

# Red Hat strategy and roadmap

Cloud native application: ultime evoluzioni e stato dell'arte

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What is happening  
in your world?

Do you need to deliver solutions  
and business innovation faster?



New delivery models  
and revenue streams



Faster  
time to market



Improved customer  
satisfaction

# Benefits of cloud-native apps

Stay competitive in a software-driven economy



## Faster Time To Market

Since development cycles are shortened, a microservices architecture supports more agile deployment and updates



## Highly scalable

As demand for certain services grows, you can deploy across multiple servers, and infrastructures, to meet your needs..



## Resilient

These independent services, when constructed properly, do not impact one another. This means that if one piece fails, the whole app doesn't go down, unlike the monolithic app model.



## Freedom

Due to the use of polyglot APIs, developers have the freedom to choose the best language and technology for the necessary function.

## Some typical Architectural “Initiative”



### API economy

Monetize and empower application assets (**Service** and **Data**) and organize a Catalogue to guide and manage interaction



### Event Driven architecture & Serverless

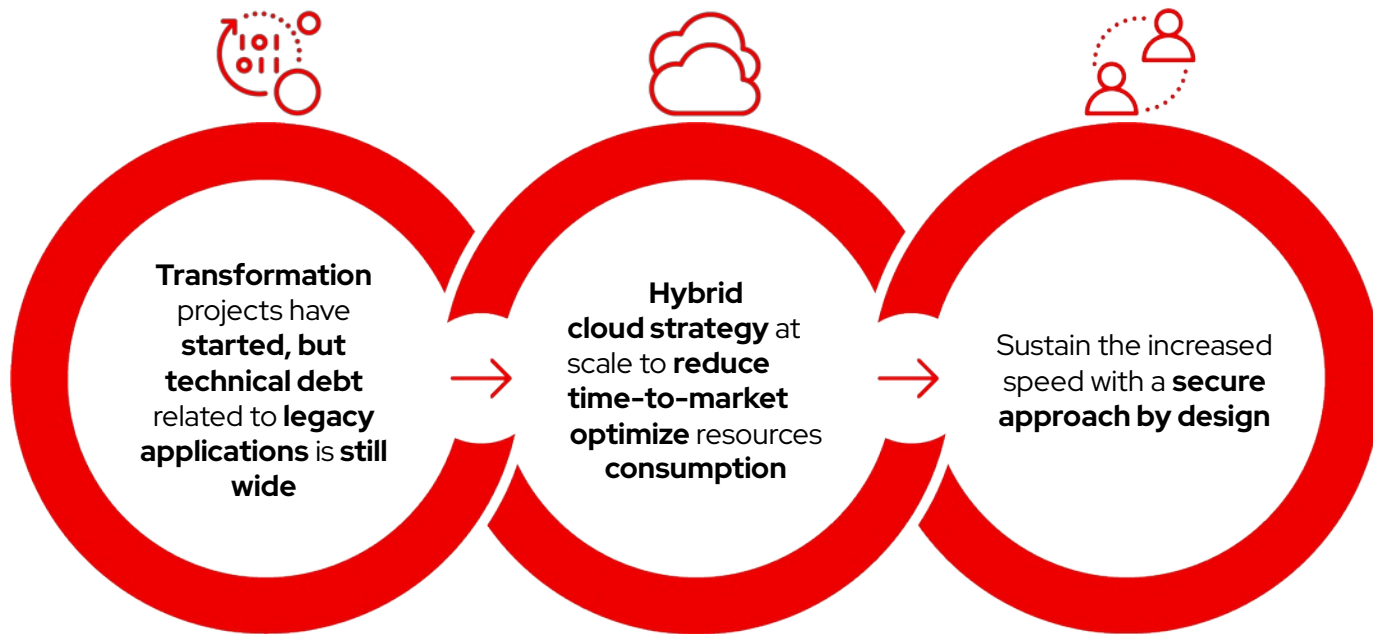
Implement a architecture to support  
Real Time **events streaming**  
between microservices.  
**CDC** and streaming.  
Scale to zero



