EventGrid

Service Overview

Issue   01
Date   2023-10-25

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Contents

1 What Is EG?

EventGrid (EG) is a serverless event bus service for standard and centralized access of Huawei Cloud services and custom or SaaS applications. You can build a loosely coupled, distributed event-driven architecture to flexibly route events via CloudEvents.

Figure 1-1 EG architecture
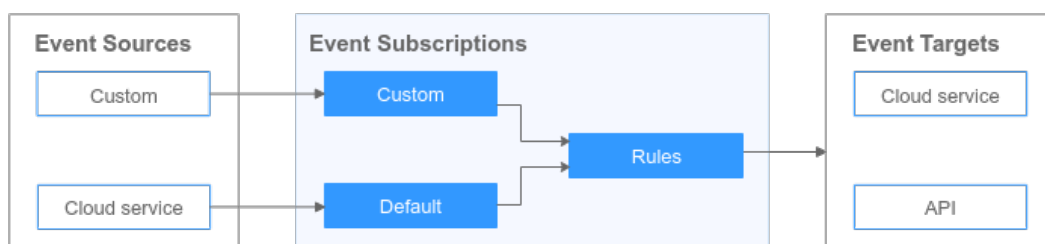
- Event sources: Including Huawei Cloud services, custom applications, and SaaS applications. They produce event messages and publish them to subscriptions.
- Event subscriptions: Store received messages and route them to targets as specified by relevant rules.
- Event targets: Consume event messages.

2 Advantages

Openness and Compatibility

- Compatible with CloudEvents 1.0 and OpenSchema 1.0
- CloudEvents SDKs and APIs supported

High Concurrency and Availability

- Tens of millions of concurrent events
- Distributed cluster-based deployment with 99.99% availability and strong disaster recovery (DR)

Security and Reliability

- Connected to Identity and Access Management (IAM), Log Tank Service (LTS), Cloud Eye, and Cloud Trace Service (CTS) for secure event storage and access
- Encrypting persisted data with disk or specified key

3 Application Scenarios

Scenario 1: Function Triggering

EG provides unified event source access to route standard events of SaaS applications and cloud services to FunctionGraph.

After receiving events generated by SaaS applications and cloud services, EG verifies, filters, routes, and transforms these events, and pushes them to functions that have subscribed to them to execute service processing logic.

Figure 3-1 Function triggering
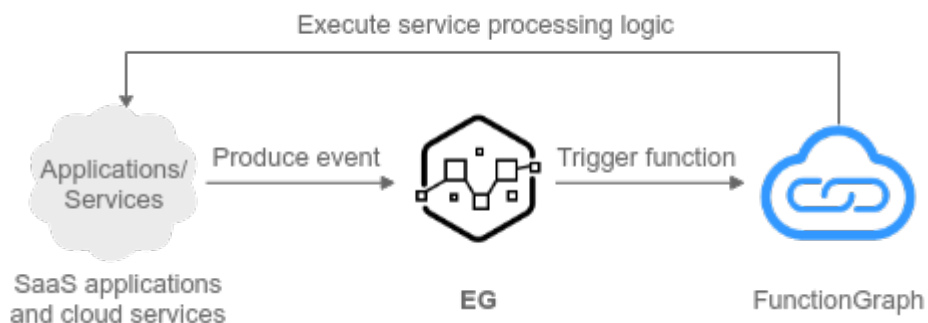
Scenario 2: Cloud Service Event Transfer

As the standard event center of Huawei Cloud, EG is a bridge between cloud services.

Cloud services deployed on the serverless application platform of Huawei Cloud as event sources or targets push real-time events to EG. Then EG filters, routes, and transforms these events to trigger the cloud services that have subscribed to them.

