¿Por qué y para qué usar CloudPaks?

Felipe Freire

IBM Red Hat Synergy Leader for Latin America

felipe@br.ibm.com

@pfelipebr

Only around

20%

of enterprise workloads have moved to the cloud.

Why?

The market is entering a new chapter in cloud and digital

Chapter 1	Chapter 2
Consumer-driven innovation	**Enterprise-driven innovation**
Digital/AI experimentation	**Digital/AI embedded in the business**
"User applications" driving cloud	**"Mission critical" workloads driving cloud**
Public cloud	**Hybrid cloud**

- **Companies "experimenting"**
- **"Adding" vs. "transforming"**

- **Companies moving to production**
- **Transforming mission critical**
- **End-to-end integration advantaged**

Five principles define our approach to cloud

Hybrid

Enable enterprises to work across public, private, and traditional environments.

Multicloud

Manage other vendors' clouds, acknowledging the reality that client environments are heterogeneous.

Open

Build capabilities that are open by design, enabling client flexibility and reducing vendor lock-in.

Secure

Provide reliability and continuous security for the client's environment.

Management

Offer consistent service level support, logging, management and delivery across the cloud environment.

IBM
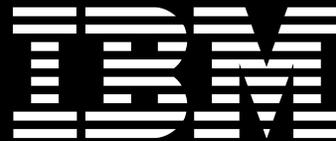
Hybrid multicloud maturity
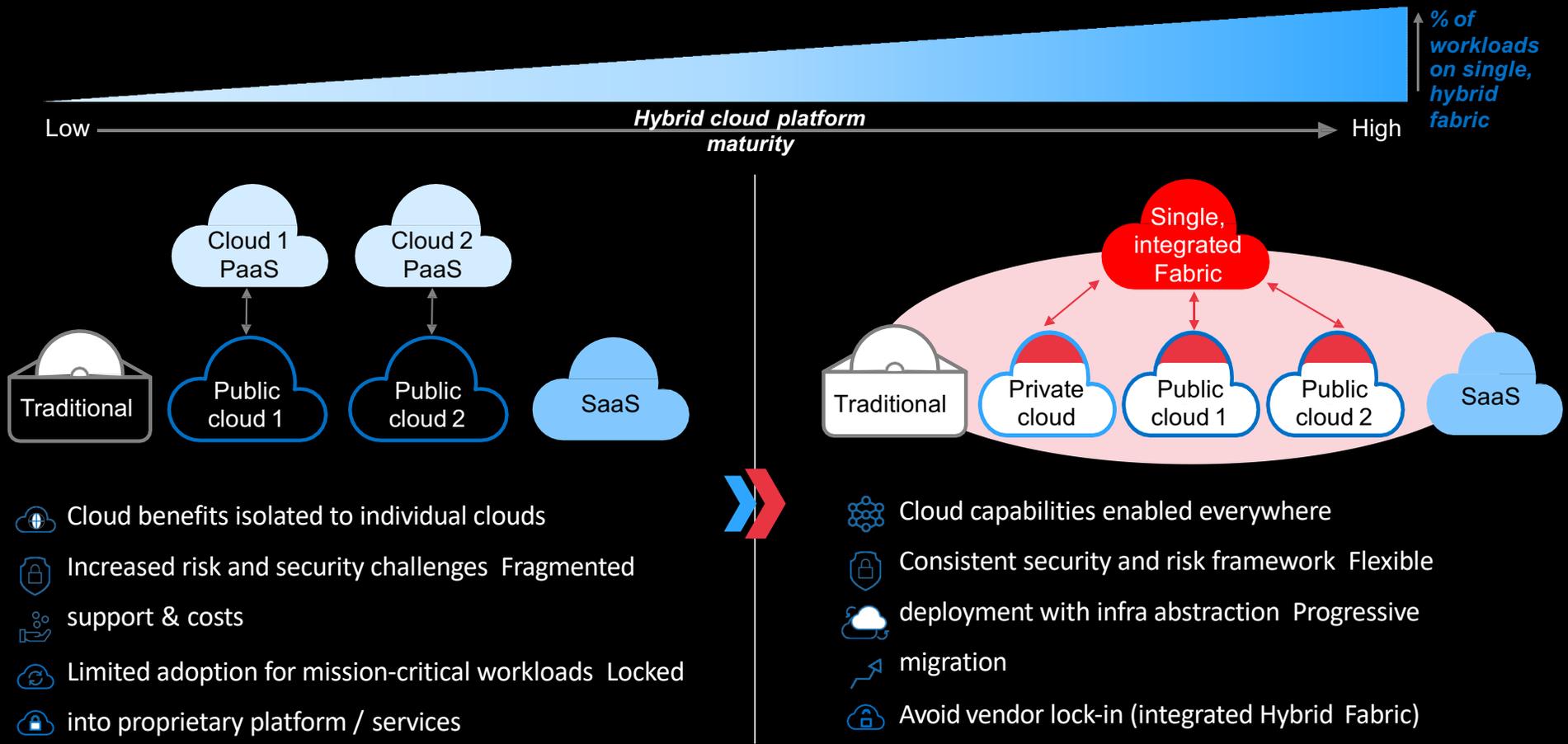
For a bank with $1B of IT spend, a hybrid approach can realize $200 - $270M of value; 2.5x more than public-cloud-only approach

Recurring benefits, PTOI ($M)

Public cloud only

| | $15-20M | $30-45M | $20-40M | $0M | N.A. | **$65-105M** |

Hybrid cloud

| | $50-75M | $90-110M | $50-75M | ~$10M | N.A. | **$200-270M** |

| Business acceleration | ADM productivity | Infra cost efficiency | Regulatory & risk | Strategic optionality | Total |

