

Red Hat
Summit

Connect

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

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Evolving Tree of Taste Business



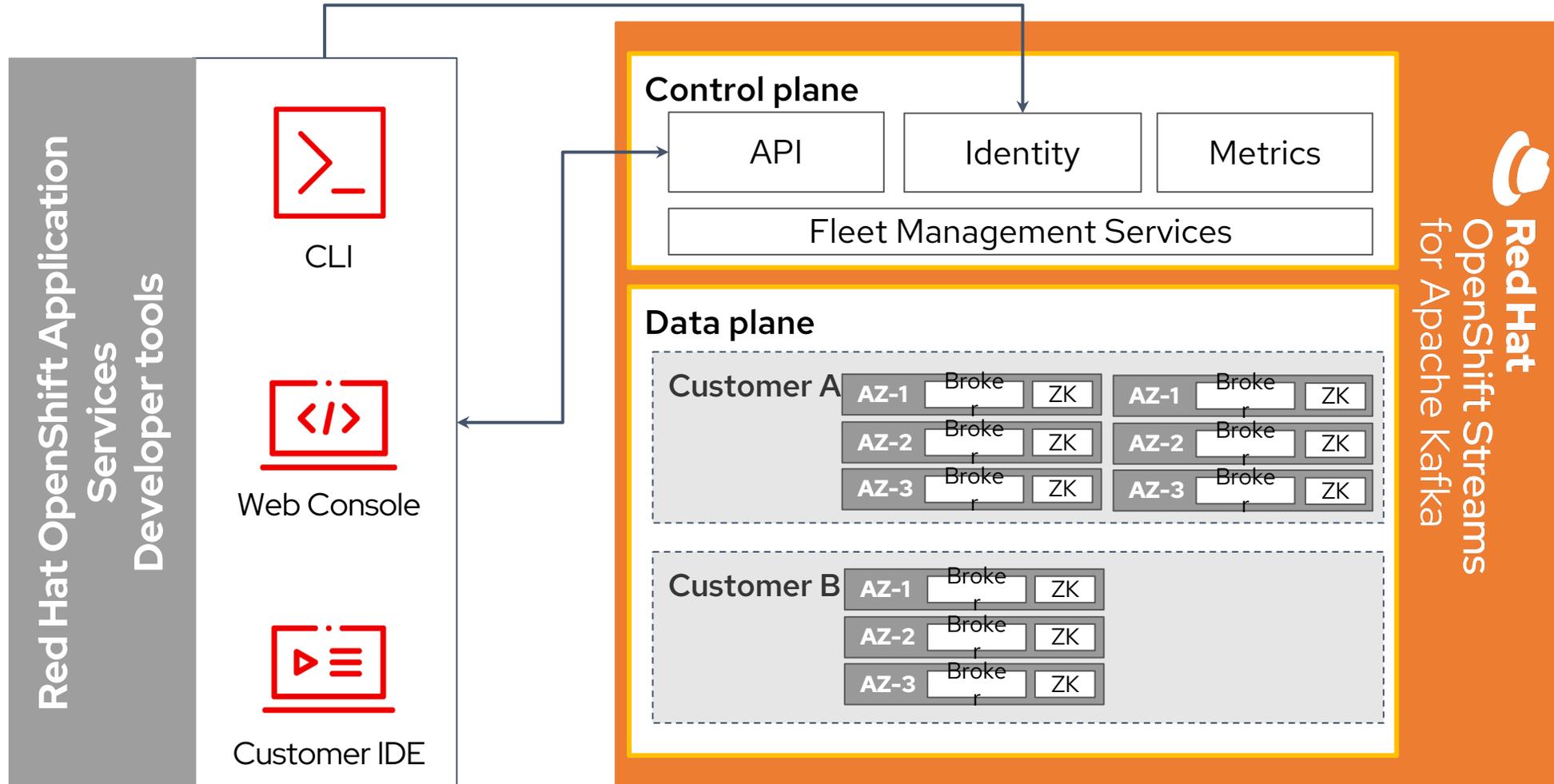
Red Hat can help the Tree of Taste company in its growth process by offering the managed platform dedicated to partner workloads and a managed event streaming solution to deliver a real time order notification for shipments

