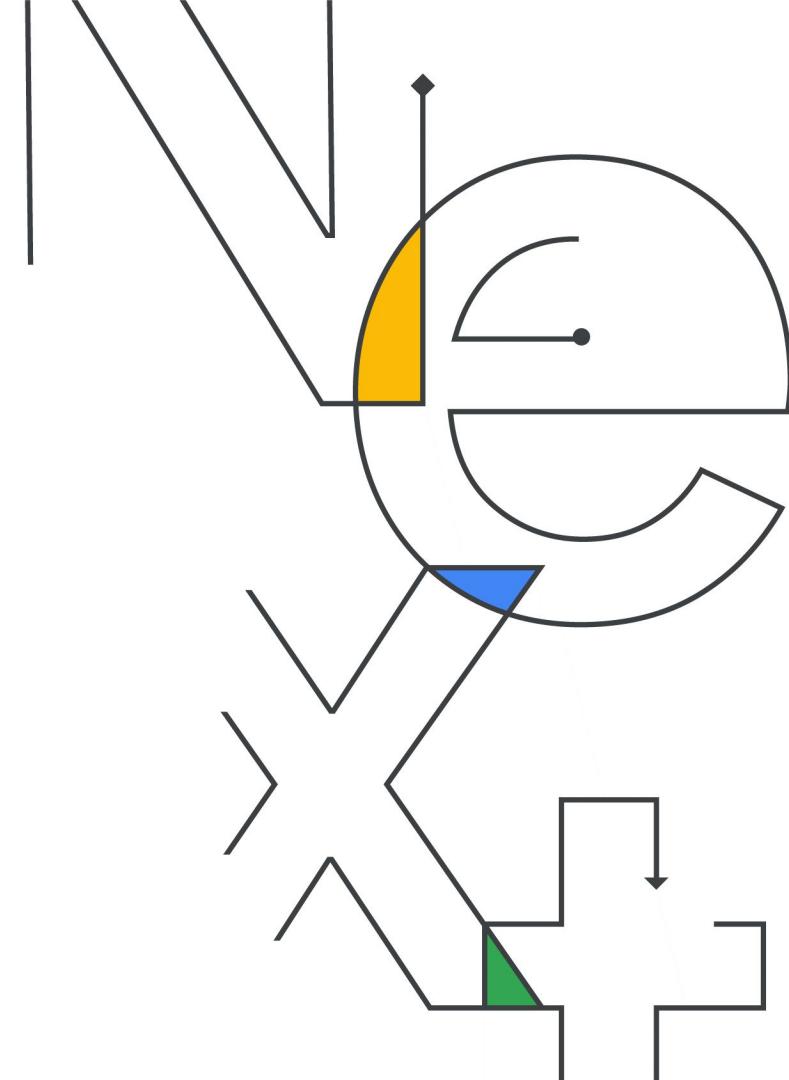


Next '22

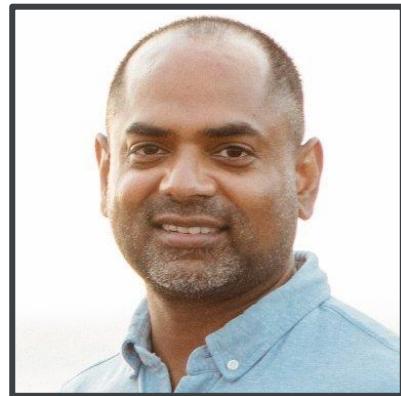
7 new features that
help you build modern
apps with less
complexity

