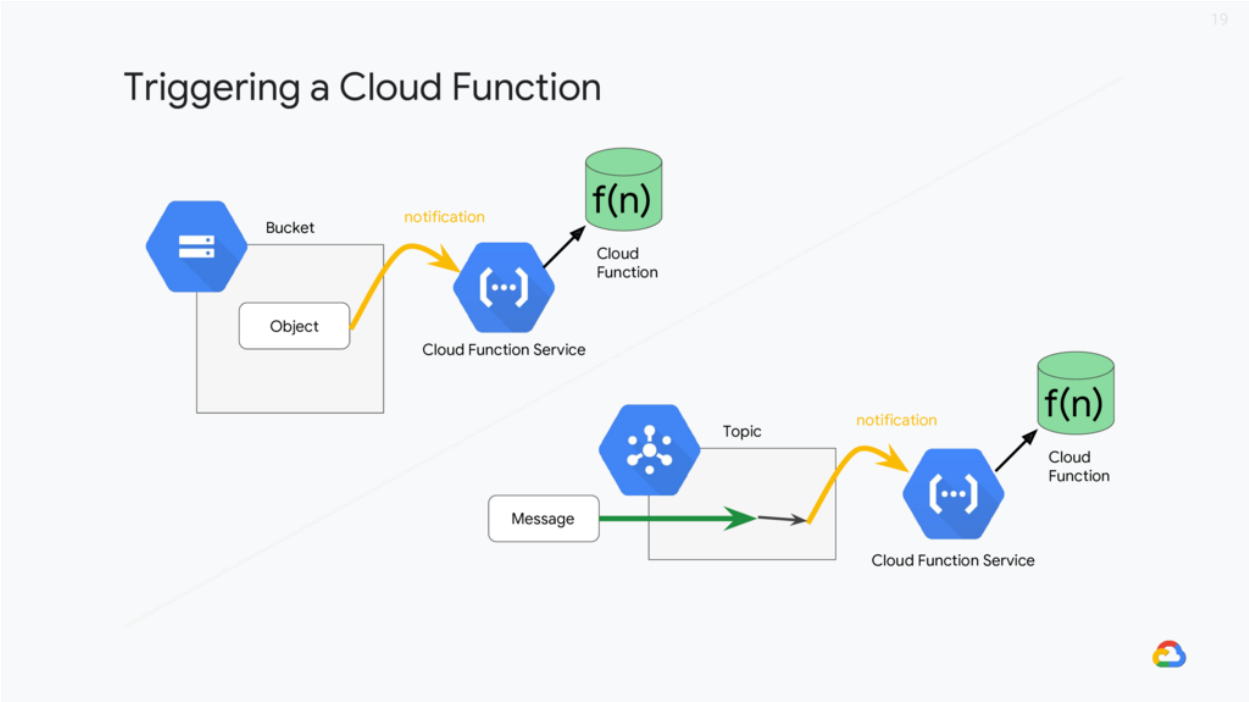
# Cloud Functions



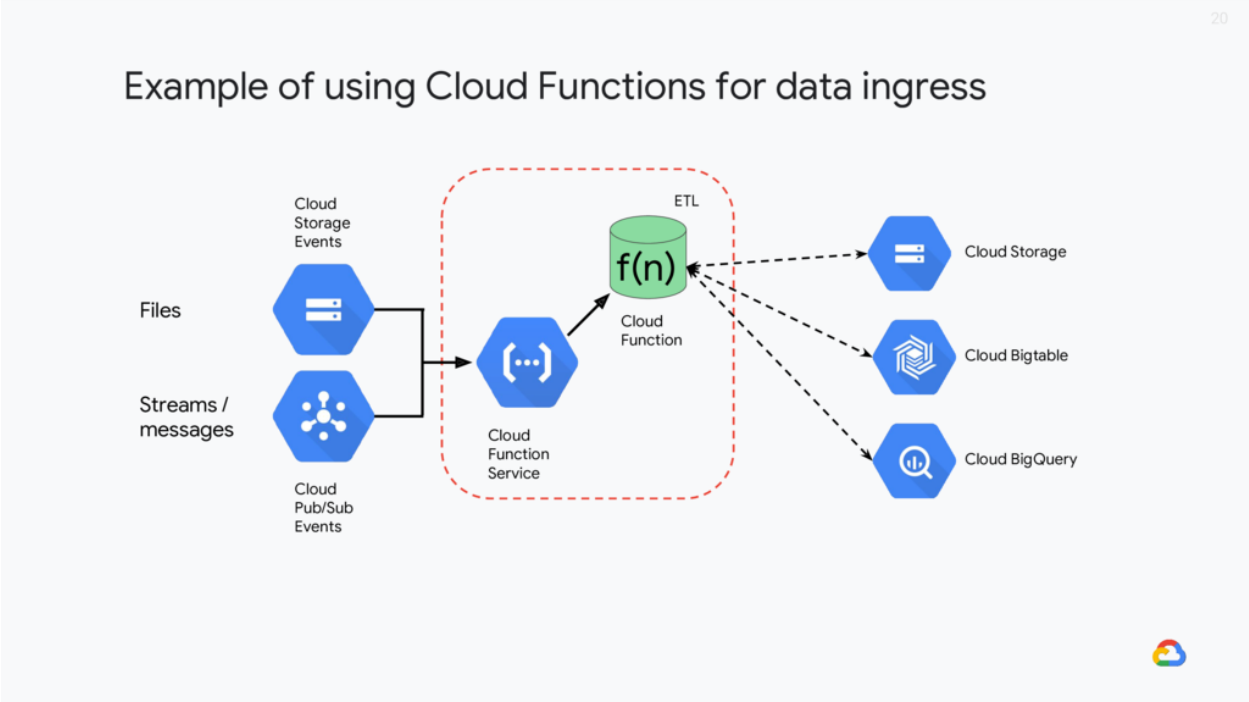

A Cloud Function is a serverless, stateless, execution environment for application code. You deploy your code to the Cloud Functions service and set it up to be triggered by a class of events. Mobile application developers use the HTTP (web) event. but you can also use events that are associated with Cloud Storage or Cloud Pub/Sub.

Cloud Functions can be triggered by A user-defined HTTP callback (a webhook), which is commonly used for mobile and web development.

However, Cloud Functions can also be triggered by Cloud Pub/Sub messages and by events occurring in Cloud Storage.

How it works:

- Authentication
- Send watch request
- Sync notification event
- add, update, remove object
- Notification
- Waits for acknowledgement
- If the app is unreachable for 20 seconds, the notification is retired.
- If the app is reachable, but does not acknowledge, then exponential backoff 30 seconds after fail up to max 90 minutes for up to 7 days




When the event occurs, it triggers the Cloud Function to run. Each time an event occurs and the function is run, it is a fresh instance without history. For example, if you wanted to create a Cloud Function that counts the number of times it is called, it would have to store that counter information externally, such as in Cloud Storage. When you deploy a Cloud Function, you can specify requirements so that common libraries are loaded into the environment. Because Cloud Functions are lightweight and stateless, you can construct microservices applications that are highly scalable.

In the illustration, the Cloud Function uses APIs to work with common data storage components. For example, it might extract metadata from image files uploaded to Cloud Storage and save the metadata in BigQuery for analysis.

Cloud Functions has Stackdriver integration so you can monitor your application.