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# IBM Event Streams Overview

- Describe what IBM Event Streams is and what it does
- Learn the benefits of using IBM Event Streams
- Describe the underlying technologies and core components of IBM Event Streams
- Describe product packaging and list supported platforms
- Describe some key use cases

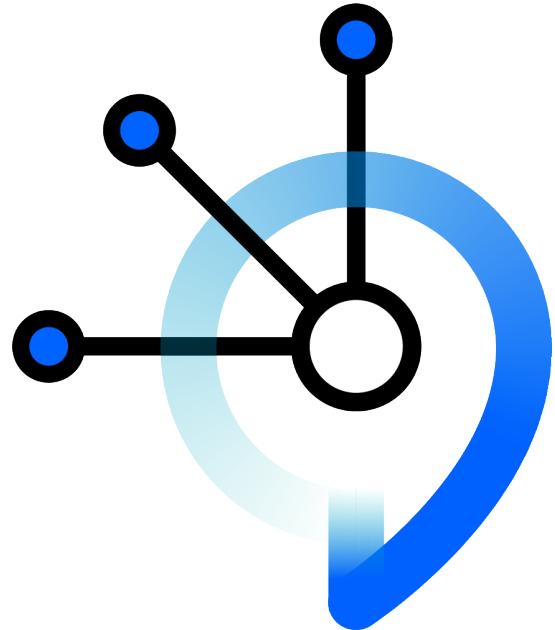
# What is IBM Event Streams?



**IBM Event Streams** is fully supported Apache Kafka® with value-add capabilities

- ✓ *Intuitive to use*
- ✓ *Enterprise-ready*
- ✓ *Unlocks core data*
- ✓ *Trusted support*

# What does IBM Event Streams provide?



Fast and simple deployment of a production-ready Kafka cluster

Container management with IBM Cloud Private

Intuitive graphical user interfaces and tools to speed deployment and minimize skill requirements

Integration with IBM Cloud Private metering, security, and monitoring features

Zero downtime with rolling upgrades

Geo-replication for disaster recovery

Integration with IBM MQ

# Benefits of using IBM Event Streams

# Why use IBM Event Streams?

IBM has **years of operational expertise** running Apache Kafka for Enterprises

Event Streams makes Kafka easy to run, manage & consume; **reduces skill requirements** and increases speed of deployment **for faster time to value**

Integration with IBM Cloud Private security **simplifies Kafka access control** by using roles and policies

IBM's experience in enterprise-critical software shaped features like geo-replication for disaster recovery, and integration with IBM MQ, to give **confidence in deploying mission-critical workloads**

**Support you can trust** – IBM has decades of experience supporting the World's toughest environments

# Benefit from IBM's Kafka Expertise

IBM has years of experience running Apache Kafka across the globe



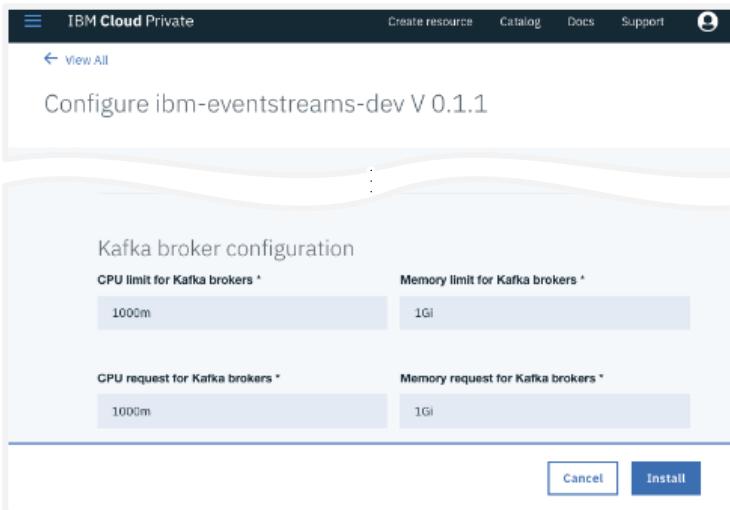
- Public Multi Tenant service
- Dedicated Single Tenant service