Oct/
11–13



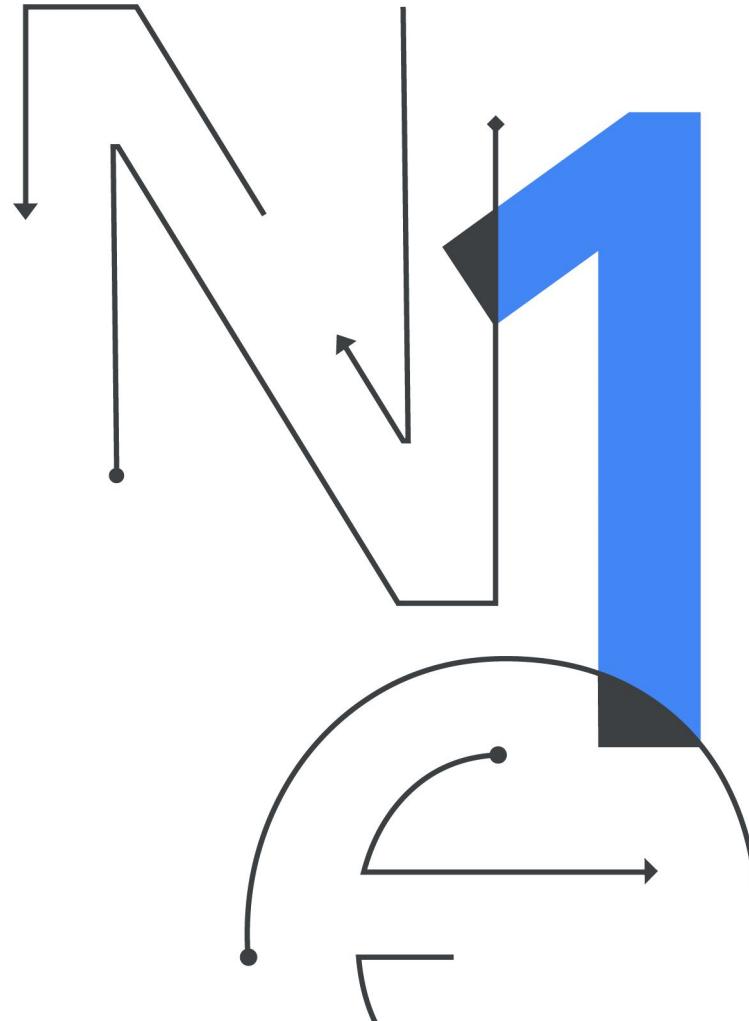


Steren Giannini
Group Product Manager
Google Cloud



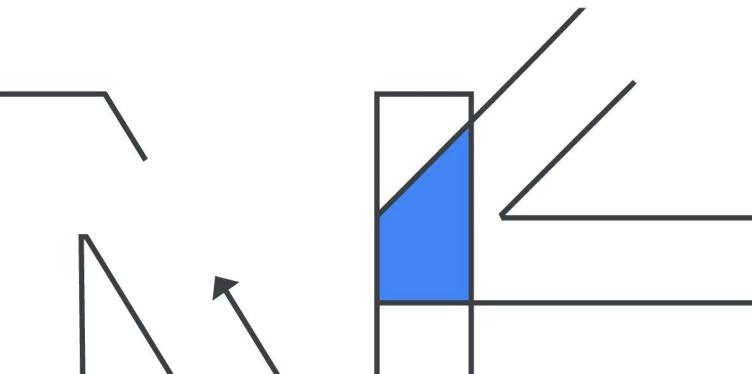
Jaisen Mathai
Group Product Manager
Google Cloud

Cloud Functions



Cloud Functions

The easiest way to extend
Google Cloud products
with custom code to meet
your business needs



01

Write a function
and deploy

02

No devops
experience needed

03

Connect Google
Cloud services

Use cases



Event Driven Architecture

Respond to events from GCP products like Cloud Storage.
Build endpoints for webhooks for 3rd party services like Github.



ETL Workloads

Transform data in as it arrives and store it in BigQuery.
Perform image analysis and add classification information to your database.



Extend GCP Products

Meet your business needs by adding custom logic to extend GCP products like BigQuery, Cloud Storage and Firestore.

2nd Generation

More compute power

Perfect for workloads that require more CPU, memory or processing time.

More events

Enables connecting more Google Cloud and third party products together.

More control

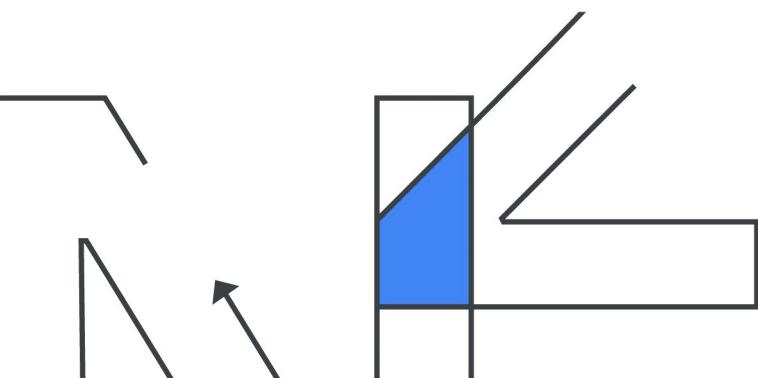
Ensures that Cloud Functions can better meet your cost and performance needs.

