



## Connect

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

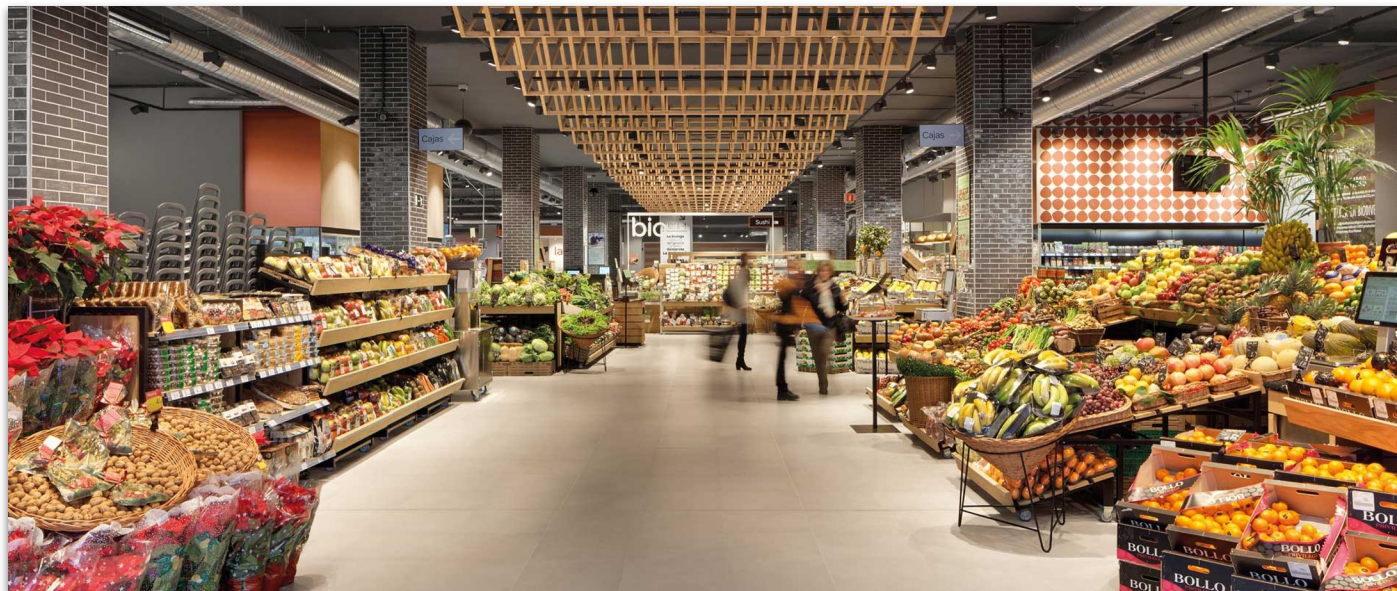
**Maurizio Romani**

Solution Architect

**Marco Fagotto**

Solution Architect

## Evolving Tree of Taste Business



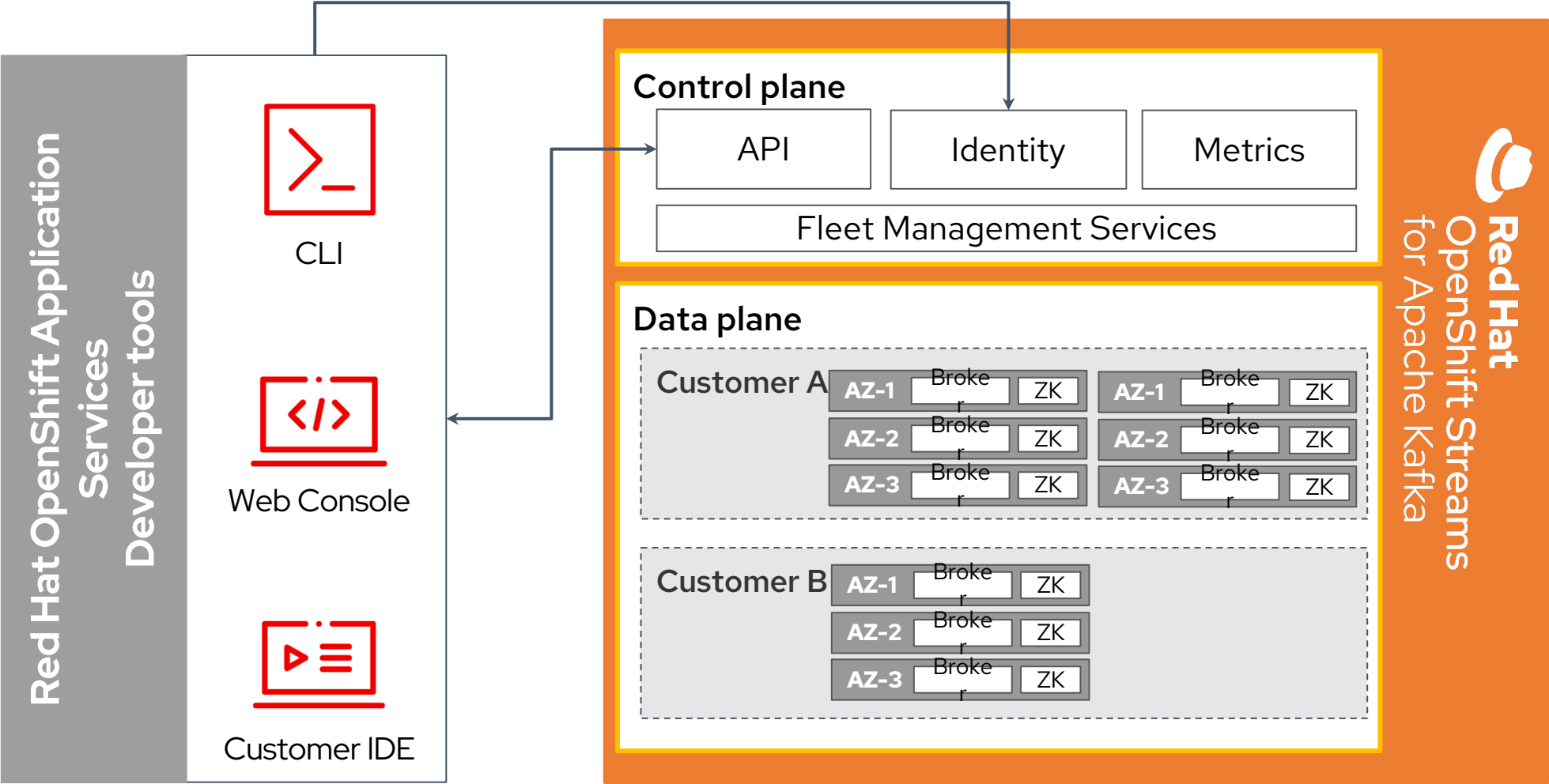
Red Hat can help the Tree of Taste company in its growth process by offering the managed platform dedicated to partner workloads and a managed event streaming solution to deliver a real time order notification for shipments