In 2015 IBM was the **first vendor** to offer a fully managed, Apache Kafka cloud service

# IBM Event Streams | Making Apache Kafka Intuitive and Easy

## Easy to deploy



The screenshot shows the IBM Cloud Private interface with the title "Configure ibm-eventstreams-dev V 0.1.1". Below it, there's a section titled "Kafka broker configuration" with two sets of input fields:

Setting	Value
CPU limit for Kafka brokers *	1000m
Memory limit for Kafka brokers *	1Gi
CPU request for Kafka brokers *	1000m
Memory request for Kafka brokers *	1Gi

At the bottom right of the configuration panel are "Cancel" and "Install" buttons.

Kafka has many distinct components to deploy, configure and coordinate for secure connectivity

Container placement critical to ensure production-level availability

Event Streams secures network traffic ingress

Ensures consistent and repeatable deployment

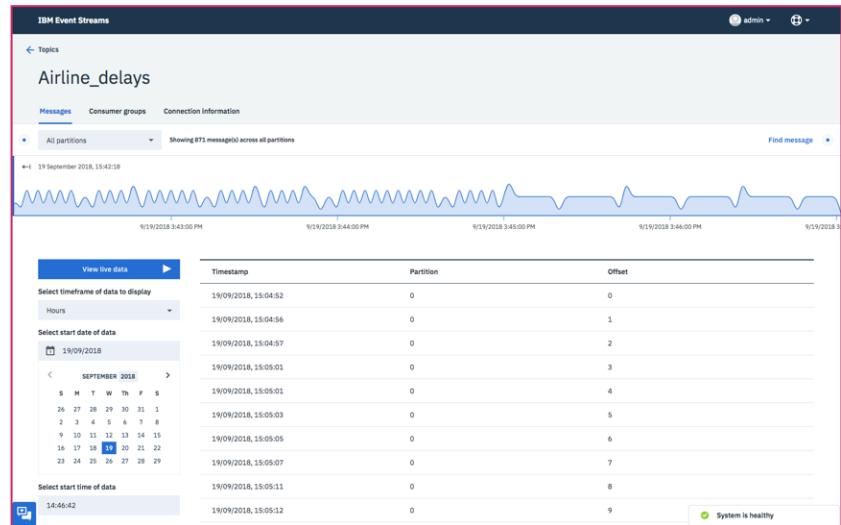
# IBM Event Streams | Making Apache Kafka Intuitive and Easy

The screenshot shows the 'Toolbox' section of the IBM Event Streams interface. It contains four cards:

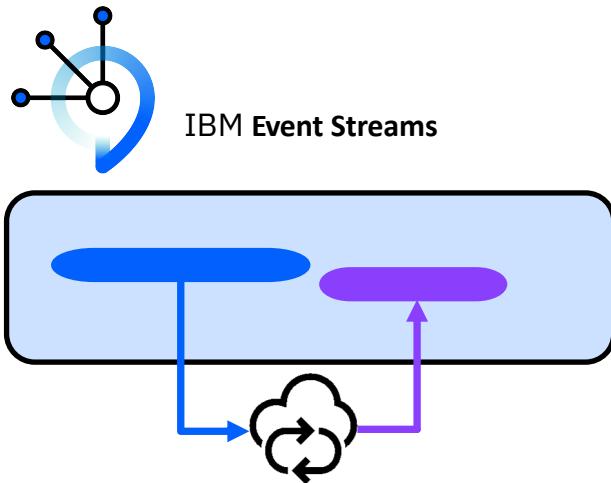
- Starter application**: Download and install this application which you can connect to a topic. This application is a full project containing a Kafka producer and consumer for you to try out.  
[Generate application](#)
- Workload generation application**: Want to quickly validate your IBM Event Streams instance? Download and run a pre-built tool to generate messages at a configurable rate, or download and modify the source to simulate your own workload.  
[View in GitHub](#)
- IBM Event Streams command-line interface**: Use the CLI to manage your IBM Event Streams
- Apache Kafka Java client**: Download the Apache Kafka Java client. A green status indicator says "System is healthy".