Incremental benefits

| $35-55M | $60-65M | $30-35M | ~$10M | N.A. | **$135-165M** |

Qualitative benefits
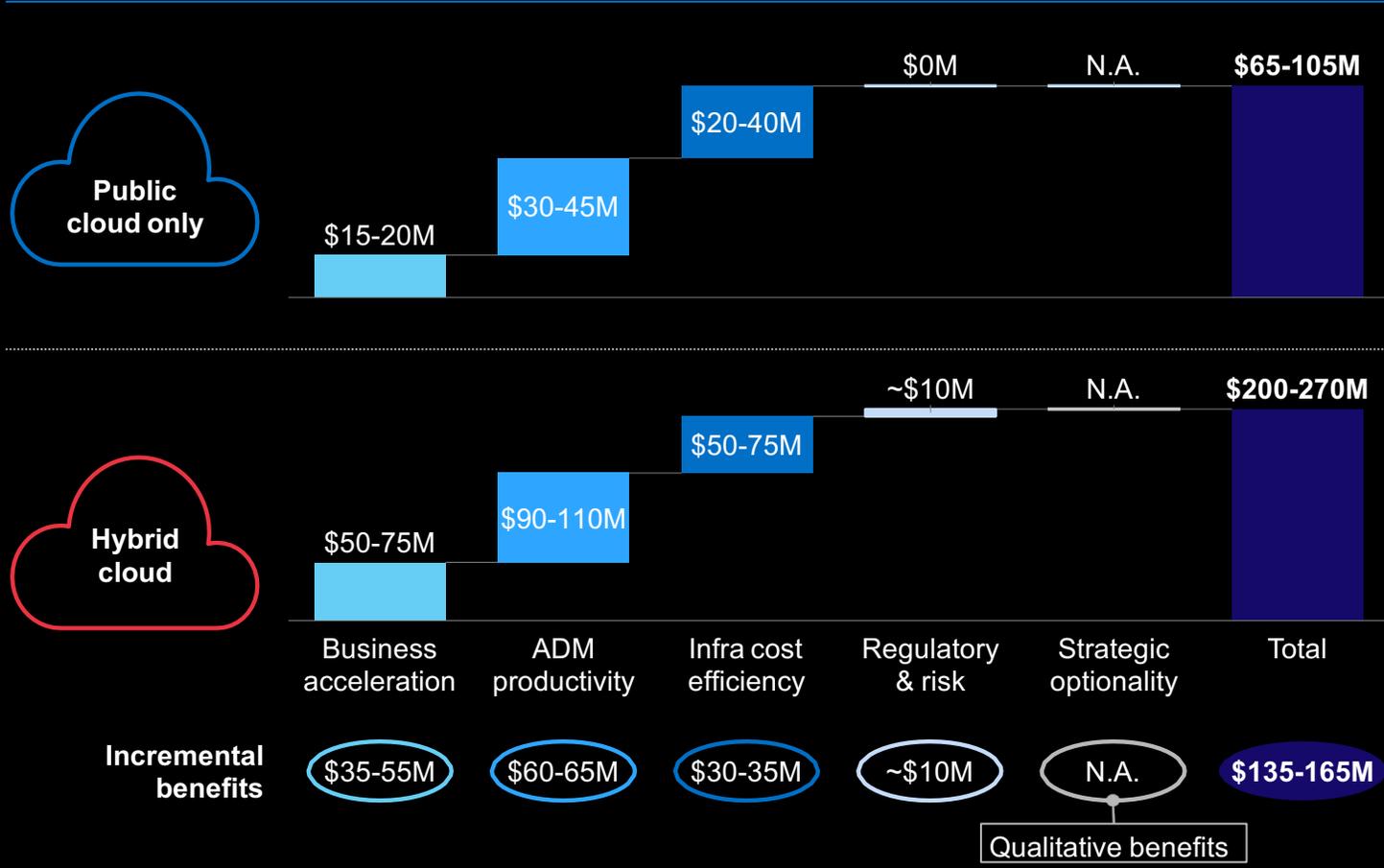
Incremental benefits from Hybrid approach are driven by:
- Up to 50% more apps migrated
- Duplicated tools and processes removed

Additional value beyond recurring benefits include:
- Up to 25% lower cost on certification for migration with pre-certified stack
- Reduced cyber security and regulatory risks with single pane of control
- Avoidance of vendor lock-in
- Jump-start innovation with architectural flexibility

build
once.

One operating environment. More choices. More ways to innovate.
We've now combined the technology and scale of IBM with the open
source leadership of Red Hat. Let's unlock the world's potential.
Let's put smart to work.™

Explore the next-generation hybrid cloud at **ibm.com/redhat**

deploy
anywhere.

Open software. Open standards. An entirely open culture. We've
now combined the hybrid cloud portfolio of Red Hat with the scale
and breadth of IBM. Let's unlock the world's potential.
Let's put smart to work.™

Explore the next-generation hybrid cloud at **ibm.com/redhat**

Build mission-critical applications once and run them on all leading public clouds or private clouds with IBM's next-generation hybrid multicloud platform, built on Red Hat technologies.

The IBM Cloud Paks and Middleware Strategy

Build once. Deploy anywhere.

Consulting Services	Strategy	Migration	Development	Management

	ISV Applications/Solutions				

Advanced Technologies	AI	Analytics	Blockchain	IoT	Quantum

Cloud Paks	Cloud Pak for Applications	Cloud Pak for Data	Cloud Pak for Integration	Cloud Pak for Automation	Cloud Pak for Multicloud Management	Cloud Pak for Security

Foundation

Red Hat

Open Hybrid Multicloud Platform

Red Hat OpenShift   Red Hat Enterprise Linux

Infrastructure	IBM public cloud	AWS	Microsoft Azure	Google Cloud	Private	IBM Z IBM LinuxOne IBM Power IBM Storage	Endpoints

Cloud Paks – Middleware anywhere

*Enterprise-ready, containerized software solutions that give you
an open, faster, more secure way to move core business applications to any cloud*

IBM containerized software
Packaged with Open Source components,
pre-integrated with the common operational services,
and secure by design

Operational services
Logging, monitoring, metering, security,
identity access management, image registry

Container platform
Kubernetes-based and portable

Pre-integrated Systems · IBM Cloud · aws · Azure · openstack · Google Cloud

Complete yet simple
*Application, data and AI services,
fully modular and easy to consume*

IBM certified
*Full software stack support, and ongoing security,
compliance and version compatibility*

Run anywhere
*On-premises, on private and public clouds, and in
pre-integrated systems*

Cloud Pak Structure

Ecosystem	Ecosystem Product	Ecosystem Product	Ecosystem Product	IBM Product "Add-on"

Integration **across ecosystem**

Feature A | Feature B | Feature C | Feature D

Cloud Pak Unique

Integration **across use cases**

Domain specific services

Integration **within Cloud Pak**

Common Services — Catalog | Monitoring | Metering | Identity and Access

Foundation — Linux | OpenShift
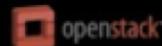
Integration **across Cloud Paks**

Cloud Paks – Pre-integrated for cloud use cases

Set of capabilities ready to speed up your MODERNIZATION

Reduce dev time up to 84%*	*Make data ready for AI in days*	*Eliminate 33% of integration cost*	*Reduce manual processes up to 80%**	*Reduce IT op expense by up to 75%**	*secure the hybrid multicloud*
Cloud Pak for Applications	**Cloud Pak for Data**	**Cloud Pak for Integration**	**Cloud Pak for Automation**	**Cloud Pak for Multicloud Mgmt.**	**Cloud Pak for Security**
Build, deploy, and run applications	Collect, organize, and analyze data	Integrate applications, data, cloud services, and APIs	Transform business processes, decisions, and content	Multicloud visibility, governance, and automation	Connect security data and workflows, reduce threats and risk
IBM containerized software	IBM containerized software	IBM containerized software	IBM containerized software	IBM containerized software	IBM containerized software
Container platform and operational services — **Red Hat OpenShift**	Container platform and operational services — **Red Hat OpenShift**	Container platform and operational services — **Red Hat OpenShift**	Container platform and operational services — **Red Hat OpenShift**	Container platform and operational services — **Red Hat OpenShift**	Container platform and operational services — **Red Hat OpenShift**

IBM **Cloud**   aws   Azure   Google Cloud   Edge   Private   Systems

Why Modernize?

