



Try **FREE**
confluent.io/cloud



**\$50 Free
each month**



**3 Months
from signup**



Fundamentals for Apache Kafka®

Benefits of Stream Processing and Apache Kafka Use Cases

Session Schedule



- **Session 1: Benefits of Stream Processing and Apache Kafka Use Cases**
- Session 2: Apache Kafka Architecture & Fundamentals Explained
- Session 3: How Apache Kafka Works
- Session 4: Integrating Apache Kafka into your Environment

Learning Objectives



After this module you will be able to:



- Identify the need for event-driven systems
- Name specific use cases where real-time data is critical
- Explain the advantages of using Apache Kafka and Confluent Platform as your Event Streaming platform



Motivation

The shift to Event-driven Systems has Already Begun ...

From a static snapshot...



Occasional call to a friend

...to a continuous stream of events



A constant feed about the activities of all your friends



Daily news reports



Real time news feeds, accessible online anytime, anywhere



Motivation

This leads us to ...



A single platform to connect everyone to every event



Real-time streams of events



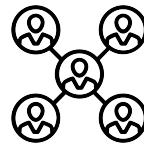
All events stored for historical view



Motivation

Successful Digital Businesses are Inherently Event-driven

Born cloud-native ...



Social Networks
Enabling Event
Sharing



**Streaming
Provider**
On-demand
Digital Content

Traditional ones that adapt ...



Newspaper
Provide a single
Source of Truth



**Credit Card
Payments**
Microservices
Architecture



Motivation

Born cloud-native ...



Ride Hailing

Connecting Provider with Customer in real-time

Traditional ones that adapt ...

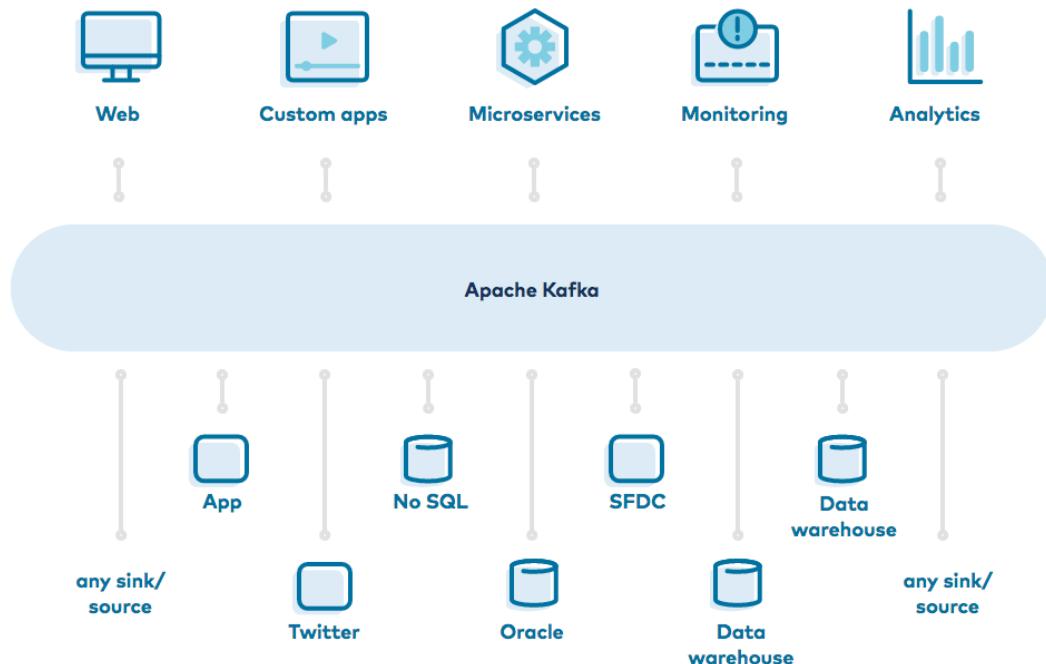


Connected Cars

IoT – Real-time Traffic Routing



Motivation



Apache Kafka: The
De-facto Standard
for Real-Time Event
Streaming

- Global-scale
- Real-time
- Persistent Storage
- Stream Processing

Motivation



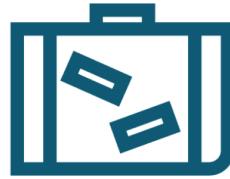
Thousands of Companies Worldwide trust Kafka for their Journey towards “Event-driven”