## Tools to boost productivity

## Visualisation of your topic data



# IBM Event Streams | Integrated with Key Monitoring Tools



**External monitoring tools**  
Datadog, Splunk

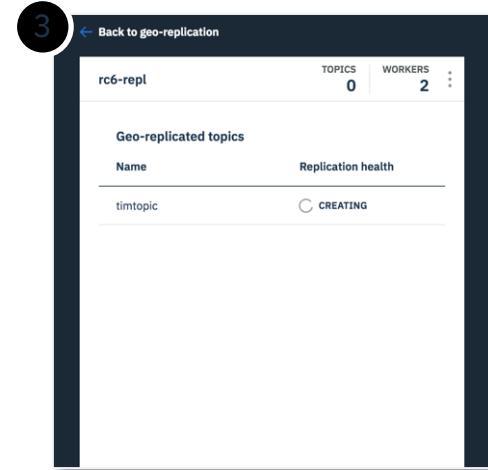
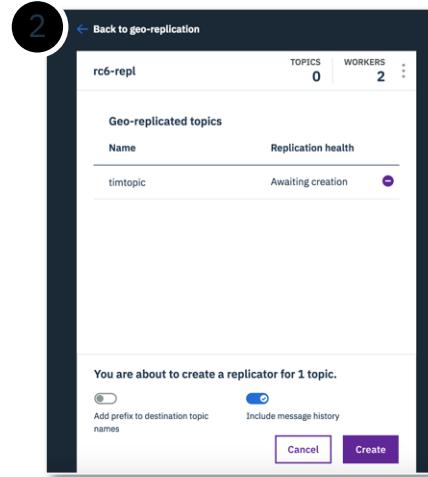
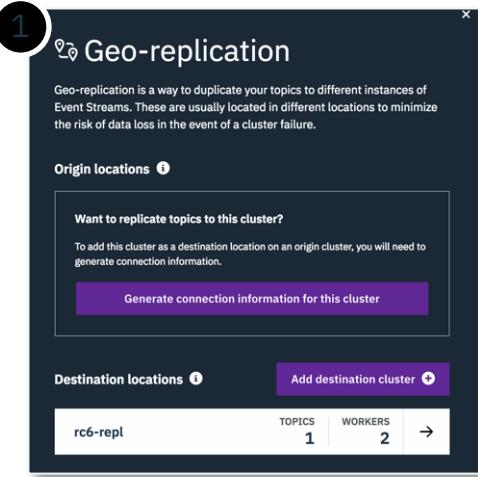
# IBM Event Streams | Enterprise Grade Reliability