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

Red Hat OpenShift Streams for Apache Kafka



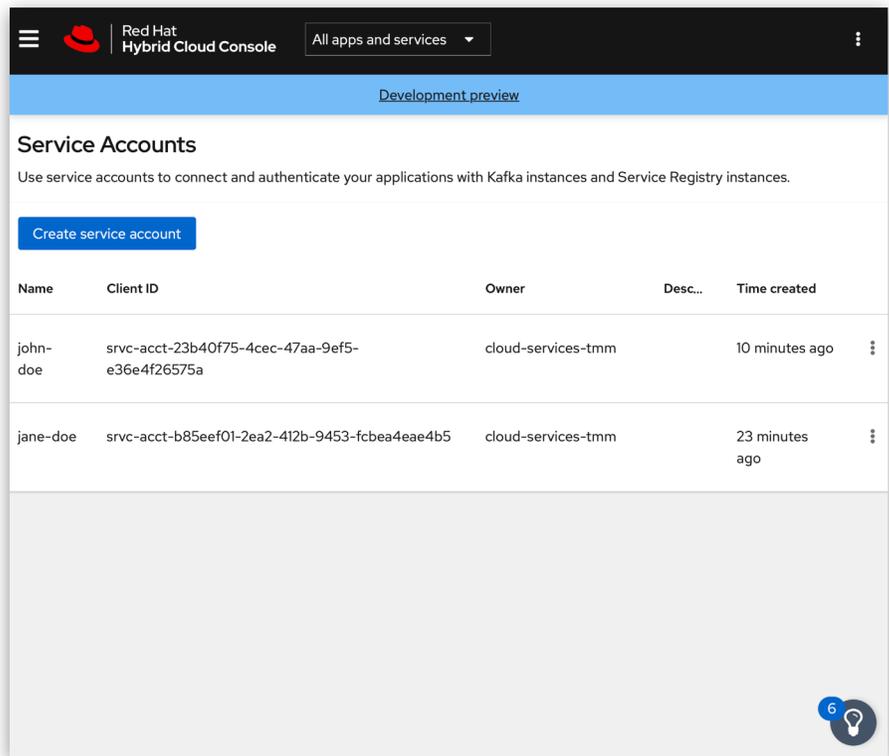
Kafka Connectivity

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

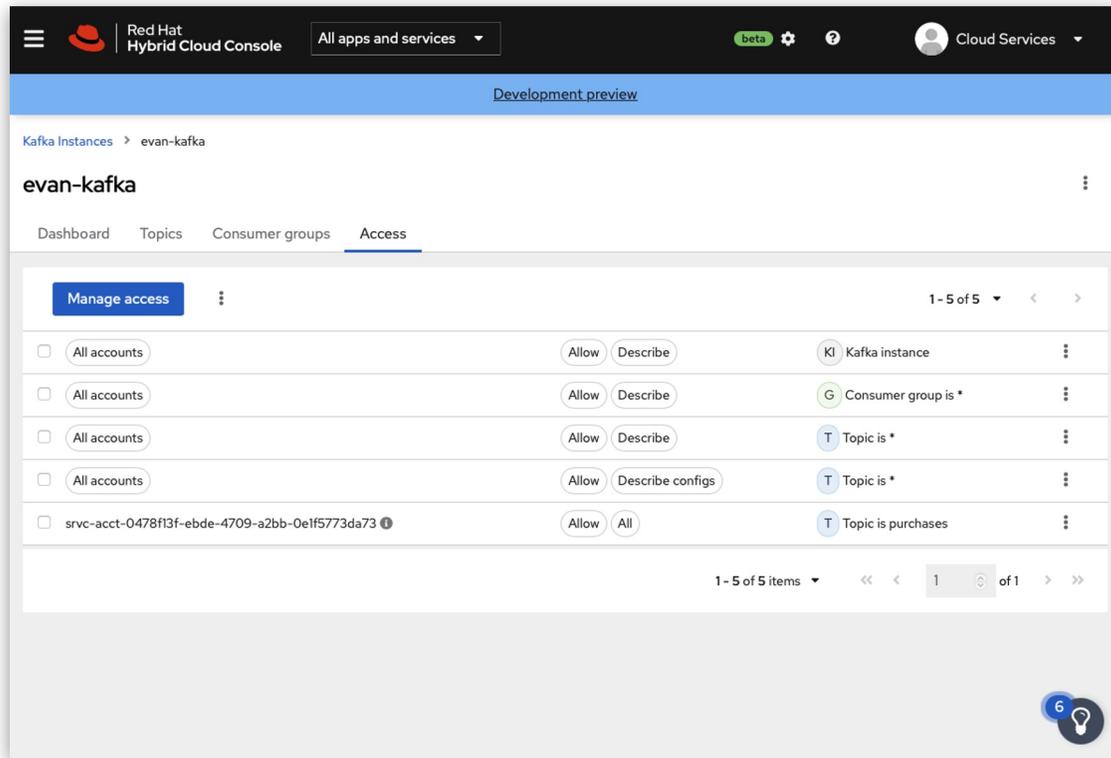
Service Accounts are used by client applications to access Kafka instances



- ▶ 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



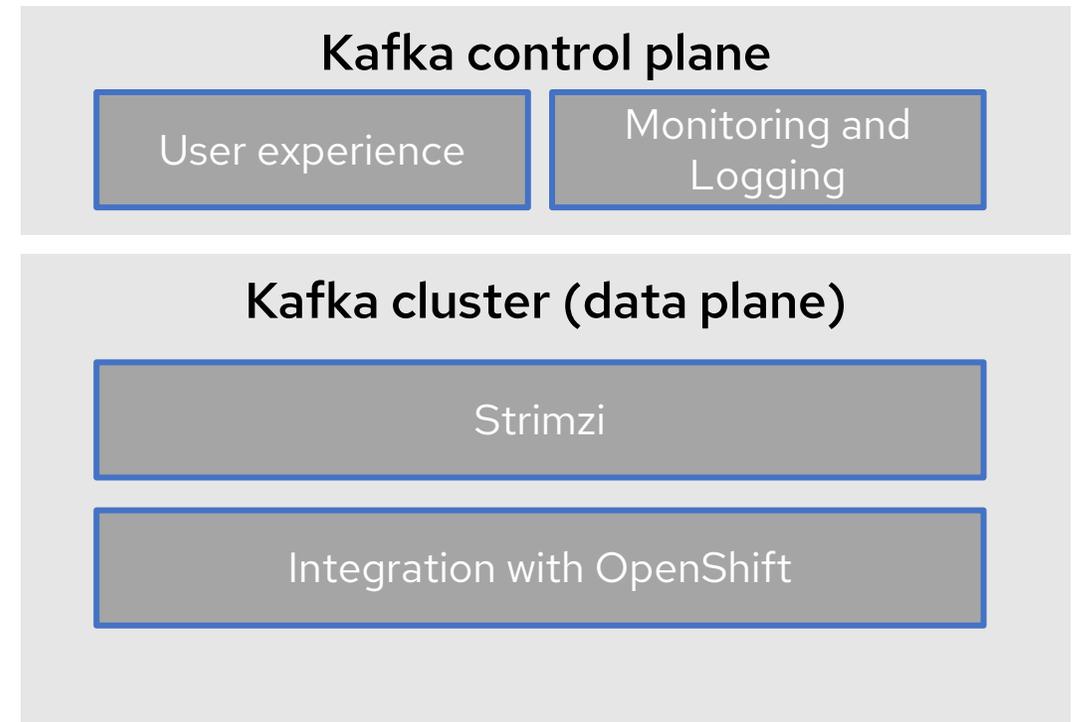
- ▶ Secure by default. Topic access explicitly granted.
- ▶ Granular control of CRUD on Topics, Brokers, etc.
- ▶ Allow/Deny based on Service or User Account.
- ▶ Can target specific resources, or use wildcards.