#1 You can't develop features at the pace your business requires - and it's the technology choices and architecture (and not your processes or team constraints) that is causing that.

#2 The architecture of your application is hindering you from being able to add functionality because of fragility (you can't test it) or constraints arising from technology choices (technical debt)

#3 Your application is expensive to maintain and extend because either the infrastructure is excessively costly (e.g. older versions of middleware that require special support contracts) or the skills required are too expensive to maintain.
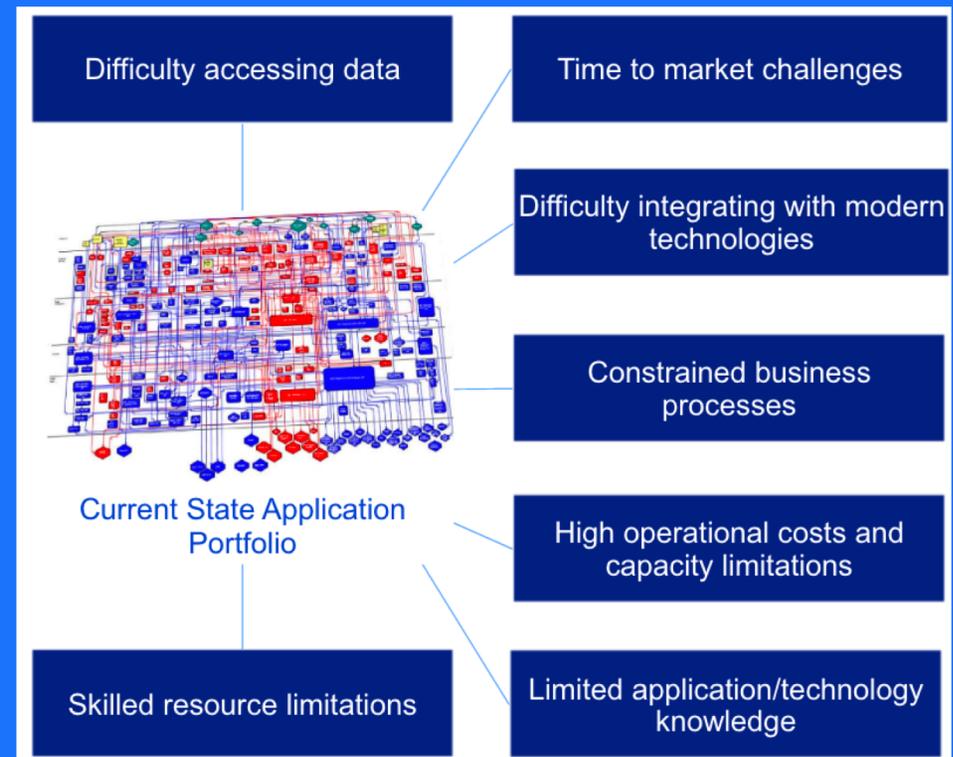
Our Proven Approach

Current	Process Change	Containerize	Refactor

Current

App | Tech Debt (crossed out)

Traditional Runtime

VM

Automation

Process Change

App | New value

Modern Runtime

VM

DevOps

Containerize

App | New value

Modern Runtime

Container

DevOps

Refactor

Micro-service | Micro-service | Micro-service

Modern Runtime | Modern Runtime | Modern Runtime

Container | Container | Container
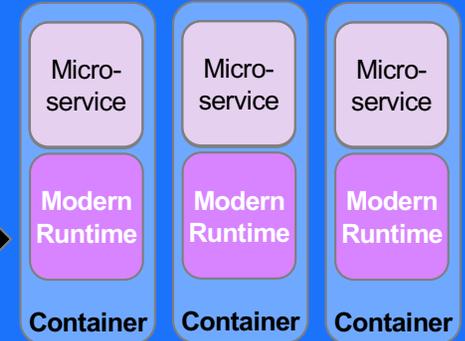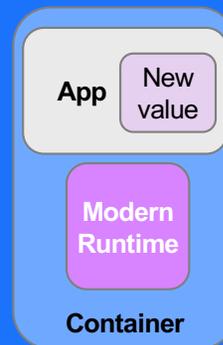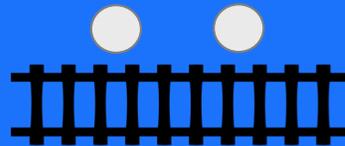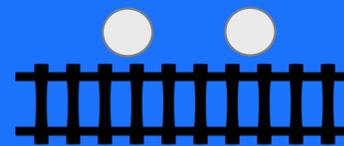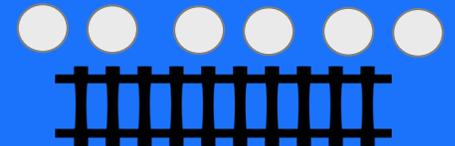
DevOps

The Current State

IBM

App | Tech Debt

Traditional Runtime

Automation

Some applications will NEVER leave their current state.

#1 The application may have a limited lifetime.
#2 The application may be replaceable by SaaS.
#3 The application may be one that is supported by third party that is resistant to changing their implementation, automation or management.

For companies that consider themselves to be "technology companies" this total number of these types of apps may be in the low double digits, perhaps 20-30% - however in very traditional companies this can go as high as 80%.

For these applications, the best approach may be a tactical lift and shift to VM's in the cloud (for instance, IBM's VMWare offerings)

Step 1: Process Improvement

Process Improvements

App New value

Modern Runtime

VM
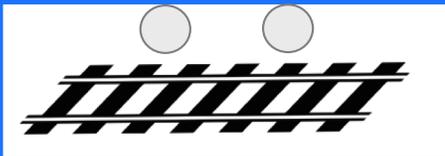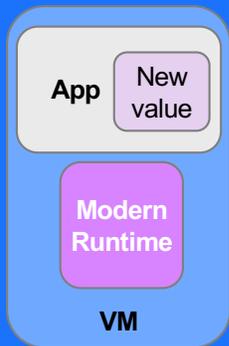
DevOps

It's usually not your application that is going to be the hard part of modernization - **it's your own processes and organizational structures.**

The two most important changes you can put in place are:
- **DevOps pipelines and the principles surrounding them** (e.g. CI/CD and Automated Testing)
- The principle of **Infrastructure as Code and automation technologies** like Ansible and Terraform

Removing process barriers in deployment (handoffs between Dev and Ops, and slow-moving processes like change boards) can likewise significantly improve your ability to deliver code in smaller increments more often.

