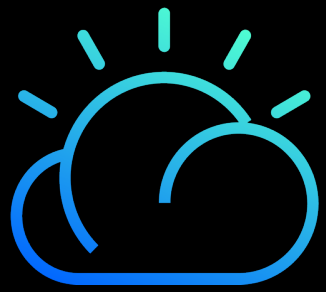
Maximo EAM to MAS



OpenShift Platform Options

Ben Poston
IBM Cloud Modernization SME

Red Hat OpenShift

February 2024

IBM

MAS Overview: Technology Stack

Manage
Intelligent Asset Management

Monitor
Monitor and Detect Anomalies

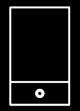
Health
360 View of Assets

Predict
Predictive Failures

Visual Inspection
AI-Powered Insights

Schedule
Schedule Work and Resources

Mobile
Technician Work Execution



Assist
Prescriptive Assistance

Control
ITIL Based Technology Service Management

IBM Cloud Pak for Data | IBM Watson Studio | IBM Watson ML

Red Hat OpenShift

Infrastructure Independent
Common Operating Environment

IBM Cloud

aws

Azure

Google Cloud

Private

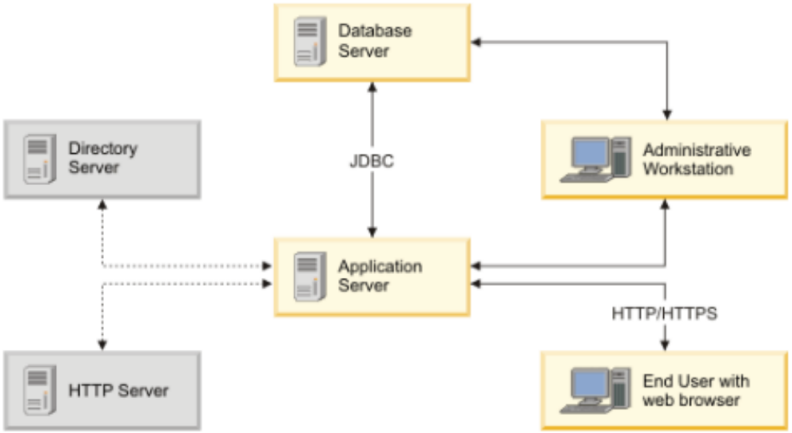
Edge

Systems

IBM

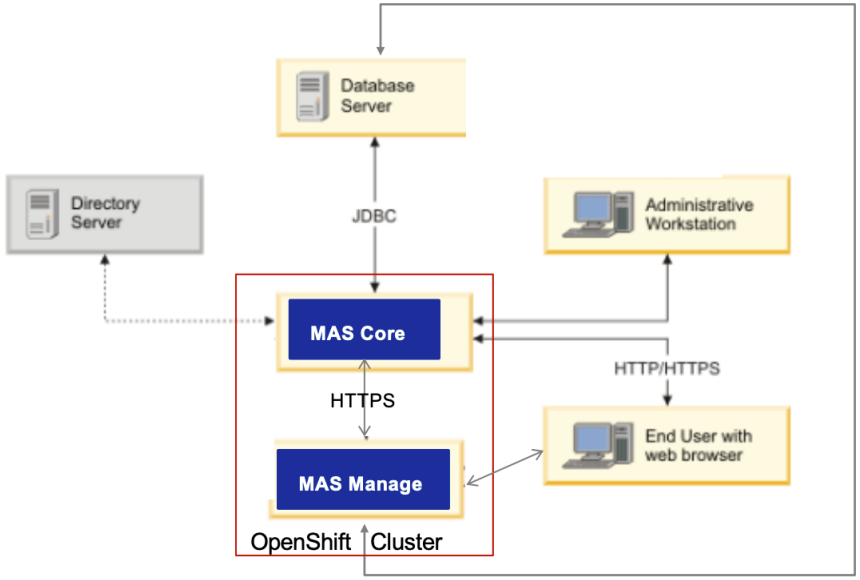
System architecture and components – Maximo and MAS Manage

Maximo Asset Management



Post Migration

Maximo Application Suite - Manage



- Administration Workstation (Bastion node) – Installs OpenShift Cluster , MAS using ansible scripts
- MAS Core has pods that connects to Directory Server and Database Server. MAS core has configurations to store the user and database info
- MAS Manage has pods that connects to Database Server for migration and data access
- End User connects via OpenShift load balancer to MAS Core and MAS Manage

