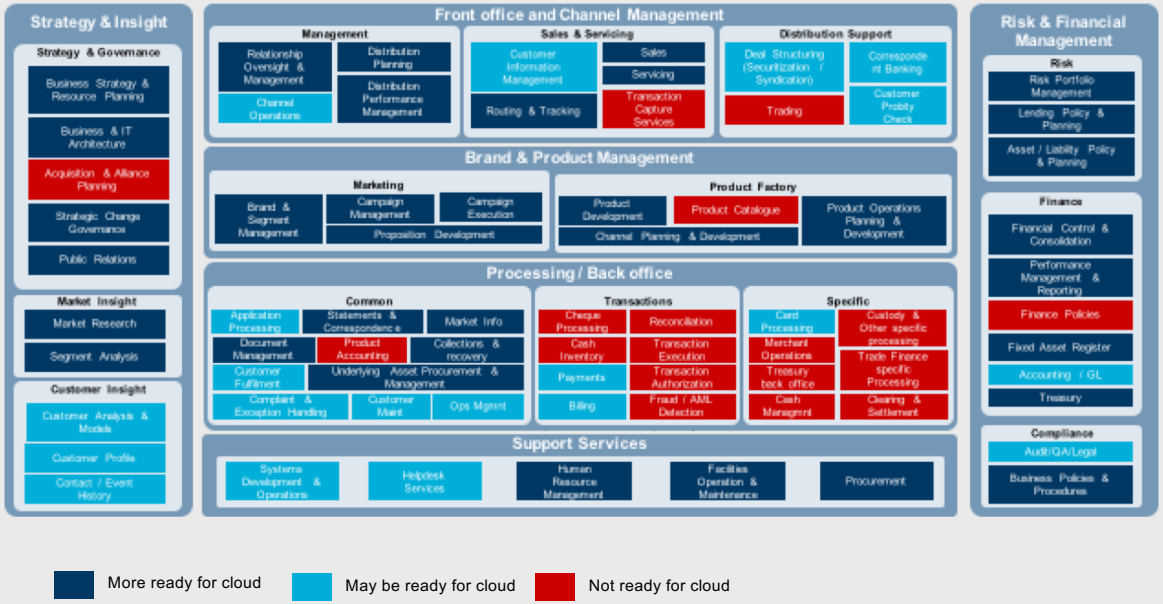
IBM Cloud Private Overview

IBM Cloud

Enterprises are rapidly adopting cloud capabilities

Example: Financial services application portfolio



More ready for cloud May be ready for cloud Not ready for cloud

What are “best” cloud technology choices and process changes needed ?
What are the options to optimize environments that are not cloud-ready ?

CHALLENGES

- Refactoring complex, interconnected applications and data
- Maintaining performance and SLA requirements for applications, data and integrations
- Multi-provider shared responsibility models for security and compliance
- Integration, Data management, service assurance and governance across multiple cloud providers
- Rapidly evolving technology choices (IaaS, PaaS, FaaS) and concerns of vendor lock-in
- Organizational and cultural changes to adopt DevOps transformations

Broadening the adoption of cloud

Key Challenges:

- Cultural transformation is complex and limits the scope & velocity of movement to cloud native development & management
- Lack of integrated solutions and tools to build new cloud native applications while integrating & evolving existing applications
- Operational challenges in integrating, managing and securing cloud and on-premises applications and data