Motivation



Over 35% of Fortune
500 Companies
Already Trust Kafka
for Mission Critical
Apps





Real-time Fraud Detection



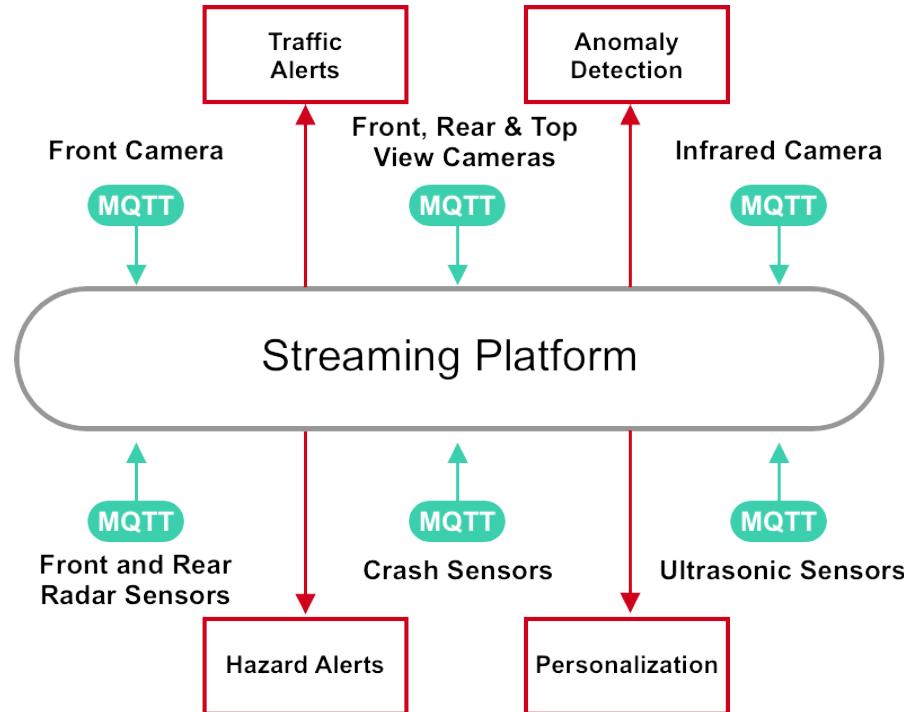
- Act in real-time
- Detect Fraud
- Minimize risk
- Improve customer experience



Automotive



**The Future of the
Automotive
Industry is a Real
Time Data Cluster**





Real-time e-Commerce



Rewards Program

- Onboarding new merchants faster
- Increased speed at which mobile applications are delivered to customers
- Enabled a full 360 view of customers
- Enhanced performance and monitoring
- Projected savings of millions of dollars



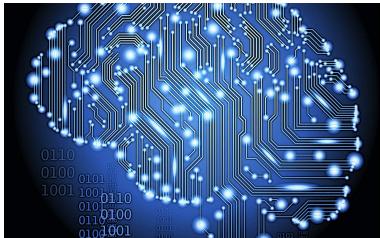
Customer 360



- Improved data integration
- Increased up-sell and cross-sell opportunities
- Increased scalability and flexibility
- Saved costs



Core Banking



- Empowered successful core banking platform relaunch
- Met HA and SLA needs
- Improved scalability
- Power AI for ChatBots



Online Gaming



Data Pipelining

- Increased reliability
- Accurate, real-time data
- Ability to process data at scale
- Faster ramp time

