La velocità e semplicità di introdurre nuovi servizi cloud attraverso le soluzioni managed Red Hat

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Evolving Tree of Taste Business

Red Hat can help the Tree of Taste company in its growth process by offering the managed platform dedicated to partner workloads and a managed event streaming solution to deliver a real-time order notification for shipments.
Red Hat OpenShift Streams for Apache Kafka

fully hosted and managed Kafka service for stream-based applications

- Running on OpenShift Dedicated and Strimzi. This is abstracted away from end-users
- Access to customer dedicated Kafka instances. Each instance provides Kafka core capabilities
- Kafka instances are configured based on opinionated recommendations made by Red Hat experts
- Cluster health and metrics services are also available for the customer dedicated instances
Kafka Connectivity
Producers/consumers connect via SASL (PLAIN or OAUTHBEARER) over SSL

- The Kafka Bootstrap Server URL is public.
- Clients can only connect over SSL.
- Clients must authenticate using SASL PLAIN or SASL OAUTHBEARER mechanisms.
- Clients must provide a Service Account ID and Secret regardless of authentication mechanism.
Service Accounts

Service Accounts are used by client applications to access Kafka instances

- Service Accounts are not the same as console.redhat.com User Accounts.
- Create a Service Account to obtain a Client ID and Secret.
- Applications/clients require the Service Account ID and Secret to connect to Kafka.
- Can be managed via console.redhat.com UI or CLI.
Access Controls (ACLs)

Comprehensive ACLs can be configured to manage Service Account access

- Secure by default. Topic access explicitly granted.
- Granular control of CRUD on Topics, Brokers, etc.
- Allow/Deny based on Service or User Account.
- Can target specific resources, or use wildcards.
Benefits of Red Hat Management

We deliver premium support and 99.95% uptime

Red Hat manages:

- Core components of the Apache Kafka cluster
- User experience for developers and admins
- Identity Management and cluster security
- Cluster Management
- Cloud infrastructure
- Monitoring and operation of the entire stack
- Upgrade and version management

Kafka control plane

- User experience
- Monitoring and Logging

Kafka cluster (data plane)

- Strimzi
- Integration with OpenShift
Try **Red Hat OpenShift** Streams for Apache Kafka

No OpenShift cluster is necessary. Sign-in. Create a Kafka cluster. Connect.
Kafka Components

- Kafka cluster
- Kafka Connect
- Kafka Connector
Change Data Capture with Debezium

Change Data Capture (CDC) connectors for Kafka Connect

- Component connects to selected database, reads its transaction log and publishes it as Kafka messages
- Supported databases: MySQL, PostgreSQL, MongoDB, SQL Server, Oracle DB

Part of Red Hat Integration subscription
Debezium

Running Debezium on OpenShift
Deployment via Operators

- YAML-based custom resource definitions for Kafka/Connect clusters, topics etc.
- Operator applies configuration
- Advantages
  - Automated deployment and scaling
  - Simplified upgrading
Debezium Payload
Change Event Structure

- Key: PK of table
- Value: Describing the change event
  - Before state
  - After state
  - Metadata info

```json
{
  "before": null,
  "after": {
    "id": 1,
    "delivery": "shipment",
    "size": "small",
    "type": "fish"
  },
  "source": {
    "version": "1.9.5.Final-redhat-00001",
    "connector": "postgresql",
    "name": "cdo",
    "ts_ms": 1667584170774,
    "snapshot": "false",
    "db": "cdc-order",
    "sequence": "[null,\"23517256\"]",
    "schema": "public",
    "table": "orders",
    "txId": 494,
    "lsn": 23517256,
    "xmin": null
  },
  "op": "c",
  "ts_ms": 1667584171250,
  "transaction": null
}
```
Debezium router

Red Hat OpenShift Streams for Apache Kafka

cdc.public.orders

pickup

shipment

delivery=pickup

delivery=shipment

orderEntry

Debezium

router
Hands-on Change Data Capture with Debezium
Supporting hybrid usage and buying patterns
A consistent platform no matter how or where you run

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<th>Managed Red Hat OpenShift services</th>
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<td>Red Hat OpenShift Service on AWS¹</td>
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<td>Azure Red Hat OpenShift</td>
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<td>IBM Cloud Red Hat OpenShift on IBM Cloud¹</td>
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<td>Red Hat OpenShift Dedicated²</td>
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<table>
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<th>Self-managed Red Hat OpenShift</th>
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<tr>
<td>On public cloud, or on-premises on physical or virtual infrastructure³</td>
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<tr>
<td>Physical</td>
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Start quickly, we manage it for you

You manage it, for control and flexibility
Overview

### Who does what?

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<th>RedHat Managed OpenShift</th>
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<td>Platform support</td>
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</tbody>
</table>

- **Customer**:  ![Customer](false)
- **Red Hat**:   ![Red Hat](true)
Who’s actually Running this thing?
The Global SRE Team
The Global SRE Team

Product Engineers  Systems Engineers

People and Skills  Process and Automation  Support and Security

Develop & Deploy managed clusters
“Day One” Operations
“Day Two” Operations
Dickerson’s “Hierarchy of Reliability”
Running your own Red Hat OpenShift cluster

Responsibilities

- User management
- Project and quota management
- Application lifecycle
- Cluster creation
- Cluster management
- Monitoring and logging
- Network configuration
- Software and security updates
- Platform support

User management
Project and quota management
Application lifecycle
Cluster creation
Cluster management
Monitoring and logging
Network configuration
Software and security updates
Platform support

Customer  Red Hat
Simplify cluster operations with managed OpenShift

**Responsibilities**

- User management
- Project and quota management
- Application lifecycle
- Cluster creation
- Cluster management
- Monitoring and logging
- Network configuration
- Software and security updates
- Platform support

Let Red Hat ...

- Manage all your clusters
- Monitor and operate your VMs

Customer  Red Hat
ROSA architecture
How does ROSA with STS work?

Setup

ACCOUNT WIDE

CLUSTER WIDE
How does ROSA with STS work?

Authentication Process

1. signed JWT
2. Authenticates signed JWT
3. Subject == Role trust policy
4. credentials
5. credentials
6. API call
Hands-on
ROSA with STS
For Partner Deployment
Red Hat OpenShift Streams for Apache Kafka

cdc.public.orders

pickup

shipment

orderEntry

Debezium

router

Red Hat OpenShift

Shipment

Red Hat OpenShift Service on AWS
Red Hat OpenShift Streams for Apache Kafka

.. and you enjoy sweet dreams
Recap and Benefits

- Overview of Red Hat Openshift Streams for Apache Kafka
- Overview of Red Hat Openshift Services on AWS with STS
- Create Change Data Capture platform

CUSTOMER BENEFITS
- Reduced operational costs
- Focus on Business Application
- Speed Up your business