### Data Driven Business Model

**Data as a Service.** manage data ownership, data firewalling, data federation, data virtualization.  
e.g. MF Offload

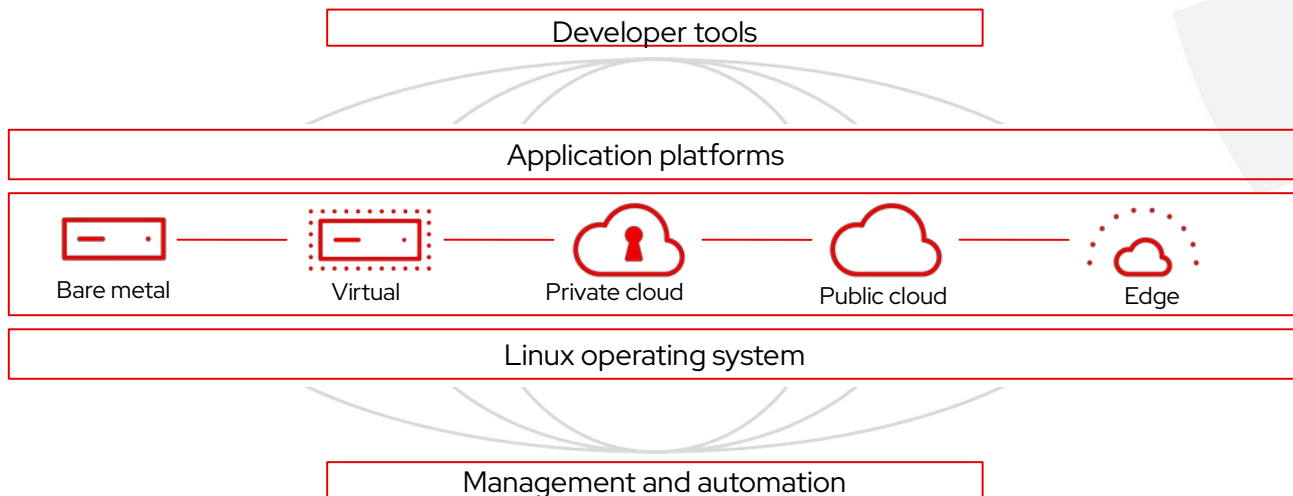
## Current challenges in the "hybrid cloud market"



## Red Hat vision & way-to: **Open Hybrid Multi Cloud & Edge**

- Develop application once, deploy everywhere through automations
- Same experience, same skills, same processes everywhere (on premise, on multi cloud, on edge)
- Avoid Cloud Provider lock-in, enable cloud exit strategy

