

Messaging

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Messaging

- GCP offers two services for messaging
- Useful for reliably passing messages between applications and cloud services
- Built on each other
- Cost effective

Messaging Services Types

Pub/Sub

Eventarc

Pub/Sub

- Publish/Subscribe service
- Fully decouples senders and receivers
- Asynchronous
- Scalable
- SLA: Up to 99.95%

Pub/Sub Editions

	Pub/Sub	Pub/Sub Lite
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Pub/Sub Editions

	Pub/Sub	Pub/Sub Lite
Endpoints	Global	Regional
Message replication	Multi-zone in a region	Single or dual zone
Capacity	Automatically provisioned	Provision before use
Pricing	Pay for what you use (\$\$)	Pay for capacity (\$)
Delivery method	Pull (REST, gRPC) Push (POST) StreamingPull	Streaming gRPC pull
Project Distribution	Topic and subscription can be stored in any project	Can be used only in a single project

Pub/Sub Architecture

Publisher:

Creates and sends a message to a topic

Message:

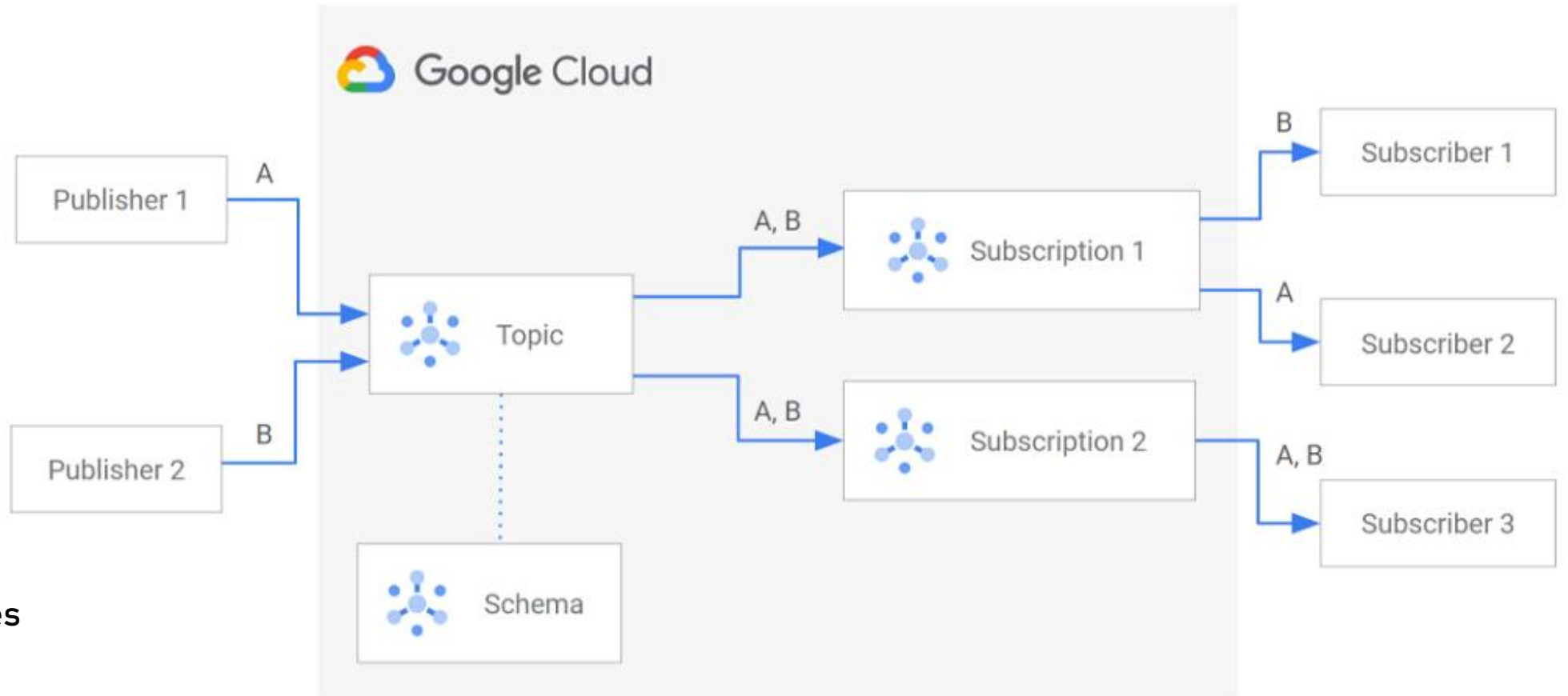
The data that moves through the service, can be in any format