Government



- Near real-time events and better data quality
- Increased efficiency
- Ability to change their organization
- Produce & store population data from several sources
- Reduce welfare crime through strengthened identity management
- Provide better privacy and meet GDPR requirements



Financial Services



Customer communications

- Enhanced the customer experience
- Enabled “One Bank” strategy

Payments engine

- Improved fraud detection engine, saving millions of euros
- Grew topics in production by 600 percent



Confluent Platform

Central Nervous System



Financial

Retail

Healthcare

Entertainment

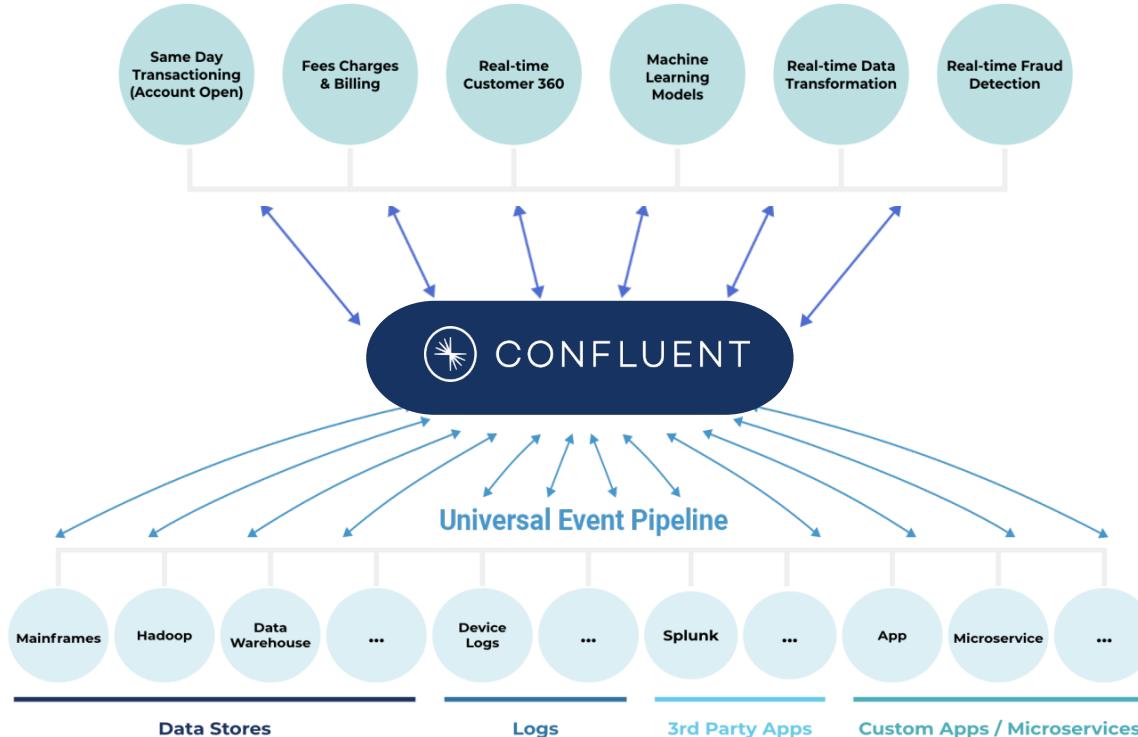
Telco

Automotive

Insurance

Digital First

Contextual Event-Driven Apps

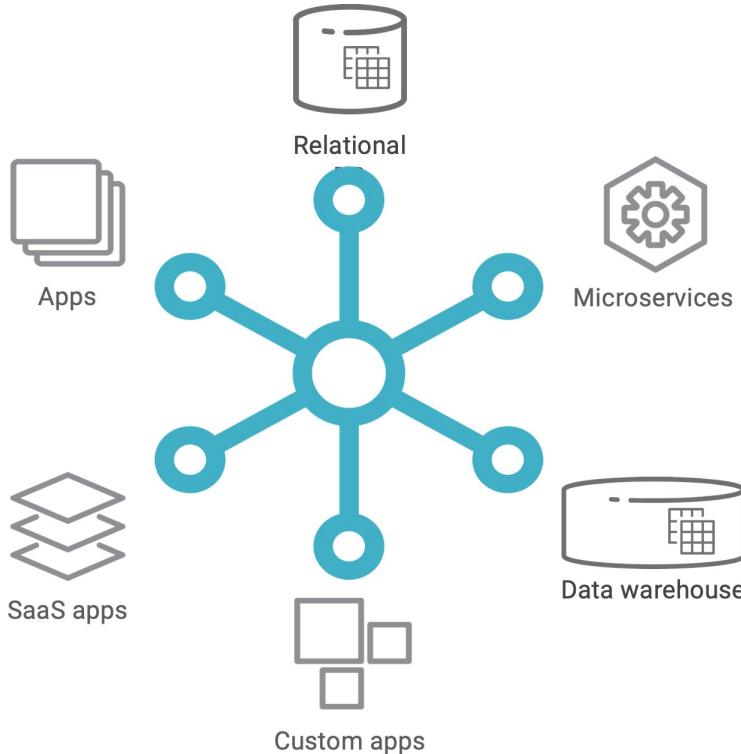


Event Streaming is a Journey Confluent is Your Partner





Confluent Platform



Build a Central Nervous System for your Modern Event-driven Enterprise

Respond accurately and in real-time to business events.

Confluent Platform



Confluent is Enabling Event-driven Transformation across Industries

Banking & Capital Markets



- Risk management
- Trade data capture
- Customer 360
- Fraud detection
- Mainframe offload