*Integrated geo-replication for Disaster Recovery*

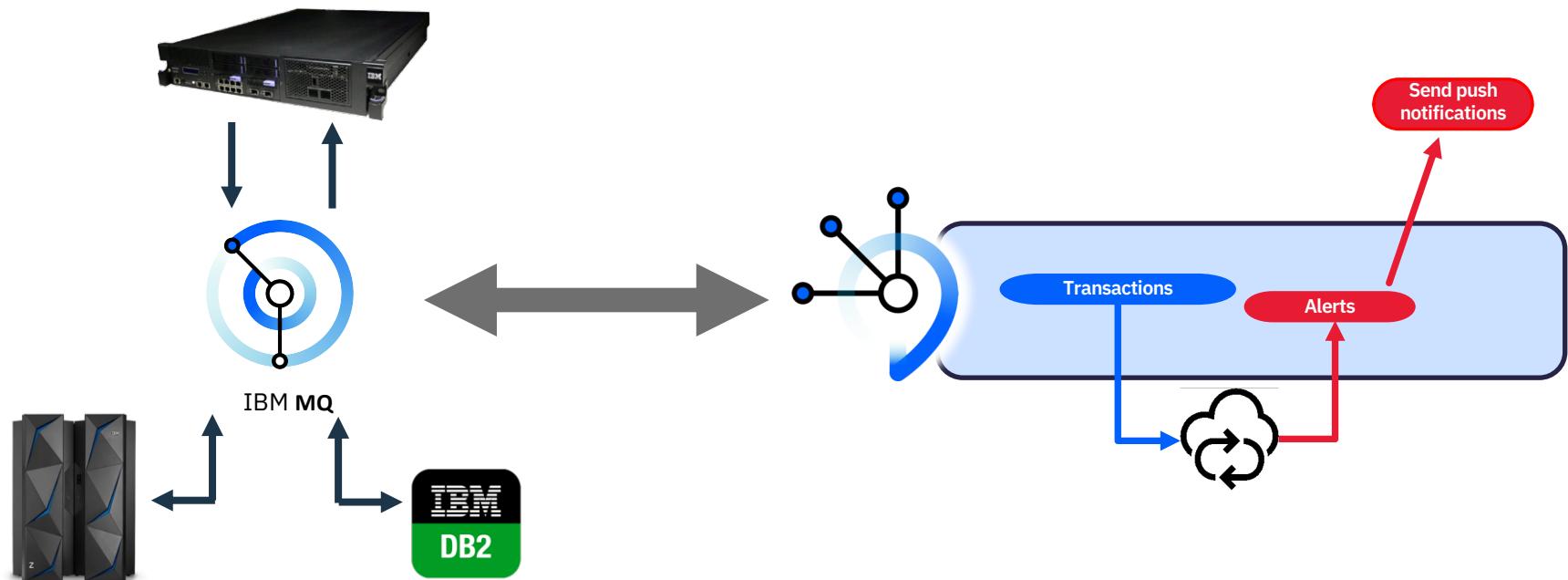


# Geo-Replication is easy to configure



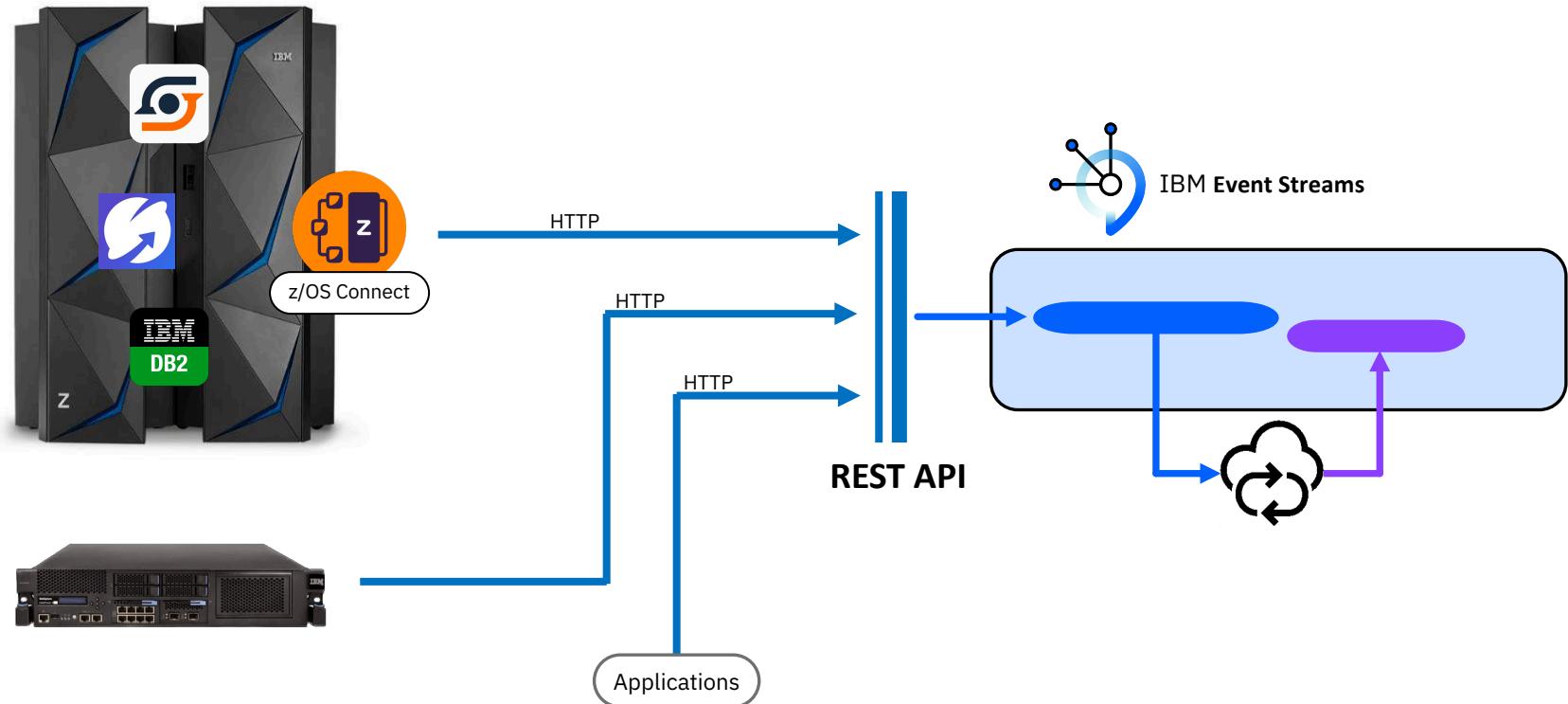
Topics			
Name	Replicas	Partitions	Actions
testfest	3	3	⋮
timtopic	2	1	Geo-replication (1) ⋮