More compute power / Cloud Functions

4x more compute

Allocate more memory (up to 32 GiB) and CPU (up to 8 vCPU) for your function.

Enables new workloads requiring more memory or processing.



Google Cloud Platform CREATE LEARN

Create function

+ ADD EVENTARC TRIGGER

Runtime, build and connections settings

RUNTIME BUILD CONNECTIONS

Memory allocated *

- 256 MiB
- 512 MiB
- 1 GiB
- 2 GiB
- 4 GiB
- 8 GiB
- 16 GiB
- 32 GiB

Minimum number of instances 0 Maximum number of instances * 1000

Runtime environment variables ?

+ ADD VARIABLE

NEXT CANCEL

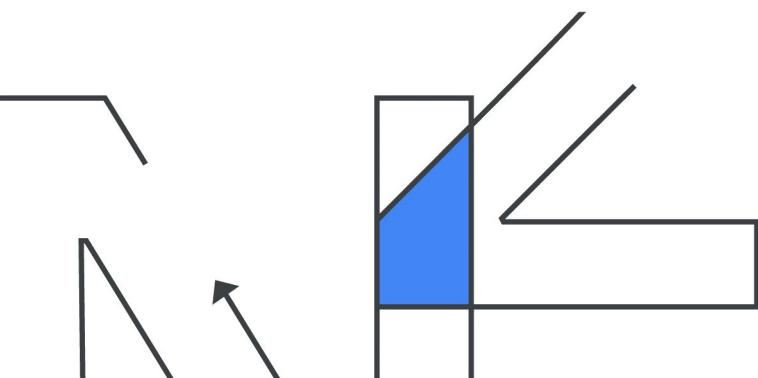
A screenshot of the Google Cloud Platform 'Create function' interface. The 'RUNTIME' tab is selected. A dropdown menu for 'Memory allocated' shows options from 256 MiB to 32 GiB, with '32 GiB' highlighted by an orange border. Below the dropdown, 'Minimum number of instances' is set to 0 and 'Maximum number of instances' is set to 1000. At the bottom, there are 'NEXT' and 'CANCEL' buttons.

More compute power / Cloud Functions

6x longer processing

Up to 60 minutes of processing time for HTTP triggered functions.

Enables new workloads which require more processing time to complete.



Google Cloud Platform

Edit function

function-2 2nd gen us-central1

Trigger

HTTPS

URL

<https://function-2-slst3zyiuq-uc.a.run.app>

Runtime, build and connections settings

RUNTIME BUILD CONNECTIONS

Memory allocated * 512 MiB

Timeout * 3600 seconds

Runtime service account

Compute Engine default service account

Autoscaling

NEXT CANCEL

More events / Cloud Functions

10x event sources

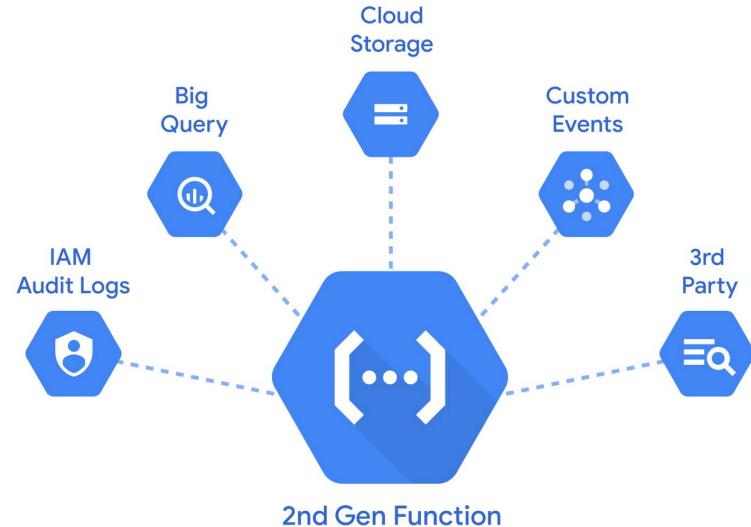
Supports 125+ Google Cloud event sources.