# 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

# Red Hat OpenShift Streams for Apache Kafka



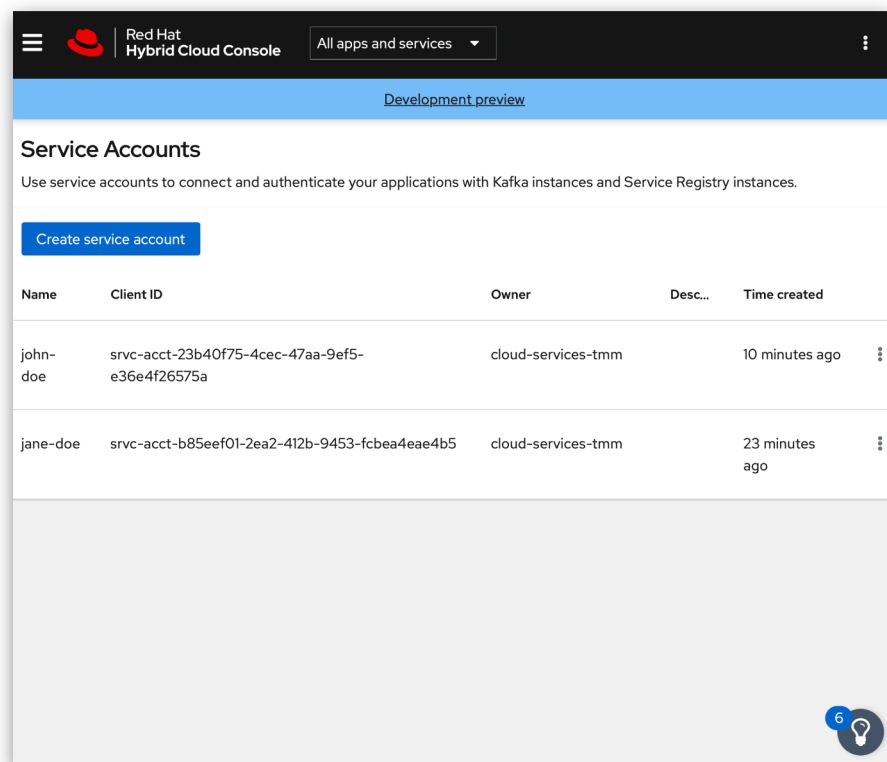
# Kafka Connectivity

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

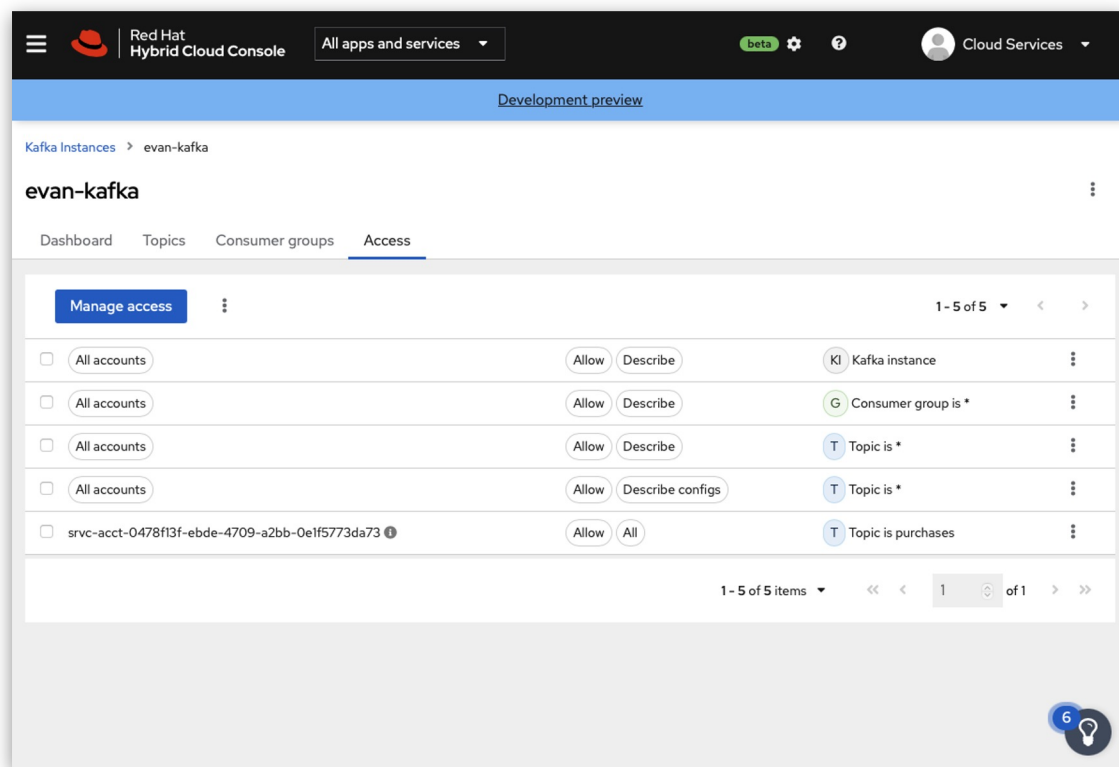
Service Accounts are used by client applications to access Kafka instances



- ▶ 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



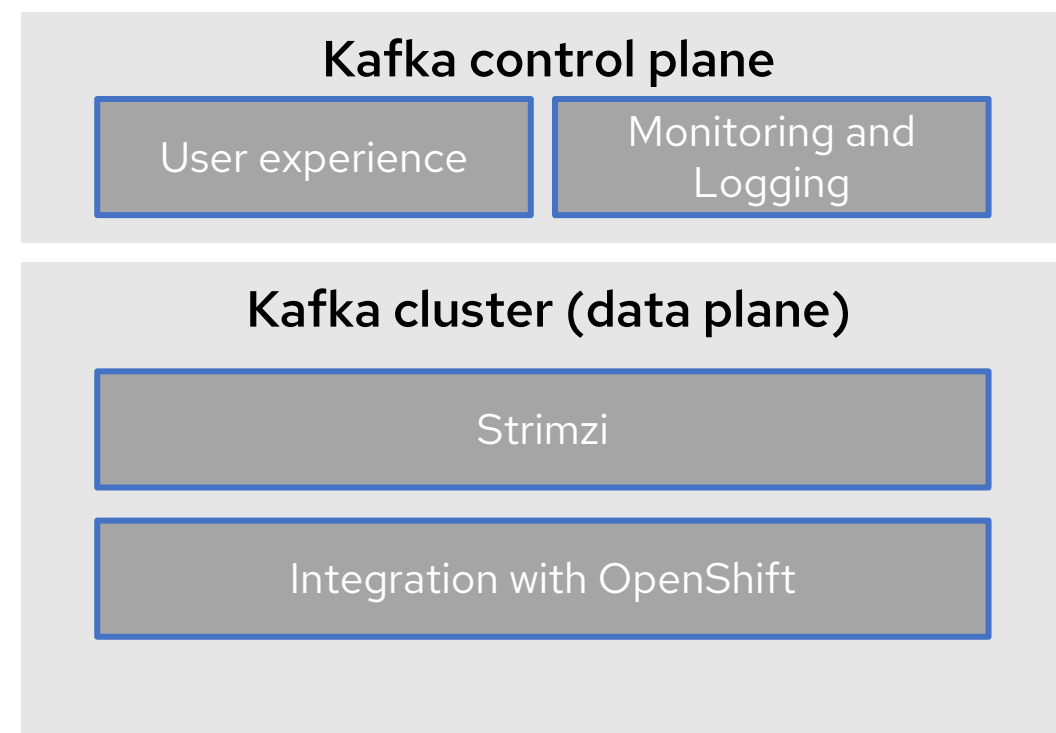
- ▶ Secure by default. Topic access explicitly granted.
- ▶ Granular control of CRUD on Topics, Brokers, etc.
- ▶ Allow/Deny based on Service or User Account.
- ▶ Can target specific resources, or use wildcards.