Retail



- Inventory management
- Product catalog
- A/B testing
- Customized experiences

Healthcare & Pharma



- Patient monitoring
- Prescription control
- Lab alerts
- Medication tracking

Automotive & Transportation



- Connected car
- Fleet management
- Manufacturing data processing

Telecommunications



- Personalized ads
- Customer 360
- Network integrity

Travel & Leisure

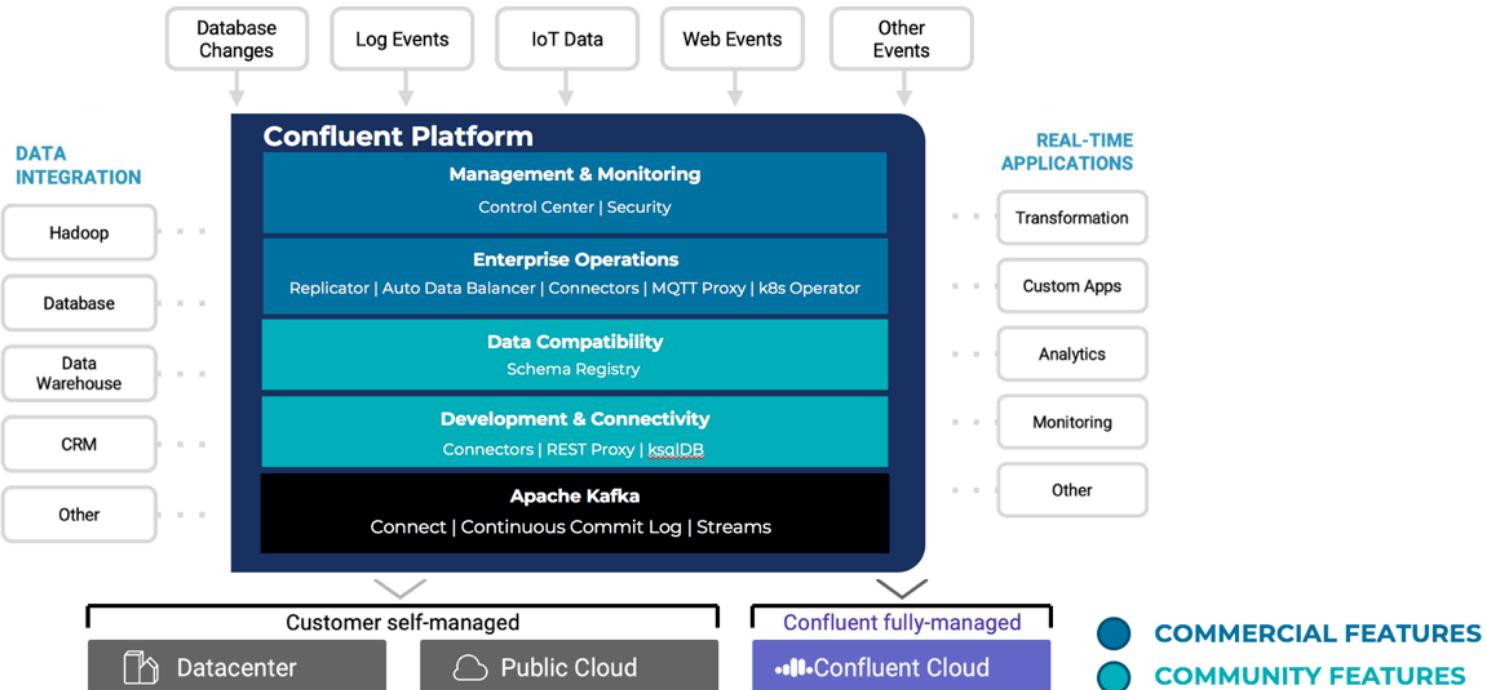


- Visitor segmentation
- Booking systems
- Pricing services
- Fraud detection

Confluent Platform



A Complete Set of Development, Operations, and Management Capabilities to run Kafka at Scale



Confluent Platform



Operations and Security

Security plugins | Role-Based Access Control | Audit Logs
Control Center | Replicator | Auto Data Balancer | Operator
Multi Region Clusters | Schema Validation | Tiered Storage

Development & Stream Processing

Connectors

Clients | REST Proxy

ksqldb

MQTT Proxy | Schema Registry

Apache Kafka

Connect

Continuous Commit Log

Streams

Self-Managed Software

Datacenter

Public Cloud

Fully-Managed Service

Confluent Cloud

Mission-critical Reliability

Complete Event Streaming Platform

Freedom of Choice

Two Ways to Deploy Confluent



SELF-MANAGED SOFTWARE



Confluent Platform

The Enterprise Distribution of Apache Kafka

In the datacenter



FULLY-MANAGED SOFTWARE



Confluent Cloud

Apache Kafka Re-Engineered for the Cloud

In the cloud



Confluent Control Center



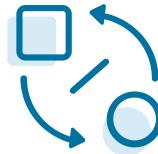
Kafka is powerful ... but has many parts



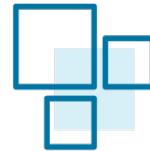
Install



Make secure



Get data in/out