Benefits of Red Hat Management

We deliver premium support and 99.95% uptime

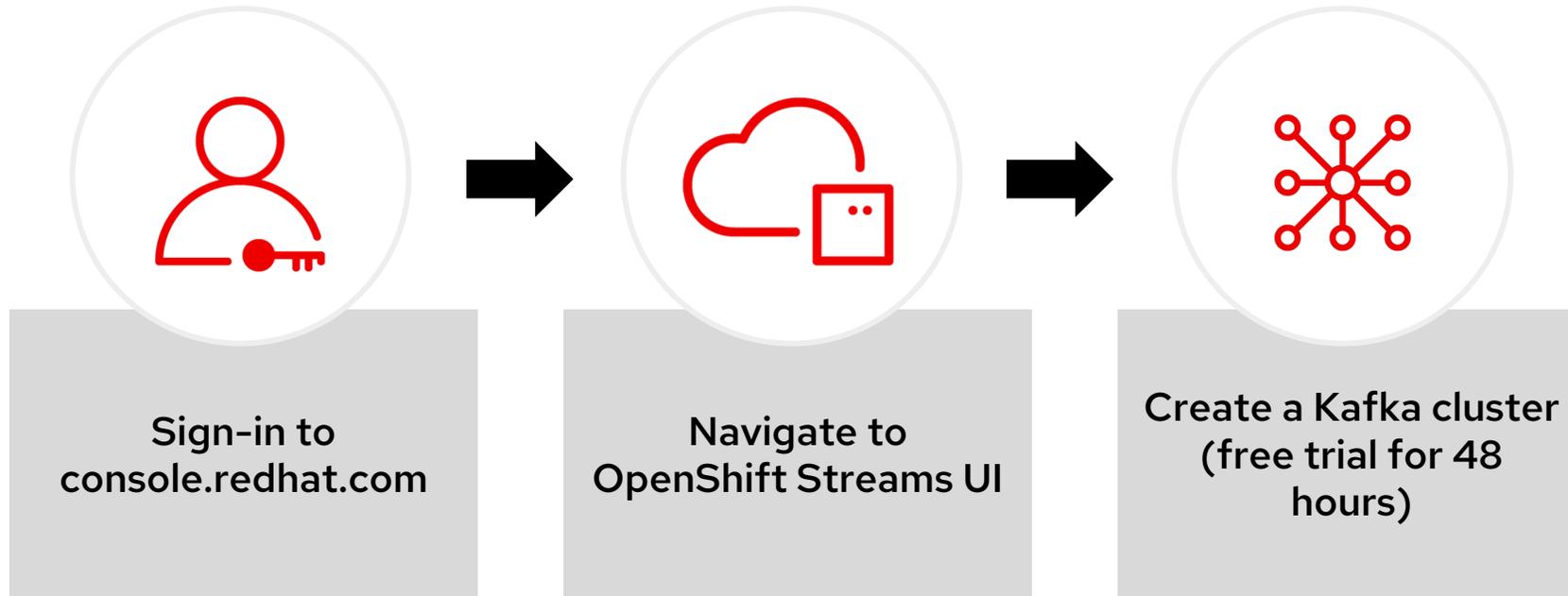
Red Hat manages:

- ▶ 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

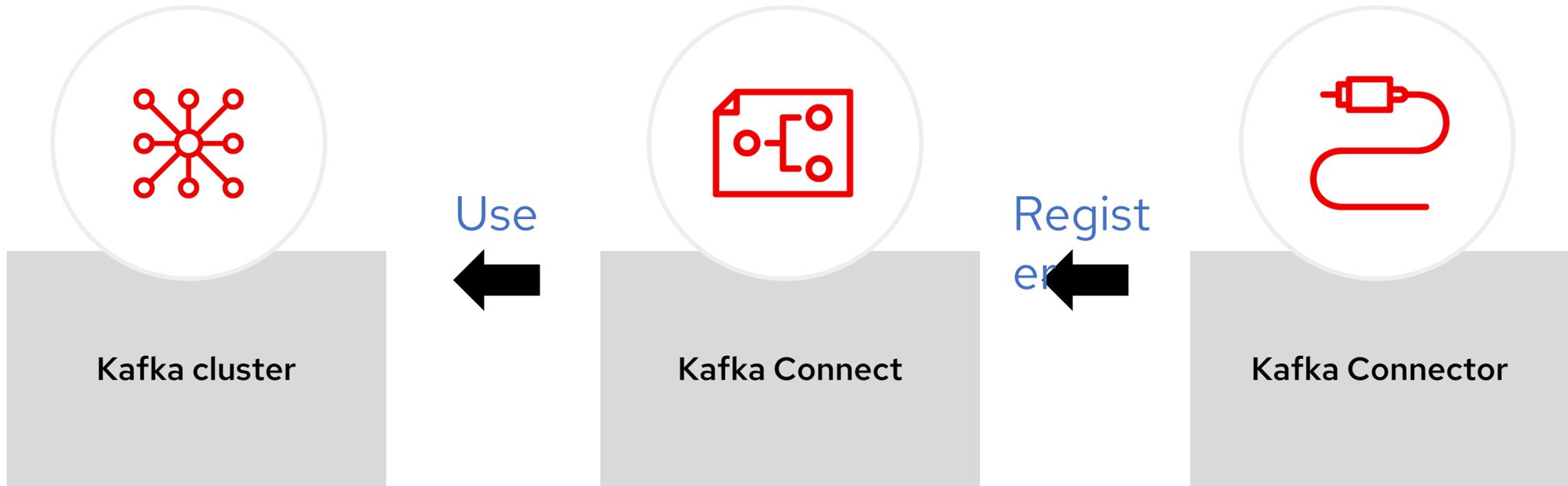


Try **Red Hat OpenShift** Streams for Apache Kafka

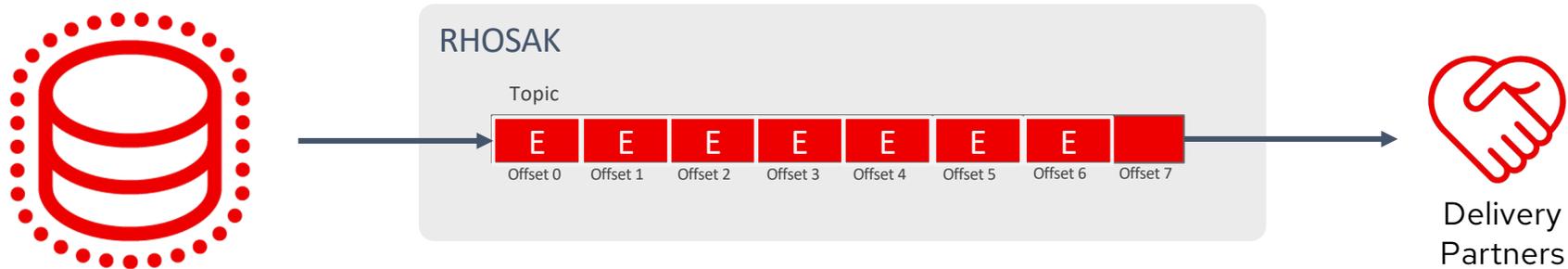
No OpenShift cluster is necessary. Sign-in. Create a Kafka cluster. Connect.