# Benefits of Red Hat Management

We deliver premium support and 99.95% uptime

Red Hat manages:

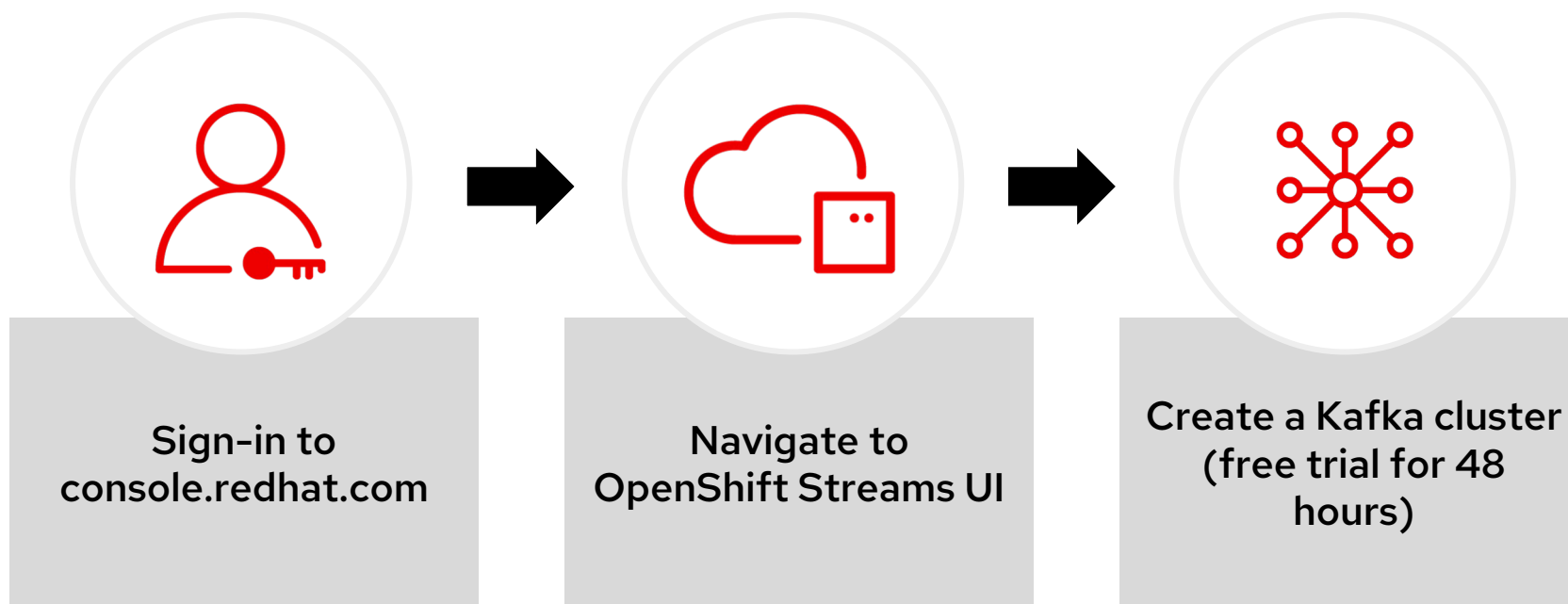
- ▶ Core components of the Apache Kafka cluster
- ▶ User experience for developers and admins
- ▶ Identity Management and cluster security
- ▶ Cluster Management
- ▶ Cloud infrastructure
- ▶ Monitoring and operation of the entire stack
- ▶ Upgrade and version management