Figure 3-2 Cloud service event transfer
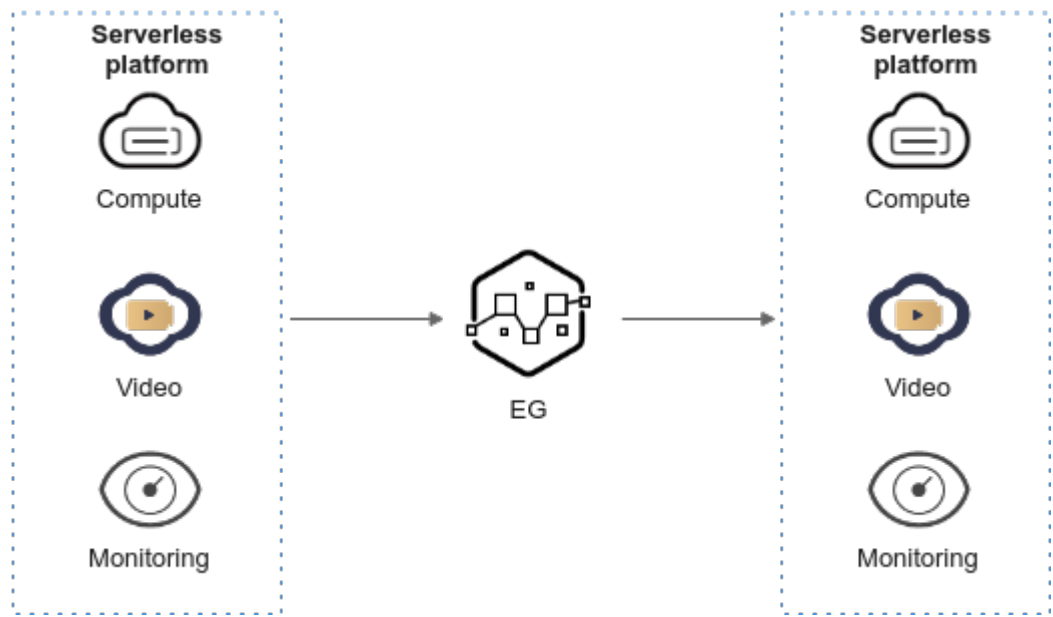
Scenario 3: Application Event Transfer

Events produced by applications can be pushed by EG to trigger other associated applications.

Figure 3-3 Application event transfer
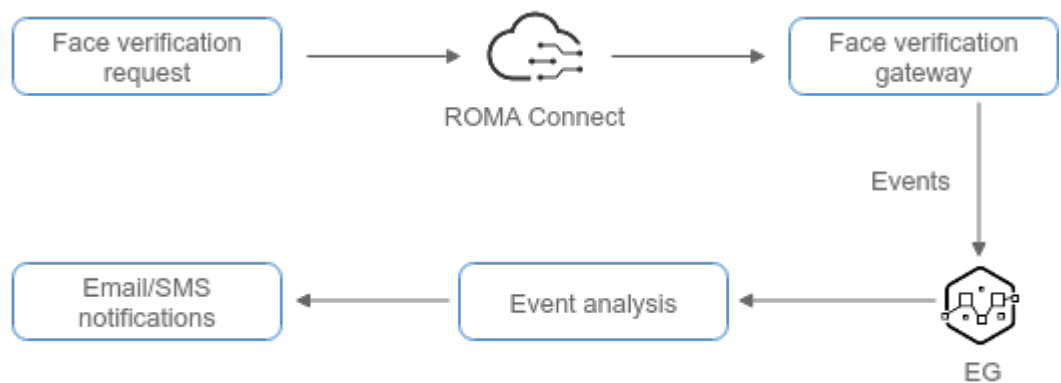
4 Features

As a serverless event bus service, EG filters and routes events between multiple types of sources and targets.

Event Sources

Event sources are applications that produce events. EG supports the following event sources:

- Huawei Cloud service: Elastic Cloud Server (ECS), Object Storage Service (OBS), Cloud Container Engine (CCE), and other services
- Custom
  - Custom applications: connecting to EG via SDKs
  - DMS for RabbitMQ and DMS for RocketMQ

Event Targets

Event targets are destinations that receive and process events. EG supports the following event targets:

- Huawei Cloud service : FunctionGraph and DMS for Kafka are supported.
- Custom: HTTP and HTTPS Webhooks

Event Subscriptions

Subscriptions bind event sources, channels, and targets. Events of sources are routed to targets based on specified rules.