Adoption requires multiple concurrent approaches

Application Portfolio

Customer Information

Payment Systems

Business Process

New Applications

Lift-*Standardize-Consolidate-Automate*-Shift

Bare metal, VMs, Containers, Automation - SDDC

Contain-*Expose*-Extend

API Creation & Management, Connectivity & Integration

Refactor/Create as Cloud-Native/Microservices

Event-Driven, aPaaS, Containers, Microservices

Data Classification, Movement & Governance

Cognitive Data Classification, High-volume data transfer, Metadata Management

Evolution to Cloud-based Application

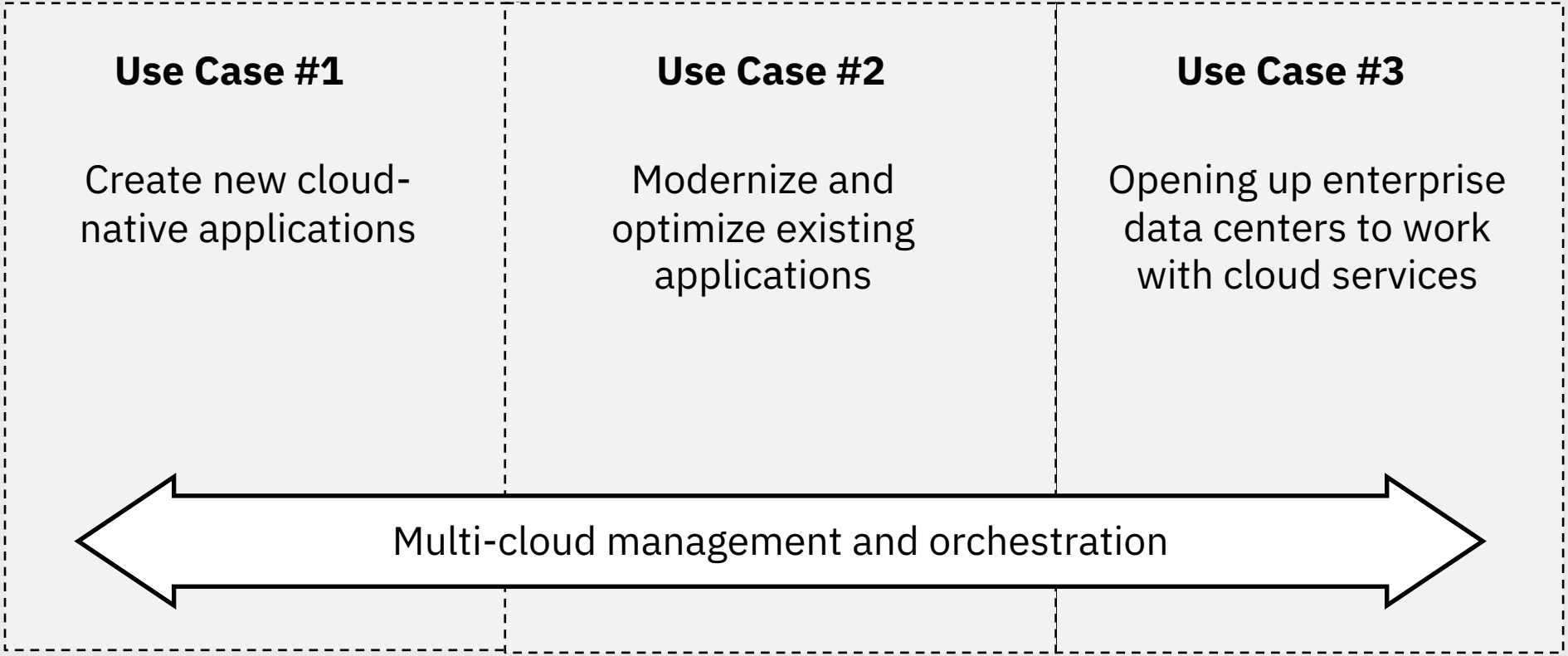
- Base Virtualization with Standardization & Automation

- Cloud native
- Loosely-Coupled
- 12-factor
- Horizontal Scaling
- Eventually consistent
- Microservices
- Auto-scaling
- DevOps & CI
- Self-recovering