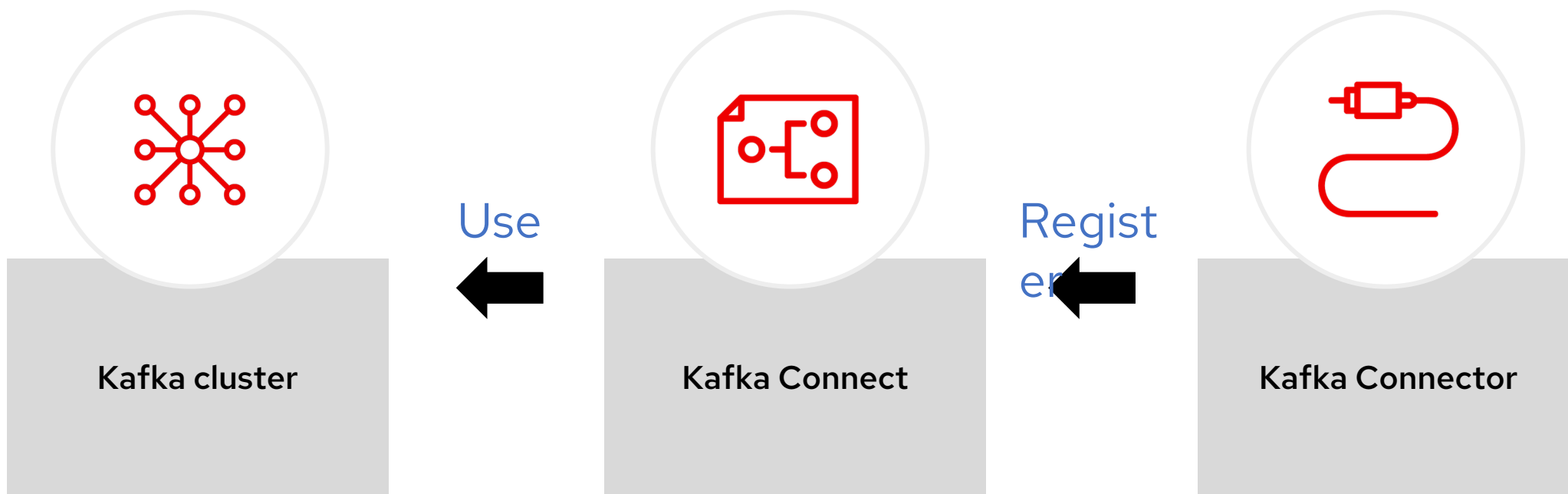


# Try **Red Hat OpenShift** Streams for Apache Kafka

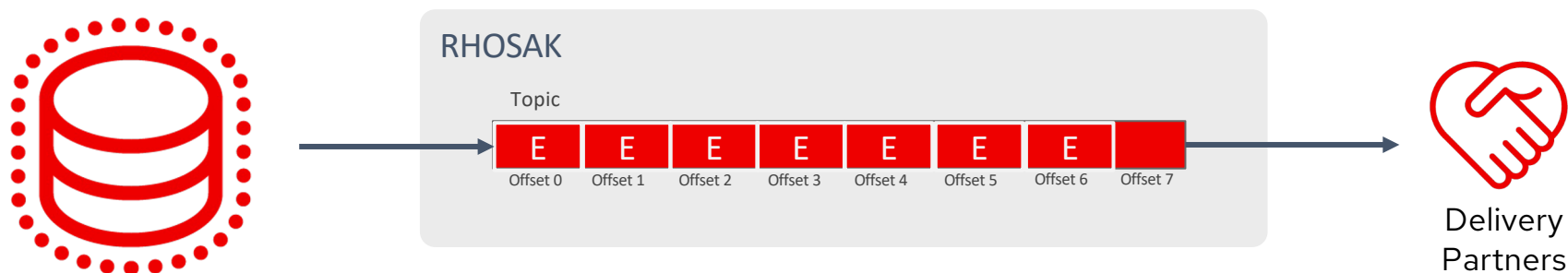
No OpenShift cluster is necessary. Sign-in. Create a Kafka cluster. Connect.



## Kafka Components



## 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

# 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

```
apiVersion: kafka.strimzi.io/v1beta2
kind: KafkaConnector
metadata:
  labels:
    strimzi.io/cluster: debezium-kafka-connect-cluster
    helm.sh/chart: debezium-connect-0.1.0
    app.kubernetes.io/name: debezium-connect
    app.kubernetes.io/instance: rhosak-cdc
    app.kubernetes.io/version: "1.16.0"
    app.kubernetes.io/managed-by: Helm
  name: cdc-connector-postgres
spec:
  class: io.debezium.connector.postgresql.PostgresConnector
  tasksMax: 1
  config:
    database.server.name: "cdc"
    value.converter: org.apache.kafka.connect.json.JsonConverter
    value.converter.schemas.enable: false
    key.converter: org.apache.kafka.connect.json.JsonConverter
    key.converter.schemas.enable: false
    transforms: unwrap
    transforms.unwrap.type: io.debezium.transforms.ExtractNewRecordState
    topic.creation.default.replication.factor: -1
    topic.creation.default.partitions: -1
    database.dbname: "cdc-order"
    database.hostname: "postgresql"
    database.password: "dbpassword"
    database.port: "5432"
    database.user: "postgres"
    plugin.name: "pgoutput"
```

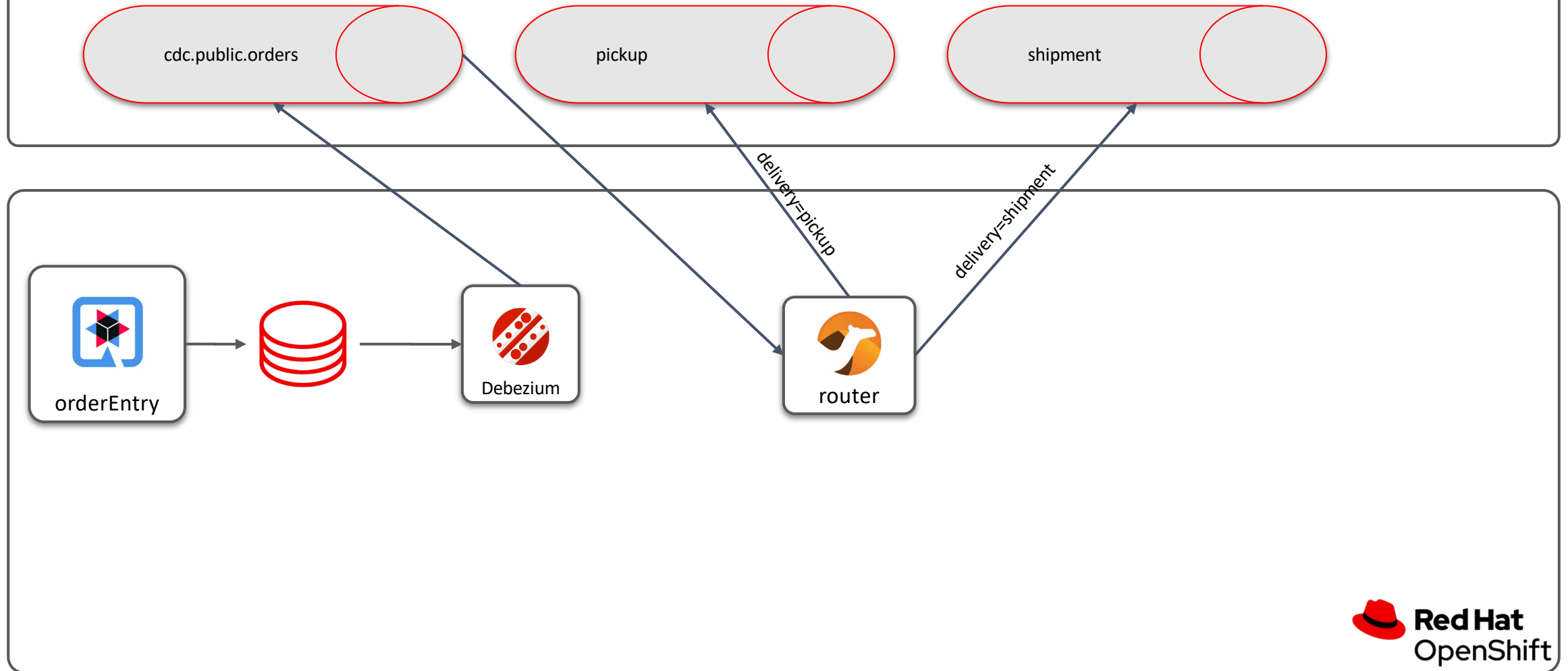
# Debezium Payload

## Change Event Structure

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

```
{
  "before": null,
  "after": {
    "id": 1,
    "delivery": "shipment",
    "size": "small",
    "type": "fish"
  },
  "source": {
    "version": "1.9.5.Final-redhat-00001",
    "connector": "postgresql",
    "name": "cdc",
    "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
}
```

