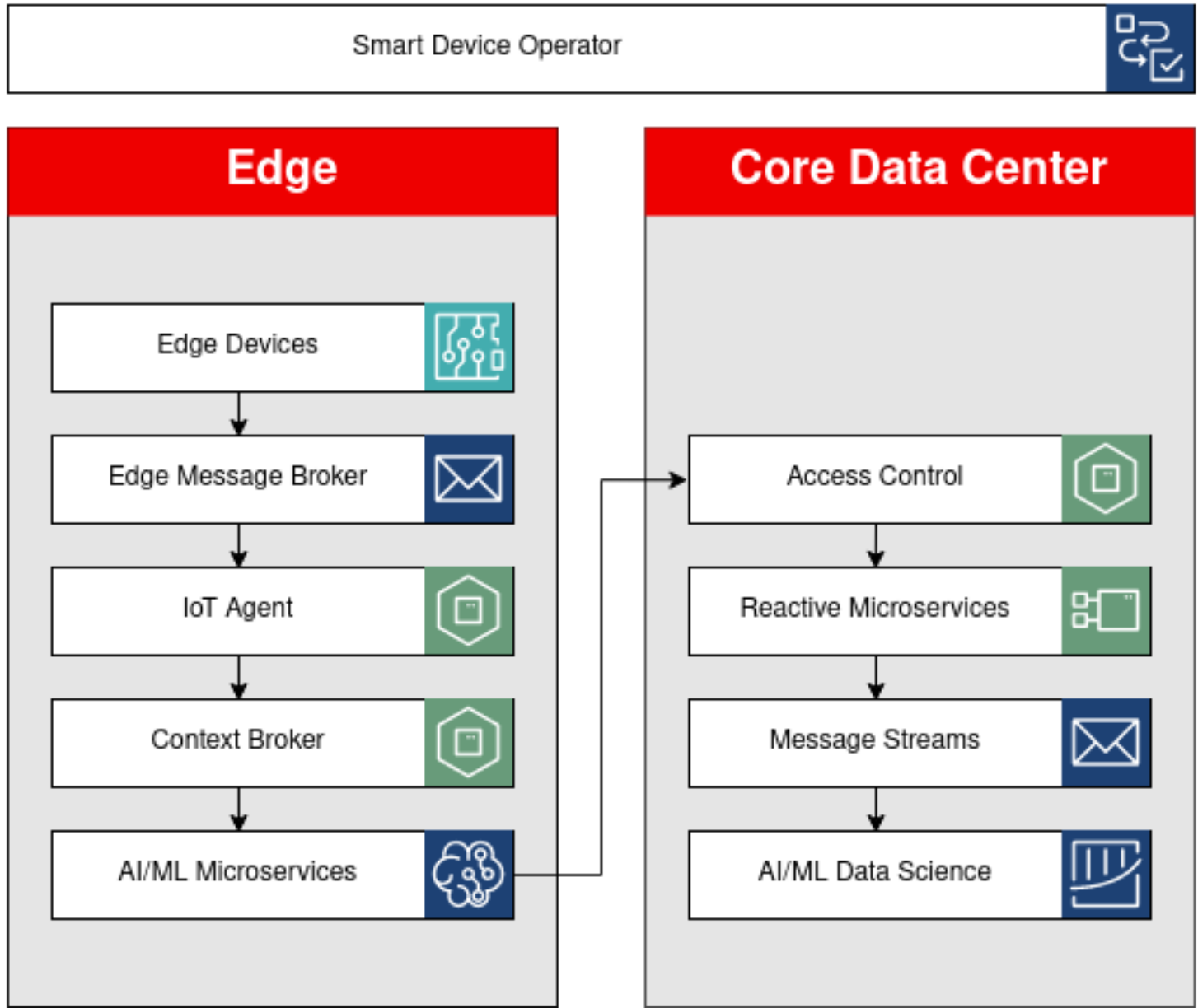
Open IoT Data Science

Business Drivers

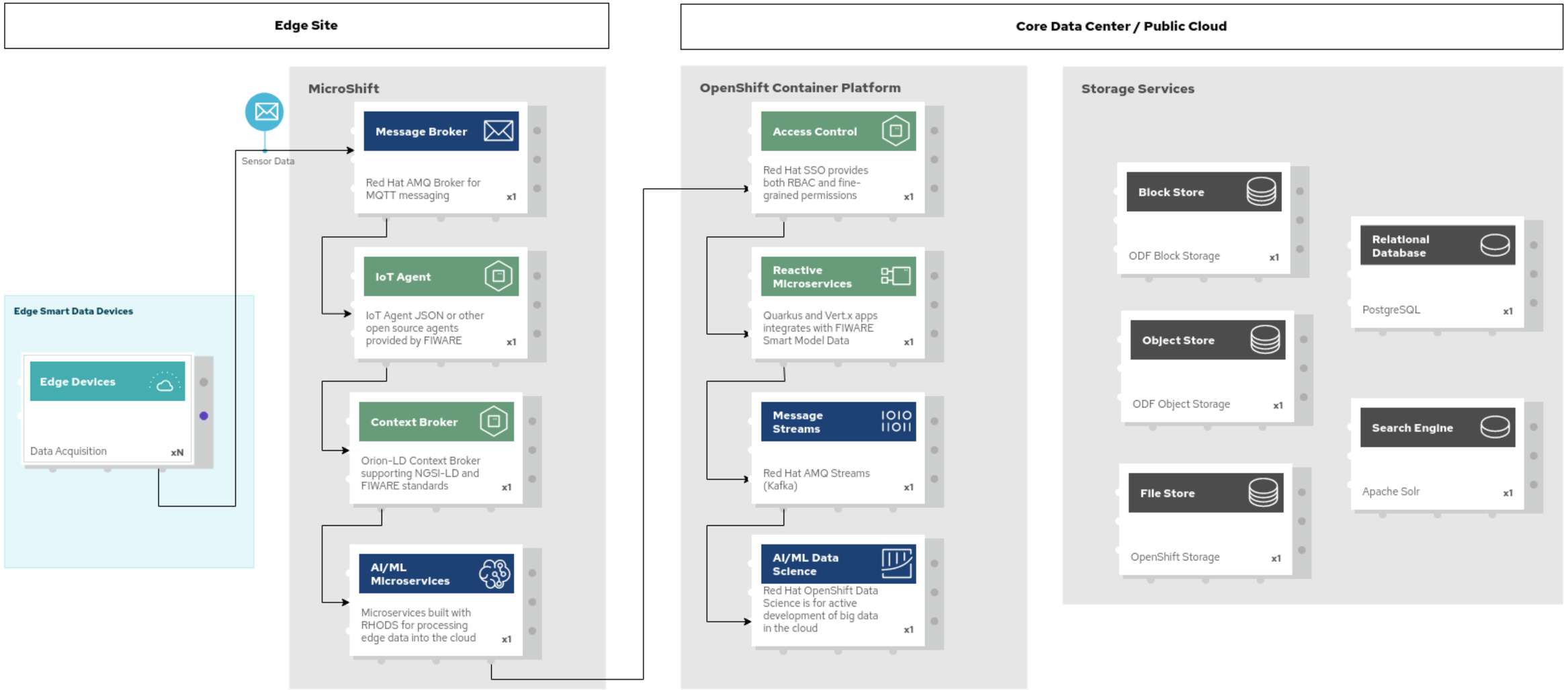
FIWARE Open Source Standards for IoT Device Smart Model Data

Easy deployment and registration of apps and devices with Kubernetes Operators

Data Science AI/ML development to Data Science Microservice deployment on the edge



Schematic - Edge MicroShift to Cloud OpenShift



Color key — Application — Infrastructure — Developer — Services

Red Hat

Edge Site

Red Hat Device Edge and Microshift

Edge Devices
Smart data devices that send messages

Device message data
Sensor data sent as MQTT messages to a message broker

Edge Message Broker
Multicast or Anycast message routing from smart devices

MQTT Acceptor
Send and recieve MQTT messages from smart devices

IoT Agent
Receives messages from Smart Devices and sends them to the context broker

Context Broker
NGSI-LD API for queries and updates for device entities and attribute values

AI/ML microservices
Custom data science logic for context data deployed to the edge to connect to the cloud

NoSQL Database
For storing service group, device, and entity data

CORE DATACENTER / PUBLIC CLOUD

Red Hat OpenShift Container Platform

Relational Database
For storing data scientist user preferences, simulations, and reports

Smart Device Operator
Orchestrates the deployment of applications in the cloud and the edge, and registers devices

Cluster Manager
For clustered microservices where pods share the workload (Kafka, Solr, Smart Village)

Message Streams
Message topics for event driven automation

Search Engine
For API storage that is fast, including: filtering, faceting, pivoting, pagination, on smart data

Data Science
Tools to support research and machine learning on smart device data

Access Control
RBAC and fine-grained permissions to resources

Reactive Microservices
Processing incoming device data, dashboards, reports, analytics, OpenAPI

Color key Application · Infrastructure · Application Services · Services

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