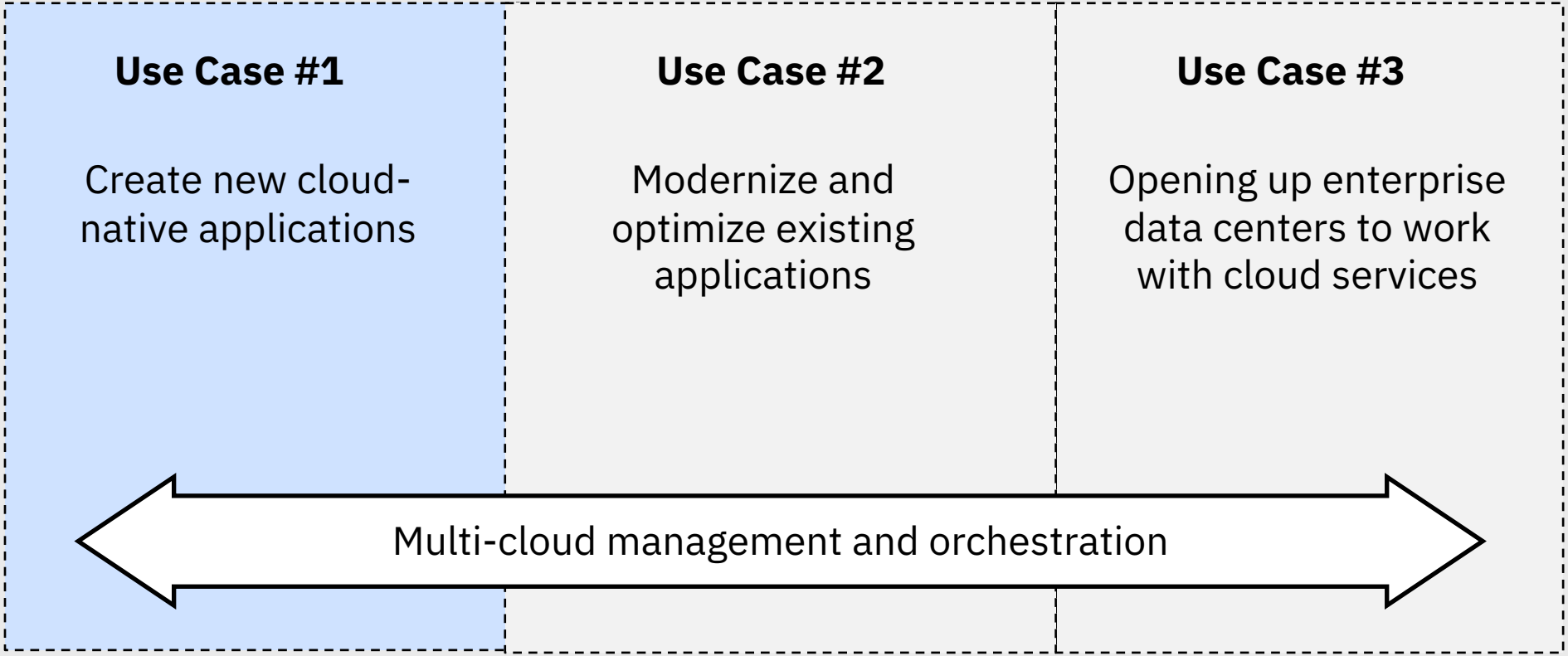
VMs | Containers | aPaaS | iPaaS
Event Driven