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"
```

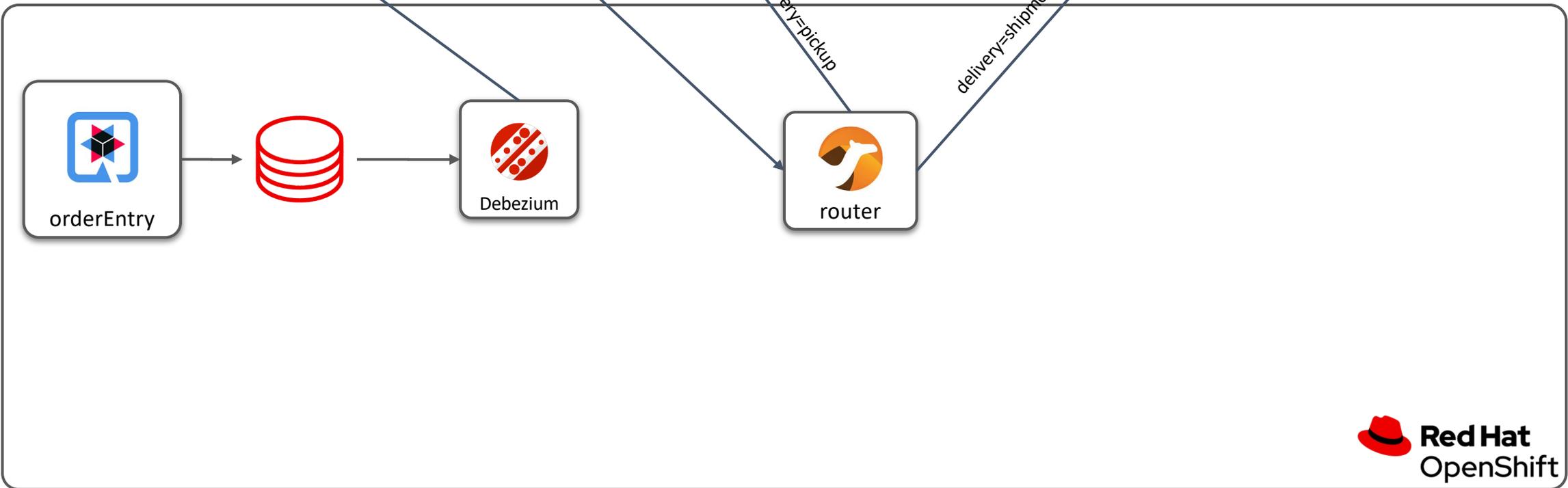
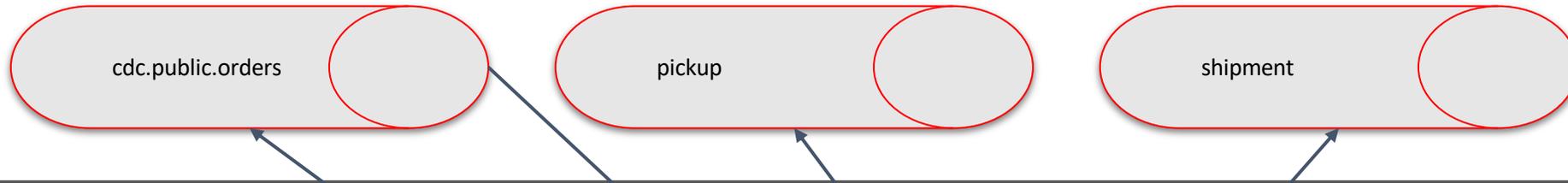
Debezium Payload

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

Managed Red Hat OpenShift services			
 Red Hat OpenShift Service on AWS ¹	 Azure Red Hat OpenShift	 IBM Cloud Red Hat OpenShift on IBM Cloud ¹	 Red Hat OpenShift Dedicated ²

You manage it, for control and flexibility

Self-managed Red Hat OpenShift	