# Red Hat OpenShift Streams for Apache Kafka

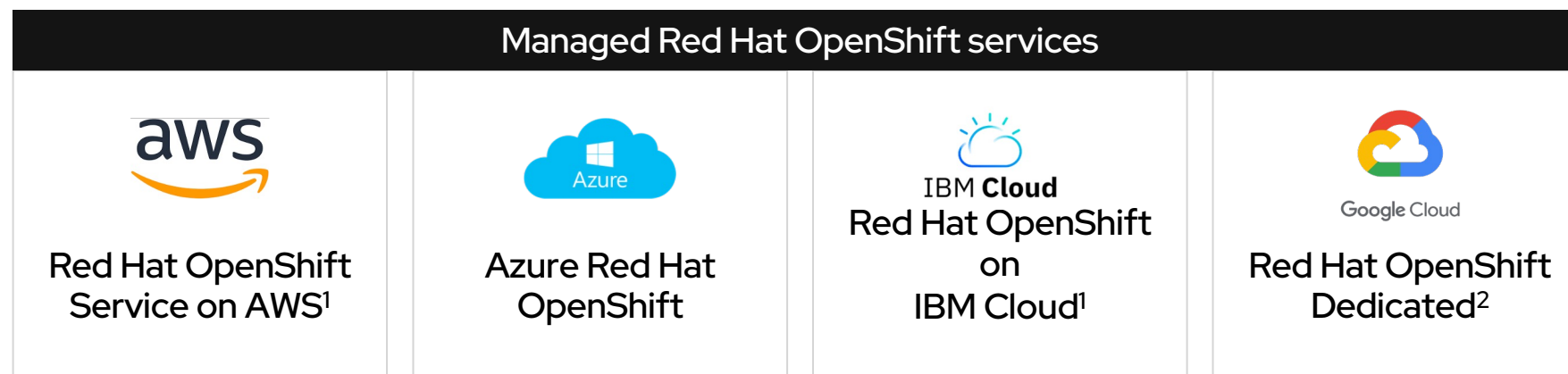


# Hands-on Change Data Capture with Debezium

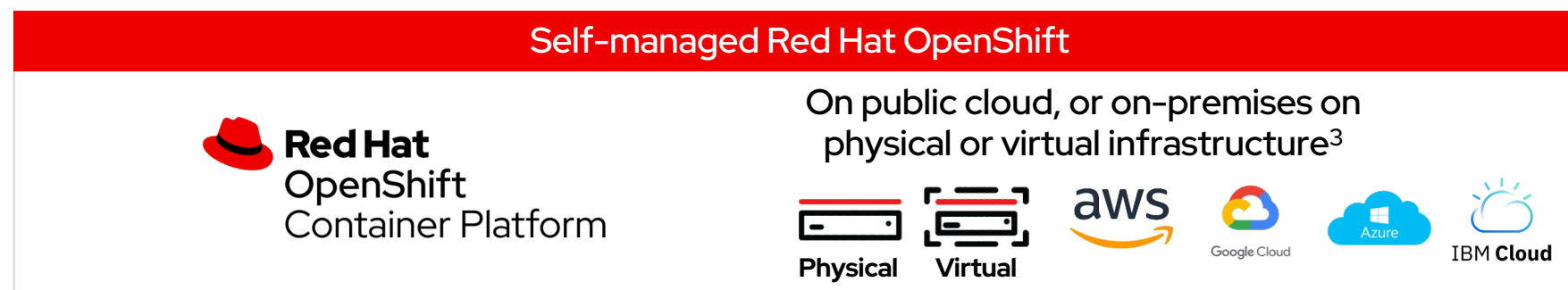
# Supporting hybrid usage and buying patterns

A consistent platform no matter how or where you run

Start quickly, we manage it for you












You manage it, for control and flexibility















# Who does what ?

## Self-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	

 Customer  Red Hat

## RedHat 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	

 Customer  Red Hat

Who's actually  
Running this thing ?



?

?



?

?

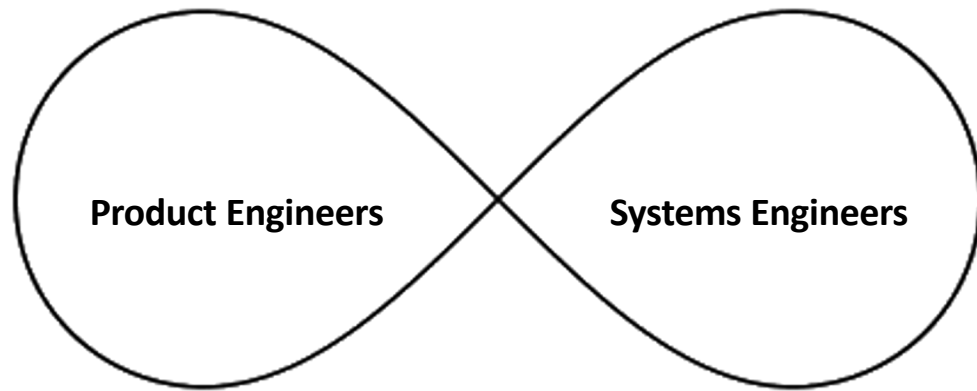


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# The Global SRE Team



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**Develop & Deploy managed clusters**

