

# Opening Doors and Making Money with Red Hat Ansible, OpenShift & Cloud Paks on Power Systems

**Chuck Bryan**

Offering Leader, IBM Power Systems

Hybrid Multicloud and Open Source Solutions

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September 10, 2020



# Why do your clients need cloud computing?



We aren't delivering applications and services fast enough.

**Chief Information Officer**



We need to address security, compliance, and our global reach by delivering a hybrid and multicloud strategy.

**Enterprise Architect**



We need to improve scale, elasticity, and agility. With container-based computing our workloads would work well everywhere.

**IT Operations Engineer**



Our developers need to focus on coding. Adding automation and CI/CD pipelines could help.

**DevOps Engineer**

You can help and make money if you are ready to....



Microsoft Azure

Google Cloud

aws



Have the Cloud conversation with YOUR Power Systems clients



Cloud conversation tips

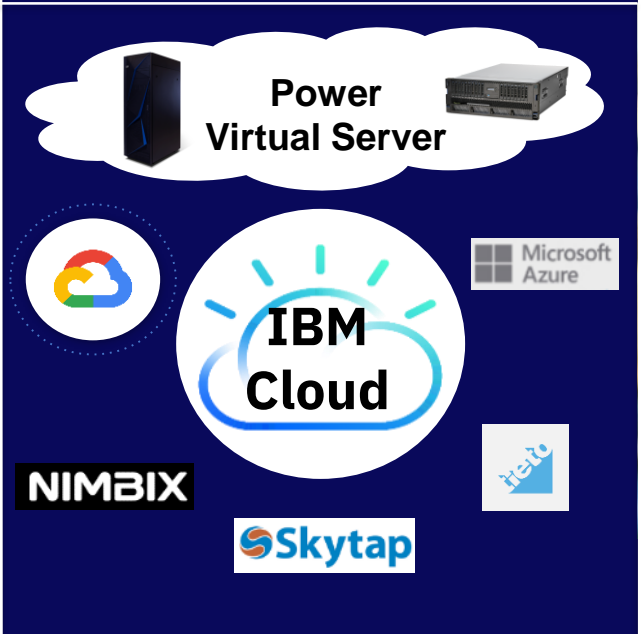
- ✓ Clear Hybrid Cloud roadmap
- ✓ Trusted advisor
- ✓ On-ramp to hybrid cloud with Ansible, OpenShift & Cloud Paks

# Hybrid Multicloud with Power Systems Roadmap

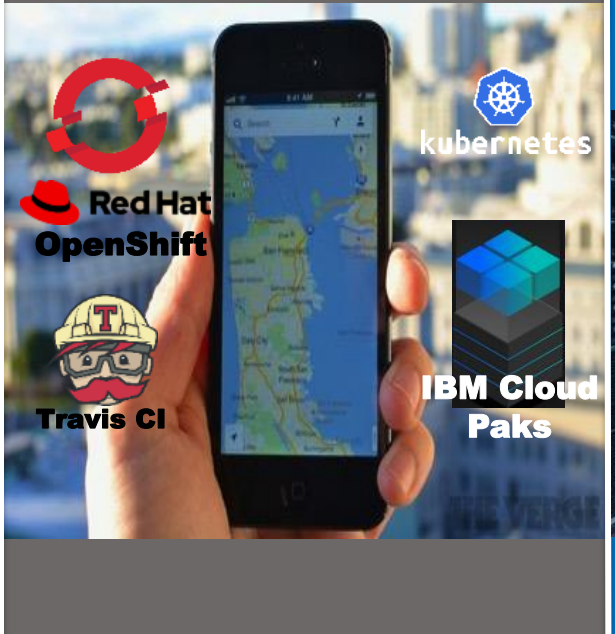
**Transform existing IT for Cloud capabilities**