Supports extending capabilities for 10x more Google Cloud products via audit logs.

Additional 3rd party events from 4 partners with more coming.

Leverages the open source CloudEvent specification.

125+ New Eventarc Sources



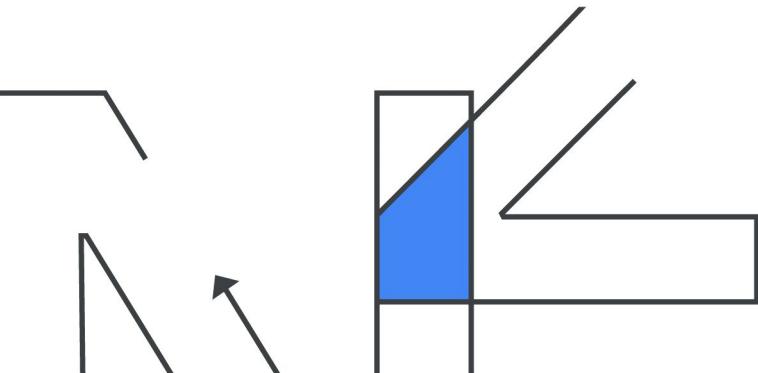
BigQuery Remote Functions

Create BigQuery Remote Functions using Cloud Functions.

Allows integration with external APIs including Google Cloud AI/ML and Vertex APIs.

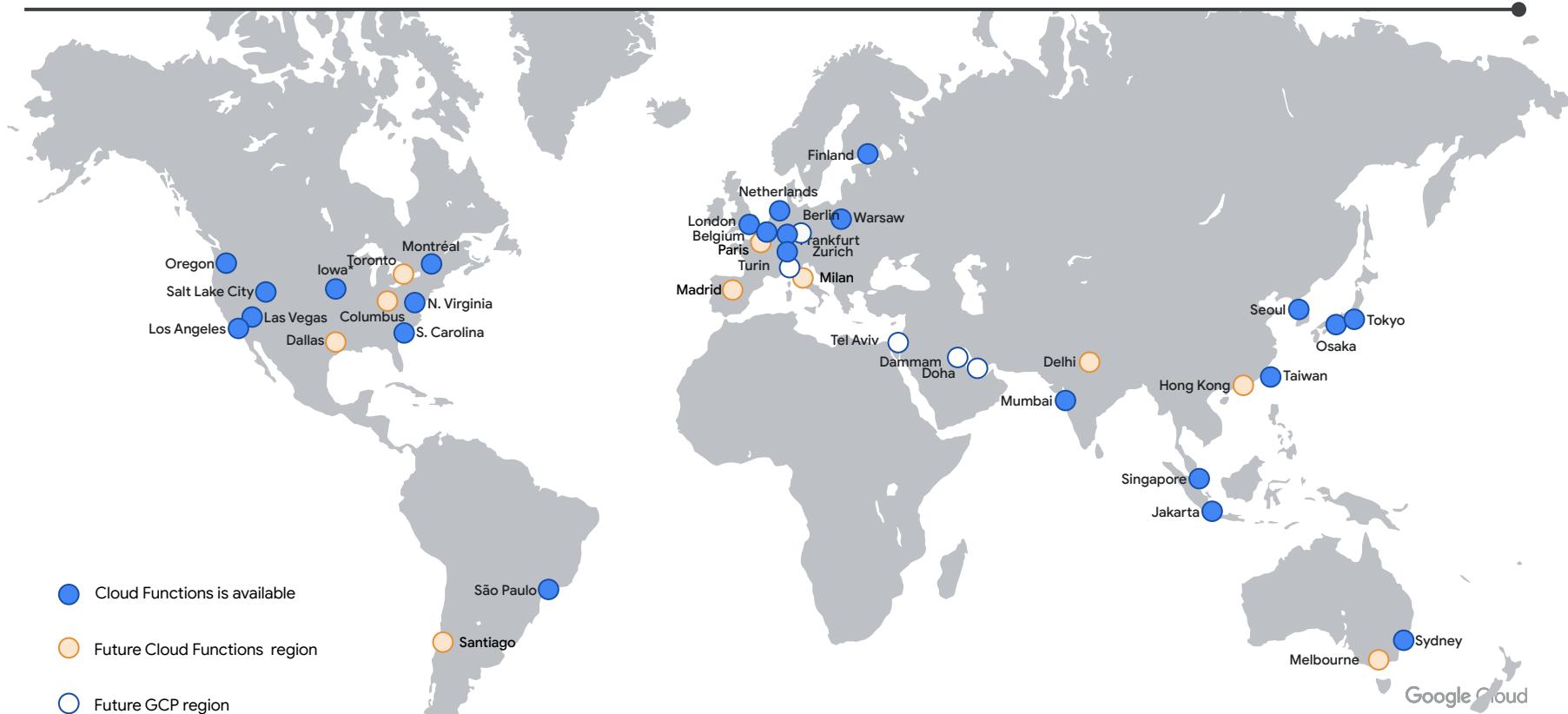
Supports 7 languages including JavaScript, Python and Java.

```
CREATE FUNCTION `project`.`table`.`bq-function-name`(  
    input INT  
) RETURNS BOOL  
REMOTE WITH CONNECTION 'your-connection'  
OPTIONS (endpoint =  
'https://your-cloud-function-url');
```