# IBM Event Streams | Integrates Seamlessly with IBM MQ



# Unlock Events from Systems where Kafka Connectivity is a Problem

## ***REST API for Inbound Data***



# IBM Event Streams | Ready for Mission Critical Workloads



**All with IBM 24x7 worldwide support**

# Core technologies

# IBM Event Streams Builds on Open Container Orchestration Technology



Executable package of software that includes everything needed to run it

**Containers**



**kubernetes**

Automate deployment, scaling, and management of containerized applications

**Orchestration**



Define, install, and upgrade Kubernetes applications

**Management**



Infrastructure as code to provision public cloud and on-premises environments

**Provisioning**

# Benefits from the Core Services of IBM Cloud Private



## Enterprise Content Catalog

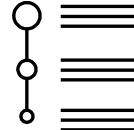
Open Source and IBM Middleware, Data, Analytics, and AI Software





## Core Operational Services

Log Management, Monitoring, Metering, Security, Alerting





## Kubernetes Container Orchestration Platform



Choose your infrastructure:



Self-service catalog

Agility, scalability, and elasticity

Self-healing

Enterprise security

No vendor lock-in

# Apache Kafka Orchestrated with Kubernetes and Helm

IBM Event Streams is packaged as a Helm chart

Deploys a 3-node Kafka cluster, ZooKeeper, UI, network proxies, and more – 20+ containers

Kubernetes and Helm brings this all under control

The screenshot shows the IBM Cloud Private Catalog interface. At the top, there are navigation links: 'Create resource', 'Catalog' (which is highlighted in blue), 'Docs', and 'Support'. Below the header, the page title is 'Catalog' and there is a search bar with the placeholder 'Search items'. A sub-header says 'Deploy your applications and install software packages'. The catalog lists several Helm charts, each with a circular icon, the name, a brief description, and a 'ibm-charts' button. One chart, 'ibm-eventstreams-dev', is highlighted with a yellow border.

Name	Description	Type
ibm-ace-dev	App Connect Enterprise Server.	ibm-charts
ibm-calico-bgp-peer	A Helm chart for configuring a bgp peer to...	ibm-charts
ibm-cam-prod	IBM Cloud Automation Manager.	ibm-charts
ibm-cem	A cloud based event management solution.	ibm-charts
ibm-csi-nfs	Helm chart for all csi nfs components.	ibm-charts
ibm-datapower-dev	IBM DataPower Gateway.	ibm-charts
ibm-db2oltp-dev	IBM Db2 Developer-C Edition 11.1.3.3	ibm-charts
ibm-db2warehouse-dev	Db2 Warehouse Developer-C for Non-Production v2.5.0	ibm-charts
ibm-dsm-dev	IBM Data Server Manager Developer C Edition. Note that...	ibm-charts
ibm-dsx-dev	IBM Data Science Experience (DSX) Developer Edition brings together...	ibm-charts
ibm-eventstore-dev	IBM Di2 Event Store Developer Edition, which is powered...	ibm-charts
ibm-eventstreams-dev	Kafka is an open source stream processing platform used...	local-charts