Topic:

A feed of messages

Schema:

Optional, controls the data format of messages



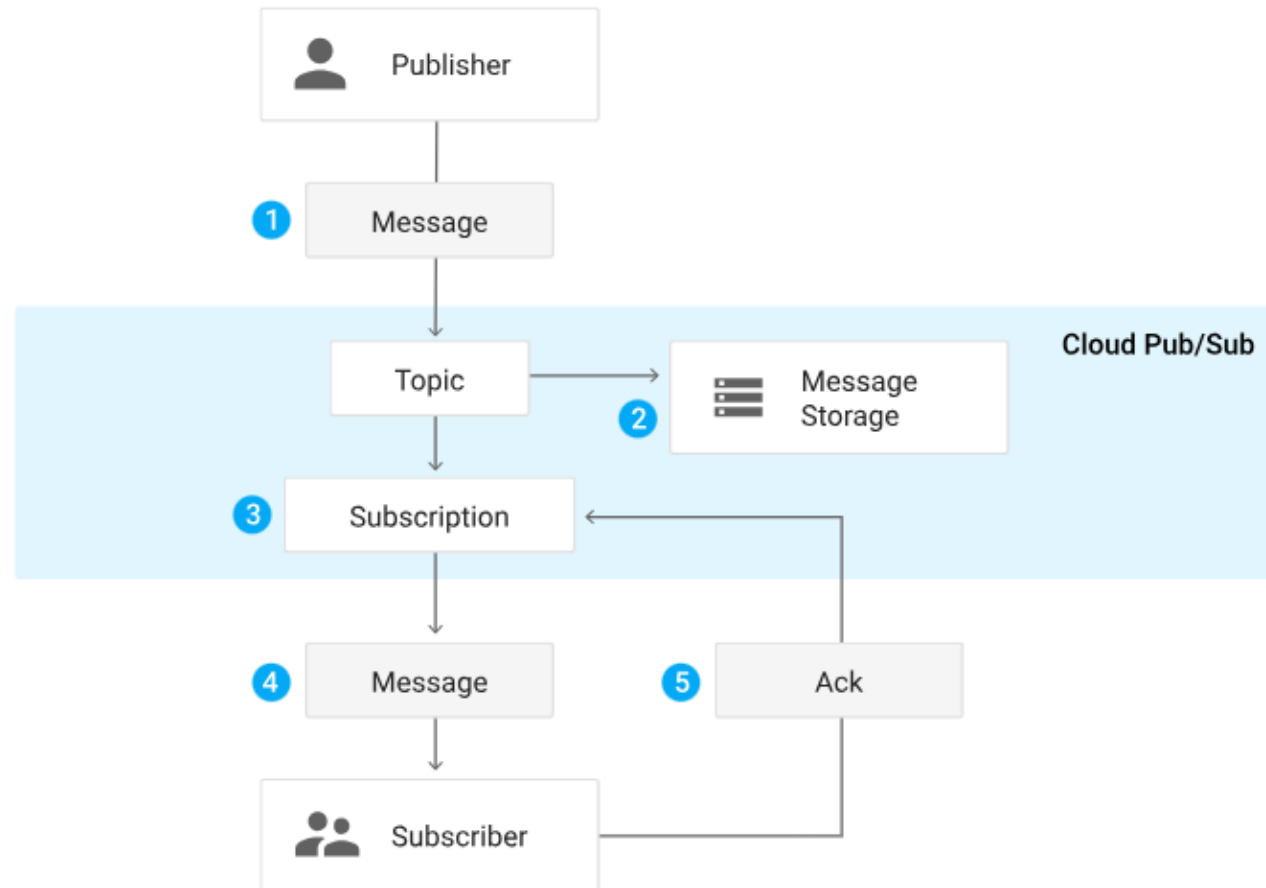
Subscription:

A funnel for streaming messages from a topic

Subscriber:

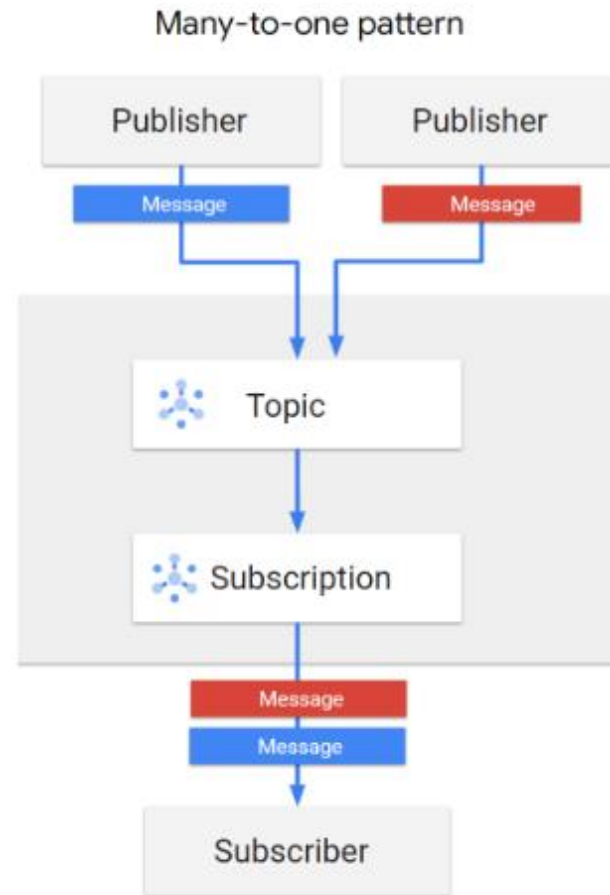
Receives messages from a subscription

Pub/Sub Flow