MAS Example - Current and target environments

Maximo 7.6 on-prem

Current WebSphere Servers

Prod servers (8)

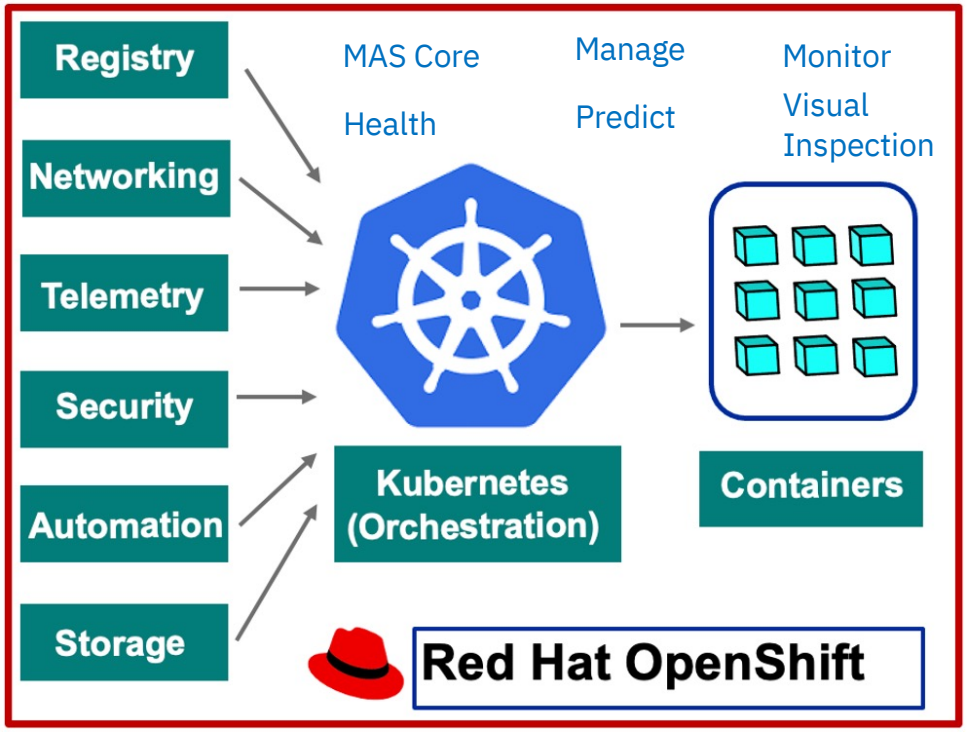
DB Server

Dev servers (1)

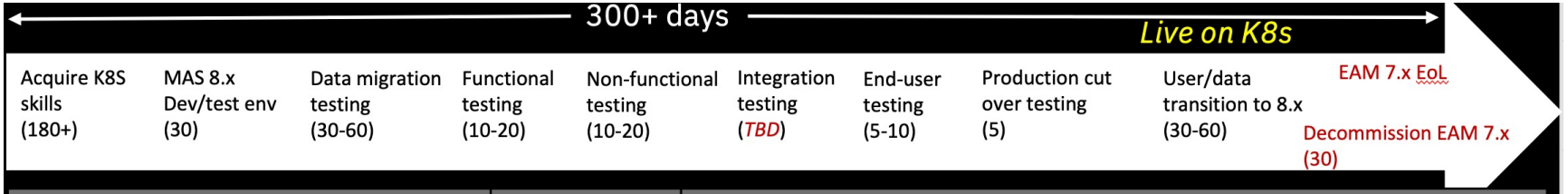
Test servers (7)

Major Architectural shift

Maximo Application Suite (MAS) runs as Containers on Red Hat OpenShift



Typical Timeline – Maximo EAM to MAS



Activity	Estimated (Days)	Comments
Acquire K8S skills	180+	As needed but could be longer to be self sufficient to maintain a production grade system
MAS 8.x Dev/test	30	To learn new version of MAS and assess dev/test requirements and risks
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Estimated total	300 – 350+	

We must upgrade to MAS but have challenges:

587 Days Until Sept 30, 2025

We have databases and applications on-prem that must integrate with MAS

We don't want to migrate everything to cloud

We have regulatory or latency requirements requiring data to stay on-prem

Not all data can go to the cloud. Regulatory or network latency requirements force application to stay on-prem

Need to deploy and be in production quickly

We don't have months to spend on building and testing a new containers platform

No OpenShift Skills (or not enough)

Container skills are in high demand, tough to find (especially in small markets) and can be very expensive

MAS Deployment Options

Deployment	Availability	Procure	Provision & Operate	Client Benefits
On Premises Customer Managed	**Now**	Client purchases MAS from IBM Client provides infrastructure	Client provisions, manages, and operates full stack	• Maximum operational flexibility
On Premises IBM Cloud Satellite Hybrid managed 	**Now**	Client purchases MAS from IBM Client provides infrastructure ***Platform services including IBM Cloud Satellite and managed Red Hat OpenShift***	Client provisions and manages infrastructure & application, **IBM manages platform including OpenShift**	• Manage PaaS services across on prem and hyperscalers
Hyperscalers Customer Managed	**Now** IBM / AWS / Azure	**BYOL** Client purchases software from IBM and infrastructure from Hyperscalers	Client runs IBM-provided automation scripts to deploy MAS on Hyperscalers' cloud Client manages and operates both software and infrastructure	• Simplifies procurement and deployment • Allows client to select their Hyperscalers • Flexibility for clients to manage and operate their environment
	Now IBM / AWS / Azure	**Paid (Marketplace listing)** Client purchases software and infrastructure from Hyperscalers		
SaaS IBM Managed	**Now**	Client purchase single part (includes software, infrastructure, and operations) from either std IBM sales/channels or AWS Marketplace	IBM provisions, manages, and operates Client's MAS environment on AWS Cloud using IBM's AWS cloud account	• Reduced time-to-value • Reduced operational costs • Allows clients to focus on business priorities

Red Hat OpenShift on IBM Cloud

RED HAT® OPENSHIFT

A cloud service providing an intuitive user experience with simplified cluster lifecycle management on native **OpenShift** clusters.

Includes built-in **security and isolation** to enable rapid delivery of apps, while leveraging 200+ IBM Cloud services.

As-a-Service Value

- Automated provisioning
- Installation
- Configuration
- Upgrades
- Patch management
- Scaling
- Performance tuning
- 24/7 global SRE support
- Engage with experts via Slack

Resilient and Secure

- **99.9% - 99.99% SLA**
- **Automatic multizone deployments with failure recovery**
- **Highly available master nodes**
- Security hardening
- **Compliance**
- **Enterprise isolation options including dedicated compute, bare metal servers, and private clusters**

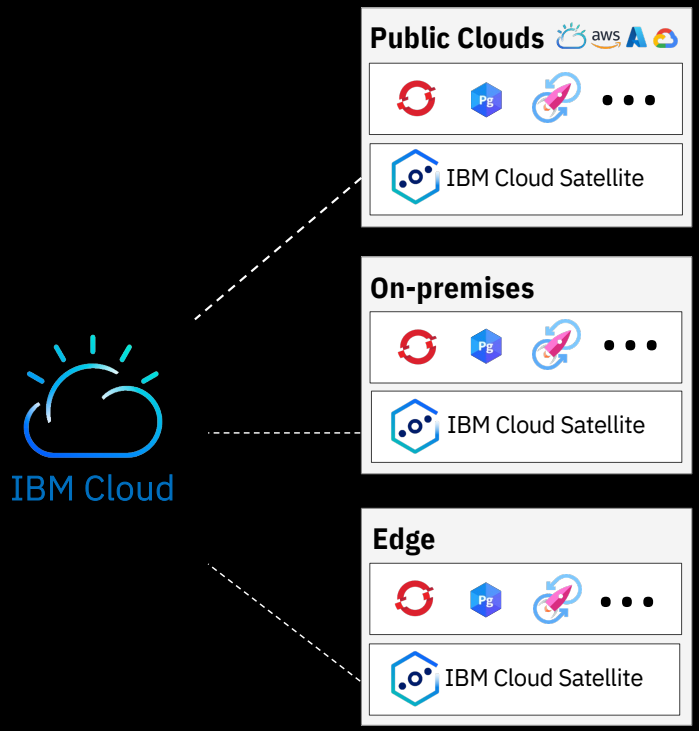
Complete Platform

- Built-in monitoring
- Built-in logging
- **Key Protect**
- **KYOK with HyperProtect**
- Identity and Access Management
- Activity Tracker
- Storage options (File, Block, **COS Volumes**)
- **Security Advisor**
- Service Catalog
- Container Registry
- **Vulnerability Advisor**