Event Streams

Event streams pull, filter, and transform events generated by event sources in real time for lightweight and efficient stream processing.

Resource Management

EG helps you manage the following resources:

- Custom event sources

- Event channels
- Event subscriptions
- Connections
- Endpoints

Event Processing

EG provides the following event processing capabilities:

- Transfer
- Filtering
- Routing

📖 NOTE

EG processes each event separately. This means that the event processing order cannot be guaranteed, and in some cases, an event may be passed multiple times. Therefore, event processing programs must be idempotent.

Network Management

You can manage your connections and endpoints.

- Connections: used to connect to Webhooks
- Endpoints: used to push custom events

Event Monitoring

EG monitors event subscriptions and channels, and allows you to query event access and delivery information.

5 IAM Projects and Enterprise Projects

IAM Projects

Projects in IAM group and isolate OpenStack resources (compute, storage, and network resources). Resources in your account must be mounted under projects. Each project can be a department or a project team. Multiple projects can be created for an account.

Enterprise Projects

Enterprise projects group and manage multiple resources. The same type of resources in a region can be put into the same enterprise project. Host Security Service (HSS) does not support enterprise projects.

You can classify resources by department or project team and put related resources into the same enterprise project for easy management. Resources can be migrated between enterprise projects.

Differences Between IAM and Enterprise Projects

- IAM projects group and physically isolate resources in the same region. Resources cannot be transferred between IAM projects, but can only be deleted and then created again.

Figure 5-1 IAM projects

- Enterprise projects group and manage resources across regions. Resources in enterprise projects are logically isolated from each other. An enterprise project can contain resources in multiple regions, and resources can be transferred between enterprise projects. You cannot create projects in IAM after enabling Enterprise Management. In the future, IAM projects will be replaced by enterprise projects, which are more flexible.

Figure 5-2 Enterprise projects
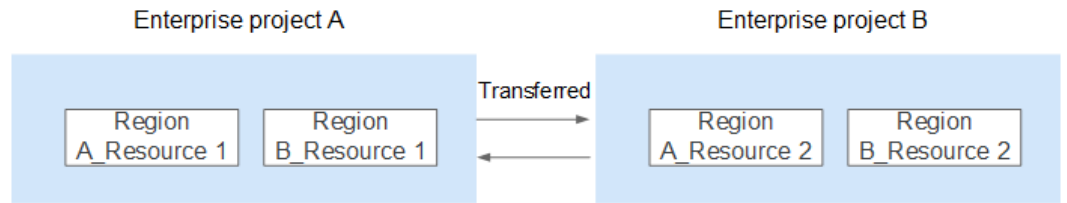
Both IAM and enterprise projects can be managed by one or more user groups. Users who manage enterprise projects belong to certain user groups. By attaching a policy to a user group, users in the group can obtain the permissions defined in the policy in the IAM or enterprise project.

For details about how to create an IAM or enterprise project and grant permissions, see **Enterprise Project Management**.

6 Quotas

A quota is the maximum number of resources that you can create in EG. The following table lists all resource quotas.

Table 6-1 EG quotas

Resource	Quota (Count)
Total custom event sources	100
Custom RabbitMQ event sources	5
Custom RocketMQ event sources	5
Event channels	10
Event subscriptions	20
Event targets per subscription	5
Event streams	20
Connections	3
Private endpoints	10

If a quota cannot meet your needs, apply for a higher quota. For details about how to view and modify quotas, see **My Quotas**.

7 Billing

Billing Items

You will be billed by the number of custom and third-party events.

📖 NOTE

Events of Huawei Cloud services are free of charge in any status. You will not be billed for consuming these events.

Table 7-1 EG billing items

Billing Item	Description
Custom (including events of cloud service tenants) and third-party events	Billed by the number of events

Billing Mode

EG provides pay-per-use billing. You pay only for your actual usage, and there is no minimum payment due.

Renewal

To renew your subscription, go to the **Renewals** page on the management console. For details, see **Renewal Management**.