More control / Cloud Functions

Available in 25 regions

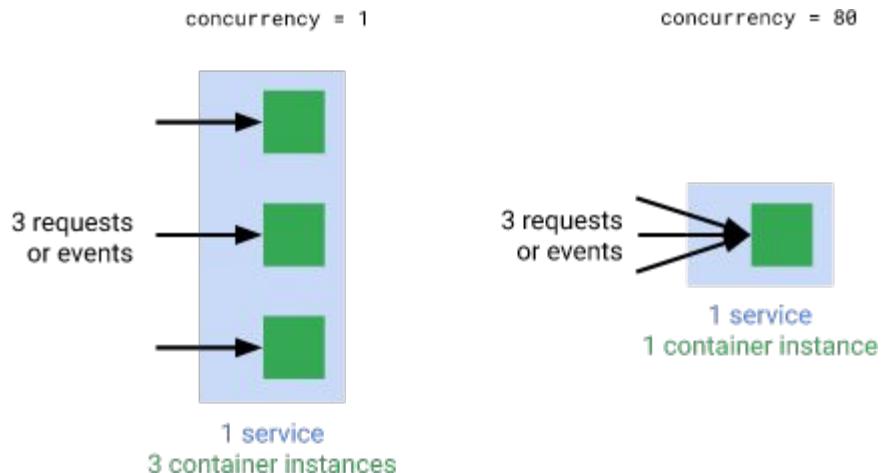


Instance Concurrency

Support up to 1,000 concurrent requests per instance.

Helps improve performance by reducing cold starts.

Reduces cost by sharing CPU and memory across multiple invocations.



More control / Cloud Functions

Easy Rollbacks

New revision automatically created for each deployment.

Simply roll back traffic to a prior revision.

Perform canarying by gradually moving traffic
to the latest revision.

The screenshot shows the 'Service details' page for a Cloud Function named 'go-pubsub-function'. The function is deployed to the 'us-west1' region. The URL for the function is <https://go-pubsub-function-slst3zyiuq-uw.a.run.app>. Below the URL, it says 'Used by Cloud Functions: go-pubsub-function'. There are tabs for METRICS, LOGS, REVISIONS, and TRIGGERS. The REVISIONS tab is selected, showing a table titled 'Revisions' with three entries:

Name	Traffic
go-pubsub-function-00003-has	50%
go-pubsub-function-00002-naz	0%
go-pubsub-function-00001-per	50%

A blue arrow points from the text 'New revision automatically created for each deployment.' to the 'Revisions' table.

The screenshot shows the 'Function details' page for 'go-pubsub-function'. It is a '2nd gen' function deployed at Jan 31, 2022, 6:32:31 PM. The URL is <https://go-pubsub-function-slst3zyiuq-uw.a.run.app>. A callout box highlights the 'Powered by Cloud Run' status. Below the URL, there are tabs for METRICS, DETAILS, SOURCE, VARIABLES, and TRIGGER. The DETAILS tab is selected.