SOC 2 TYPE 2 · AICPA SOC · ISAE 3402 · HIPAA · PCI DSS COMPLIANT

Differentiated

MAS Deployment Options with IBM Cloud Satellite



IBM Cloud Satellite

Workloads located where you need them

Location

Client-controlled infrastructure outside of IBM Cloud data centers

Client manages their hosts (infrastructure) within a location

Flexibility

Run app where it makes sense

For regulated workloads, sovereignty & data gravity concerns, migrations, edge platforms, low latency

Flexible infrastructure options including bring your own – Install on HyperV, Vmware, bare metal, any cloud, integrated appliances

Control

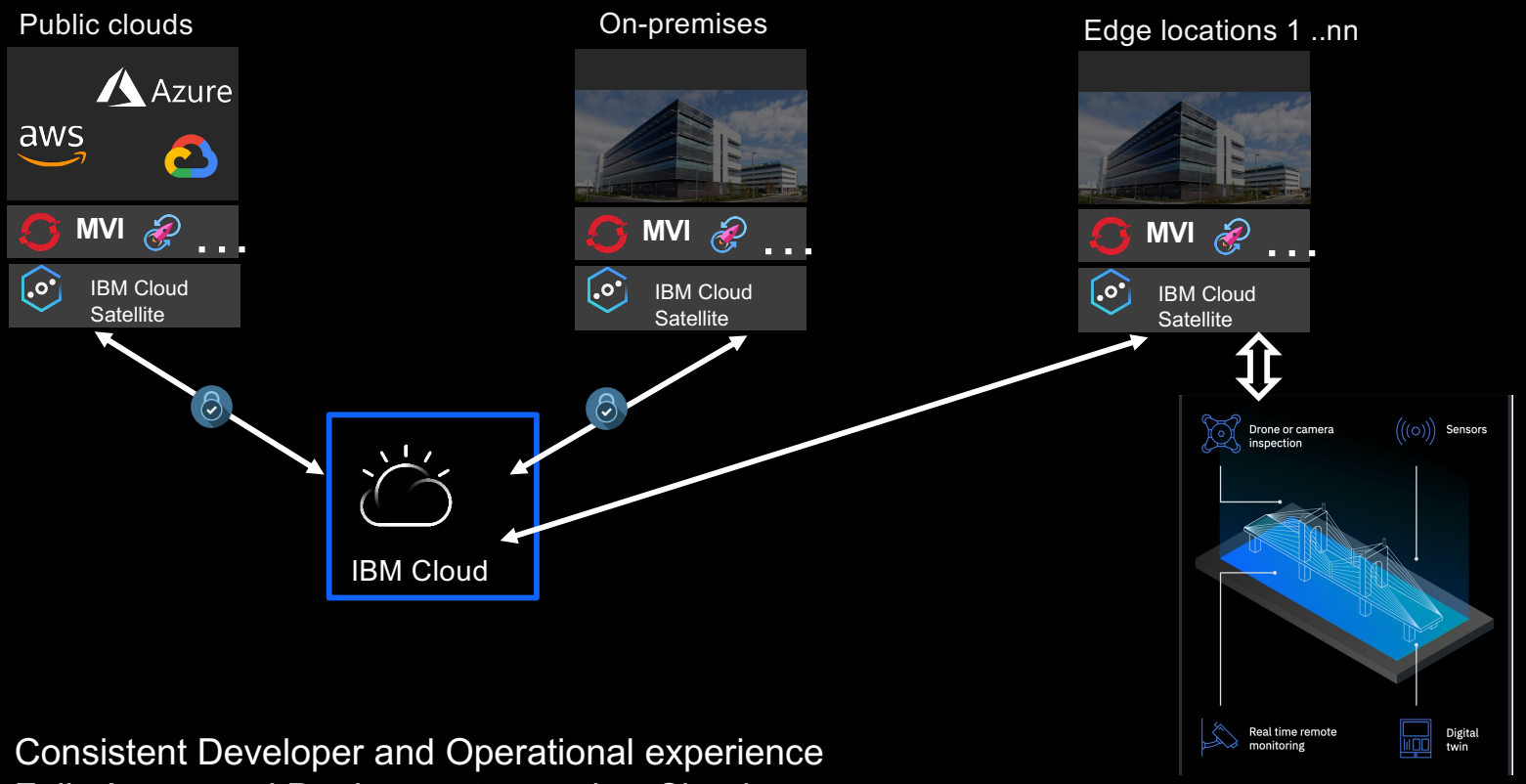
Auditable inventory of all network connections and traffic