On-premises | Off-premises

Key use cases are driving private cloud adoption



Key use cases are driving private cloud adoption



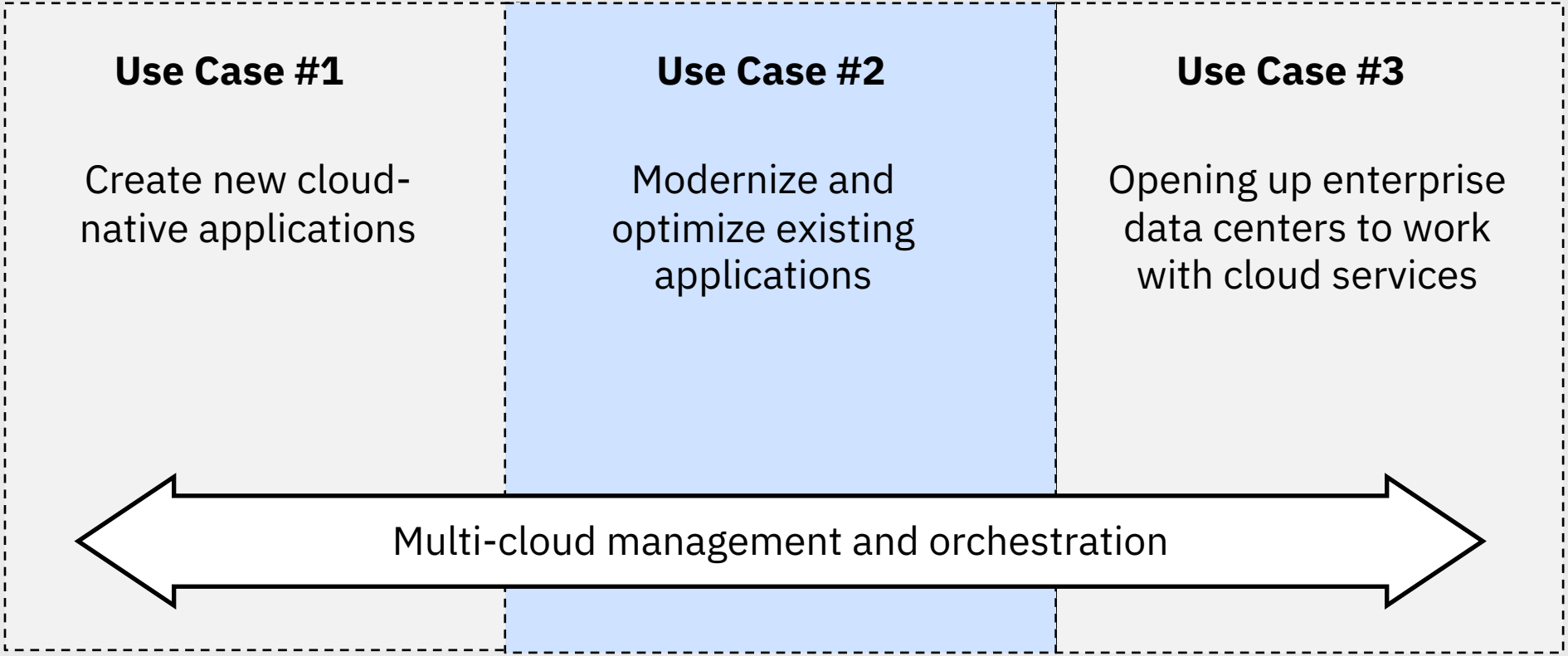
Use case #1: IBM Cloud Private for cloud-native applications

Use case #1: Developers need access to a platform of capabilities to create cloud native applications that meet the security and regulatory requirements of their organization.

IBM's Capabilities:

- IBM Microclimate
- APM for microservices
- Enterprise grade application development services integrated with the platform runtimes, data and analytics, messaging, DevOps services, and so forth.

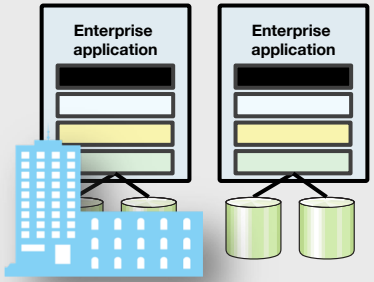
Key use cases are driving private cloud adoption



Use case #2: Enterprise applications transformation journey

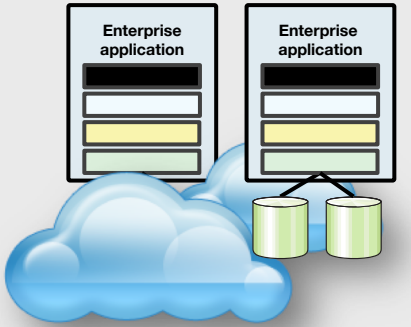
1 OPTIMIZE

Reduce cost and improve performance by selecting the right license and deployment model for existing workloads.



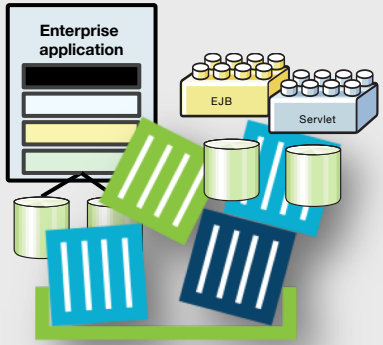
2 MOVE TO CLOUD

Move workloads to the cloud to **benefit from Cloud economics, scale**, deployment automation, and improved development agility.