**Leverage Public Cloud flexibility**



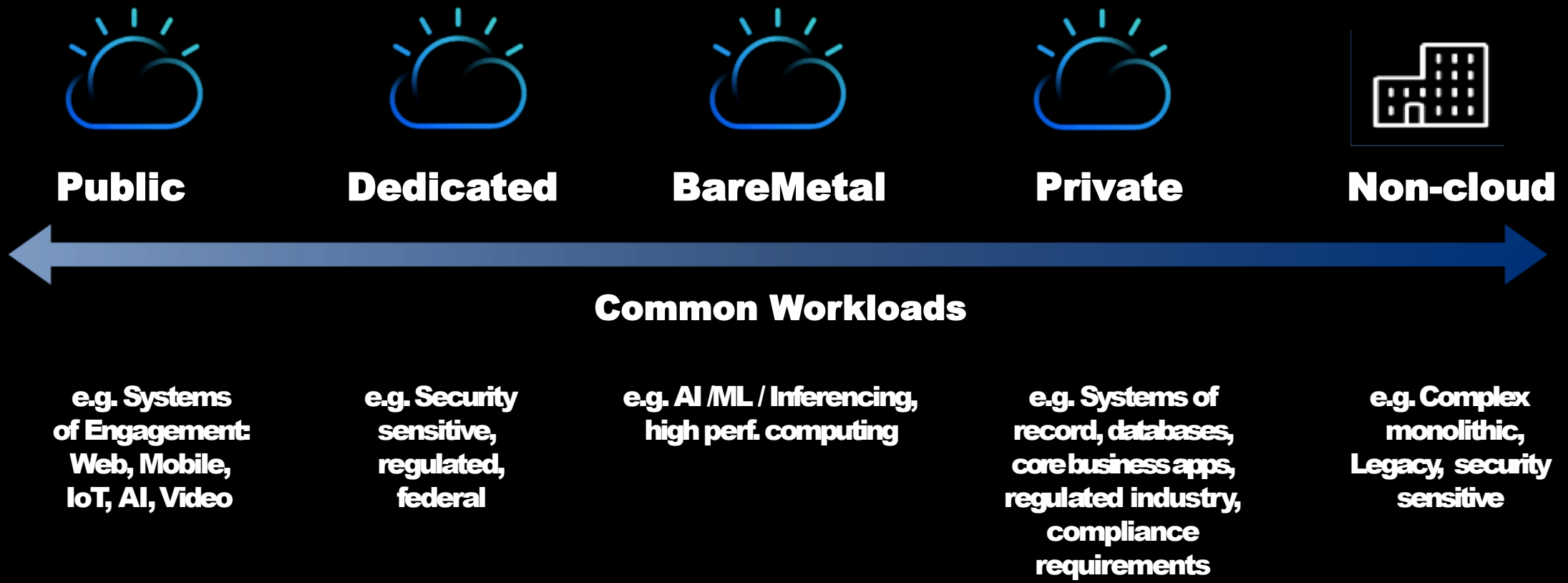
**Marry cloud micro-services & agility to AIX, IBM i apps**