**"Day One" Operations**

**"Day Two" Operations**



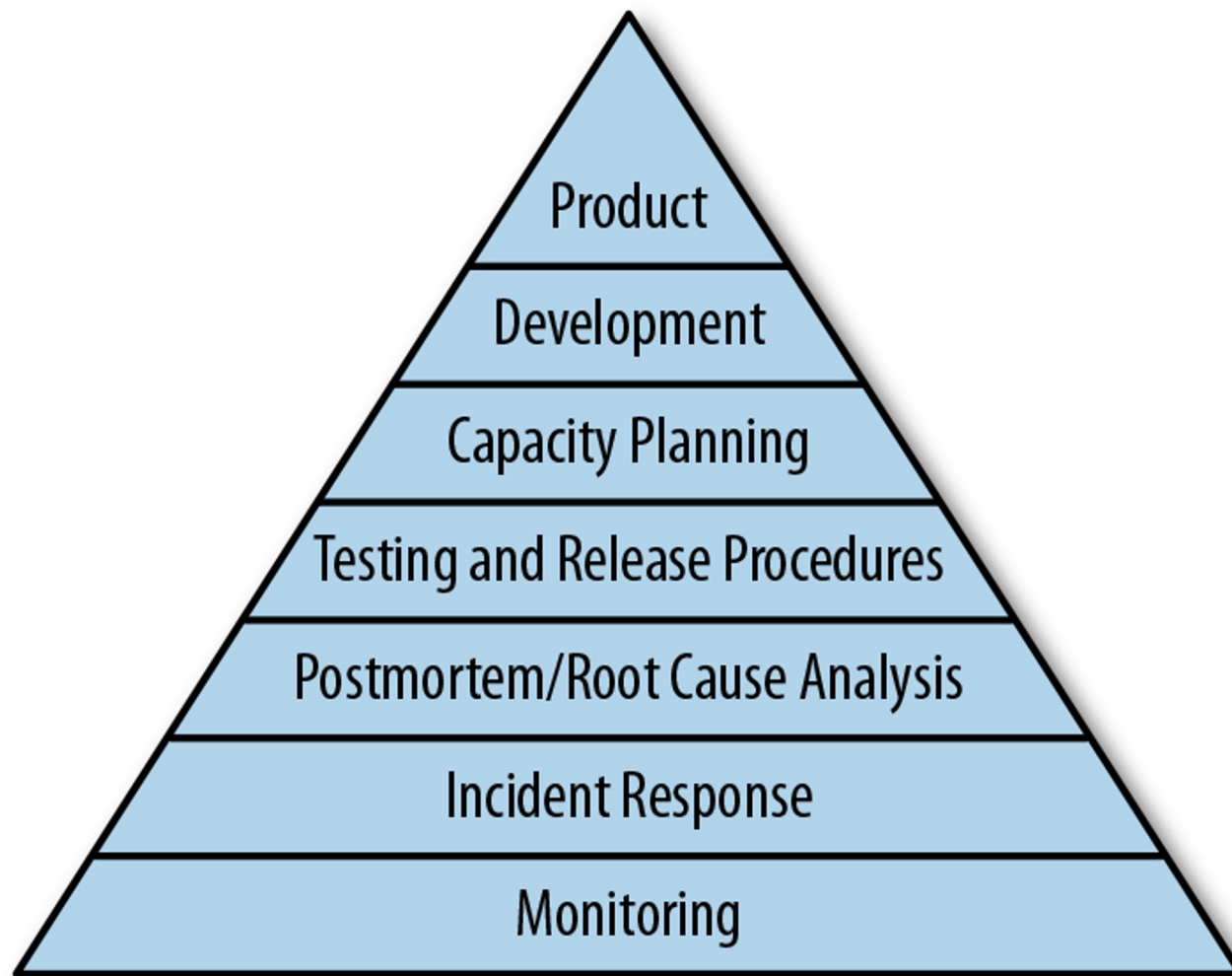
**People and Skills**



**Process and Automation**



**Support and Security**

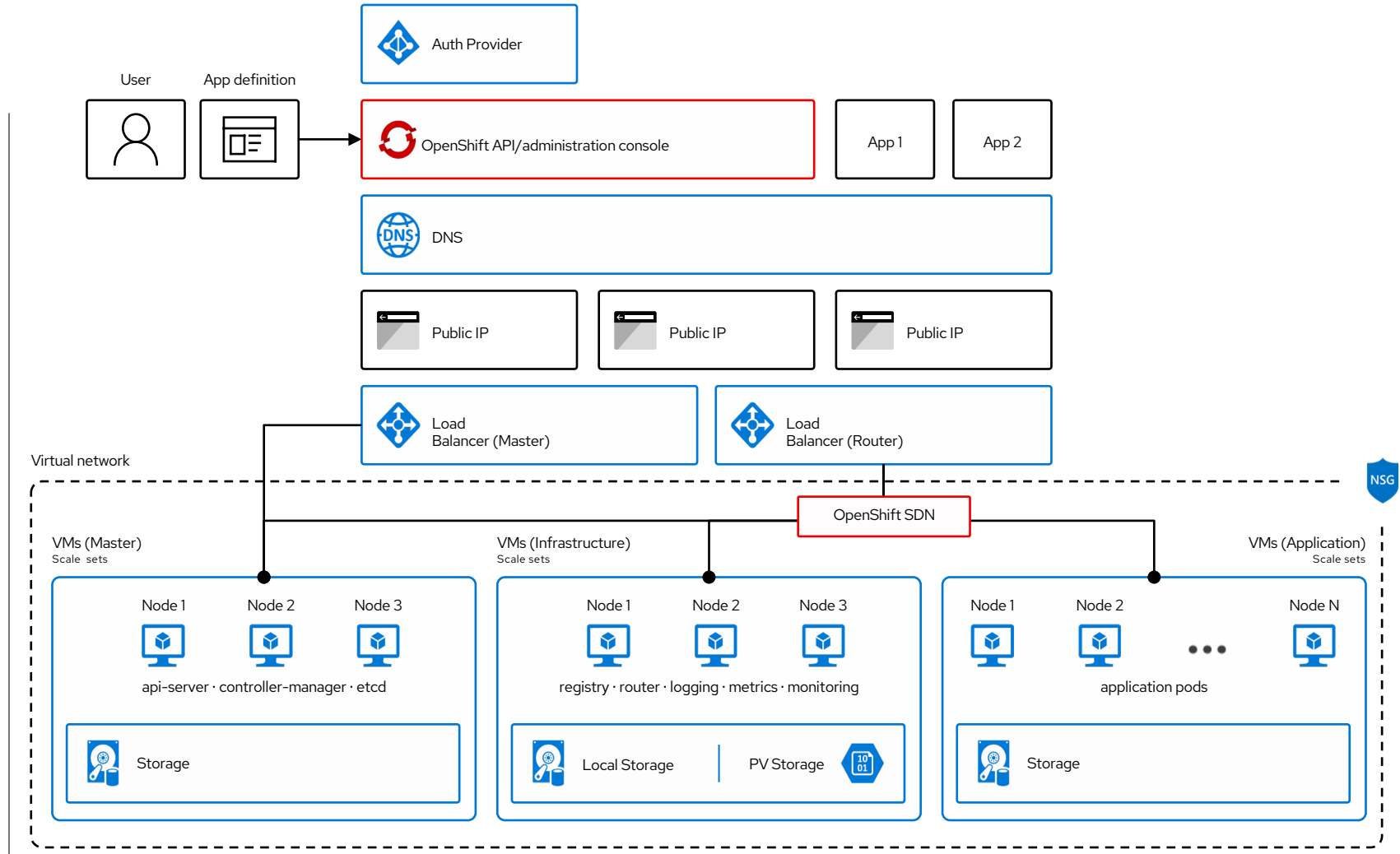


# Running your own Red Hat OpenShift cluster

## Responsibilities