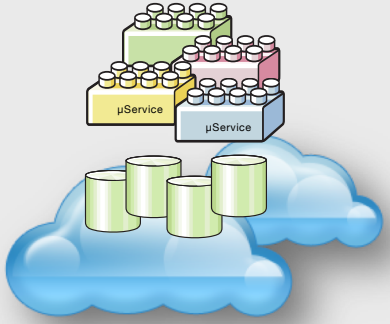
3 CONTAINERIZE

Developers improve **agility** using containers to **continuously deliver**, leveraging extreme standardisation and **automation**.



4 REFACTOR

Refactor applications to cloud native architectures to encompass APIs, micro-services and cognitive capability for **innovation and disruption.**



On-Premises ← Cloud Affinity → XaaS

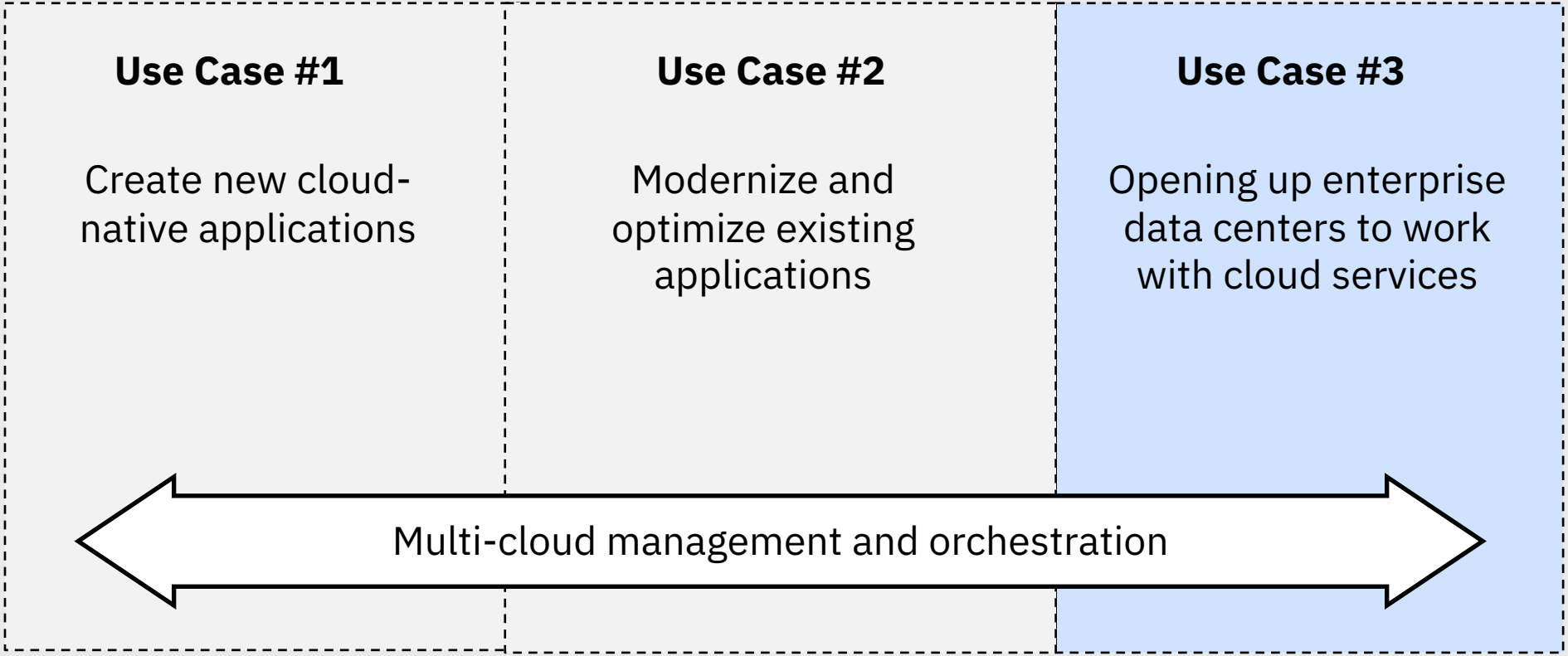
Use case #2: IBM Cloud Private to cloud-enable applications

Use case #2: Developers need to cloud enable applications that meet security and regulatory needs. IBM Cloud private provides the platform for rapidly developing and deploying cloud enabled applications, while meeting the security and regulatory needs of the enterprise.

