 
- **Versiones** transparentes  (pin o actualizar el framework)

# ¿Qué es una Function?

- Managed by Google
- Managed by you

## Contenedor

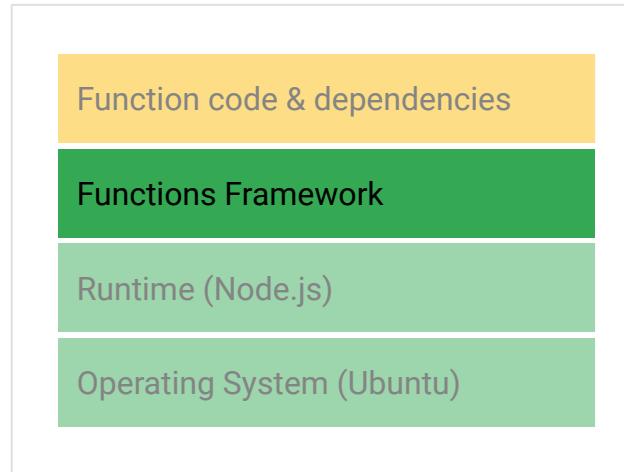


Serverless container infrastructure  
(Infraestructura de contenedor sin servidor)

# The Functions Framework

- Managed by Google
- Managed by you

Container



-----  
Serverless container infrastructure  
(Infraestructura de contenedor sin servidor)

# Functions Framework – Inside

- Transformación ligera de tu código
  - **Carga** el código fuente 
  - Crea un **HTTP server**  (Express 4)
  - Crea un **ruta** para su solicitud 
- Hacemos girar instancias de contenedores en respuesta a la demanda  



# Functions Framework – Open Source

[git.io/gcf-ff](https://git.io/gcf-ff)

- El código del servidor de Google que ejecuta tu función
- Documentación para:
  -  Node Debugger
  -  Eventos: Cloud Events, Pub/Sub
  -  Configuración de Docker

# Functions Framework – Open Source



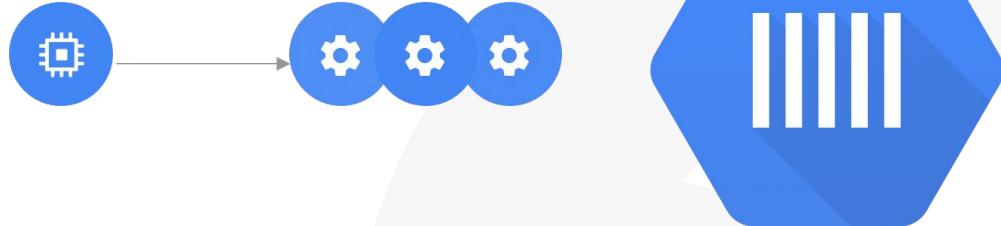
★ [git.io/gcf-ff](https://git.io/gcf-ff)