Any workload, any footprint, any location



# Red Hat vision & way-to: **Open Hybrid Multi Cloud & Edge**

Traditional apps



Cloud-native apps



AI/ML, Functions



Communities of Innovation | Ecosystems of Solutions



Secure & Automated Infrastructure and Operations



Physical



Virtual



Private cloud



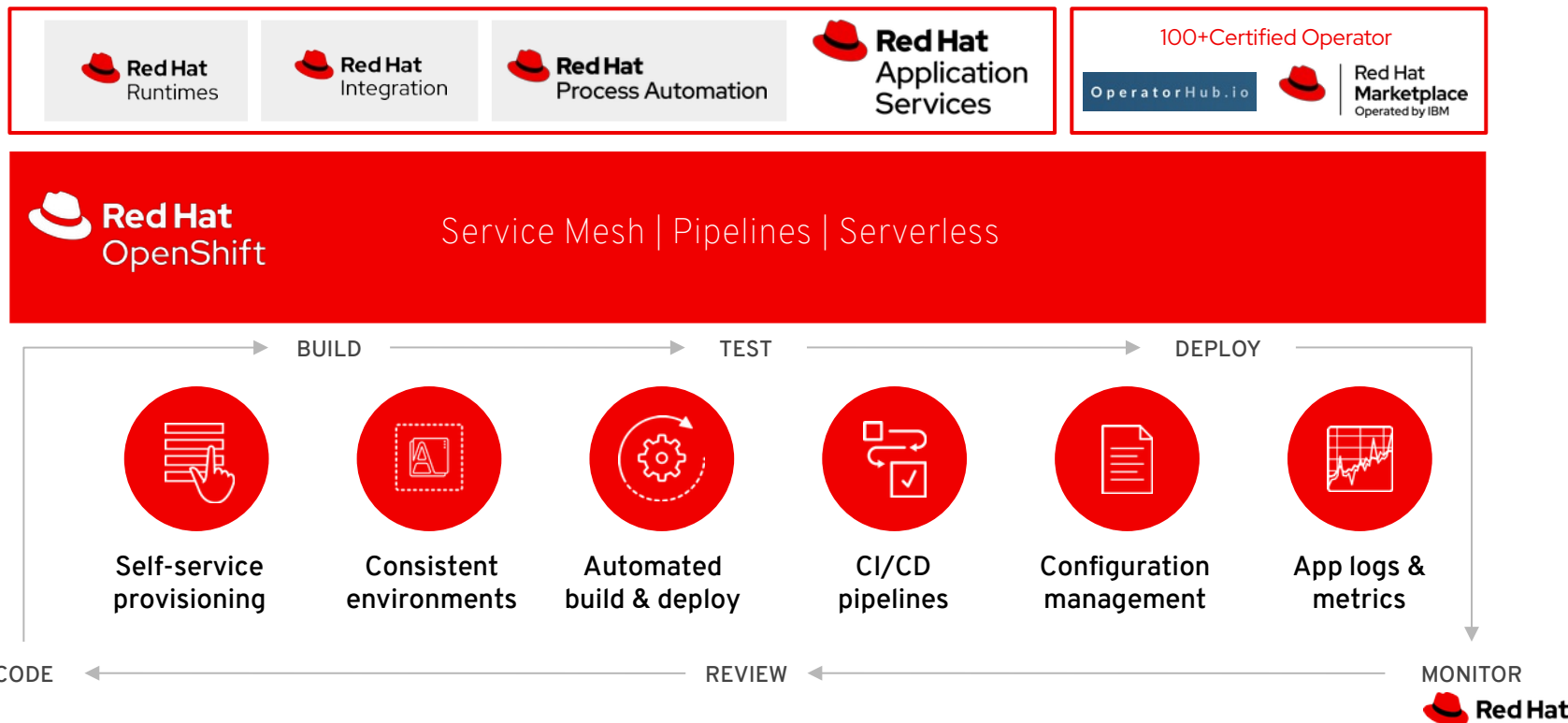
Public cloud



Edge



# Red Hat's flexible cloud-native solution





# Red Hat Application Services



## Red Hat Runtimes

LAUNCH SERVICE



 **Red Hat**  
JBoss Enterprise  
Application Platform

 **Red Hat**  
Data Grid

OpenJDK™

 **Red Hat**  
AMQ

 **RED HAT**  
SSO

 **Red Hat**  
Application  
Migration Toolkit



## Red Hat Integration



**Red Hat**  
3scale API Management



**Red Hat**  
Fuse



**Red Hat**  
AMQ



APICURIO



debezium



**Red Hat**  
Runtimes



## Red Hat Process Automation



**Red Hat**  
Process Automation  
Manager



**Red Hat**  
Decision Manager



**Red Hat**  
Runtimes



# Red Hat Marketplace

100+ Red Hat OpenShift certified operators in a single place with an “App-Store” experience

**AI / ML**

CognitiveScale GIGASPACEs H<sub>2</sub>O PerceptiLabs  
PROPHETSTOR SELDON UBIX

Customer Code

{ | }

**DevOps Tools**

Kong ESCALATE IBM VACAVA  
Solution-Soft sonatype spot  
Red Hat here KubeHQ

**Monitoring & Logging**

BROADCOM sysdig DATADOG  
ZABBIX INSTANA dynatrace IBM  
Red Hat turboomic sematext  
APPDYNAMICS New Relic splunk

**Application Runtimes**

IBM Joget Red Hat Lightbend  
GTSoftware

**Databases & Big Data**

Starburst ArangoDB nuodb PERCONA PingCAP  
Couchbase NoEQUAL IBM Cockroach LABS  
memSQL hazelcast redislabs crunchdata

**Security**

NeuVector JETSTACK SYNOPSYS  
Twistlock CYBER ARMOR Zettaset IBM  
aqua TREMOLO SECURITY anchore tuftin Orca

**Network**

CONTAINOUS TIGERA CITRIX

**Storage**

INFINIDAT TRILIO Red Hat STORAGEOS IBM  
Hewlett Packard Enterprise portworx

Any infrastructure

Physical Virtual Private Public

**Red Hat Marketplace**  
Operated by IBM

**TRY -> BUY -> DEPLOY**  
in a Single Place  
in Mere Minutes

Red Hat  
OpenShift 4

# New generation tools for Kubernetes

# Kubernetes Native frameworks

New generation tools for Intelligent applications



Quarkus

A Kubernetes Native Java stack tailored for GraalVM & OpenJDK HotSpot, crafted from the best of breed Java libraries and standards

<https://quarkus.io/>



Camel-K

A lightweight integration platform based on Apache Camel, born on Kubernetes, with serverless superpowers

<https://camel.apache.org/camel-k>



Kogito

cloud-native business automation for building intelligent applications, backed by battle-tested capabilities

<https://kogito.kie.org/>





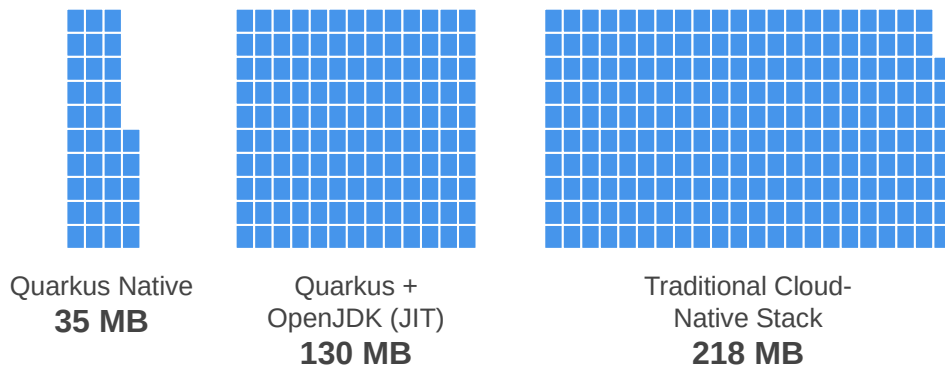
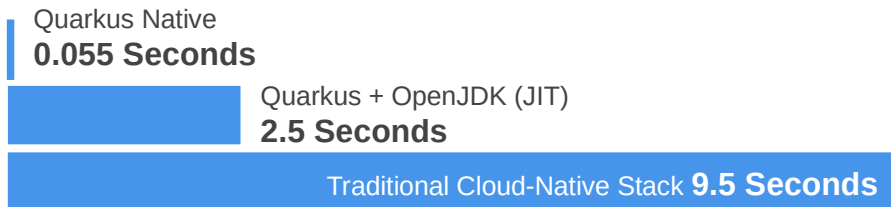
# QUARKUS

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Supersonic. Subatomic. Java.