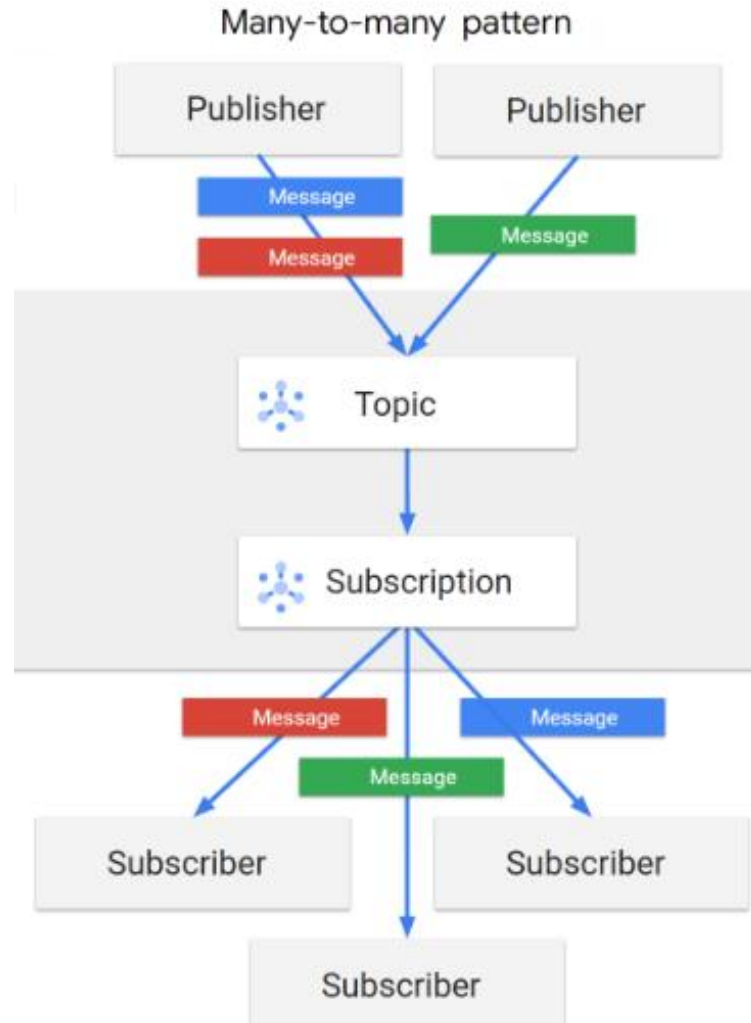
Pub/Sub Patterns

Many to one:



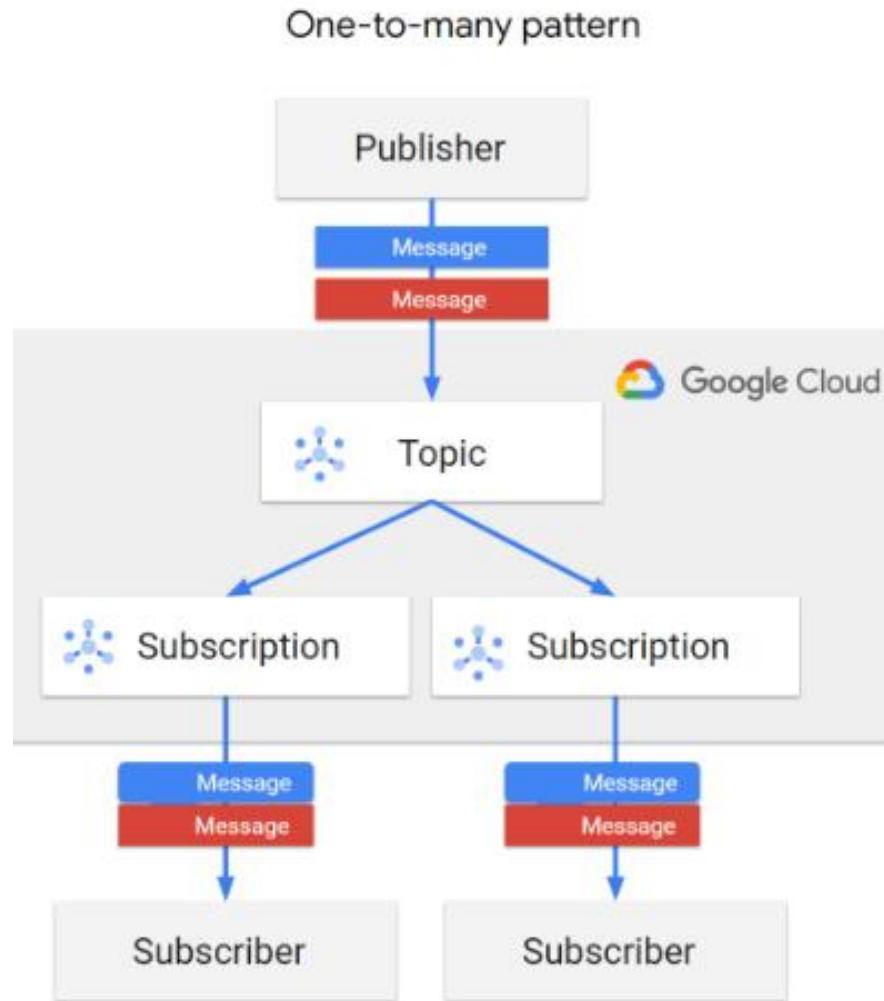
Pub/Sub Patterns

Many to many:



Pub/Sub Patterns

One to many (Fan-out)



Pub/Sub Pricing

- Depends on edition (Pub/Sub or Pub/Sub Lite)

Pub/Sub

- Data volume
- Number of subscriptions
- Message retention

Pub/Sub Lite

- Data throughput (MB/s)

Pub/Sub Pricing

Pub/Sub



Message delivery type: Basic

Volume: 10 GiB

USD 11.49

Subscriptions: 5

USD 59.02

Topic retention cost: 2.7

USD 73.21

Total Estimated Cost: USD 73.21 per 1 month

Estimate Currency

USD - US Dollar



Pub/Sub Pricing

Pub/Sub Lite

Iowa (Zonal)



Publish throughput:
Average / Peak: 0.5 / 1
Capacity units: 1

USD 4.50

Subscribe throughput:
Average / Peak: 0.3 / 1
Capacity units: 0.5

USD 2.25

Storage Days: 1
Total storage: 42.188 GiB

USD 1.69

USD 8.44

Eventarc

- Service for building Event Driven Architecture
- Infrastructure for managing flow of events between services
- Built-in support for many cloud services
- Uses the CloudEvents format
- Utilizes Pub/Sub as the transport layer
- SLA: None

Event Providers

- Events can be published from three sources:

Google Services

3rd Party

Custom Source

Google Services Providers

- Events notifying about changes in Google Services
- Can be either direct or audit log based
 - Direct event: An event that is triggered by the service
 - Audit log event: An event that's triggered as a result of a specific log record

Google Services Providers

- Hundreds of built-in events

- Examples:

- `google.cloud.storage.object.v1.archived`

- `google.cloud.redis.instance.v1.deleted`

- `google.cloud.run.v1.Revisions.DeleteRevision`

- `cloudsql.database.create`

} Direct events

} Audit logs events

See the full event list here: <https://cloud.google.com/eventarc/docs/event-types>