# High Availability, Scaling and Configuration with Ease

## **Highly available by design**

- Brokers are spread across ICP worker nodes using anti-affinity policies
- Minimizes the risk of down-time in the event of a node outage

## **Scale the Kafka cluster up with one command**

- Safely grows the stateful set, reconfigures the network interfaces and gives you more capacity

## **Roll out Kafka cluster configuration changes easily**

- Make a single configuration change and Event Streams rolls it out across the brokers in the cluster
- Broker availability is managed using health checks to ensure that availability is maintained

# Safe, planned upgrade of Apache Kafka

## **Upgrade Kafka versions safely and without hassle**

First, upgrade the Helm chart to a newer version of IBM Event Streams

- Rolling update of the Kafka brokers minimizes disruption

As a separate step, upgrade the broker data and protocol version to complete the upgrade

- Until this point, you can roll back

# Security: Authentication and Access Control

User and group information controlled centrally

Control access to Event Streams resources by using role-based access control policies

Application access control uses service IDs

## Example policy

*Permit Bob to write to topic T*

User	bob
Role	Editor
Service	Event Streams instance R
Resource	T
Type	topic

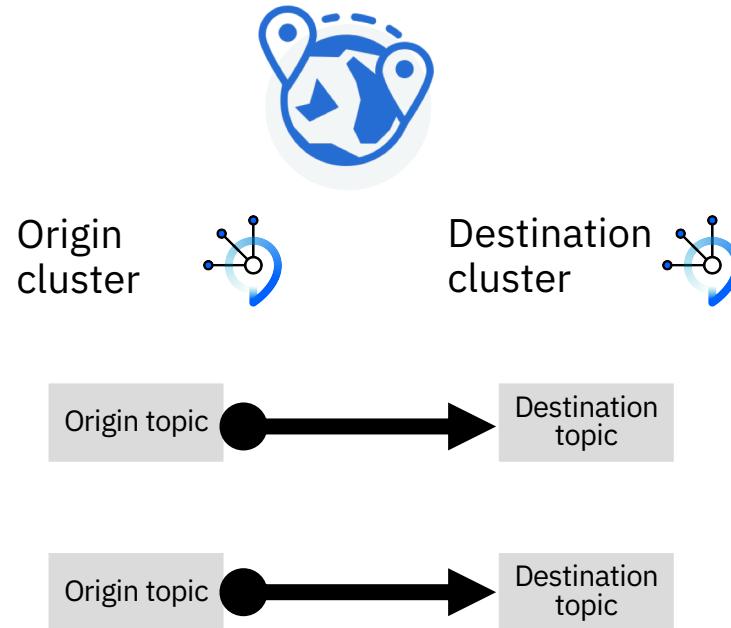
Service action	Roles	Permissions
topic.read	Viewer and above	Read messages or config
topic.write	Editor and above	Write messages
topic.manage	Operator and Administrator	Delete or change config

# Geo-Replication Makes Disaster Recovery Simple

Target is take-over of workload on the destination cluster by business applications within 15 minutes

Easy configuration using the Event Streams UI from the origin cluster sets up the replicator and security credentials

At-least-once reliability so messages are not lost



# Connect IBM MQ to Apache Kafka

IBM created a pair of connectors, available as source code or as part of IBM Event Streams

## Source Connector

From MQ queue to Kafka topic

<https://github.com/ibm-messaging/kafka-connect-mq-source>

## Sink Connector

From Kafka topic to MQ queue

<https://github.com/ibm-messaging/kafka-connect-mq-sink>

- Copies messages from MQ queues to Event Streams topics and vice versa
- Supports all current MQ versions (MQ v8 or later, all platforms)
- Extend the connector to support any business-specific message format
- Fully supported by IBM for customers with support entitlement for IBM Event Streams

# Publish Events from Anywhere with the REST Producer API

IBM created an easy-to-use REST Producer API

```
POST /topics/{topic_name}/records
```