**Hybrid cloud enables microservices, VM apps to run anywhere**

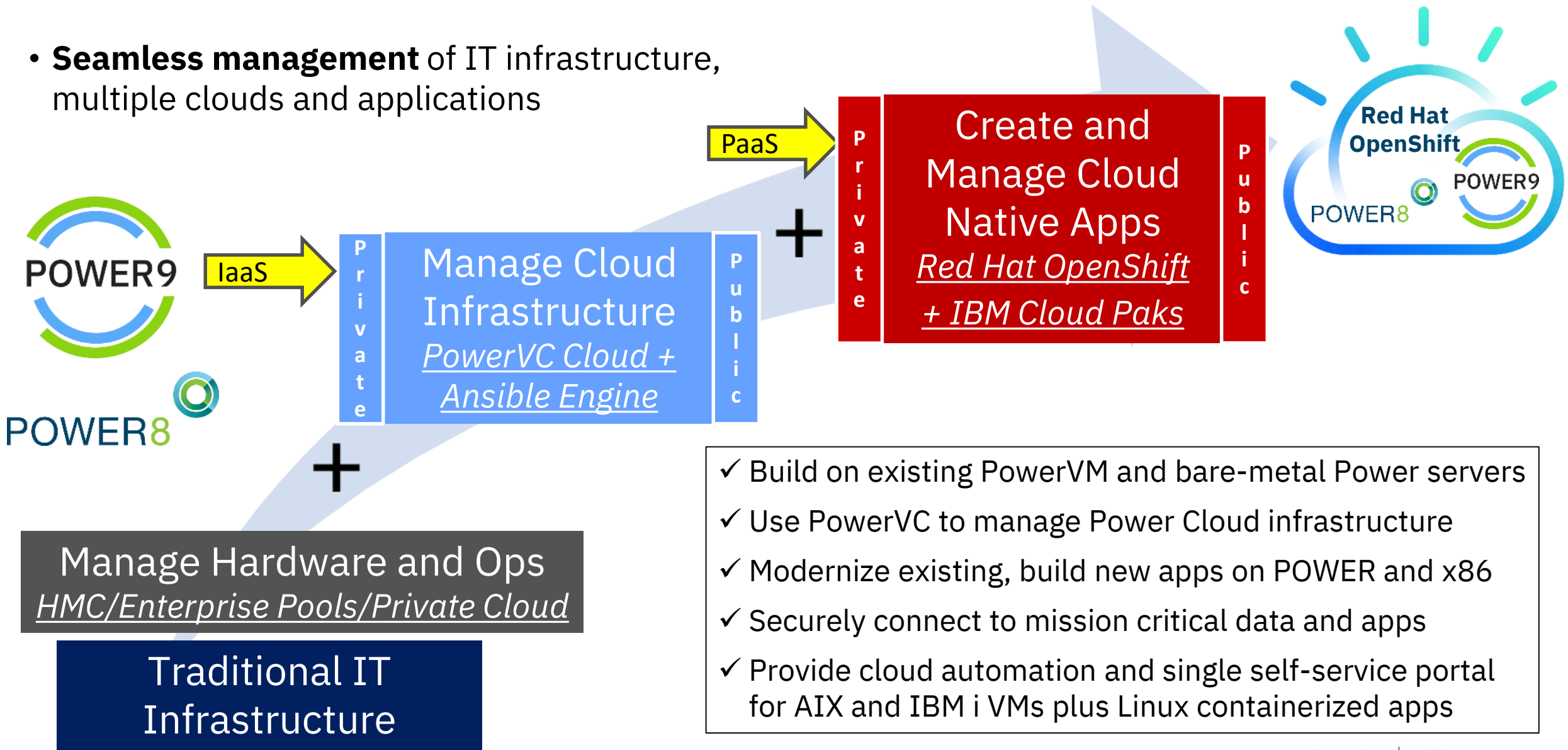


# Help your clients find where their workloads thrive



# Modernization and Cloud Journey for POWER

- **Seamless management** of IT infrastructure, multiple clouds and applications



3) On-ramp to hybrid cloud

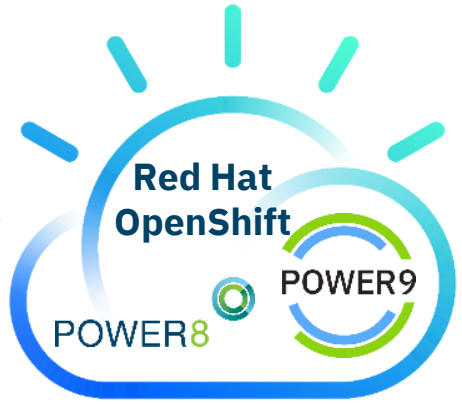
PaaS

Private

Public

Create and Manage Cloud Native Apps  
Red Hat OpenShift  
+ IBM Cloud Paks

Public



Manage Hardware and Ops  
*HMC/Enterprise Pools/Private Cloud*

Traditional IT Infrastructure

- ✓ Build on existing PowerVM and bare-metal Power servers
- ✓ Use PowerVC to manage Power Cloud infrastructure
- ✓ Modernize existing, build new apps on POWER and x86
- ✓ Securely connect to mission critical data and apps
- ✓ Provide cloud automation and single self-service portal for AIX and IBM i VMs plus Linux containerized apps