Build apps



Alert errors



Configure



Find data



Monitor pipelines



Monitor apps



Debug

Confluent Control Center

The simplest way to operate and build applications with Apache Kafka

For Operators

Centrally manage and monitor multi-cluster environments and security

For Developers

View messages, topics and schemas, manage connectors and build ksqlDB queries



The screenshot displays the Confluent Control Center web interface. At the top left, there's a sidebar with cluster icons and names: AN Cluster 1, CO Cluster 2, CO Cluster 3, EX Cluster 4, and PO Cluster 5. Below the sidebar, the main dashboard shows two metrics: 2 Healthy clusters and 1 Unhealthy clusters. A search bar and a 'Hide healthy clusters' toggle switch are also present. The interface is divided into several sections:

- Analytics**: Overview of brokers (2), partitions (230), topics (62), production (42.9 MB/s), and consumption (32.2 MB/s). Connected services show 1 KSQL cluster and 6 Connector clusters.
- Consumer banking**: Overview of brokers (2), partitions (230), topics (62), production (42.9 MB/s), and consumption (32.2 MB/s). Connected services show 1 KSQL cluster and 6 Connector clusters.
- Corporate**: Overview of brokers (2), partitions (230), topics (62), production (42.9 MB/s), and consumption (32.2 MB/s). Connected services show 1 KSQL cluster and 6 Connector clusters.
- Experiences**: Overview of brokers (2), partitions (230), topics (62), production (42.9 MB/s), and consumption (32.2 MB/s). Connected services show 1 KSQL cluster and 6 Connector clusters.
- Schemas**: This section is currently empty.

