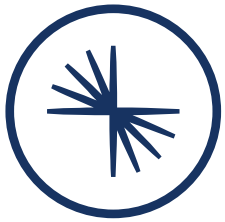
01: Introduction to Confluent Cloud



CONFLUENT

Global Education

Module Overview

This module contains three lessons:

- Confluent Cloud Fully Managed Service for Apache Kafka
- Confluent Cloud Organization
- Confluent Cloud Accounts

After this module you will be able to:

- Explain what "fully managed" means in the context of Confluent Cloud.
- Describe how Confluent Cloud is organized (environments, clusters, schema registry, etc.)
- Explain the differences between basic, standard and dedicated clusters.
- Describe the two types of accounts in Confluent Cloud.

01a: Confluent Cloud - Fully Managed Service for Apache® Kafka

Description

Confluent Cloud is a fully managed service from Confluent designed to set data in motion.

Learning Objectives

Upon completion of this lesson and associated lab exercises, you will be able to:

- Define the two Confluent deployments.
- Explain what a fully managed Kafka cluster is.
- Compare between Cloud-Native and Cloud-Hosted.

Choose Your Deployment

Self-Managed Software

Confluent Platform

The Enterprise Distribution of Apache Kafka

Deploy on any platform, on-prem or cloud

Fully-Managed Service

Confluent Cloud

Apache Kafka Re-engineered for the Cloud

Available on the leading public clouds

aws

Google Cloud

What is Confluent Cloud?

Fully Managed Streaming Platform Built on Apache Kafka

- ELASTIC - Massive scale without the ops overhead
- GLOBAL - Build for hybrid and multi-cloud
- INFINITE - Simplify planning with no-limits storage
- COMPLETE - Do more with data in motion (connectors, ksqlDB, Schema Registry...)
- HIGHLY AVAILABLE - Reliably scale mission-critical apps
- SECURE - Run with enterprise-grade security & compliance

Cloud-Native vs. Cloud-Hosted

	Confluent Cloud (Cloud-Native)	Cloud-Hosted (Self-Managed)
Sizing	Throughput-based	Broker-based
Infra Monitoring	Confluent proactive monitoring	Manual monitoring
Topic Monitoring	Pre-aggregated and free metrics	Per-topic per-broker metrics cost extra
Upgrades	Always on latest version	Limited version support
Vulnerability Patches	Proactive fixes	Not available
Cluster Expansions	Elastic scalability	Add brokers without data balancing
Connectors	Pre-built and fully managed	Self develop & manage
Support	Committer-driven expertise	Limited expertise
Environments	Freedom of choice	Limited
Ecosystem	Complete	Limited

01b: Confluent Cloud Organization

Description

An Organization is a structural object within Confluent Cloud.

Learning Objectives

Upon completion of this lesson and associated lab exercises, you will be able to:

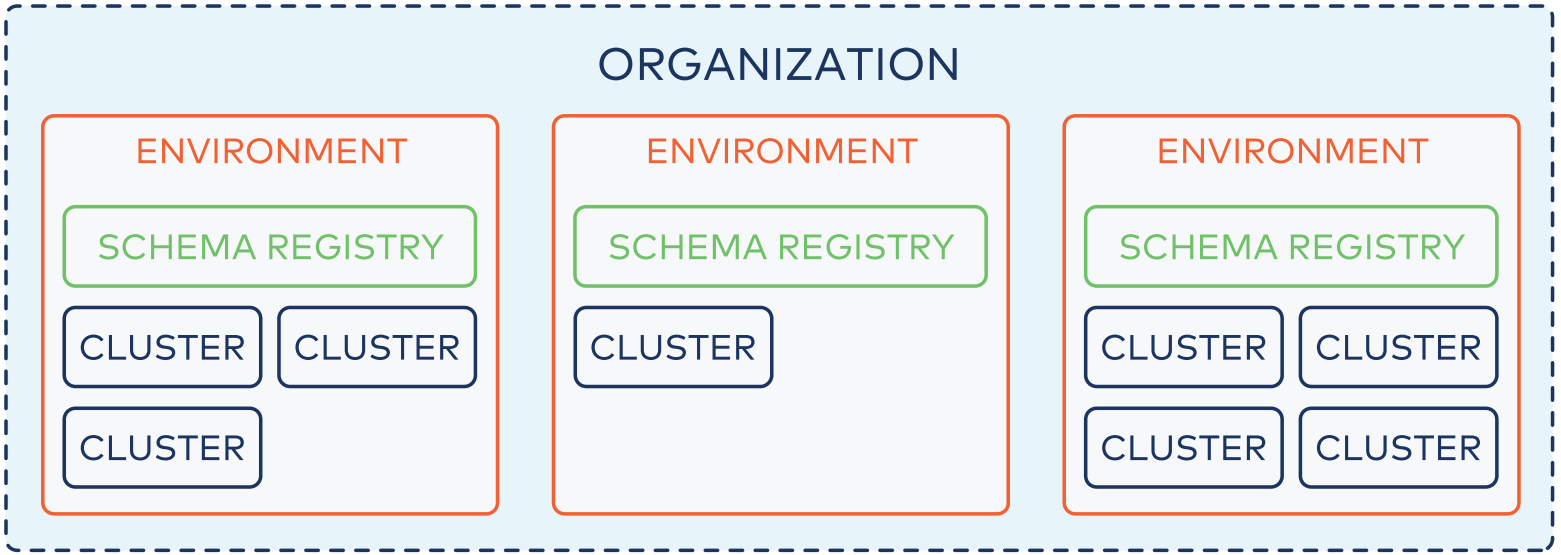
- Definition of how Confluent Cloud is structured.
- Comparison between the three types of clusters and discussion about pricing.
- Description of each component in Confluent Cloud.