IBM's capabilities

- Transformation Advisor provides guidance on where to run your critical workloads
- Next generation versions of industry leading IBM Middleware and Analytics (WAS, MQ, DB2) to speed innovation and gain new insights into data
- Vulnerability assessment
- Elastic runtimes enable the enterprise to scale up and scale down as needed

Key use cases are driving private cloud adoption



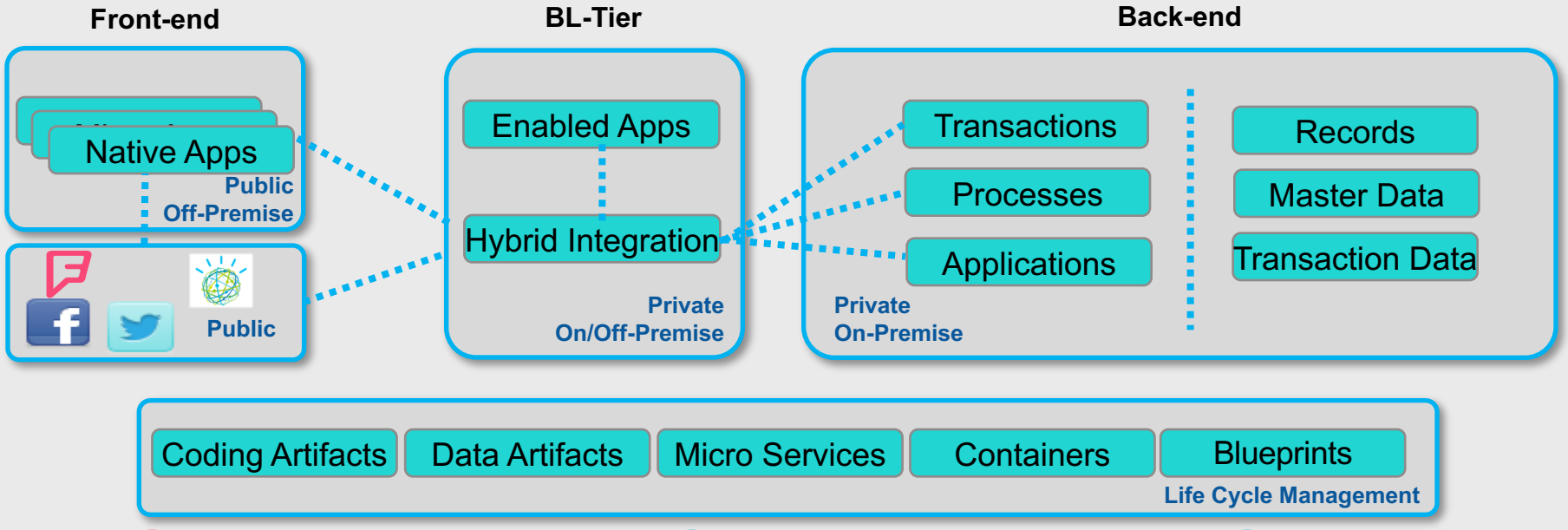
Use case #3: IBM Cloud Private for hybrid cloud applications

Use case #3: Enterprises need to integrate data and application services (from other locations) in their new cloud native and cloud enabled applications which are running in their own data center.

IBM's capabilities

- Kubernetes-based orchestration platform
- API Management, Application Integration Suite
- Cloud foundry platform for service syndication
- Multi-cloud deployments through CAM
- APM for Hybrid Workload

Use case #3: New applications need an agile cloud architecture



Very fast life cycle
Speed of deploy and execution
Scale for the unpredictable

Fast and automate life cycle
Fast repeatable deploys
Elastic behavior

More stable and predictable life cycle
API/WS exposure for up stream levels
Elastic throttling

IBM Cloud Private transforms the way IT operations and developers work

Todd

Operations / Admin

Responsible for infrastructure, security, and management of the environment.