# Building next-gen applications with Serverless and Quarkus

## REST + CRUD




Java next



# QUARKUS

Lightweight java compile and native

OPENSIFT SERVERLESS 



## Red Hat OpenShift



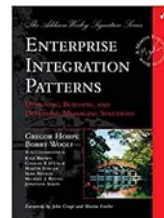
# Apache Camel



Could connect to many systems



Works on and off the cloud



With support for known integration patterns

```
from("kafka:topic")  
  .to("grpc:endpoint")
```

Write integrations with a simple language such as XML, Java and YAML



# Camel K

What does the Camel K platform has to offer ?



## Connectivity

Connect anything - as it leverages the Apache Camel set of components - the Cloud Native way



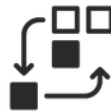
## Serverless Integration

Auto scaling (including scaling to 0) sources and sinks for event-driven serverless applications



## Efficiency

Quarkus based runtime



## Orchestration

Cloud Native EIP



## Seamless Integration

Auto adapt to the environment (Knative, Kafka, OpenShift, Kubernetes, Service Binding, etc)



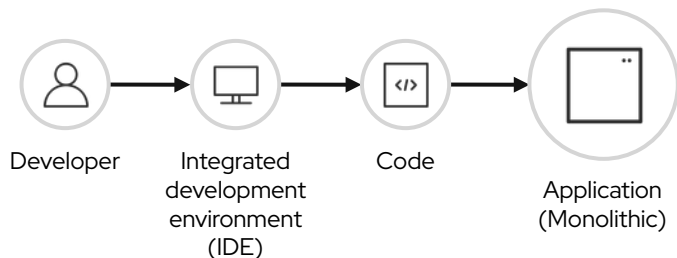
## Developer Joy

Live Reload, Projectless

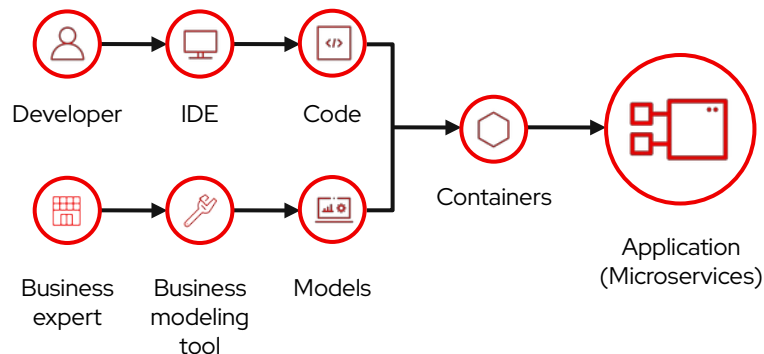
# Application development is changing

Breaking down organizational separation

From

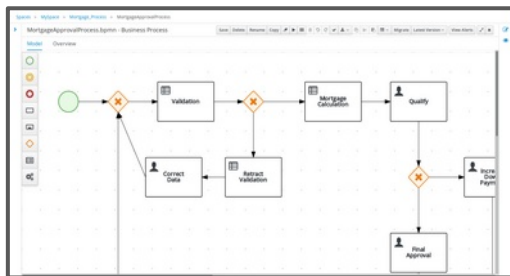


To

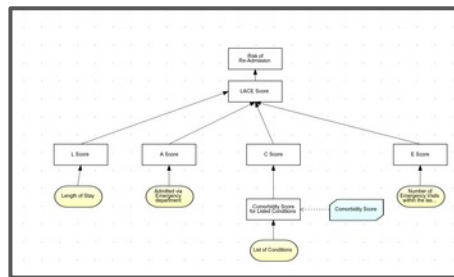
 **Red Hat**  
Process Automation **Red Hat**  
OpenShift

# Models

## BPMN / Case



## DMN Models



## Decision Tables

spaces > MySpace > Mortgages [1] > Pricing loans

Pricing loans.gdsc - Guided Decision Tables

Model Columns Overview Source Data Objects

Pricing loans		application : LoanApplication				lome : IncomeSou	
#	Description	amount min	amount max	period	deposit max	income	Loan approval
1		131000	200000	30	20000	Asset	true
2		10000	100000	20	2000	Job	true
3		100001	130000	20	3000	Job	true