Containerized

App New value

Modern Runtime
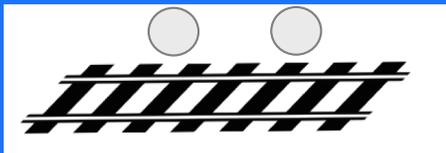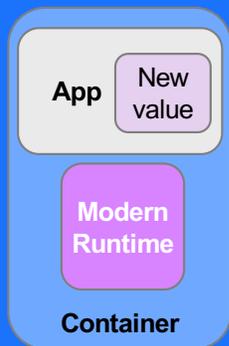
Container

DevOps

Containers offer significant benefits; faster startup, smaller runtime footprint, denser packing in the same amount of hardware.

- Containerization can also bring the the benefits of a **limited blast radius**
- The key concept to grow to - the idea of **immutability** and **replacement**.

The most important gains from Containerization are when it is used as part of adopting a common platform for operational services

A Common Platform for Operational Services

IBM

The Apps and Middleware "hairball"

MW	MW	MW
App	App	App	App
MW	MW	MW

Monitor	Monitor	Monitor
Logs	Logs	Logs
Metering	Metering	Metering
Alerts	Alerts	Alerts
Upgrades	Upgrades	Upgrades
Security	Security	Security

Dev
Decoupling
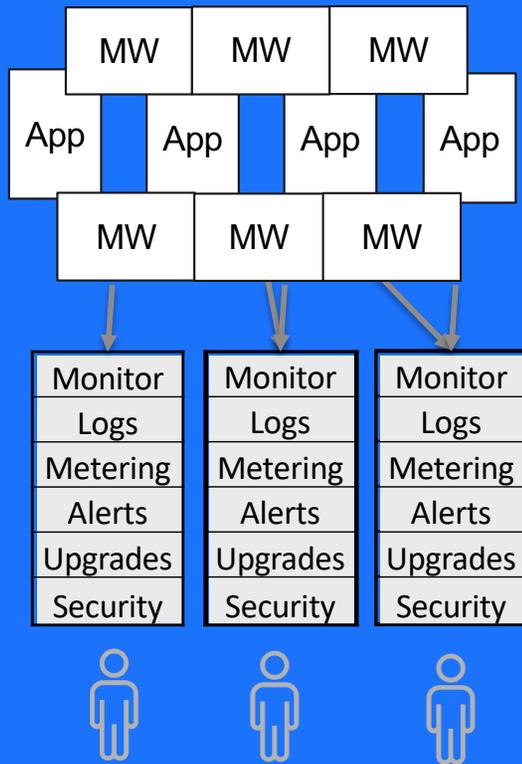
Ops
Consolidation

Agile Container Development

| App | MW | MW | | App | MW | MW | MW | MW | | App | MW | MW | | Cloud Native |

| Monitor | Log | Meter | Alerts | Upgrades | IAM |

Common Container Orchestration Platform

Unified Container Operations
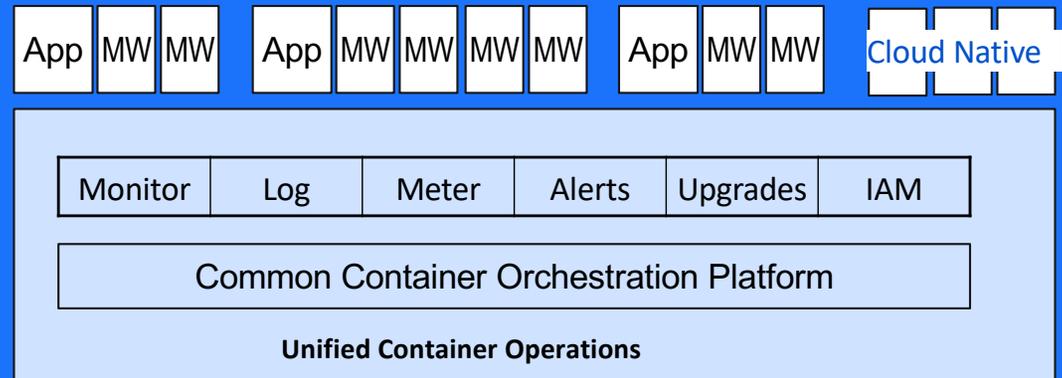
This is the key value you get from Openshift and the IBM Cloud Paks

Step 3: Refactoring

Decouple application complexity

- 12 factor rules
- Microservice architecture
- Strangler pattern
- CQRS Pattern

Improve Delivery Capability

- Introduce Test Driven Development
- Introduce Site Reliability Engineering

Decrease scope of release

- Deliver as minimal viable product
- Release new features more frequently

Cloud Native

Micro-service	Micro-service	Micro-service
Modern Runtime	**Modern Runtime**	**Modern Runtime**
Container	Container	Container

DevOps
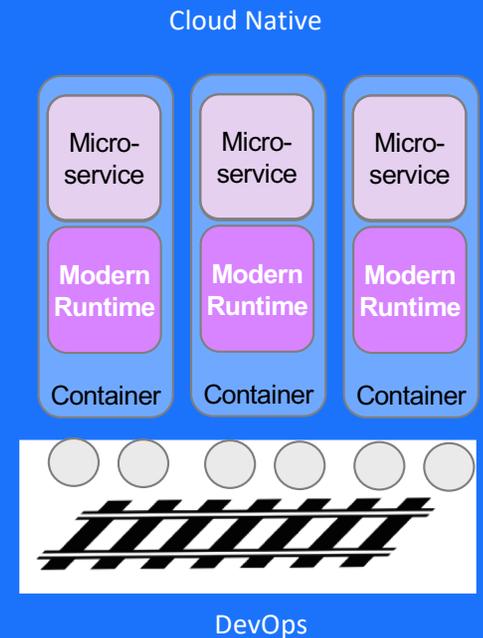
Case Study: Organizational Engagement

American Airlines

Development Leadership

Design Thinking exercises to quickly understand the business problem and Rapid MVP iterations to address the most problematic issues. Co-development in squads to help bring skills of teams up to speed.

Operations Team

Design Thinking to describe to-be operational model. Engagement with our CSMO team to teach new SRE principles and understand changes to ITIL processes.