Confluent CLI



- **Platforms:** Linux, Unix-based
- **License:** Proprietary
- **Packaging:** Independent of CP
- **Key Features:**
 - RBAC management
 - Password protection
 - Subsumed confluent-cli commands for local

Manage your Confluent Platform.

Usage:

```
confluent [command]
```

Available Commands:

completion	Print shell completion code.
help	Help about any command
iam	Manage RBAC and IAM permissions.
local	Manage local Confluent Platform development environment.
login	Login to Confluent Platform.
logout	Logout of Confluent Platform.
secret	Manage secrets for Confluent Platform.
update	Update the confluent CLI.
version	Print the confluent CLI version.

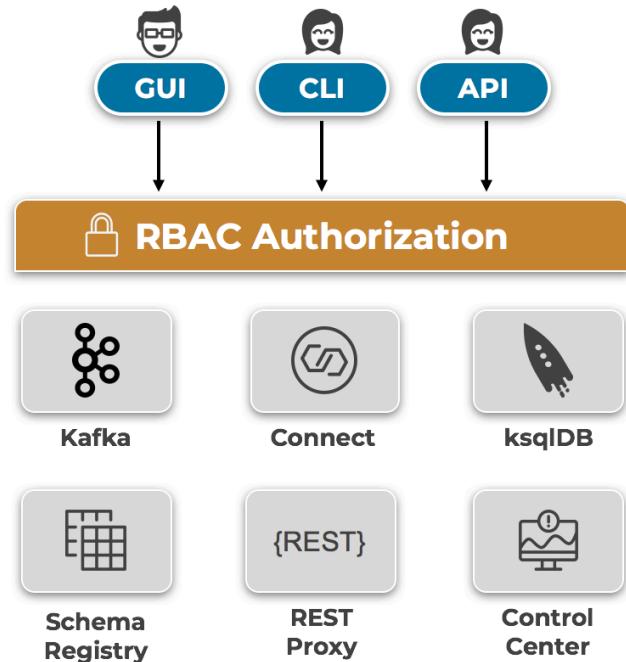
Flags:

-h, --help	help for confluent
-v, --verbose count	Increase verbosity ...

Role Based Access Control



- Utilizes a predefined set of Roles
- User who is assigned a role receives all privileges of that role
- Each user could belong to multiple roles
- Privileged user within a given scope can create/update other user's roles
- Privileged user can update roles for existing users
- Across the platform (KSQL, Connect, Schema Registry, Connectors, etc.)





Confluent Operator

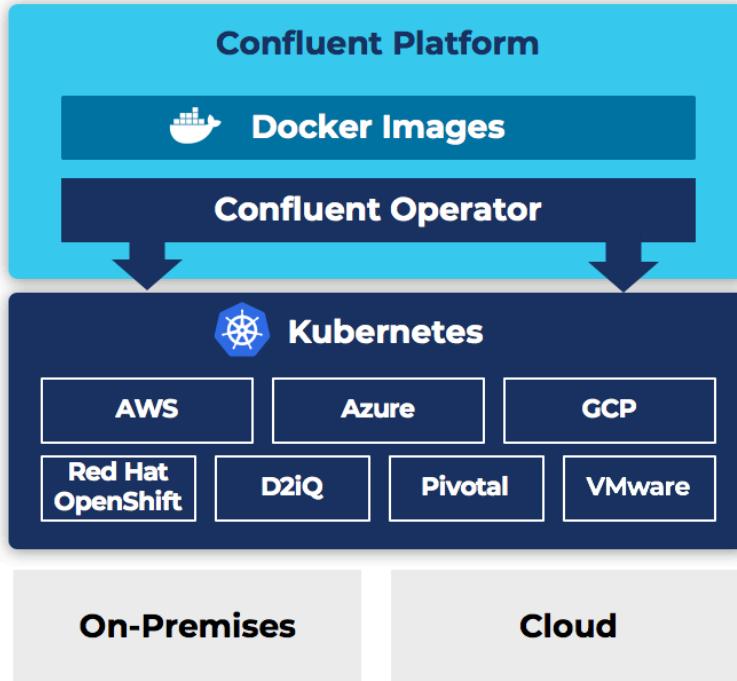
Confluent Operator for
Kubernetes runs on any
platform at any scale