Content-Type: text/plain

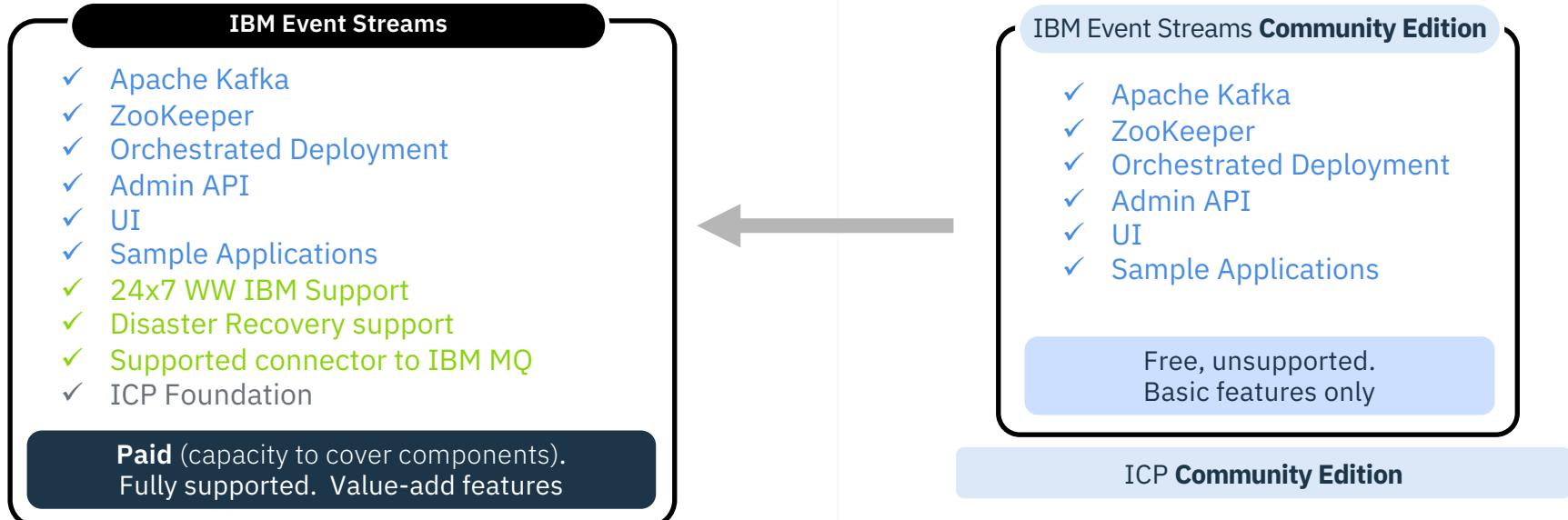
Authorization: Bearer {bearer\_token}

Hello Event Streams

- Use it wherever it's difficult to use a real Kafka client (for example, DataPower, z/OS)
- Straightforward design makes it easy to use from the command line and developer tools
- Supports partitioning keys and headers
- You can use it from the command line with cURL

# Product packaging and support

# IBM Event Streams Packages



**Delivers value-add features for enterprises to run Apache Kafka, fully supported, in production**

- VPC metric (perpetual and subscription)
- IBM's 24x7 WW support commitment
- Geo-replication for multi-site DR deployments
- Supported integration with existing MQ systems

**Available for users to try and explore Event Streams**

- Available in the public ICP catalogue
- Community supported through public Slack channel

# Supported platforms

IBM Event Streams  
2019.1.1 is supported  
on these platforms  
and systems

Includes Kafka version  
2.1.1

Container platforms	Systems
IBM Cloud Private 3.1.1 and 3.1.2	- Linux® 64-bit (x86_64) systems - Linux on IBM® Z systems
Red Hat OpenShift Container Platform 3.9 and 3.10 with IBM Cloud Private 3.1.2	Linux® 64-bit (x86_64) systems
Amazon Web Services (AWS) with IBM Cloud Private 3.1.2	Linux® 64-bit (x86_64) systems
Microsoft Azure with IBM Cloud Private 3.1.2	Linux® 64-bit (x86_64) systems