A large, bold red number '2' is positioned on the left side of the slide. It has black highlights on its top curve, bottom stroke, and right vertical stroke. Two black arrows point towards the center of the '2': one from the top-left towards the top curve, and another from the bottom-left towards the bottom stroke.

Cloud Run

Cloud Run

Deploy and scale
applications fast and
securely in a fully
managed environment



01
Simple and
Automated

02
No infra
management

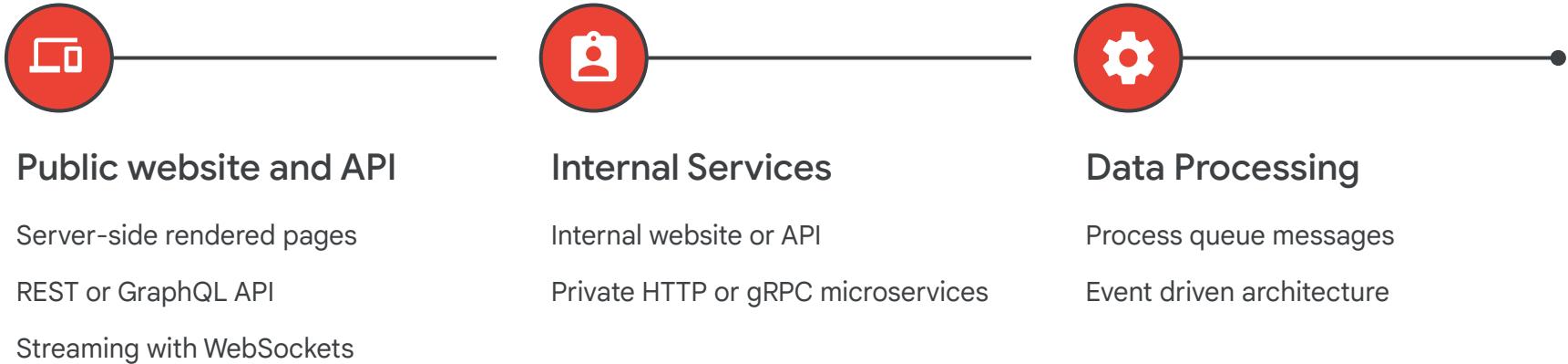
03
Developer Velocity

Cloud Run

Available in all 34 Google Cloud regions



Services



Jobs Preview

Run containers to completion.

Unlocking data processing use cases:

- Scheduled Scripts
- Background processing
- Batch Data processing

Now available in all Google Cloud regions.



A Cloud Run job executes containers to completion. Job name and region cannot be changed later.

Container image URL

us-docker.pkg.dev/cloudrun/container/job:latest

SELECT

TEST WITH A SAMPLE CONTAINER

[How to build a container?](#)

Job name *

job

Region *

us-central1 (Iowa)



[How to pick a region?](#)

Number of tasks *

200

The number of times to run the container. All tasks must succeed in order for a job to succeed.

Container, Variables & Secrets, Connections, Security



Execute job immediately

CREATE

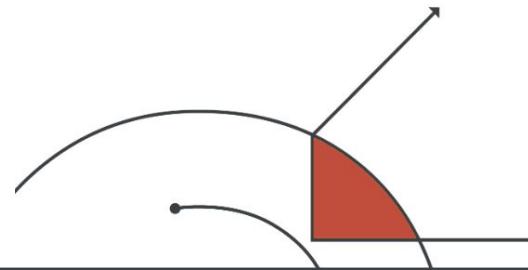
CANCEL



DATADOG

Cloud Run #1

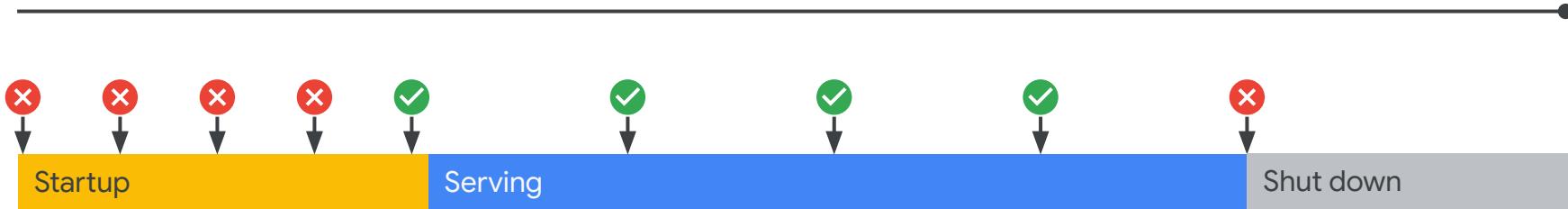
Datadog support



New official Datadog instrumentation support for Google Cloud Run

Collect logs, metrics and traces in real-time via in-container Agent.