Architecture Team

Experienced Agile Architects as mentors to help understand the new role. Help with setting up new Guild structure to foster embedding

Business Leadership

Intensive training and mentoring in Design Thinking techniques to help understand how to build the Product Owner discipline.
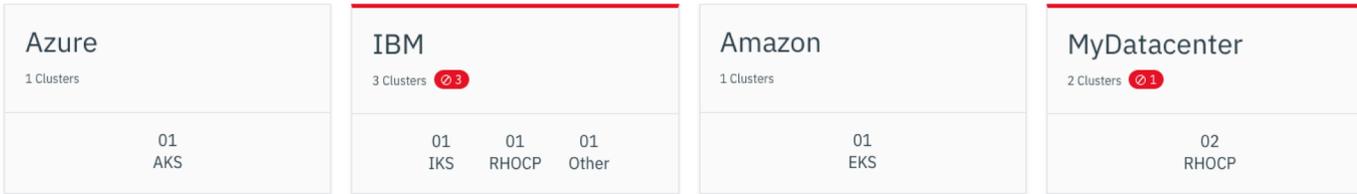
Multicloud Visibility

- Immediate insight into environment, regardless of provider
- Application centric insights
- Cluster based insights using labels

Automation – Governance - Visibility

4Q Release

IBM Cloud Pak for Multicloud Management
Applications, Security, Data, Operational Services

Application Lifecycle Management	Cloud Workload Protection & Compliance
Container Environment Management	VM environment Management RED HAT CLOUDFORMS

Red Hat Ansible Automation Platform   Automation

Application and Infrastructure Monitoring	Event Management & Remediation	Chargeback	Backup and Availability

Management

Container Environments Red Hat OpenShift & Others
Cloud Native Workloads

Virtual Environments – OpenStack, RHEV, VMware, Public Clouds
Traditional Workloads

Platform

System Z Power HyperV RHOSP RHV VMware Private Clouds

amazon web services IBM Cloud Azure Google CloudPlatform

System Z Power HyperV RHOSP RHV VMware Private Clouds

amazon web services IBM Cloud Azure Google CloudPlatform
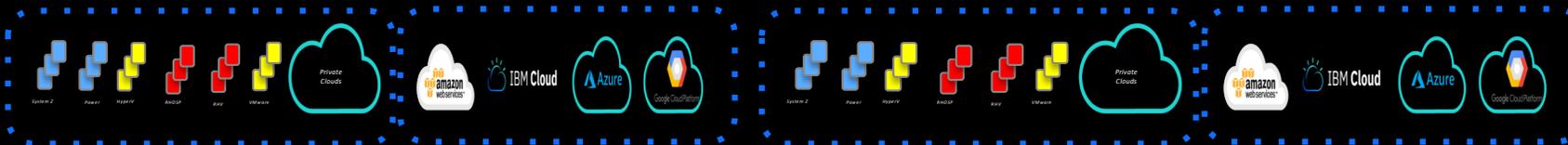
#cpmcm-sales-win-room for all questions

IBM **Cloud** Transformation Advisor

Workspace +

Hursley ⌄

Collections + 🗑

OrderSystem

StockTrader

ModResorts

DayTrader

SharedLibs

⚙

Business apps +

0 apps created

🎉 What's new

📘 Docs

💬 Join us on Slack

← Hursley

DayTrader

Source environment	Profile	Preferred migration on Cloud Pak for Apps
IBM WebSphere Application Server Network Deployment	DayTrader-Dmgr01 *Version: 9.0.0.4*	**Liberty on Private Cloud** ⌄

Java applications (6)   Export ↗   Upload options ⬆

🔍 Search items   ⚙ ⚙

| Name	Complexity	Tech match	Dependencies	Issues	Est. dev cost *in days*	
DayTrader-EE6.ear	Moderate ⟨/⟩	100%	3	◆ 1 ▮ 1 ● 6	1	⋮
⚠ **DefaultApplication.ear**	Complex ⟨/⟩⟨#⟩	88%	4	◆ 3 ▮ 1 ● 5	13	⋮
HealthServices.ear	Moderate ⟨/⟩	50%	None	◆ 1 ● 1	2	⋮
HealthServicesClient.ear	Moderate ⟨/⟩	80%	1	◆ 1 ● 3	2	⋮
jpetstore_war.ear	Simple 🛒	100%	2	● 6	0	⋮
StatelessEJB3.ear	Moderate ⟨/⟩	100%	1	◆ 2 ● 1	1.5	⋮

Cloud Pak for Applications: what you need today, what you need tomorrow

Run Existing Apps and Build New Apps

Continue to run your apps, where they are.

New apps are automatically ready for hybrid-cloud deployment, using the best of open source, fully supported.

MODERNIZE APPS
When apps need to move, IBM has the right experience, tools, and experts to move them.

WebSphere Application Server

WebSphere ND

WebSphere Base

Liberty Core

Red Hat Runtimes

Codewind

Kabanero

IBM Integrated Application Runtimes

LoopBack

Integrated DevOps

Appsody

Digital App Builder

IBM Mobile Foundation

Mobile Services

IBM Cloud Private

Red Hat OpenShift

IBM Modernization & Developer Tools

Transformation Advisor

WebSphere Migration Toolkit

Enterprise Dev tools extensions for local IDE's

Included with all components

ICP full product included as transition path to OpenShift

Perpetual and Term licensing options available, w/ unrestricted OpenShift

No Charge, supported when used with Cloud Pak for Applications

Our sample Cloud Native application: *IBM Stock Trader*

github.com/IBMStockTrader

hub.docker.com/u/ibmstocktrader
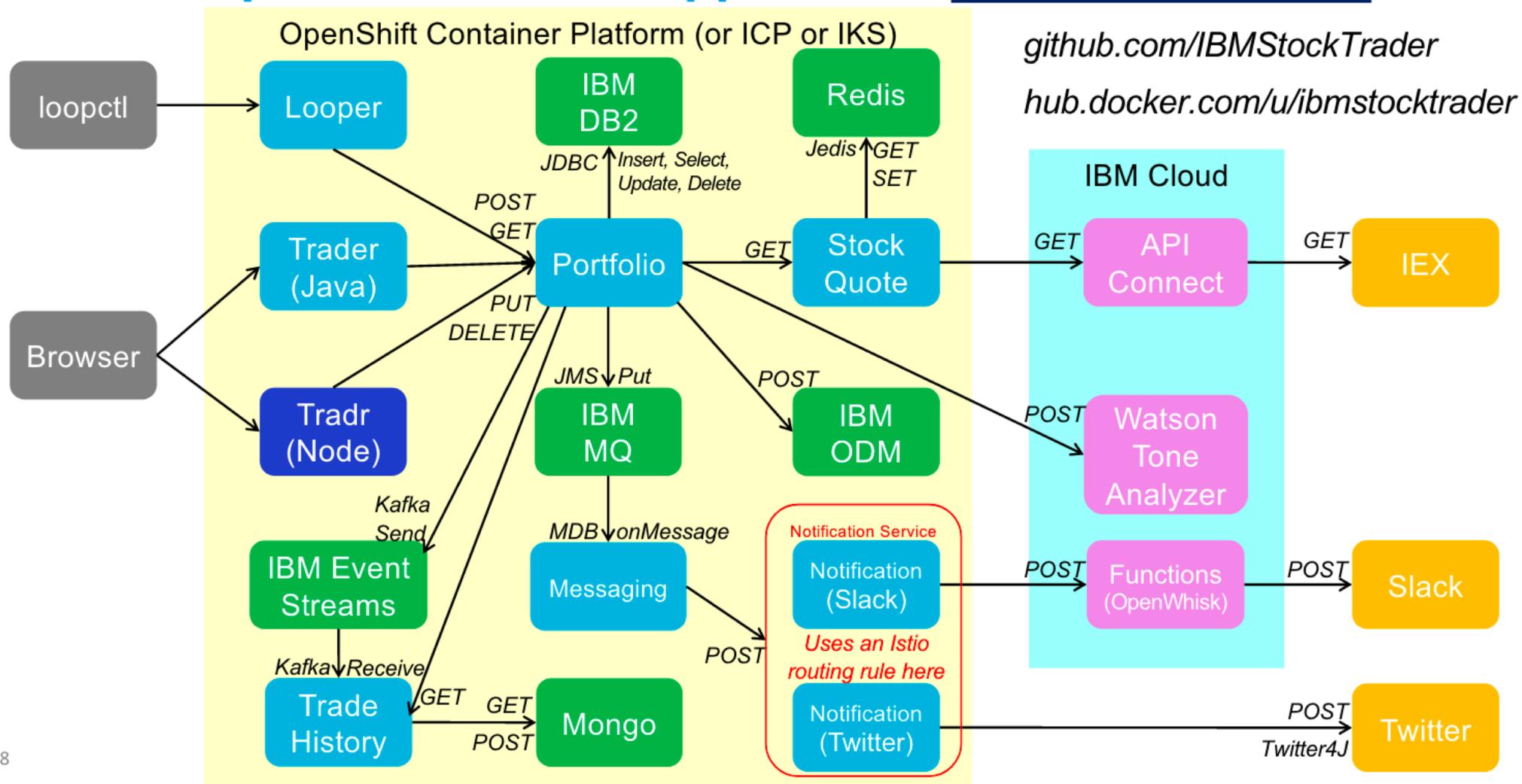
Application & Topology