# Example Event Streams Deployments

1

## Stand-alone Event Streams

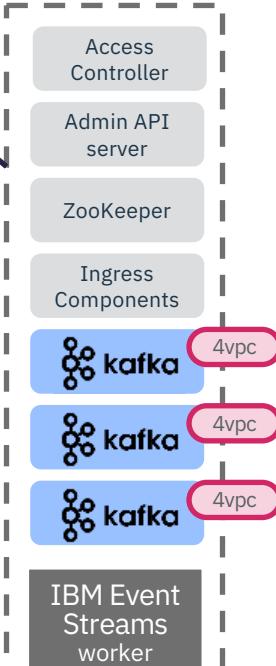
using orchestration & admin services from ICPF

12 VPCs of IBM Event Streams deployed onto ICP Foundation (**included as a supporting program in the Event Streams package**)

ICP Foundation included with Event Streams provides ICP admin functions, but **cannot be used for other workloads** without additional ICP Cloud Native licences



Orchestration services

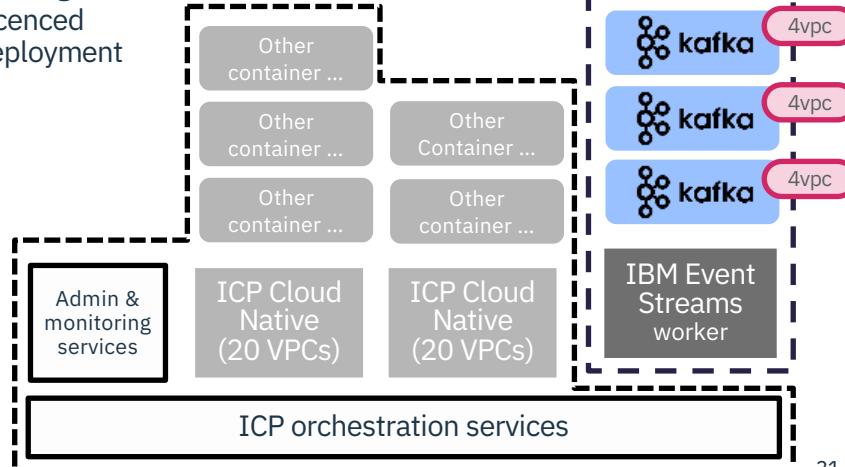


2

## Event Streams into existing ICP

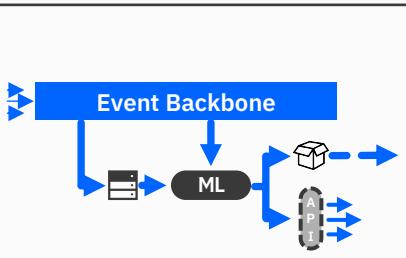
12 VPCs of IBM Event Streams is deployed into an existing ICP cluster. **No additional ICP licenses are required** to deploy Event Streams.

Existing ICP  
Licenced deployment



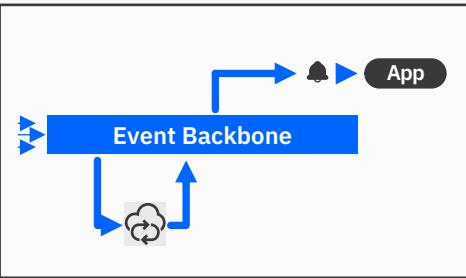
# Use cases

# IBM Event Streams | Key Use Cases



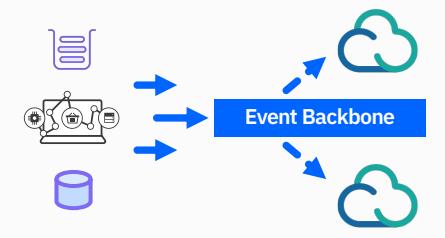
## Event input buffer for data analytics

Collect massive volumes of events from IoT, website tracking or backend systems, to feed into big data analytics



## Event-driven microservices

Create agile, cloud-native applications build around a central even-bus using event-sourced patterns or reactive frameworks



## Bridge to cloud-native apps

Extract events from existing systems to power next generation of responsive, cloud-native applications

# More resources

IBM Event Streams documentation

<https://ibm.github.io/event-streams/>

Product page

<https://www.ibm.com/cloud/event-streams>