## Data Model

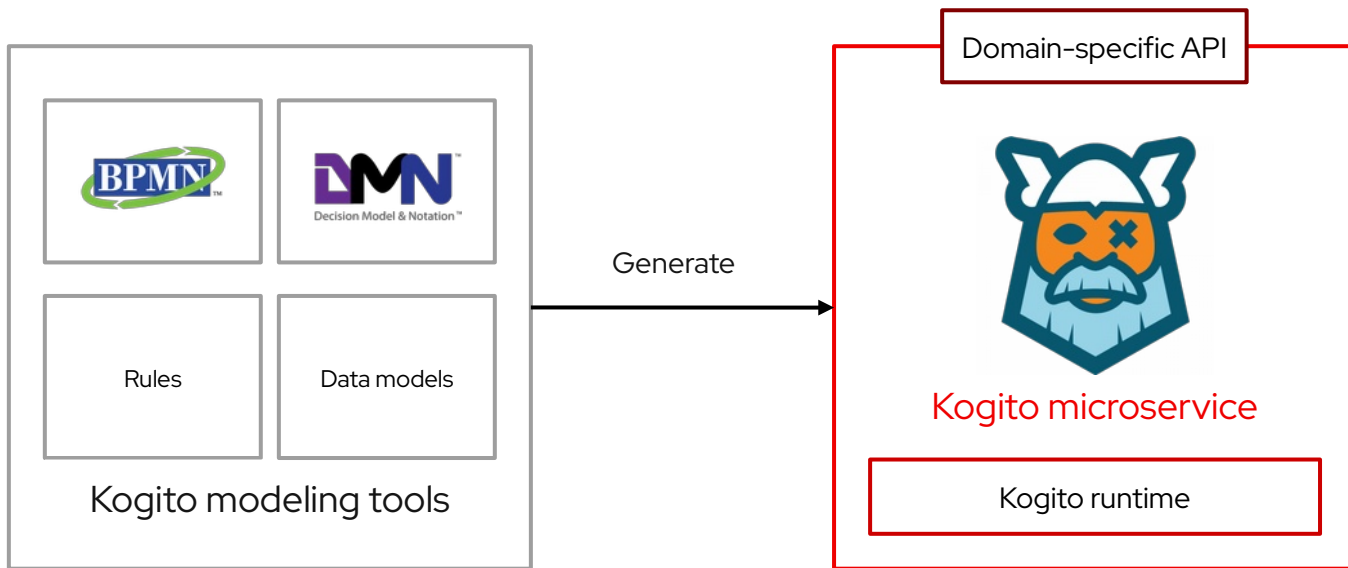
Application.java - Data Objects

Model Overview Source

Application + add field

Identifier	Label	Type	
amortization	Years of amortization	Integer	Delete
applicant	Applicant	Applicant	Delete
downpayment	Down Payment	Integer	Delete
errors	Error details	Validation Error	Delete
mortgageamount	Mortgage amount	Integer	Delete
property	Property	Property	Delete

## A Kogito microservice



Quarkus: Supersonic,  
Subatomic Java



<https://youtu.be/hhHgurtI674>

Kogito for lightweight cloud-native  
business automation



[https://youtu.be/2Ci\\_WcYtLrUrU](https://youtu.be/2Ci_WcYtLrUrU)

# The “perfect Toolbox” to build intelligent application at the Edge

- Decision for Kubernetes
- Processes for Kubernetes
- Mqtt, Streams
- EIP for Kubernetes (Camel-K)
- Supersonic Subatomic Java (Quarkus)
- Serverless (Knative)
- Enterprise Platform based on Kubernetes



Kogito



**Red Hat**  
Process Automation



APACHE

Camel



**Red Hat**  
Integration



QUARKUS



**Red Hat**  
Runtimes



**Red Hat**  
OpenShift

# RH Cloud Services

## Why Managed Applications Services?



### **Immediate Availability**

Available immediately for faster time to value



### **Zero footprint Ops**

Fully hosted and managed reduces dependence on Ops and IT



### **Saves money**

No upfront investment, pay only for what you use



# Extending your value of OpenShift



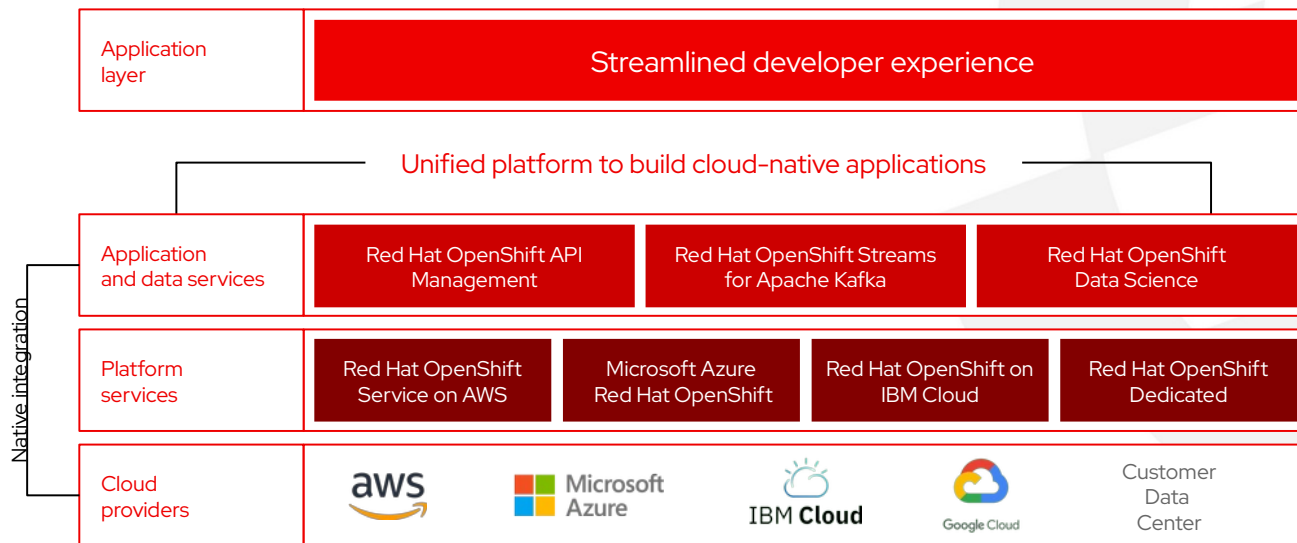
**Full stack management  
and unified experience**