How is Confluent Cloud Organized?

Confluent Cloud structure

- Organization:
  - Environment:
    - Schema Registry
    - Cluster (Kafka):
      - ksqlDB
      - Connect

Confluent Cloud Structure



Confluent Cloud Structure: Organization Level

These are the features that can be configured at the organization level:

- Manage billing (billing is at the Org level)
- Create user and service accounts
- Configure single sign-on (SSO)
- Manage support subscription level (support is at the Org level)

Confluent Cloud Structure: Environment Level

Consists of a logical number of clusters and a single Schema Registry.

You may want to create different environments based on:

- Application life cycle (development environment, staging environment, production environment)
- Regional-based deployments
- Cloud providers
- Lines of business
  - Lines of business means different teams in the company - sales, HR, Dev, QA, etc.

Confluent Cloud Structure: Cluster Level

In a Kafka cluster in Confluent Cloud you can:

- Create/update/delete topics
- View metrics of producers/consumers connected to the cluster
- Manage AuthN and AuthZ to the cluster via API keys and ACLs
- Create fully-managed connectors associated to this Kafka cluster
- Create ksqlDB clusters associated to this Kafka cluster

Types of Clusters

- BASIC (testing & development)
- STANDARD (small/medium production environments, Public Networking)
- ENTERPRISE (small/medium production environments, Private Networking)
- DEDICATED (small/medium/large production environments or special requirements, i.e., Cluster Linking, BYOK...)

Types of Clusters

Class	Basic	Standard / Enterprise	Dedicated
Use	Testing & Dev	Production	Production
Availability	Single-zone (SZ)	Single-zone (SZ) Multi-zone (MZ)	Single-zone (SZ) Multi-zone (MZ)
Tenancy	Multi-tenanted	Multi-tenanted	Single-tenanted
Uptime SLA	99.5%	99.95% - SZ 99.99% - MZ	99.95% - SZ 99.99% - MZ
Limits	• Throughput: 250 / 750 MBps • Storage: 5 TB • Partitions: 4096	• Throughput: 250 / 750 MBps • Infinite Storage • Partitions: ~5000	Depends on number of CKUs
Max Msg Size	8 MB	8 MB	20 MB

Pricing

Basic	Standard	Enterprise	Dedicated
Base price: $0	Base price: $/hour	Base price: $/E-CKU/hour Minimum: 2 E-CKUs Fixed Ceiling: 5 E-CKUs	Base price: $/CKU/hour Minimum: 1 CKU Maximum: 100 CKUs
Based on consumption: • Ingress ($/GB) • Egress ($/GB) • Partitions ($/partition/hour) • Storage ($/GB-month)		Based on consumption: • Ingress ($/GB) • Egress ($/GB) • Storage ($/GB-month)	
Fully-managed connectors, ksqlDB, cluster linking, audit logs, etc. are billed separately			

Fully Managed Schema Registry

Centralized repository for managing and validating schemas or topic message data

- Zero or one Schema Registry per Confluent Cloud environment
- Choose between different cloud providers and regions
- Specific API Key needed to access Schema Registry
- In multi-tenant deployments, one physical Schema Registry per cloud and geographic region hosts many logical schema registries

Fully Managed ksqlDB

ksqlDB is a database purpose-built to help developers create stream processing applications on top of Kafka Web UI for managing your ksqlDB cloud environment, including:

- SQL Editor with auto-completion
- Available in AWS, GCP, and Azure in all regions
- Integrates with Confluent Cloud Schema Registry
- Confluent charges you in Confluent Streaming Units (CSUs) per hour
- ksqlDB clusters can have 1, 2, 4, 8, 12, 16, 20, 24 and 28 CSUs

Fully Managed Connectors

Pre-built & fully managed connectors to instantly connect to popular data sources and sinks:

- Provides an HTTP API allowing you to interact with your connector
- Automatic Dead Letter Queue Topic creation when launching a sink connector
- Support for Single Message Transforms (SMTs)
- Connector Data Previews
- Connector log events can be viewed in the Confluent Cloud Console (Standard & Dedicated only)
- Connectors require credentials to be able to operate and access Kafka

01c: Confluent Cloud Accounts

Description

There are two types of accounts in Confluent Cloud: User Accounts and Service Accounts.

Learning Objectives

Upon completion of this lesson and associated lab exercises, you will be able to:

- Define User Accounts and Service Accounts in Confluent Cloud.

User Account

- It represents one user.
- An Organization may contain one to many User Accounts.
- A given user (corresponding to a specific email address) can be a member of multiple organizations at the same time.

Service Account

- It represents an application programmatically accessing Confluent Cloud.
- An Organization may contain zero to many Service Accounts.

Confluent strongly recommends that you use service accounts for **all production-critical access**.

Lab Module 01: Introduction to Confluent Cloud

Please work on **Lab Module 01: Introduction to Confluent Cloud**.

Refer to the Exercise Guide.