Central observability

IBM Cloud for Financial Services Validated

Satellite Reference Architecture for FS Cloud

Consistent Architecture and tools across Hybrid multi-cloud and Edge locations



1. Consistent Developer and Operational experience
2. Fully Automated Deployments on other Clouds

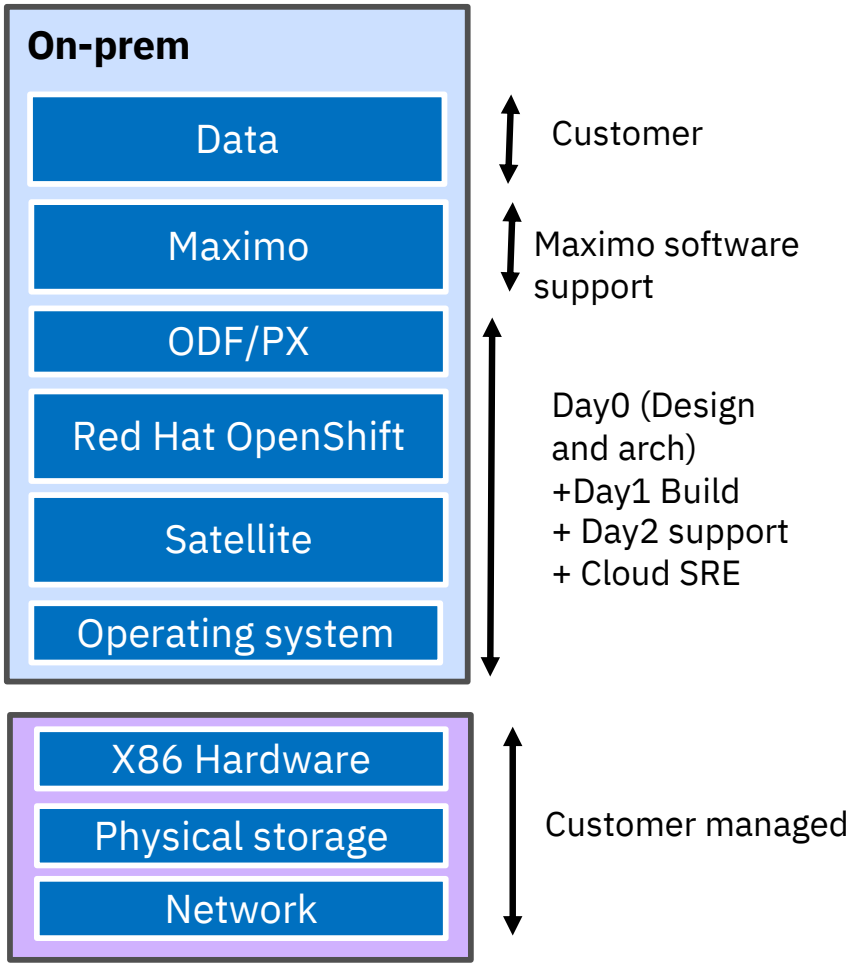
Shared responsibility model for end-user support

IBM :

- Provides support for OS and above
- Includes lifecycle management of managed platform aaS
  - Red Hat OpenShift
  - Satellite
  - Storage - Red Hat OpenShift Data Foundation (ODF)
- IBM Cloud SRE support to help debug platform related problems
- Maximo software support
- **Optional** – Full stack build and Day2 support from OS to Maximo software as single point of support avoiding silos (IBM Consulting)
- **Optional** - Architectural services for DR and multi-cluster/location design(Expert labs)