Jane

Enterprise Developer

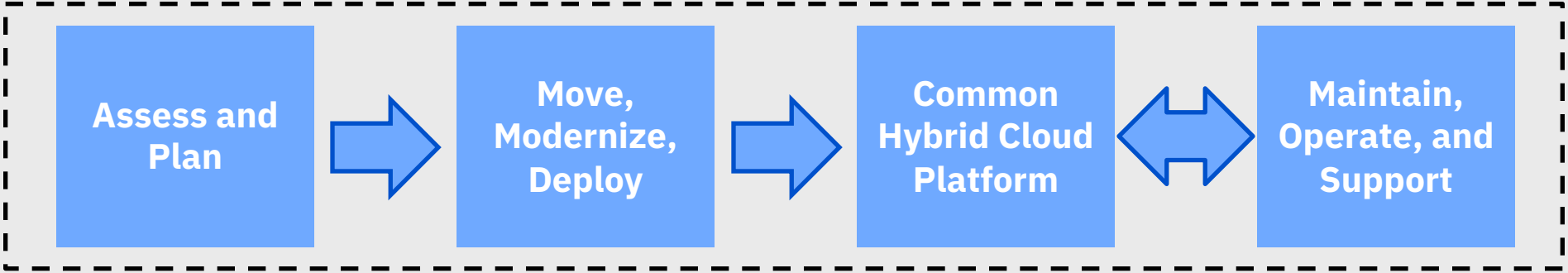
Responsible for modernizing existing applications and creating new Cloud Native Workloads.

IBM Cloud private empowers both developers and administrators to meet business demands:

- IT Operations and Administrators can quickly set up a modern, flexible, and compliant private cloud on enterprise infrastructure that enables enterprise developers to innovate; they can also integrate with their existing management tools and processes
- Developers can create new cloud-native applications, optimize existing ones, and securely connect their applications with data and services across all clouds

Organizations are focusing on modernization

- 70% of private cloud adoption is being driven by the need to modernize
- Enterprises are modernizing traditional on-prem deployments with a cloud native approach
- IBM delivers a framework to accelerate the app modernization journey:



IBM Cloud Private brings cloud native to the enterprise

Rapid Innovation

- Open Kubernetes-based container platform
- Cloud Foundry for app dev and deployment
- DevOps toolchain integration

Hybrid Integration

- Integration capabilities to unlock and connect
- Secure access to public cloud services (AI, Blockchain)
- Consistent experience across private/public