# Cloud Tasks

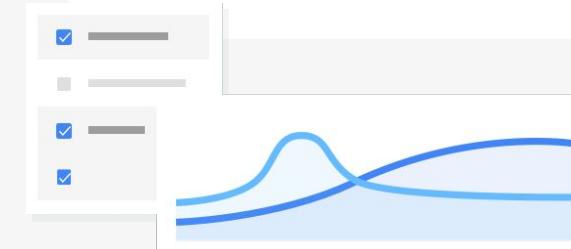
Ejecuta 1.000s de tareas



# Cloud Tasks



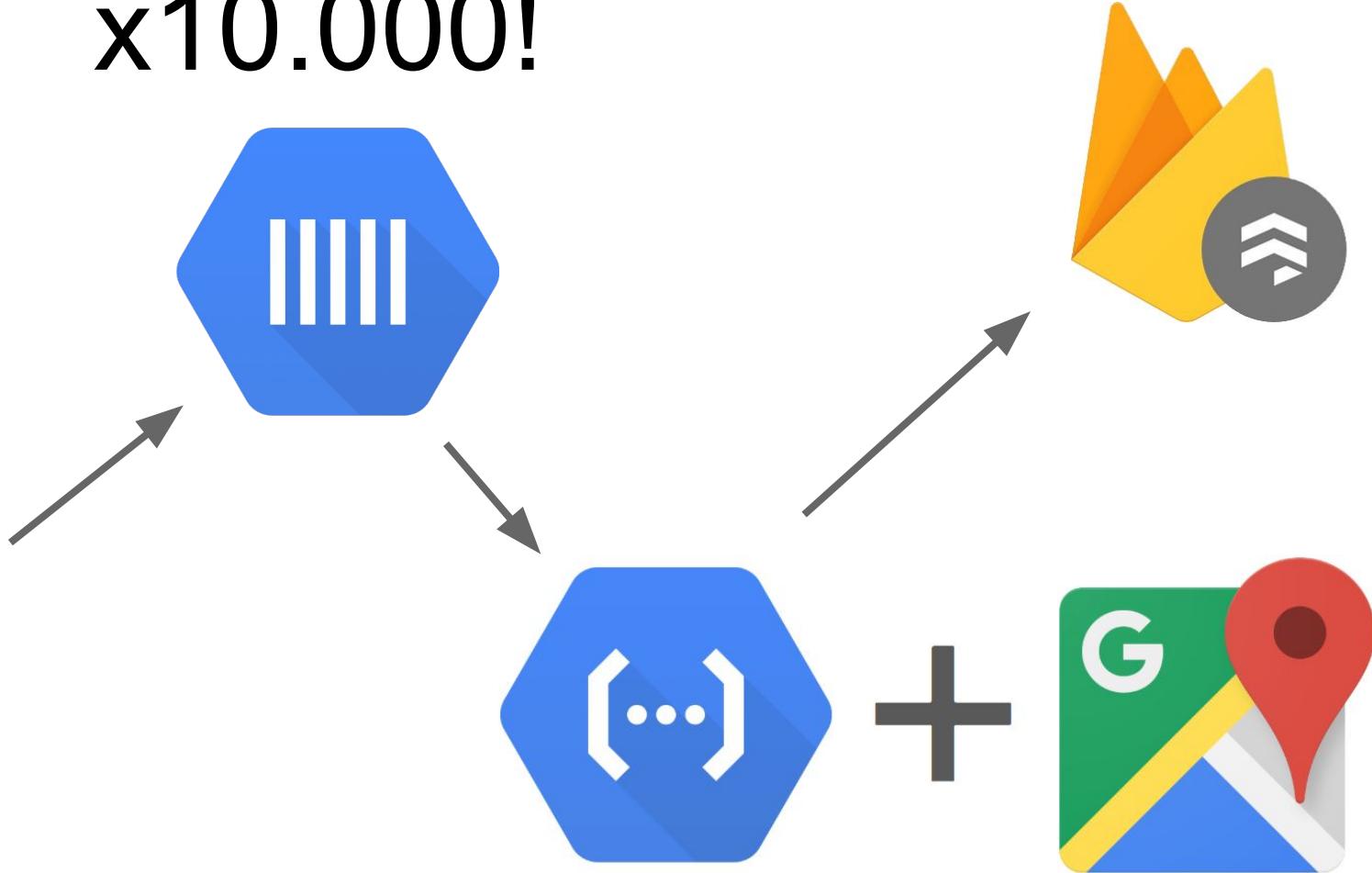
- Point-to-point execution Ejecución punto a punto
- Fully managed queue Cola totalmente gestionada
- Pause / play queues Pausar / reproducir colas
- No duplicate Tasks No hay tareas duplicadas
- Auto-retry Tasks Tareas de reintento automático

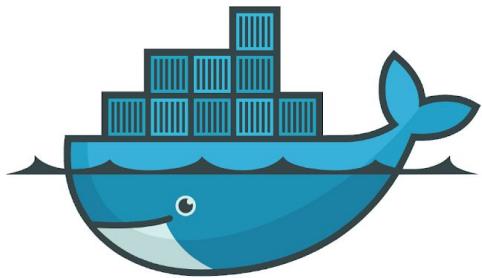


# Demostración de Cloud Tasks

¡Vamos a verlo en acción!

# x10.000!





# Cloud Run



¡feedback!

¡muy importante!

# grant.cm/google

¡enviar a  
compañeros de  
trabajo!

# Summary

- Serverless
- Cloud Functions
- Functions Framework
- Cloud Tasks
- Demo

# ¡Gracias!



*ifeedback!*

# grant.cm/google



@granttimmerman



@grant

Google Cloud

*preguntas?*