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

■ 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



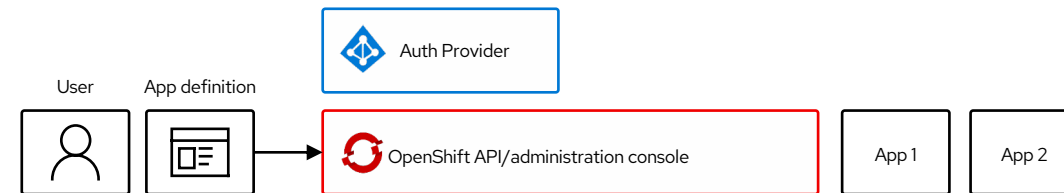
Network configuration



Software and security updates



Platform support



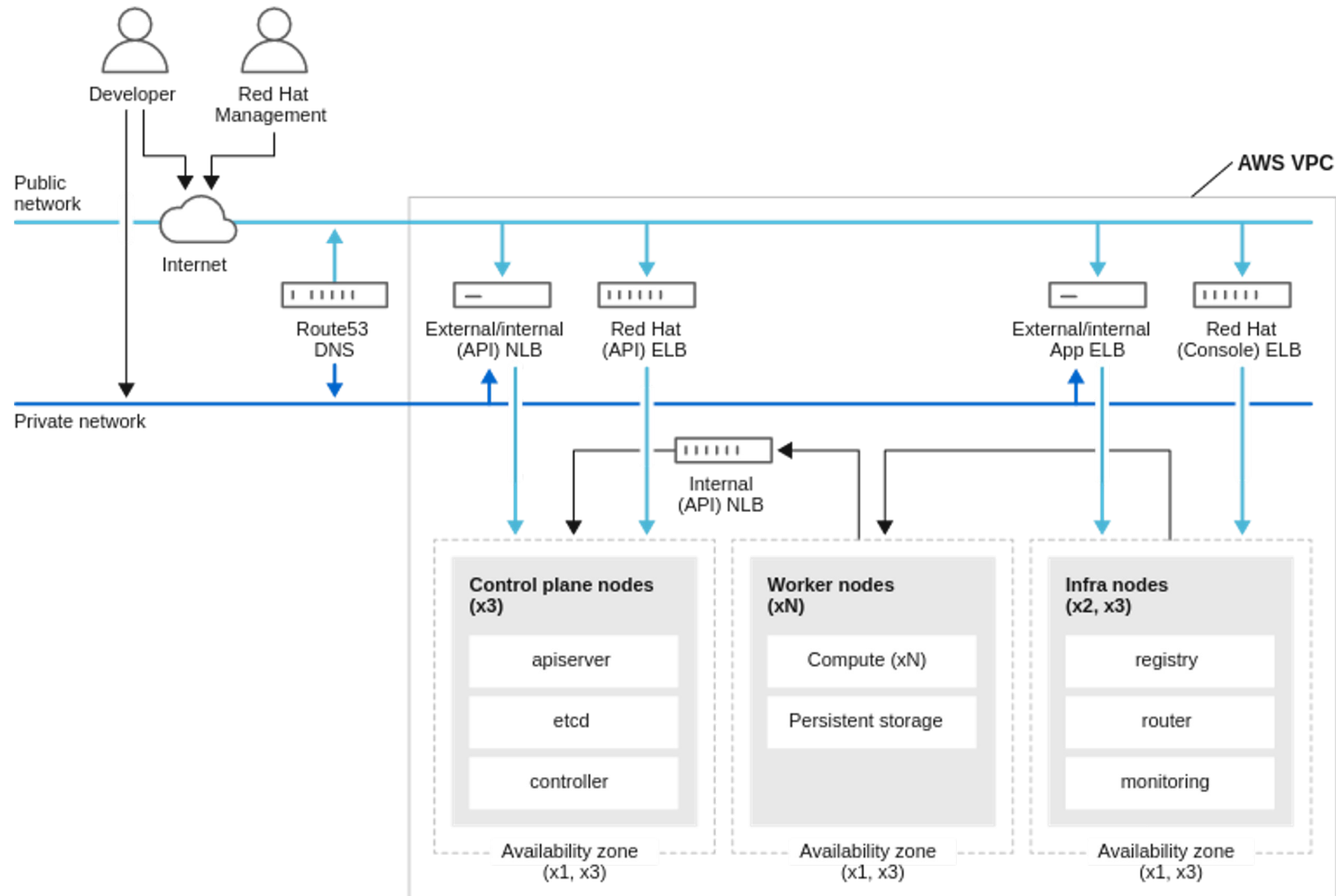
Let **Red Hat** ...