 Red Hat OpenShift Container Platform	On public cloud, or on-premises on physical or virtual infrastructure ³      

Who does what ?

Self-managed OpenShift

Responsibilities

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

Customer Red Hat

RedHat Managed OpenShift

Responsibilities

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

Customer Red Hat

Who's actually
Running this thing ?



?

?



?

?

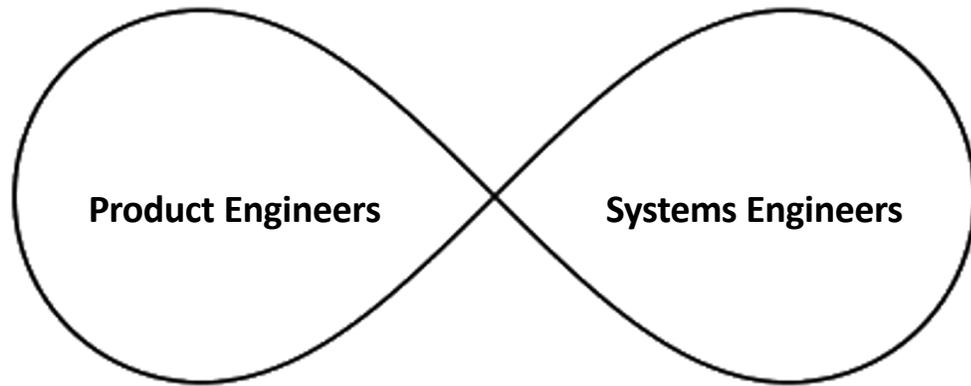


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The Global SRE Team