# Why should Sellers care and how do you make money?

## Sellers should care because:

- Leading with the cloud conversation and Red Hat solutions will open doors into LoB and other parts of your client's organization that are driving new initiatives
- Surround AIX/IBM i with Ansible/OpenShift cloud capabilities - defend lift/shift to x86, AWS
  - Automate time consuming tasks like OS patching, infrastructure/app deployment with Ansible
  - Incrementally transform AIX, IBM i apps with new front-end apps on OpenShift on Power clusters
  - Drive additional workload capacity on current Power core business application platforms

## Sellers can make money in three ways:

- POWER9 upgrade or additional server capacity for existing core business apps or database
  - \$150k to \$2.5M+ for new S9xx/E950/E980s or upgrades to existing servers
- OpenShift cluster for application modernization/digital transformation initiative
  - \$50K for small PoC – single scale-out server
  - \$200-\$400K+ for Enterprise Production – six to twelve scale-out servers
- Hybrid cloud capacity
  - PowerVS for Dev/Test, DR, Additional Production Capacity for AIX, IBM I
  - OpenShift in PowerVS beta targeted for 4Q

# Consistent enterprise automation across Power, Z and x86



## Key Ansible use cases



Provisioning



Configuration Management



Application Deployment



Continuous Delivery



Orchestration



Security Automation

## Consistency

- Consistent enterprise automation strategy across
  - z/OS, AIX, IBM i, Linux and Windows environments
  - Hybrid applications and infrastructure management

## Transparency

- Complete visibility of z/OS, AIX, IBM i and Linux automation
- Drive best practices to manage automation and move towards infrastructure as code
- Contribute to breaking down cultural walls

## Skills

- Leverage readily available Ansible and Python skills to automate z/OS, AIX, IBM i and Linux environments



# Use Case: Automate AIX Updates, OpenShift Deployments



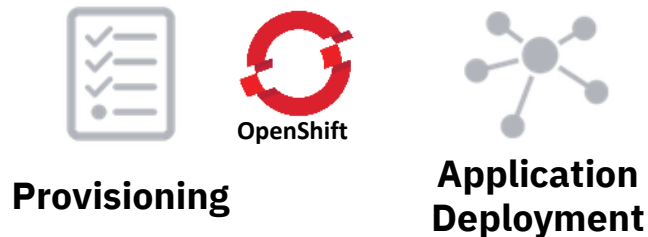
Ansible seamlessly unites workflow orchestration with configuration management, infrastructure (including cloud) provisioning and application deployment in one easy-to-use platform

Consistent easy to use and simplified deployment across Power and x86 platforms with a strong security and reliability

## Key use cases include:

- ✓ Automate AIX updates across multiple physical servers and VMs
- ✓ Ansible modules automatically deployed by Ansible Engine to consistently update multiple AIX endpoints

- ✓ Automate OpenShift updates across multiple VMs, public/private clouds
- ✓ Ansible modules automatically deployed by Ansible Engine to update & deploy OpenShift images to multiple VMs on Linux on Power endpoints



# Use Cases: OpenShift and Cloud Paks on POWER

## Existing IBM clients with IBM middleware on POWER

- **Modernizing** existing IBM software-based business critical apps on POWER with Cloud Paks on OpenShift
- Standardizing on Red Hat for Linux and OpenShift and Cloud Paks for Dev/Ops and **Hybrid Cloud**
- **Modernizing** business critical apps & incorporating open source software and tools
- Want the security of commercial software and POWER enterprise hardware