Health checks Preview



Startup probe

Is the container ready to receive traffic?

Use TCP, HTTP or gRPC.

Examples:

- Load a machine learning model.
- Wait for an async library to initialize.

Default TCP probe: ready when listen on \$PORT.

Liveness probe

Is the container healthy? If not, restart it.

Use HTTP or gRPC

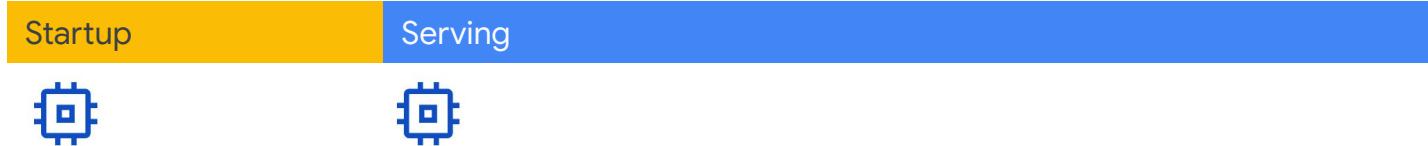
Examples:

- Restart if code lost connection to database.
- Recover from corrupted local state.
- Force restart after N minutes.

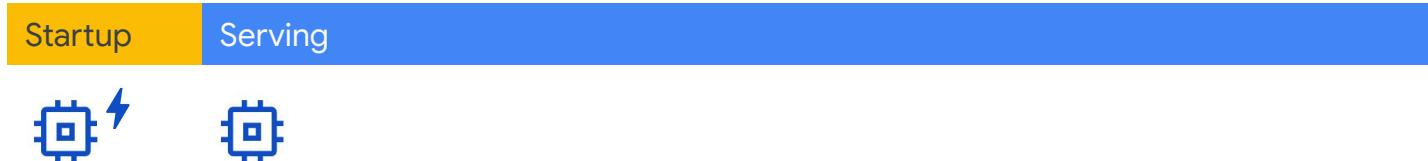
Cloud Run #3

Startup CPU Boost Preview

Without



With



Cloud Run #4

Software Delivery Shield Preview

Surface vulnerabilities and build provenance in Cloud Run

Security target level (SLSA: Supply chain Levels for Software Artifacts)



Identity & Encryption

Service account	frontend-service@cadeaux-entre-nous-gcp.iam.gserviceaccount.com
Encryption Key	Google-managed

Software Delivery Shield

Software Delivery Shield is a new service to safeguard artifact integrity across your entire software delivery lifecycle. [Learn more](#) about how it can prevent tampering, improve integrity, and secure packages and infrastructure.



Security Target
SLSA Level 2 [What's this?](#)

Supply Chain

Supply chain information appears for artifacts that you store in Artifact Registry and Container Registry. If parts of your supply chain are outside of Google Cloud, some information might be unavailable.

Vulnerabilities



Artifacts scanned [cloud-run-node-14](#)
Last scanned -

Build

Build details

Build logs	b53af253
Builder	Cloud Build
Completed	Jun 29, 2022

Build provenance

Cloud Run #5

Security Recommendations Preview

Pro-active recommendations by Active Assist

Suggesting to move API keys and passwords stored in environment variables to secrets in Secret Manager.

Suggesting to use built-in workload identity rather than copying credentials in the container.

 3 RECOMMENDATIONS

Move password to Secret Manager



Refreshed: Aug 15, 2022, 12:14:45 AM

Insight



An environment variable in service test-security-recommendations (us-central1) might contain a password.

Service	test-security-recommendations
Region	us-central1
Last observed	1 day ago

Recommendation



Storing a password in the value of an environment variable prevents you from easily changing it and makes it visible to many in your organization (anyone with Project Viewer or Cloud Run Developer IAM role). Moving this password into a secret stored in Secret Manager and exposing it as an environment variable better protects the password.