The Global SRE Team



- Develop & Deploy managed clusters
- "Day One" Operations
- "Day Two" Operations



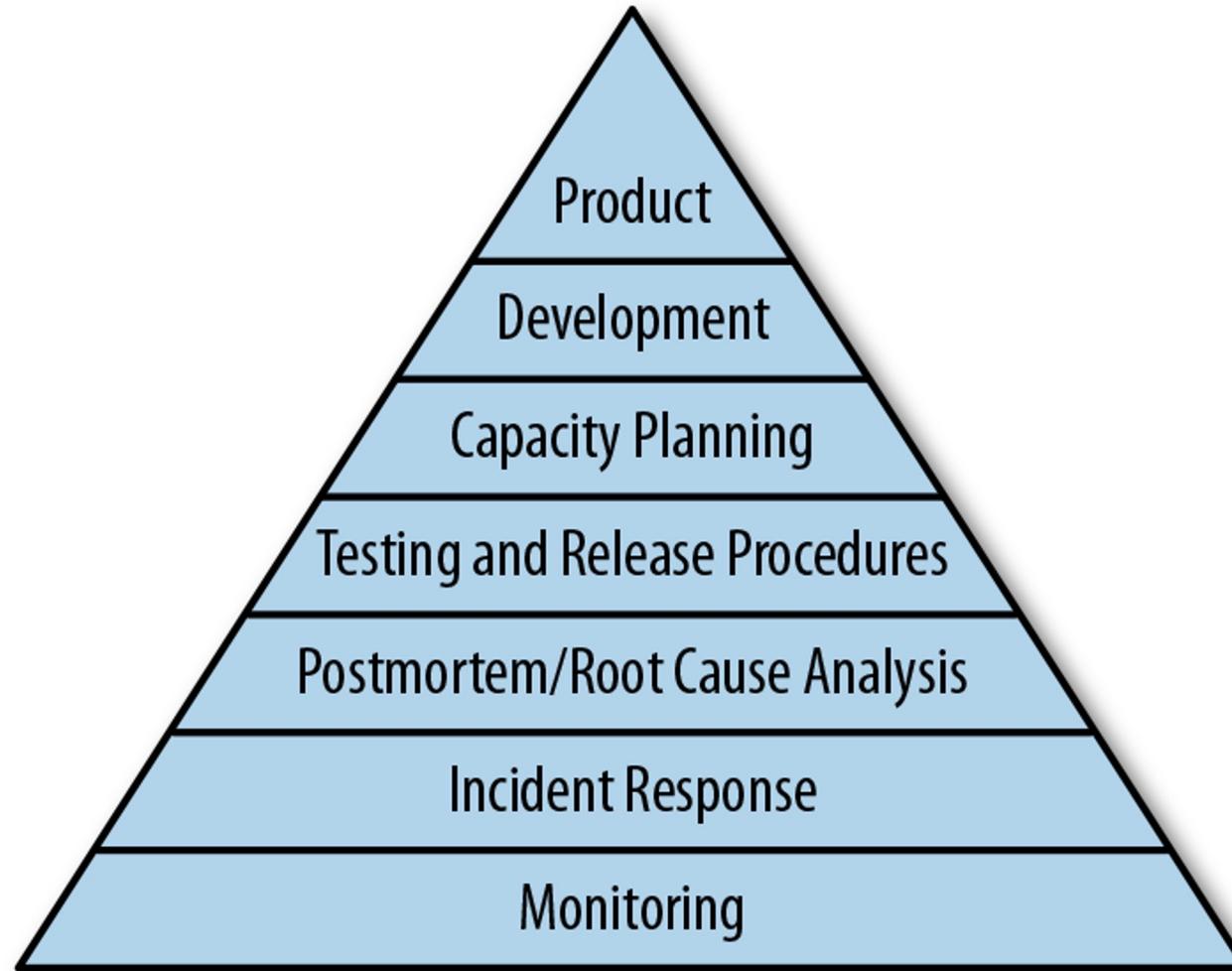
People and Skills



Process and Automation



Support and Security

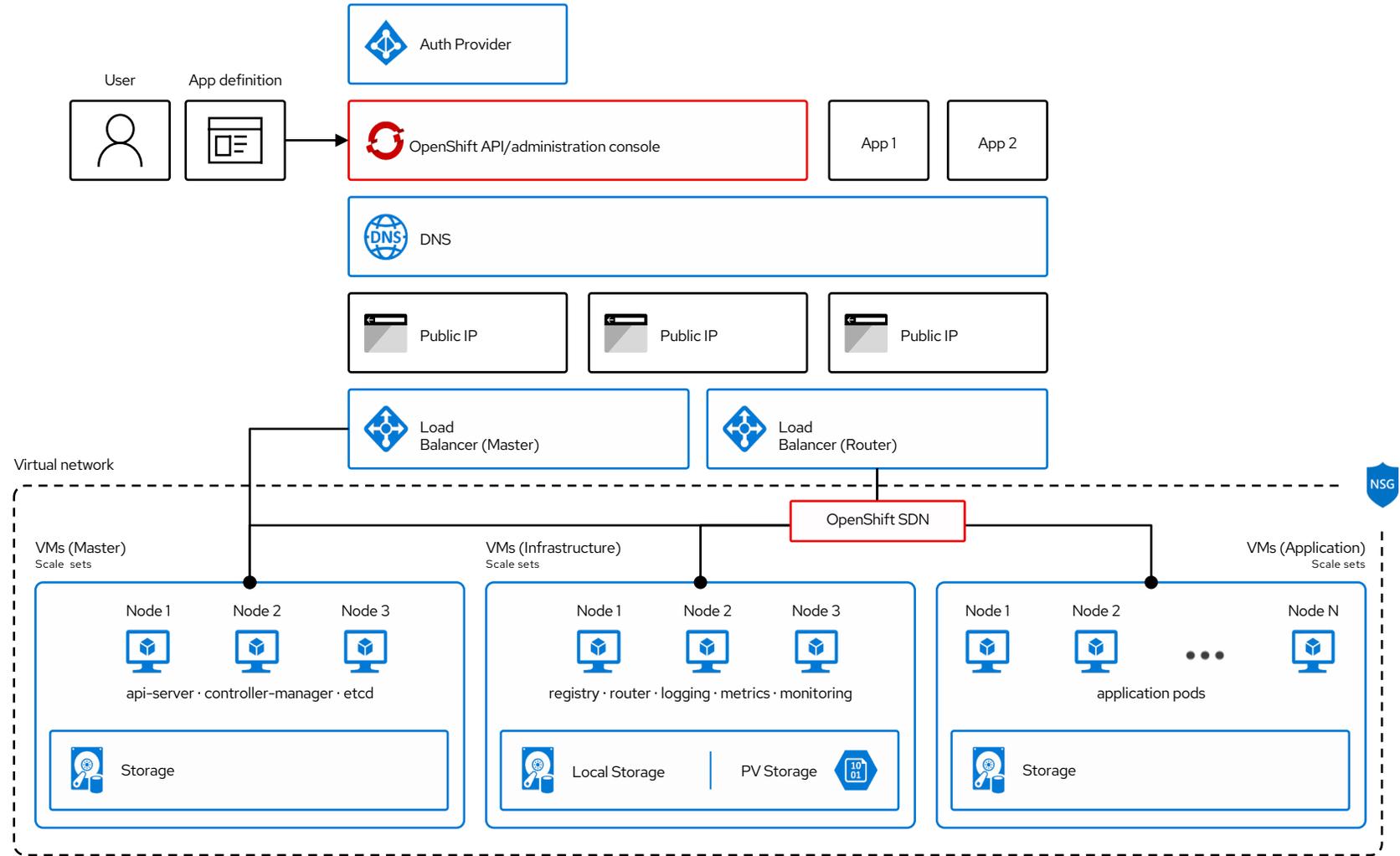


Running your own Red Hat OpenShift cluster

Responsibilities

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

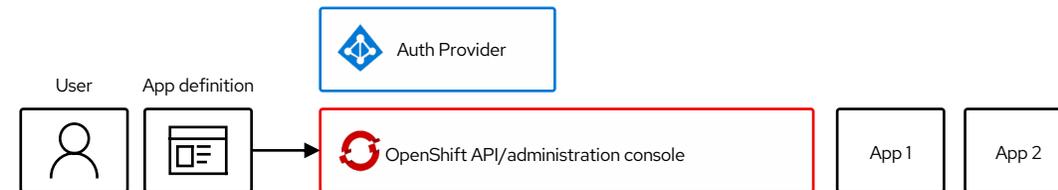
Customer Red Hat



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	■