Customer:

- Owns and manages infrastructure
  - Hardware
  - Storage
  - Network
- Owns and manages Maximo integration to other backend systems
- Respond to end user issues and initiate troubleshooting
  - Work with IBM Cloud SRE teams to debug platform issues



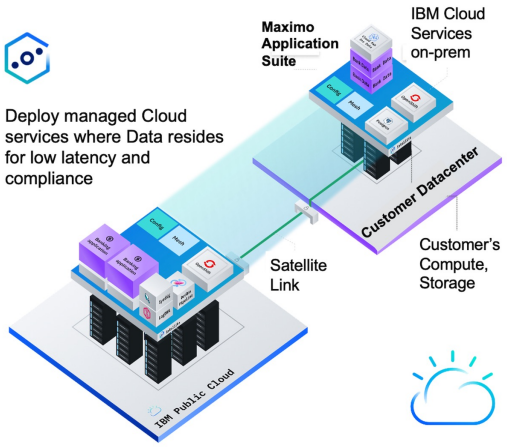
OpenShift Day 2 Responsibilities

Do it yourself (DIY) or have everything done for you?

	DIY	With Satellite
Create and configure OpenShift clusters, including geographic deployment options	🔴	🟠
Integrate CI/CD pipeline to appropriate endpoints & manage your applications	🔴	🟠
Automated provisioning and configuration of Infrastructure (compute, network and storage)	🔴	🟢
Automated **installation and configuration of OpenShift,** including HA cross zone configuration	🔴	🟢
Automatic upgrades of all components (operating system, OpenShift components, and in cluster services)	🔴	🟢
Security patch management for OS and OpenShift	🔴	🟢
Automatic **failure recovery** for OpenShift components and worker nodes	🔴	🟢
Automatic **scaling** of OpenShift configuration	🔴	🟢
Automatic **backups** of core OpenShift ETCD data	🔴	🟢
Built in integration with cloud platform - monitoring, logging, KeyProtect, IAM, ActivityTracker, Storage, COS, Security Advisor, Service Catalog, Container Registry and Vulnerability Advisor	🔴	🟢
Built in **Load Balancer, VPN, Proxy, Network edge nodes, Private Clusters and VPC** capabilities	🔴	🟢
Built-in Security including **image signing**, image deployment enforcement, and **hardware trust**	🔴	🟢
24/7 **global SRE** team to maintain the health of the environment and help with OpenShift	🔴	🟢
Global SRE has deep experience and skill in IBM Cloud Infrastructure, Kubernetes and OpenShift, resulting in much **faster problem resolution**	🔴	🟢
Automatic compliance for your OpenShift environment **(HIPAA, PCI, SOC1, SOC2, SOC3, ISO)**	🔴	🟢
Capacity expansion through a single click	🔴	🟢
Automatic **multi-zone deployment in MZRs**, including integration with CIS to do cross zone traffic routing	🔴	🟢
Automatic Operating System **performance tuning and security hardening**	🔴	🟢

Proactive actions to jumpstart migrations to stay ahead of schedule

Quickly setup Dev/Test env in hours



vs

K8s Skills or complex integrations delay migrations

300+ days — Live on K8s

Acquire K8S skills (180+)	MAS 8.x Dev/test env (30)	Data migration testing (30-60)	Functional testing (10-20)	Non-functional testing (10-20)	Integration testing (*TBD*)	End-user testing (5-10)	Production cut over testing (5)	User/data transition to 8.x (30-60)

EAM 7.x EoL

Decommission EAM 7.x (30)

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Why IBM Cloud Satellite and ROKS for MAS

Benefits

- **Distribute Cloud capabilities anywhere –** at thousands of sights at EDGE, AWS, Azure, or On-Prem**, Single Pane of Glass** visibility for Satellite and OpenShift across all locations.
- **Run Analytics** where data resides to address data sovereignty and latency.
- **Ease and reduced complexity** for multi-site, multi-cloud, DR

WHY IBM?