Manage all your clusters

Monitor and operate your VMs

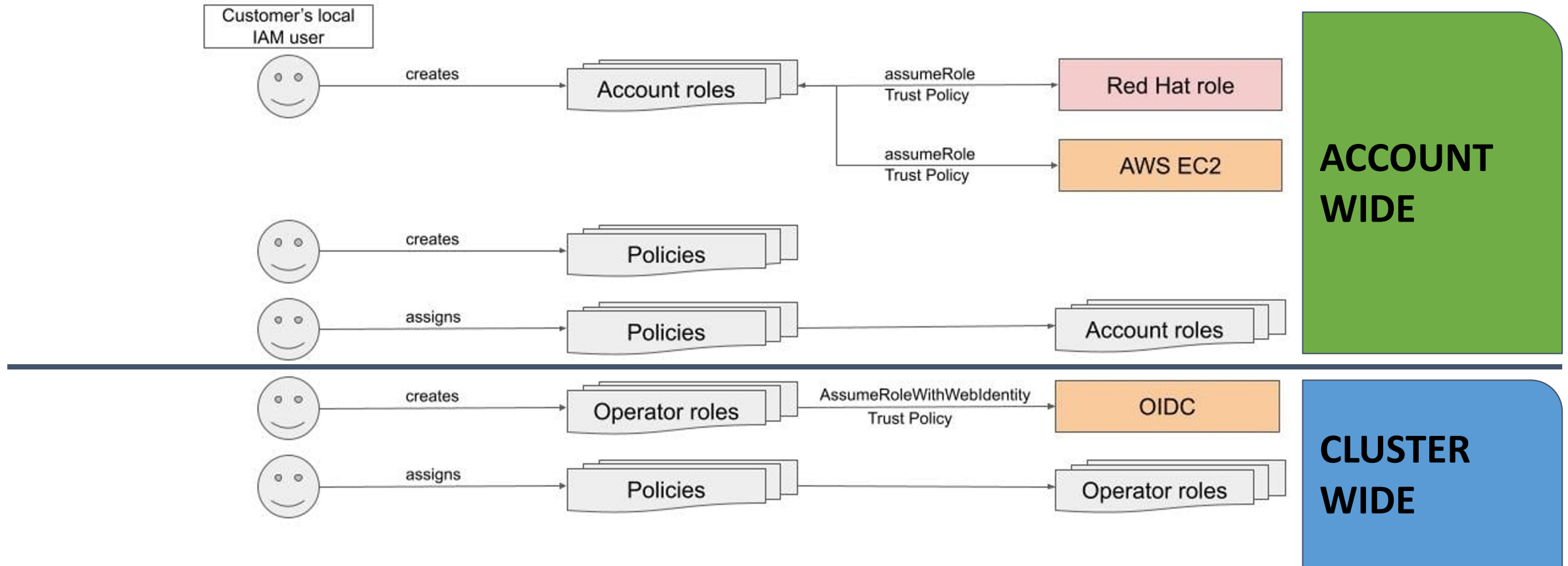


# ROSA architecture



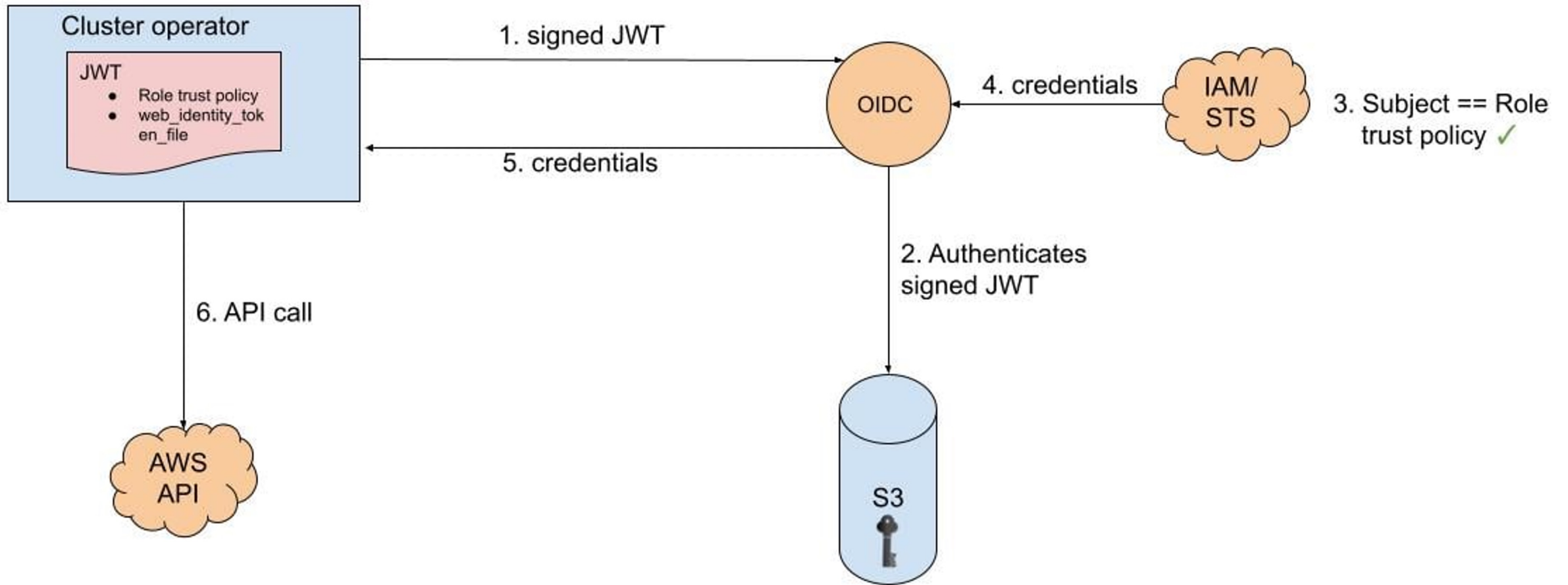
# How does ROSA with STS work?

## Setup



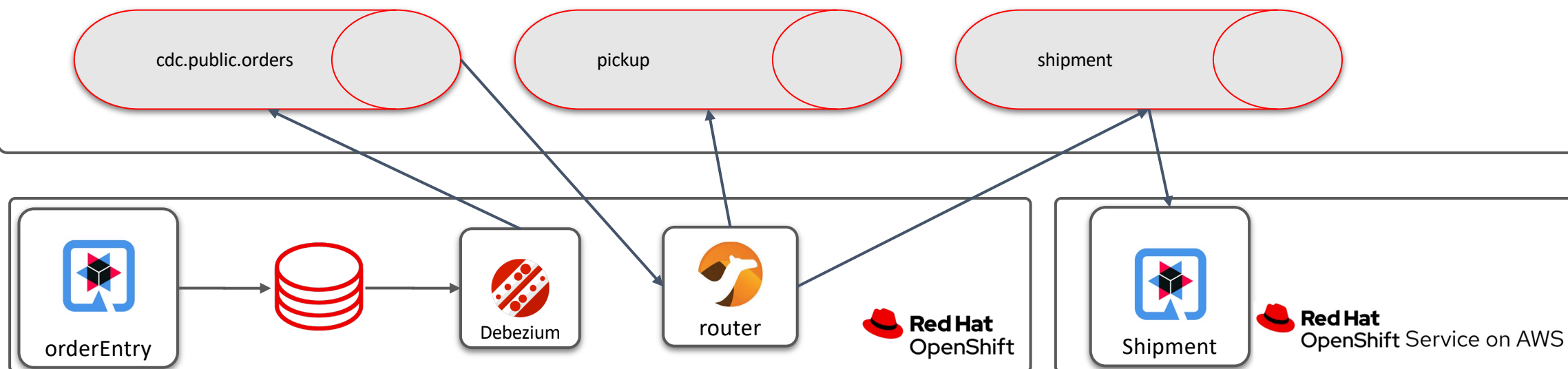
# How does ROSA with STS work?

## Authentication Process

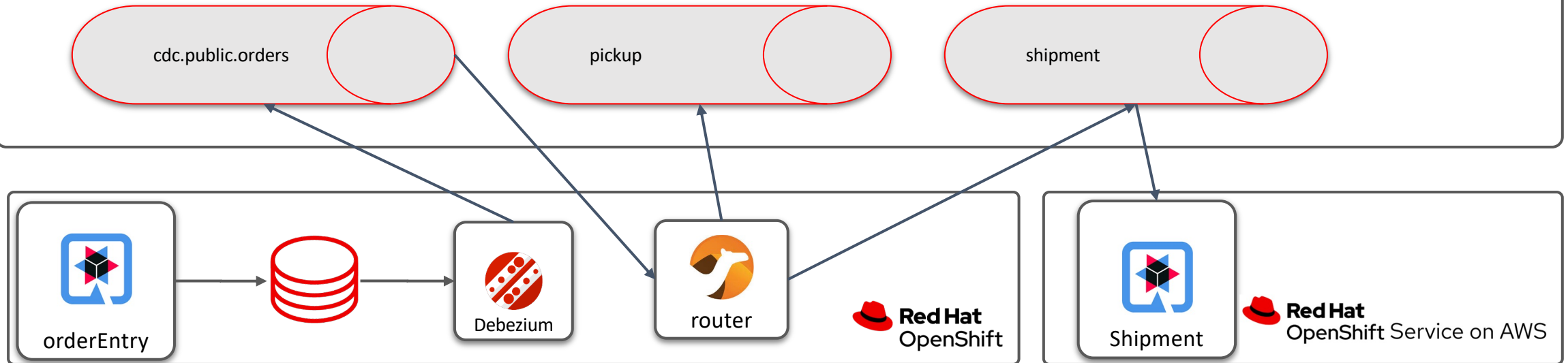


# Hands-on ROSA with STS For Partner Deployment

# Red Hat OpenShift Streams for Apache Kafka



# 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