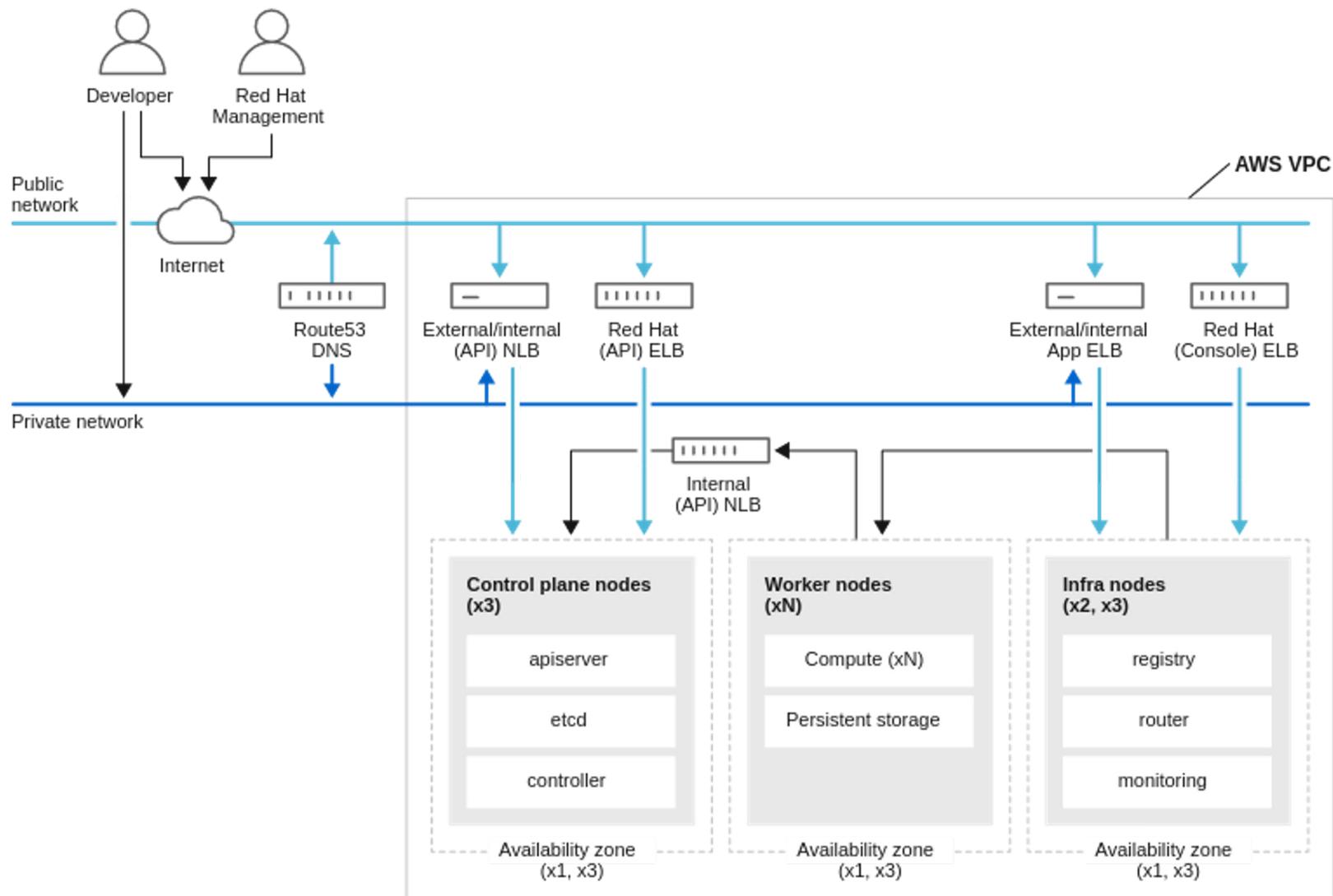


Let Red Hat ...

Manage all your clusters

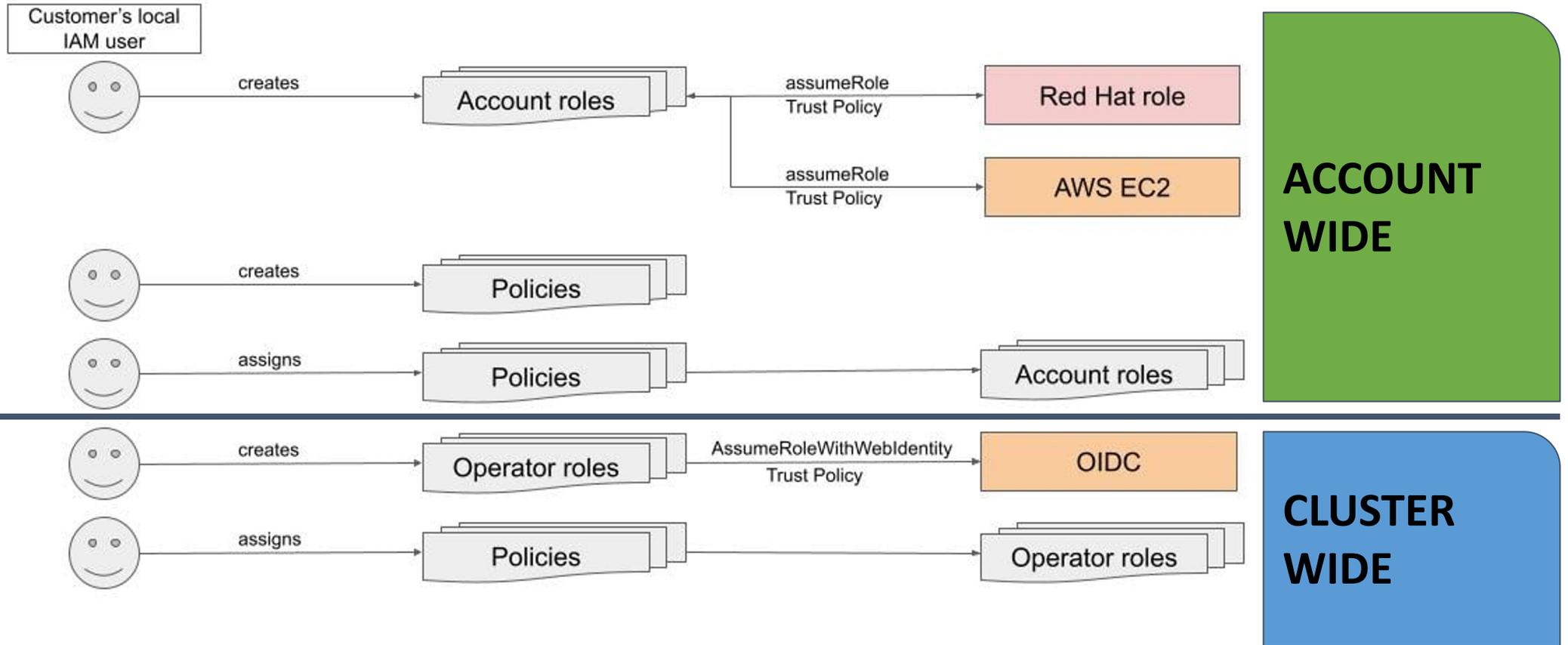
Monitor and operate your VMs

ROSA architecture



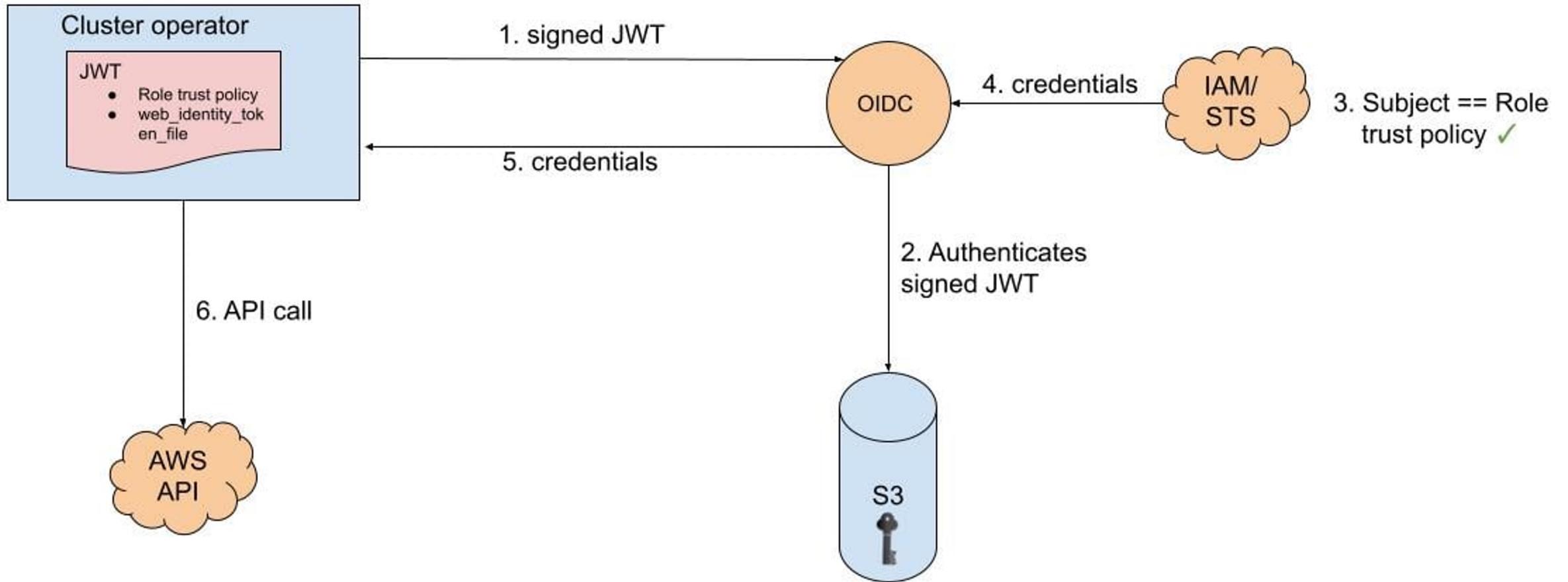
How does ROSA with STS work?

Setup



How does ROSA with STS work?

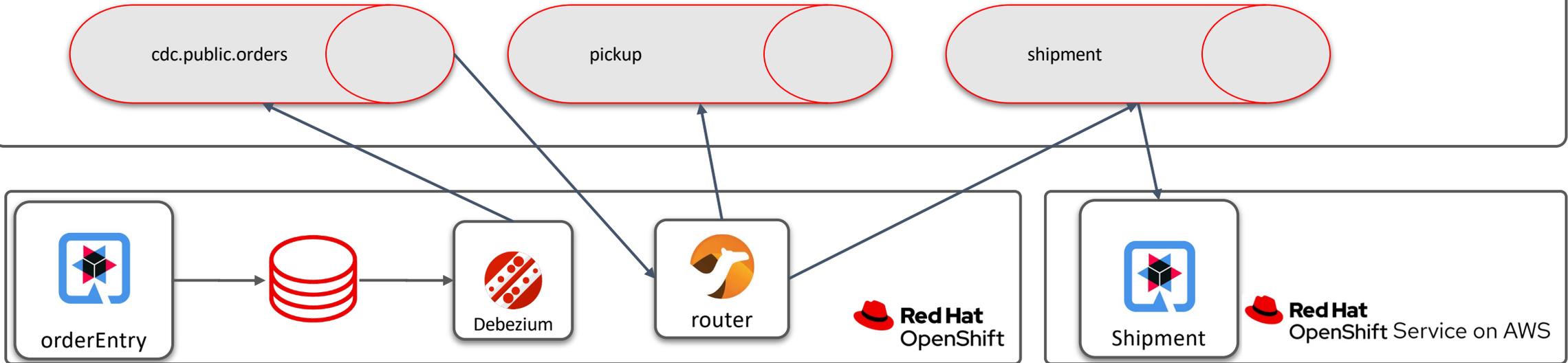
Authentication Process



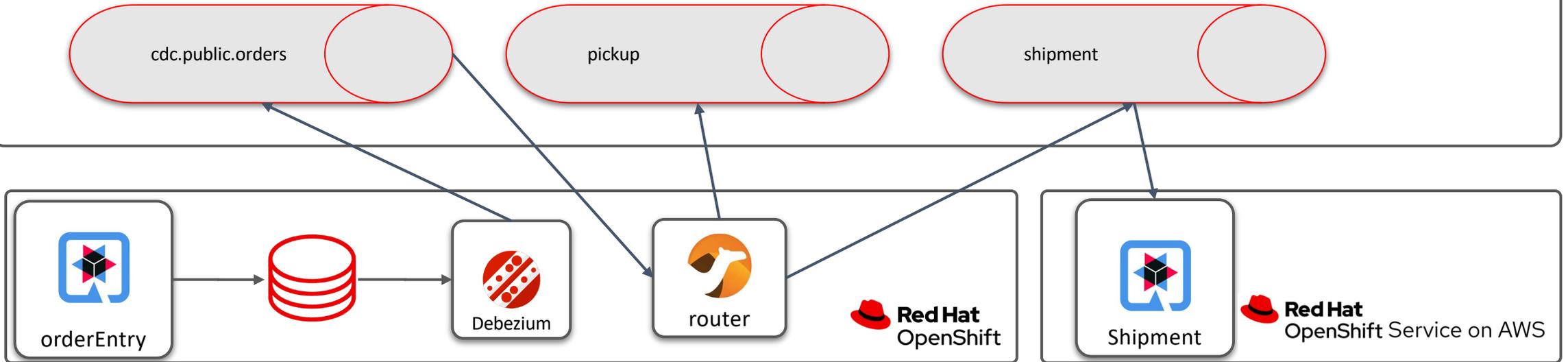
Modernizziamo le applicazioni

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