What:

Deployment and management
automation for Confluent
Platform across environments

For Whom:

Organizations that have
standardized on Kubernetes as
the platform runtime





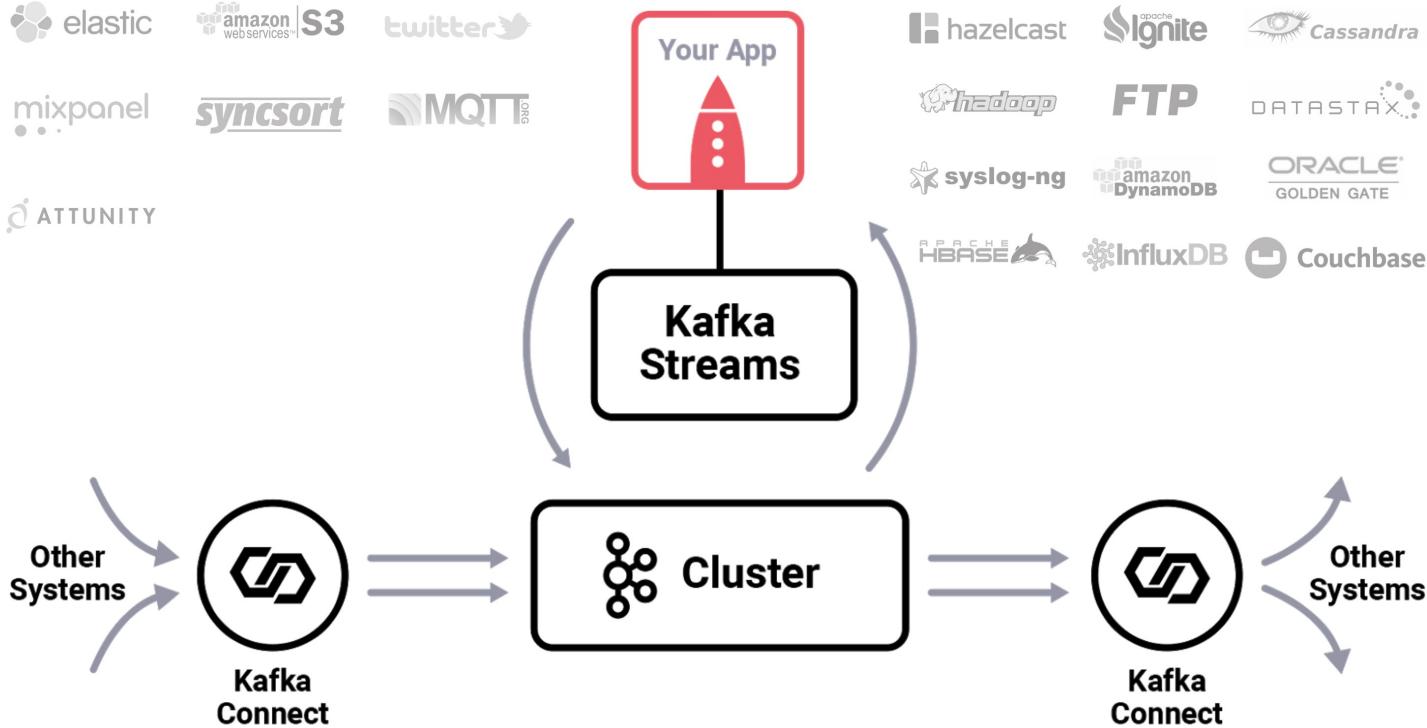
Confluent – Feature Comparison

Feature	Confluent Platform (On Premise)	Confluent Cloud (Fully Managed)
Scale	Unlimited throughput, unlimited retention	Unlimited throughput, unlimited retention (Dedicated)
Availability	Self Managed	99.95% uptime SLA
Durability	Self Managed	Multi-AZ with 3 availability zones (option)
Updates	3-4 Annual Releases	Weekly Fully Managed Updates
Support	24x7 Gold and Platinum (option)	24x7 Gold SVPC peering (option)
Pricing	Node based pricing	Usage Based Pricing
Packaging/Environment	Tarball, deb, rpm, zip, Docker images	AWS, GCP, Azure

Broad Connector Eco-System



Bloomberg



Instantly Connect Popular Data Sources & Sinks



Confluent HUB

Easily browse connectors by:

- Source vs Sinks
- Confluent vs Partner supported
- Commercial vs Free
- Available in Confluent Cloud

confluent.io/hub

Confluent Hub

Discover Kafka® connectors and more

What plugin are you looking for?

Filters

Plugin type: Sink, Source, Transforms, Converter

Enterprise support: Confluent supported, Partner supported, None

Verification: Confluent built, Verified gold, Verified standard, None

License: Commercial, Free

Available in Confluent Cloud: Yes, No

Be the first to know about new and updated plugins

Email _____

Sign up

Results (127)

+ Submit a plugin

Kafka Connect Telegram

SINK CONNECTOR

The Telegram connector allows moving data from Kafka to a Telegram chat. It writes data from a topic in Kafka to the configured chat-id. It's possible to send both text, photo and video messages to chats.

Available fully-managed on Confluent Cloud