- Extend the community app model with notions of channels (git, Object Store, Helm, etc.) and subscriptions (built-in platform native continuous delivery of apps)

  - Channels > point to objects

  - Subscription > take action on deployables in channels

- Declarative placement engine to distribute apps across your cluster ecosystem

- Aligned health information, incident management, and event management around each application

IBM Multicloud Management
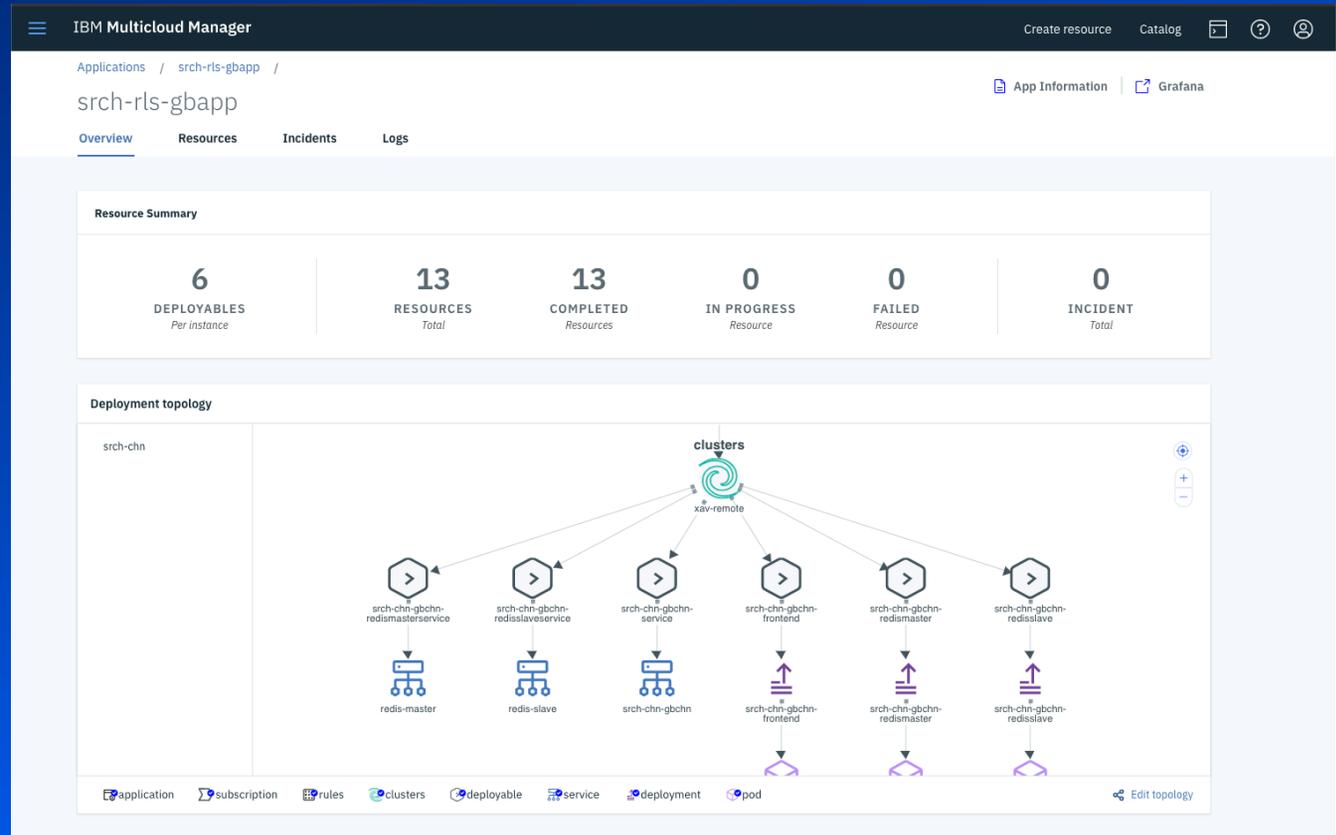
Application & Topology

- Extend the discovery capability to VMs by integrating Cloudforms from Red Hat
- Full state topolopgy