Expiration and Overdue Payment

If your account is in arrears, view the arrears details in the Billing Center. To prevent resources from being stopped or released, top up your account at the earliest. For details, see **Top-Up and Repayment**.

8 Concepts

Event

A state change record.

Event Source

An application that produces events.

Event Target

A destination that receives and processes events.

Event Channel

A hub that receives events from event sources.

Event Rule

A group of parameters that specify which events are routed to targets.

9 Permissions Management

You can use IAM to manage EG permissions and control access to your resources. IAM provides identity authentication, permissions management, and access control.

With IAM, you can use your Huawei Cloud account to create IAM users for your employees, and assign permissions to the users to control their access to specific resource types. For example, you can create IAM users for software developers and assign permissions to allow them to use EG resources but prevent them from deleting resources or performing any high-risk operations.

If your Huawei Cloud account does not require individual IAM users for permissions management, skip this section.

IAM can be used free of charge. You pay only for the resources in your account. For details, see **IAM Service Overview**.

EG Permissions

By default, new IAM users do not have any permissions. You need to add them to one or more groups, and then add permissions policies or roles to these groups. The users inherit permissions from their groups and can then perform specified operations on cloud services.

EG is a project-level service deployed and accessed in specific physical regions. To assign permissions to a user group, set the scope to **Region-specific projects** and select projects for the permissions to take effect. If **All resources** is selected, the permissions will take effect for the user group in all region-specific projects. Switch to a region where you have been authorized to access EG.

You can grant users permissions by using roles and policies.

- Roles: A coarse-grained authorization mechanism that defines permissions related to user responsibilities. This mechanism provides only a limited number of service-level roles for authorization. When using roles to grant permissions, you also need to assign dependency roles. However, roles are not an ideal choice for fine-grained authorization and secure access control.

- Policies: A fine-grained authorization mechanism that defines permissions required to perform operations on specific cloud resources under certain conditions. This mechanism enables more flexible policy-based authorization

and meets secure access control requirements. For example, you can grant IAM users only the permissions for performing specific operations on event sources. Most policies define permissions based on APIs.

Table 9-1 lists all the system-defined roles and policies supported by EG.

Table 9-1 EG permissions

Role/Policy Name	Description	Type	Dependency
EG FullAccess	Full permissions for EG	System-defined policy	N/A
EG Publisher	Permissions for publishing events	System-defined policy	N/A
EG ReadOnlyAccess	Read-only permissions for EG	System-defined policy	N/A

Table 9-2 lists the common operations supported by each system-defined policy of EG. Please choose proper policies according to this table.

Table 9-2 Common operations supported by each system-defined policy

Operation	EG FullAccess	EG Publisher	EG ReadOnlyAccess
Create event subscription **NOTE** To create event targets with FunctionGraph, EG, or SMN, you must be granted the required permissions. For details, see **Table 9-3**.	√	×	×
Enable/ Disable event subscription	√	×	×
Update event subscription	√	×	×
Delete event subscription	√	×	×
View event subscription	√	×	√

Operation	EG FullAccess	EG Publisher	EG ReadOnlyAccess
Create event source	√	×	×
Update event source	√	×	×
Delete event source	√	×	×
View event source	√	×	√
Create event channel	√	×	×
Update event channel	√	×	×
Delete event channel	√	×	×
View event channel	√	√	√
Create connection	√	×	×
Update connection	√	×	×
Delete connection	√	×	×
View connection	√	×	√
Create endpoint	√	×	×
Update endpoint	√	×	×
Delete endpoint	√	×	×
View endpoint	√	×	√
Publish event to event channel	√	√	×

Table 9-3 Additional permission parameters

Configuration	Permission
Configure event targets with EG, SMN, or FunctionGraph	iam:permissions:grantRoleToAgencyOnProject
	iam:agencies:listAgencies
	iam:roles:listRoles
	iam:agencies:getAgency
	iam:agencies:createAgency
	iam:permissions:listRolesForAgency
	iam:permissions:listRolesForAgencyOnProject
	iam:permissions:listRolesForAgencyOnDomain