3rd Party Providers

- Some 3rd party providers offer sources available in Eventarc



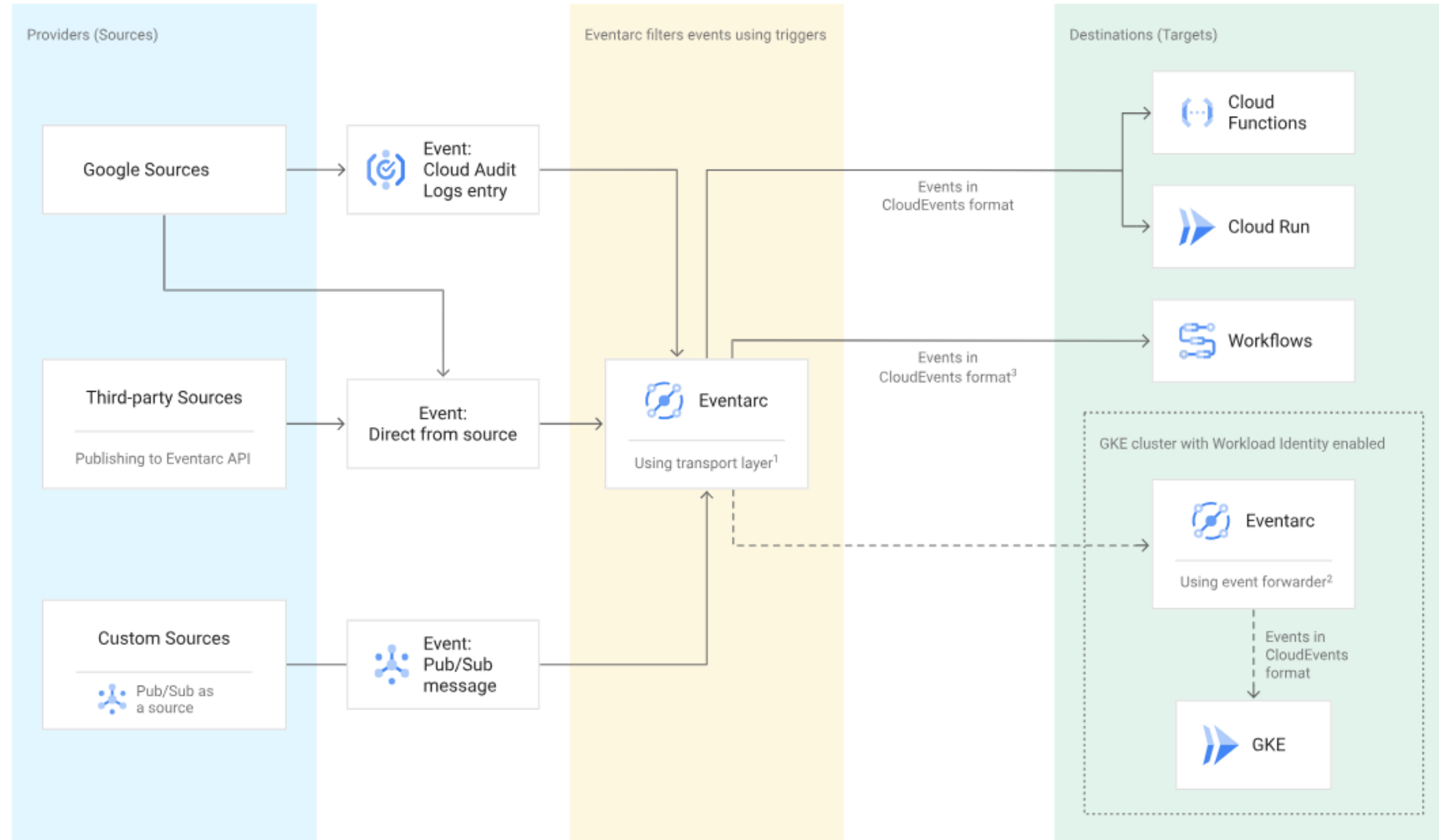
Custom Source

- Events can be sent by custom source (ie. your code) using Pub/Sub
- Handled as regular events in Eventarc
- Eventarc can listen to an existing topic or create one for you

Events Destinations

- Events can be sent to:
 - Cloud Functions (2nd gen)
 - Cloud Run
 - GKE
 - Workflows

Eventarc Architecture



CloudEvents

- All events are delivered in the CloudEvents format
- Regardless of the provider or the destination
- Delivered using HTTP request
- The format describes required and optional field in an event
- Built on JSON format
 - Can support other formats

CloudEvents

Required fields

```
{  
  "specversion" : "1.0",  
  "type" : "com.github.pull_request.opened",  
  "source" : "https://github.com/cloudevents/spec/pull",  
  "subject" : "123",  
  "id" : "A234-1234-1234",  
  "time" : "2018-04-05T17:31:00Z",  
  "comexampleextension1" : "value",  
  "comexampleothervalue" : 5,  
  "datacontenttype" : "text/xml",  
  "data" : "<much wow=\"xml\"/>"  
}
```

See the full spec here: <https://github.com/cloudevents/spec/blob/v1.0.2/cloudevents/spec.md>

Eventarc Pricing

- With Eventarc you pay only for the transport layer billing which is Pub/Sub
- Exception: For events from 3rd party sources there's a price of 1\$ / million events

Selecting Messaging Service

- How to select between Pub/Sub and Eventarc?

Pub/Sub

- Use when you need full control on events and publish or receive using code

Eventarc

- Use when utilizing built-in events and can use a built-in integration (ie. trigger a Cloud Function)

Architecture: ReadIt Cloud System