Topology - The Big Picture

Replicators · Pods · Containers · Services · Routes · Nodes · VMs · Hosts
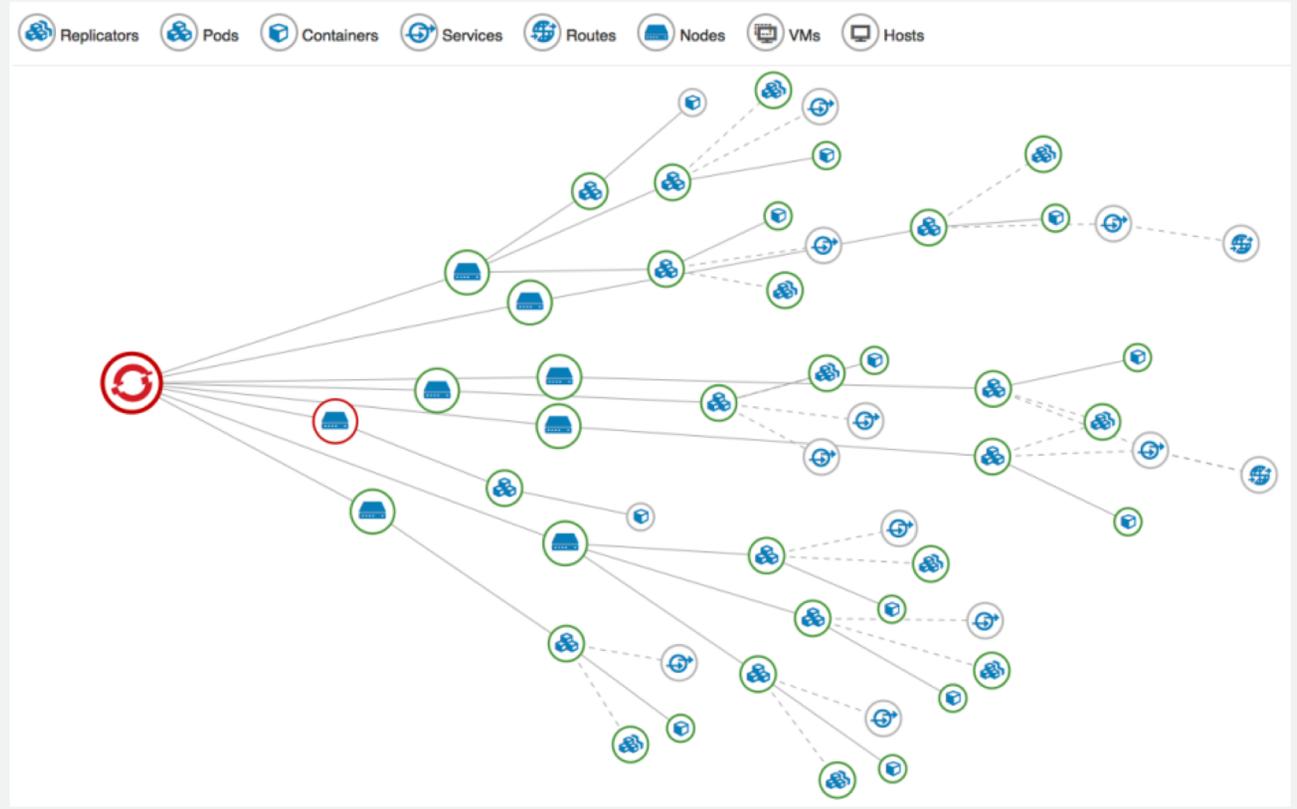
RED HAT CLOUDFORMS

DISCOVERY · CAPACITY PLANNING · REPORTING · AUDITING COMPLIANCE · ANALYSIS · MONITORING · ORCHESTRATION · POLICY

Healthy Application = Happy End User

▪ Real time intelligent insights to application health

▪ Golden signals are a <u>common language</u> to monitor many different technologies and clouds, simplifying communication and troubleshooting

▪ Set custom thresholds to trigger remediation or at minimum, targeted notification of exact issue

▪ Waste less time reacting to unclear or unnecessary alerts

▪ Application troubleshooting tracing spans VM & container portions of application

| Latency	Errors	Saturation	Traffic
The time it takes to service a request	Trend view of request error rate	View of utilization against max capacity	Demand being placed on the system

IBM Multicloud Management

IBM Cloud Event Management

Cut through alarm noise. Restore service fast.
Cloud-native, consolidated operational event and incident correlation, prioritization and resolution
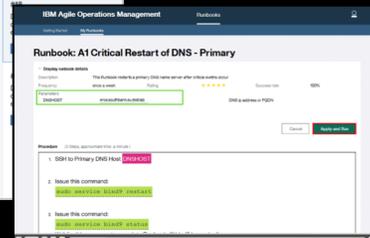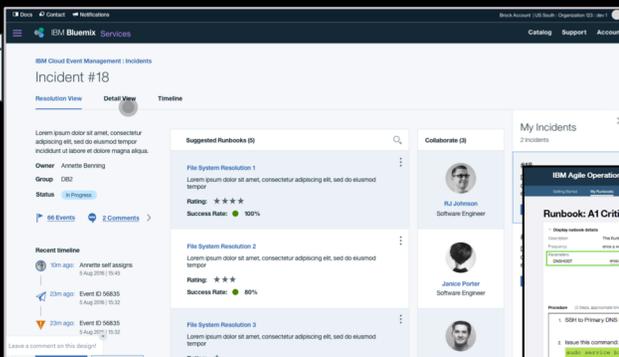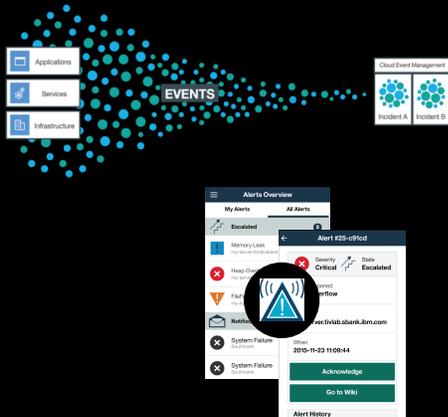
Ingest application, performance and operational event metrics

Automatically receive prioritized, correlated, incident information and guidance

Manage operations from one place and improve efficiency across teams

Layers of Value with Cloud Pak for Multicloud Management

Cloud Pak for Multicloud Management incorporates the value of Kubernetes container orchestration + the power of OpenShift container orchestration and brings visibility, automation and management to your applications, no matter if they are deployed to VMs or Containers. You can ensure consistent security for your workloads no matter where you choose to deploy them, on-prem, public/private cloud or at the edge

IBM Cloud Pak for Multicloud Management

Red Hat OpenShift
Cloud Native Workloads

kubernetes

IBM Cloud   aws   Azure   Google Cloud   Edge   Private   Systems

- Virtual machine workload management
- Container cluster management; regardless of provider (ex: GKE. EKS, IKS etc.)
- Container movement to a different *K8 provider
- Application Management; performance
- Event Management; integration with existing tools
- Application Placement Policies (to any cloud)
- App updates automatically across all clouds
- Application Logging/Monitoring
- Infrastructure management
- Security policies, vulnerability advisor, mutation advisor

- Container Management
- Single Cluster orchestration
- Service catalog (operators)
- Jenkins CI/CD
- Web console
- Cluster logging/monitoring Run on any cloud
- Container registry
- Container scanner

In 2019 Red Hat OpenShift is **top choice** for secure, on-prem Kubernetes
https://sysdig.com/blog/sysdig-2019-container-usage-

- Container orchestration
- Container scheduling
- BYO Linux infrastructure
- BYO everything

The IBM Data and AI Portfolio

Everything you need for enterprise AI, on any cloud

Business and technical services

Pre-built Use Cases
Watson Applications

Prepare	Build	Run	Manage
Watson Knowledge Catalog	**Watson Studio**	**Watson Machine Learning**	**Watson OpenScale**

Hybrid Data Management	Data Ops & Governance
Db2 Family	**InfoSphere Family**

Unified Hybrid Data and AI Platform
Cloud Pak for Data

IBM Cloud · RED HAT OPENSHIFT · aws · Azure · openstack · Google Cloud · intel · IBM Z · IBM Power Systems · **Hyperconverged** System