**Maximize full value of  
Red Hat OpenShift**

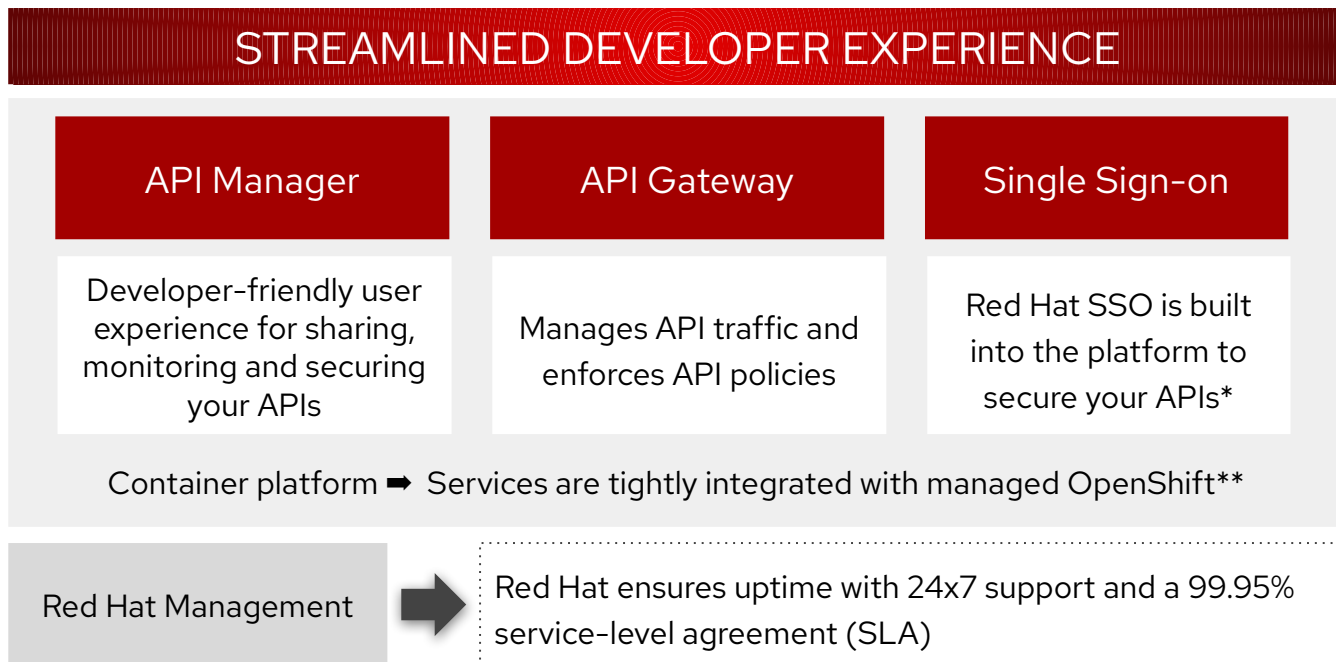


**Hybrid cloud flexibility**



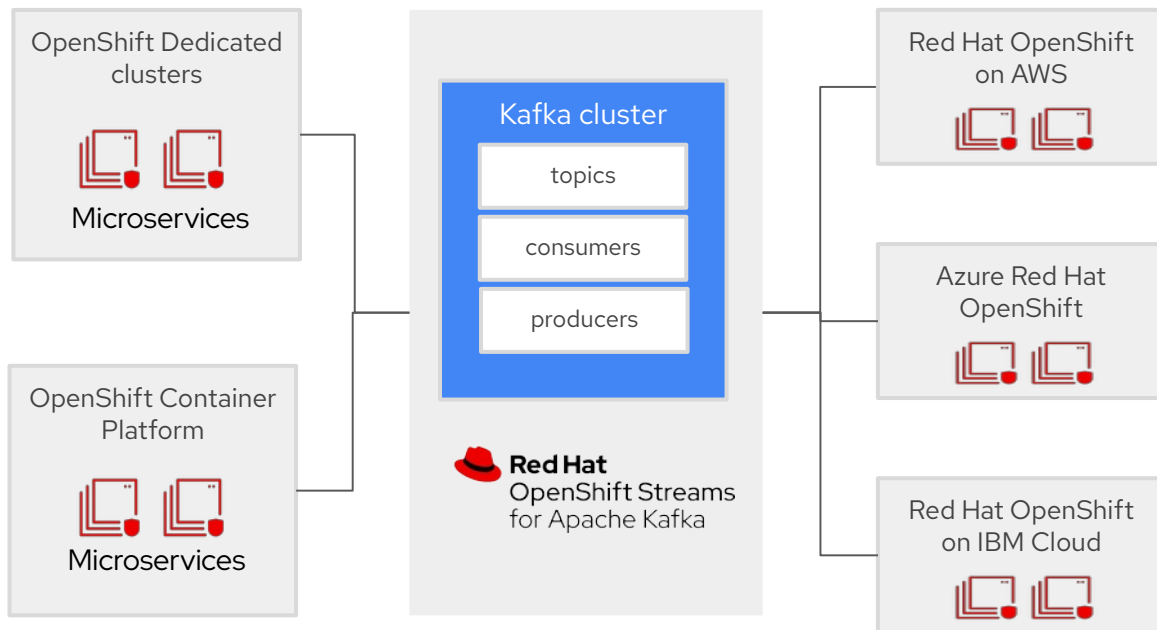
## Red Hat OpenShift API Management?