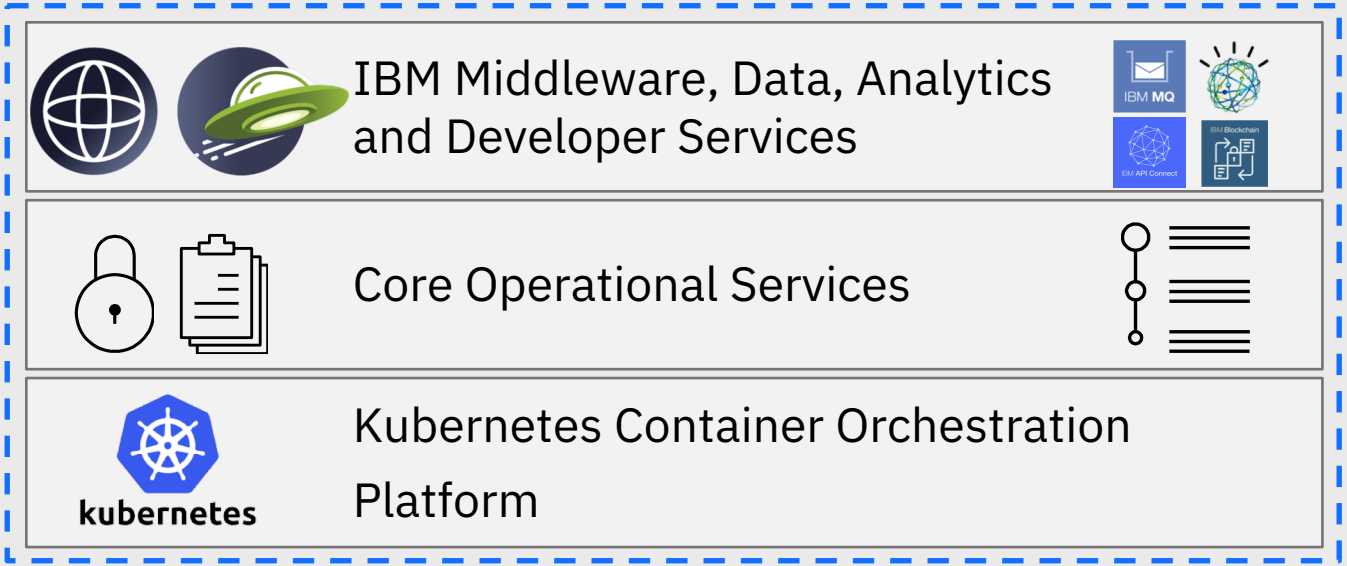
Investment Leverage

- Containerized versions of IBM Middleware
- Prescriptive guidance to optimize workloads
- Work with existing apps, data, skills, infrastructure

Management & Compliance

- Core operational services including logging, monitoring, security
- Flexibility to integrate with existing tools and processes

IBM Cloud Private: Next Generation Open Platform



Choose your infrastructure: Power, z, OpenStack, VMWare, Public Cloud

Enterprise Content Catalog

Toolchain & Runtimes
IBM Microclimate
IBM WebSphere Liberty
Open Liberty (open source)
IBM SDK for Node.js
Swift runtime (open source)

Messaging
IBM MQ Advanced for Developers
IBM MQ Advanced
Rabbit MQ (open source)

Integration
IBM Integration Bus for Developers
IBM Integration Bus
IBM DataPower Gateway for Developers
IBM DataPower Gateway Virtual Edition

Data Services
IBM Db2 Dev-C
IBM Data Server Manager (for Db2 Dev-C)
IBM Db2 Direct Advanced Edition / AESE with Data Server Manager
IBM Db2 Warehouse Dev-C
IBM Db2 Warehouse Enterprise
IBM Cloudant Developer Edition
MongoDB (open source)
PostgreSQL (open source)
MariaDB (open source)
Galera for MariaDB (open source)

App Modernization Tooling
IBM Transformation Advisor

Multi-cloud Management
IBM Cloud Automation Manager

Data Science and Business Analytics
IBM Data Science Experience Developer Edition
IBM Data Science Experience Local

Data Governance and Integration
IBM InfoSphere Information Server for Evaluation

Mobile
IBM Mobile Foundation

Network Analysis Tooling
Skydive (open source)

HPC / HPDA
IBM Spectrum LSF Community Edition
IBM Spectrum Symphony Community Ed.

IBM Cloud Private Editions

Community Edition

Platform
- Kubernetes (+ Helm)
- Core services
- Content catalog

Freely Available in Docker Hub

Cloud Native

Platform
- Kubernetes (+ Helm)
- Core services
- Content catalog (Containers)

Cloud Foundry (Optional)

IBM Enterprise Software
- Microservice Builder
- WebSphere Liberty
- IBM SDK for node.js
- Cloud Automation Manager

Enterprise

Platform
- Kubernetes (+Helm)
- Core services
- Content catalog (Containers)

Cloud Foundry (Optional)

IBM Enterprise Software
Cloud Native Edition, plus:
+ WAS ND
+ MQ Advanced
+ API Connect Professional

IBM Cloud Private in a heterogeneous environment

- IBM Cloud Private (ICP) is an untethered Platform as a Service that combines the speed, agility and flexibility of the public cloud, with the security and performance guarantees of an on-premises cloud.
- ICP provides a core platform runtime based on Kubernetes and common services like logging, metering, auditing, user access control etc. along with a rich catalog of IBM and open-source products.