Cloud Pak for Integration

Broadest integration capabilities

Unified experience, operational efficiency & reuse

–

Deploy where needed

Container-based architecture with common enterprise services

–

Enterprise-grade

Secure, scalable

API Lifecycle

Application & Data Integration

Enterprise Messaging

Events

High Speed Transfer

Integration Security

IBM Cloud Pak for Automation

Client and Partner Applications

Unified User Experience

Modeling

Tasks* — Workflow — Decisions — Content — Capture

Governance

Low-code authoring for business and IT

Operational Intelligence
Analytics | Machine Learning | AI

Cloud — Hybrid — On-premises

* IBM RPA with Automation Anywhere offering sold separately
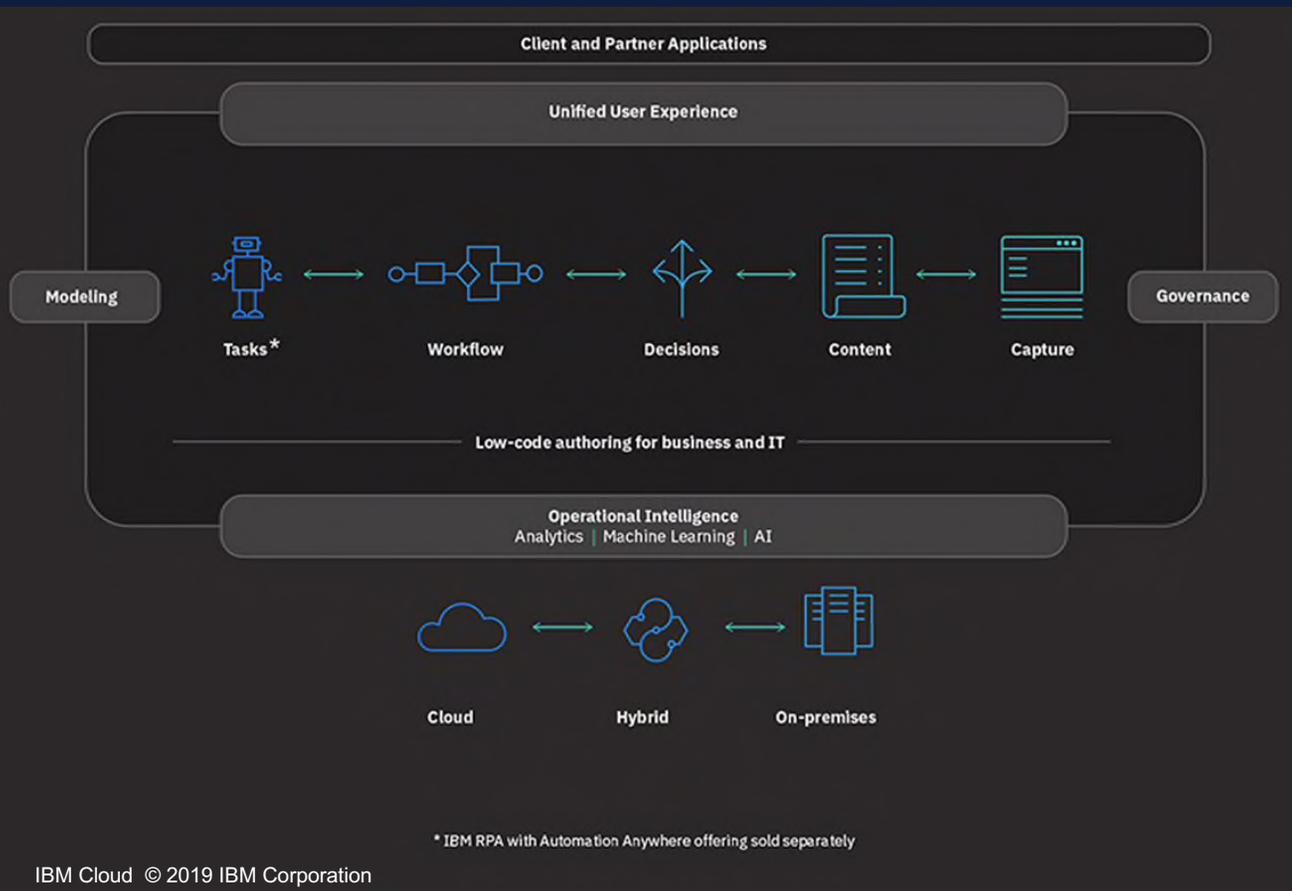
- IBM Digital Business Automation Platform

- Part of the Cloud Pak family of Red Hat OpenShift ready software

- Complete offering for operations business automation

- Modular, integrated capabilities include:

  - Full spectrum of workflow

  - Digital decisioning

  - Content services

  - Data capture & document management

  - Analytics, ML & AI

- Supports low-code & professional developers

- Complemented with RPA for tasks and Blueworks Live for modelling

Cloud Paks – Accelerate your journey to cloud

*Reduce dev time up to 84%**	*Access data up to 3.4x faster**	*Integrate 3X faster at 1/3 less cost*	*Reduce manual processes up to 80%**	*Reduce IT op expense by up to 75%**
Hertz	**Sprint**	**CVS Health**	**PNC BANK**	**Large Automaker**
Business requirement Respond to client demand for more accurate view of rental rates and pricing **Challenge** Legacy infrastructure and applications slowed response to customers **Solution: App modernization** In partnership with IBM Garage, modernized a highly available, scalable rental rate app supporting 1.5 billion hits and 30 million updates per day	**Business requirement** Improve customer service by resolving equipment issues more accurately **Challenge** Identifying what to fix by correlating alarms, trouble tickets, and dispatches **Solution: Operationalizing AI** Used multi-classification model and machine learning to gain quick insights into large volumes of data and respond more effectively	**Business requirement** Improve digital experience for employees and customers **Challenge** Fragmented IT ecosystem with siloes of data/apps and inconsistent mgmt **Solution: Agile integration** Modernized integration strategy with an API-centric approach helping developers deliver services more quickly by integrating 3X faster at 1/3 less cost	**Business requirement** Process and review loan applications more quickly to meet client demands **Challenge** Hard-coded rules/policies did not give employees the flexibility to modify **Solution: Process automation** Automated 50+ processes and 5 million business rules across multiple lines of business, which reduced manual policy reviews by 80%	**Business requirement** Deliver digital applications more quickly in response to business changes **Challenge** Inconsistent movement and management across clouds and data centers **Solution: Multicloud mgmt** Implemented a single console to manage configurations and run deployment pipelines, delivering functionality more efficiently
Cloud Pak for Applications	Cloud Pak for Data	Cloud Pak for Integration	Cloud Pak for Automation	Cloud Pak for Multicloud Mgmt

¿Por qué y para qué usar CloudPaks?

¡GRACIAS!

Felipe Freire

IBM Red Hat Synergy Leader for Latin America

felipe@br.ibm.com

@pfelipebr