Enterprise support: None | Verification: None | License: Free

Installation: Confluent Hub CLI, Download | Author: Erik-Berndt Schepers | Version: 0.2.0

Kafka Connect Protobuf Converter

CONVERTER CONNECTOR

Proto3 converter for Kafka Connect.

Available fully-managed on Confluent Cloud

Enterprise support: None | Verification: None | License: Free

Installation: Confluent Hub CLI, Download | Author: Blue Apron, LLC | Version: 2.0.0

IBM Data Replication

SOURCE CONNECTOR

Data replication is a solution that provides trusted data integration and synchronization to enable you to efficiently manage data growth.

Available fully-managed on Confluent Cloud

Enterprise support: None | Verification: Verified standard | License: Commercial

Installation: Confluent Hub CLI | Author: IBM | Version: 11.4.0

Confluent Hub



Goal: Connect Everything!



80+ Confluent Supported

20+ Partner Supported, Confluent Verified

Continue your Apache Kafka Education!



- Confluent Operations for Apache Kafka
- Confluent Developer Skills for Building Apache Kafka
- Confluent Stream Processing using Apache Kafka Streams and KSQL
- Confluent Advanced Skills for Optimizing Apache Kafka

For more details, see <http://confluent.io/training>



Certifications

Confluent Certified Developer for Apache Kafka

(aligns to Confluent Developer Skills for Building Apache Kafka course)

Confluent Certified Administrator for Apache Kafka

(aligns to Confluent Operations Skills for Apache Kafka)



What you Need to Know

- **Qualifications:** 6-to-9 months hands-on experience
- **Duration:** 90 mins
- **Availability:** Live, online 24/7
- **Cost:** \$150
- **Register online:** www.confluent.io/certification





Stay in touch!



Confluent Blog
cnfl.io/blog



Community Slack
cnfl.io/slack



Confluent Cloud
cnfl.io/confluent-cloud