- **Use your own hardware** leveraging existing investment
- **Use OpenShift licenses** that come with MAS (don't double buy!)
- **Unmatched OpenShift deployment flexibility –** Where you need MAS
- **OpenShift Day 2** operations covered, you focus on MAS
- 24x7 SRE with highest SLAs in the industry
- **Ready for Cloud Native and other Containerized Apps:** Unlimited Cloud Services distributed to all locations, no need to rearchitect or ask for additional funds

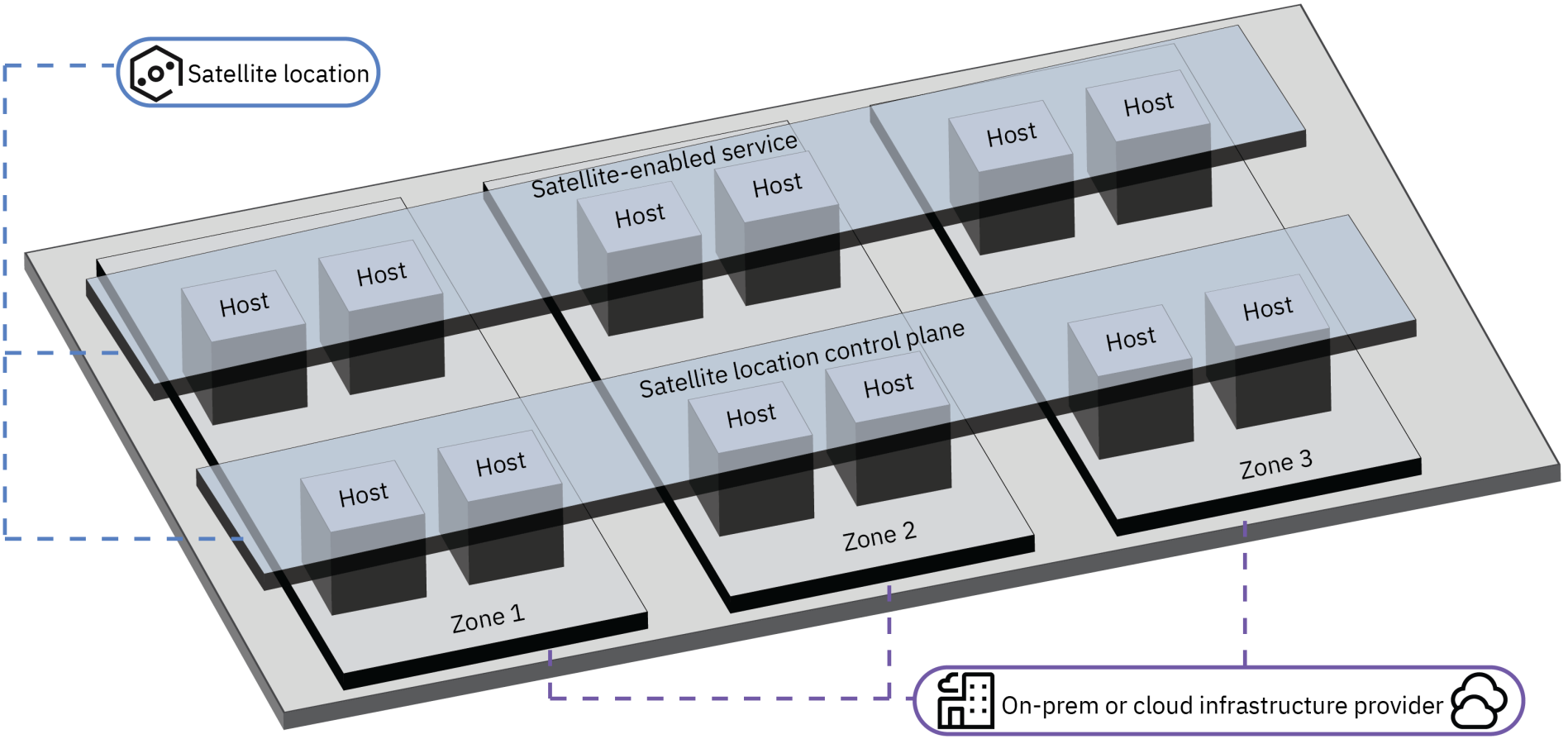
WHY for You?