Fully managed service for API management delivered as an add-on to managed OpenShift



# Streams for Apache Kafka and OpenShift

Seamless operations across hybrid-cloud environments



- Many clouds, same Kafka instance
- Kafka infrastructure is hidden
- Service bindings: easy to connect
- Schema registry: easy to discover

# Red Hat approach to AI/ML: depth and scale without lock-in

Capabilities delivered through the combination of Red Hat and partner ecosystem



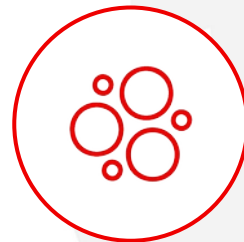
## Managed cloud platform

Deployed on Red Hat OpenShift  
and managed on Amazon Web  
Services providing access to  
compute and accelerators based  
on your workload



## Red Hat portfolio and services

Complement common data  
science tools in Red Hat OpenShift  
Data Science with other Red Hat  
products and cloud services



## Partner ecosystem

Access specialized capabilities by  
adding certified ISV ecosystem  
products and services from  
Red Hat Marketplace

# Based on Open Data Hub and Operate First

Upstream code enhanced with operational excellence

## Open Data Hub

Community driven upstream meta-project demonstrating AI/ML platform on Red Hat OpenShift comprised of open source projects

## Operate First

Subset Open Data Hub operated at scale for community and university audiences to infuse operational excellence

## Red Hat OpenShift Data Science



Subset of Operate First delivered as a cloud service on Red Hat OpenShift  
Managed on Amazon Web Services with optional ISV offerings



# Red Hat OpenShift Data Science

## Tools and capabilities

Building on the foundations  
of data science



### Jupyter notebooks

Conduct exploratory data science in JupyterLab with access to core AI / ML libraries and frameworks including TensorFlow and PyTorch.



### Source-to-image (S2I)

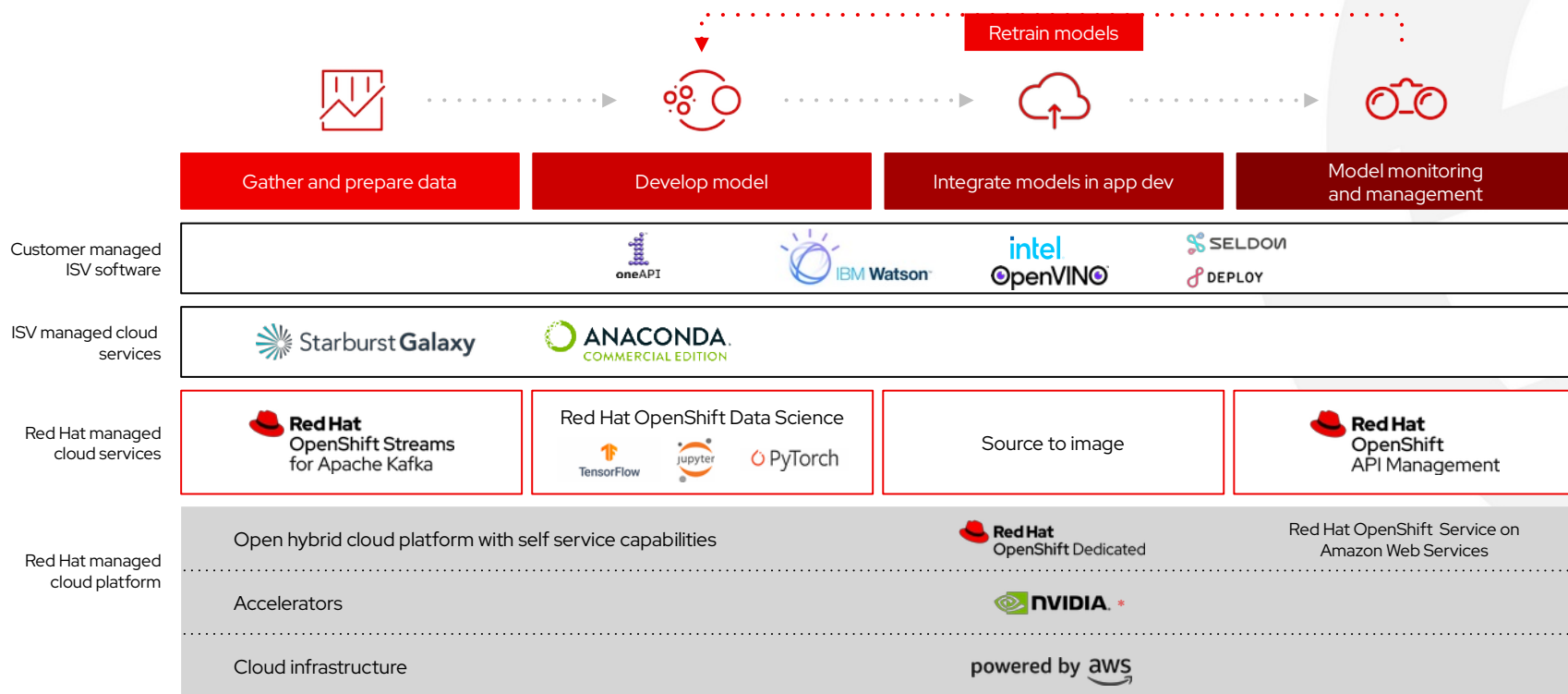
Publish models as end points via S2I for integration into intelligent apps. Rebuild and redeploy based on changes to the source code.