How to: [Use secrets](#)

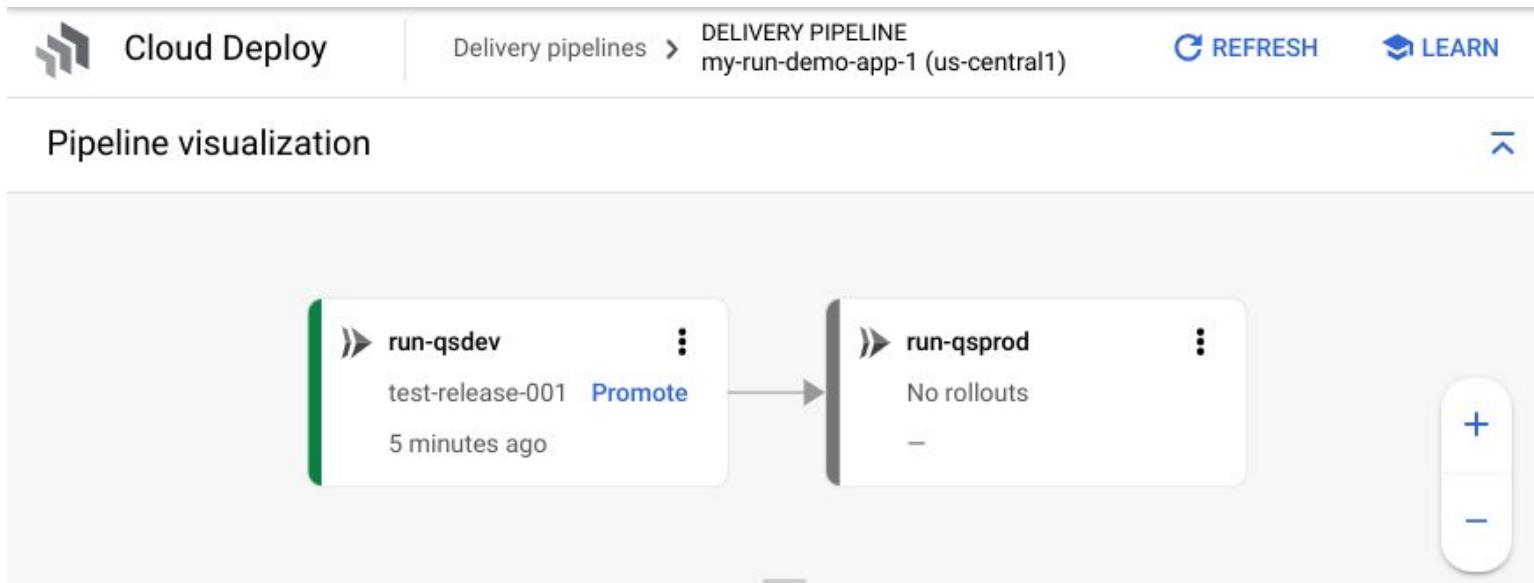
EDIT SERVICE

DISMISS

CANCEL

Cloud Run #6

Cloud Deploy support Preview



Cloud Run #7

Integrations Preview

The screenshot shows the Google Cloud Platform interface for a Cloud Run service named "hello". The service is deployed to the "us-central1" region with a URL of <https://hello-aa5jlnivda-uc.a.run.app>. The "INTEGRATIONS" tab is selected, displaying two configurations: "Redis" and "Custom Domain".

Redis Integration:

Name	redis-hello
Status	Active
Capacity (GB)	1

Custom Domain Integration:

Name	router-hello
Status	Deployed

Integration details (Custom Domain - Google Cloud Load Balancing):

Integration parameters:

Routes:

Domain 1	Path 1	Service 1
example.com	/*	hello

Next steps:
To complete the process, please ensure the DNS records are configured for the domain. It can take up to an hour for the certificate to be provisioned.

NAME	TTL	TYPE	DATA
example.com	3600	A	34.120.216.162

Resources:
The following resources are managed by this integration.

Resource type	Status	Name	Description
Compute Global	Missing	router-hello-ip	-

Cloud

Thank you



Steren Giannini

 @steren



Jaisen Mathai

 @jmathai

Resources

Cloud Functions

cloud.google.com/functions

Cloud Run

cloud.google.com/run

Google Cloud

Next '22