- **Speed –** Reduce your MAS upgrade by months.
- **Skills –** Easily address the OpenShift skills requirement of MAS, you focus on MAS
- **Stay on prem** – Regulatory, latency, skills, etc…You can with Satellite
- **Not ready for cloud? –** Don't force a move to cloud just because you don't have OpenShift skills

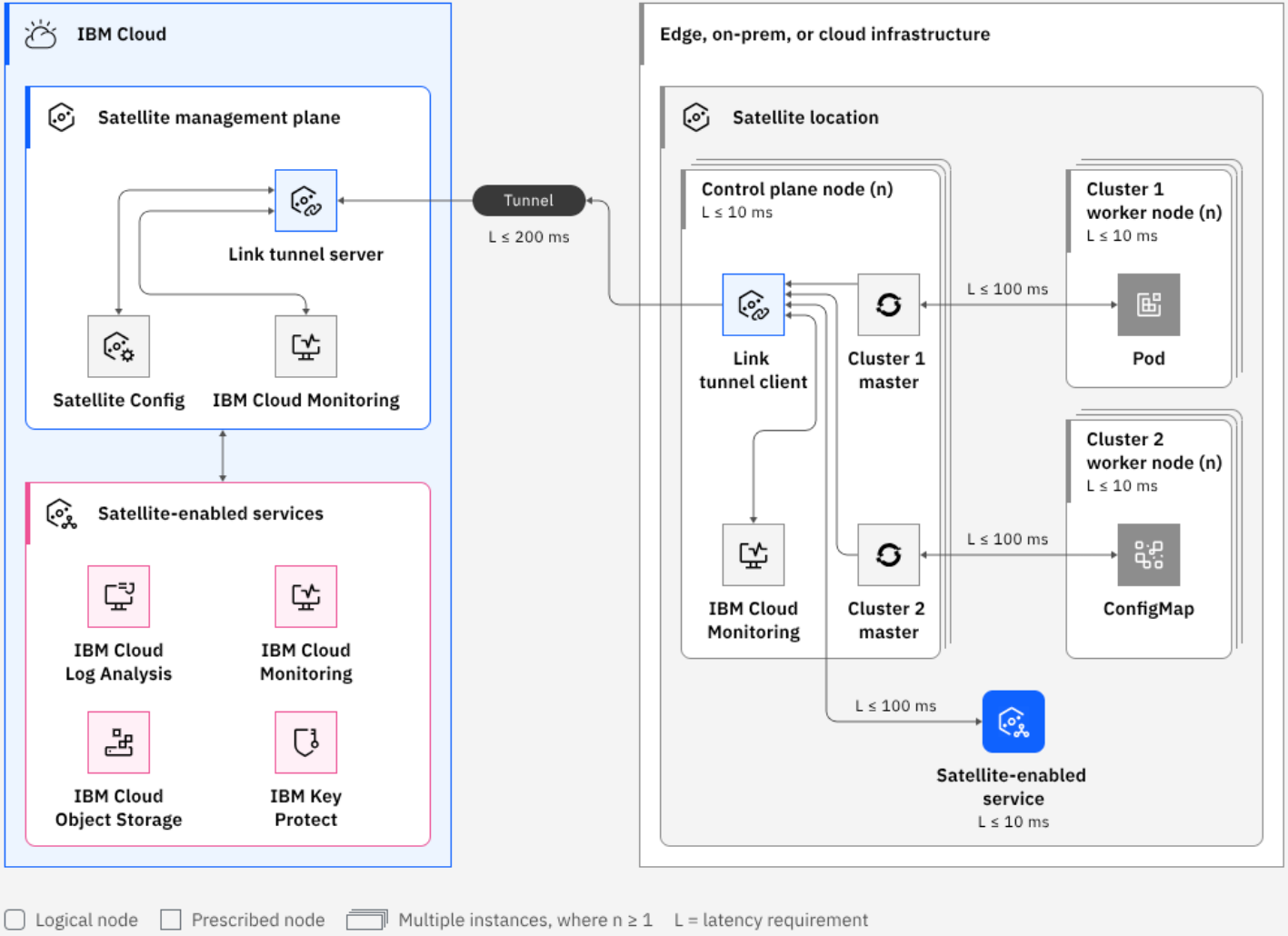
Focus on MAS and your business while reducing the OpenShift burden

Backup

Satellite Architecture
Multi-Zone HA Architecture Built on Kubernetes



Satellite Architecture



Satellite Architecture with Direct Link