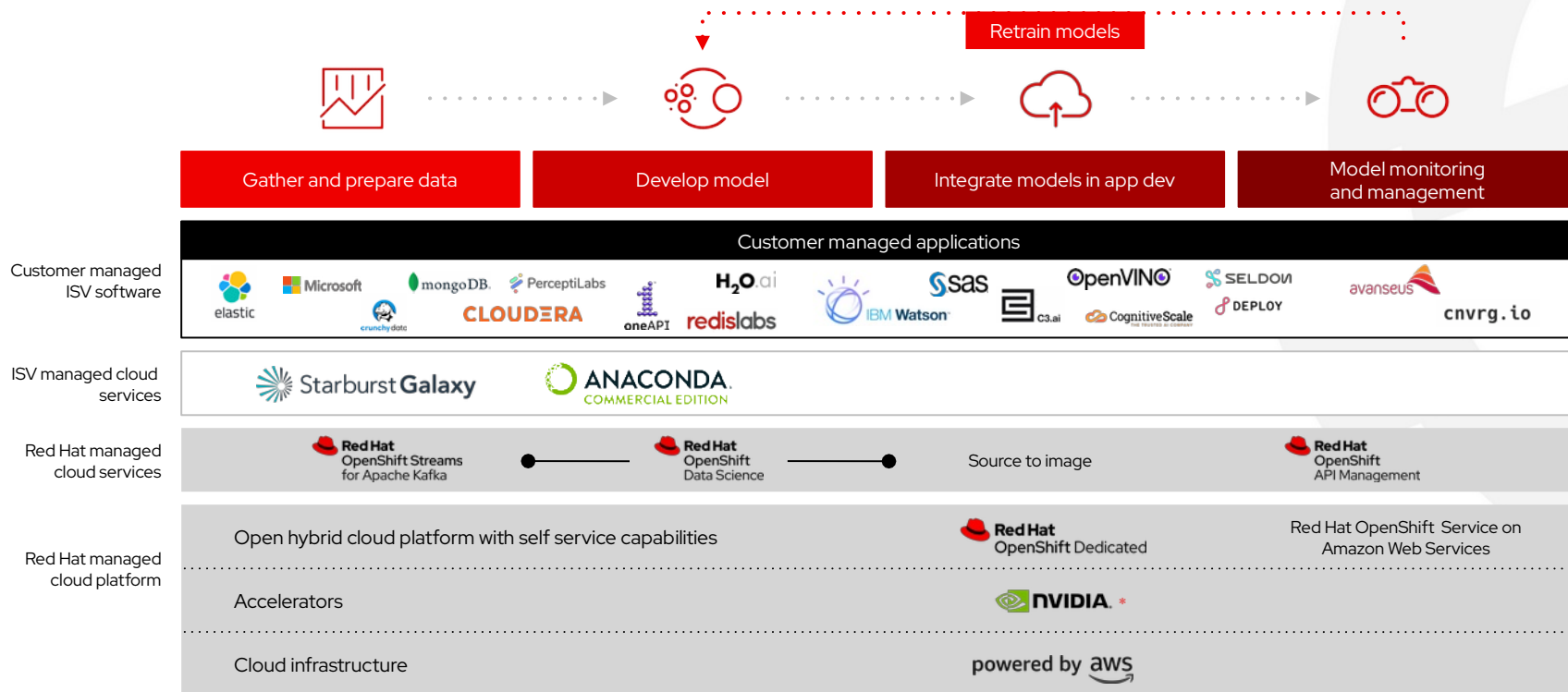
### GPU Acceleration (post-initial release)

Accelerate your data science experiments through the use of GPU acceleration on the Red Hat OpenShift Dedicated platform.

# Initial release components



## ... and integrating our partner ecosystem







Red Hat  
Summit

# Thank you



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