## Organizations who are existing Red Hat clients

- Many AIX and IBM i clients are also Red Hat clients, but Red Hat running on x86
- DIY developers using OpenShift container catalog for **cloud native** open source apps
- Need to connect **cloud native** apps to existing AIX or IBM core business data or apps
- Developing new data-centric **cloud native apps** and infusing with AI and Deep Learning
- Want to exploit POWER AC922 and IC922 for AI, ML Training and Inferencing



# Build, Deploy, Manage **Cloud Native Apps** that Can Run Anywhere

Self Service Portal

Service Catalog

Language runtimes, databases, m/w ...

Build Automation

Deployment Automation

Application Lifecycle Mgt



OpenShift 4.5  
*Try it now*

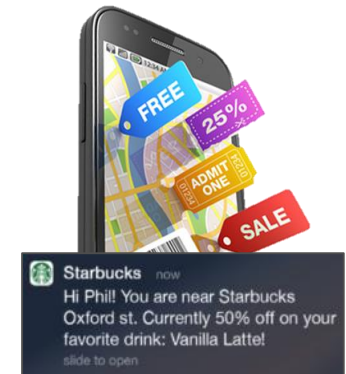
Kubernetes  
Container Orchestration

CoreOS /  
Red Hat Enterprise Linux

Container Runtime



Personalized, Engaging



Location Aware



Physical



Virtual

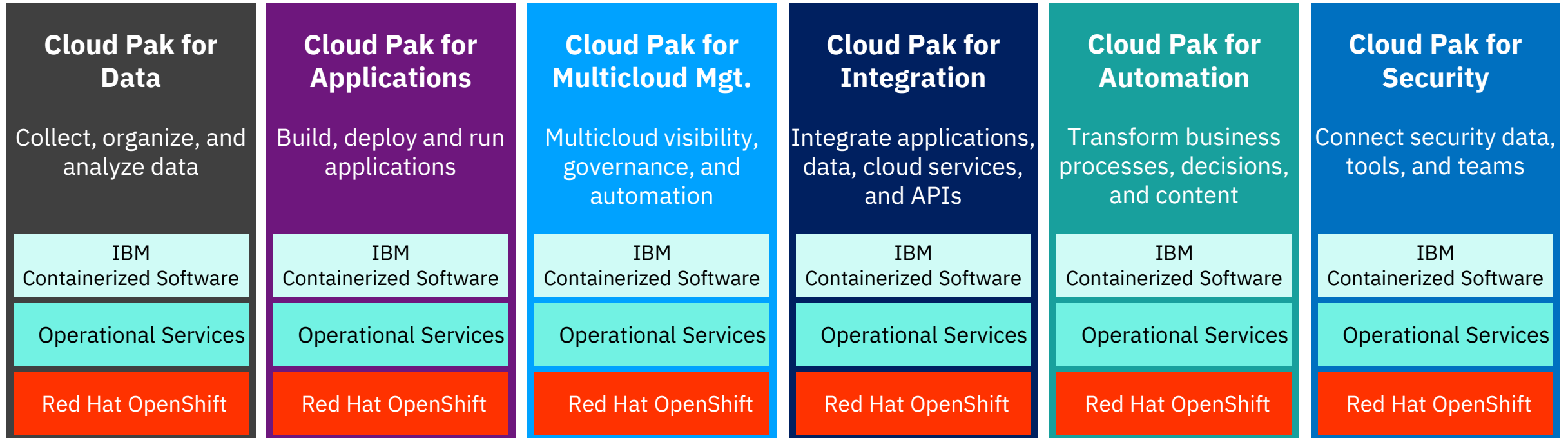


Private



Public

# Cloud Paks and Red Hat OpenShift on Power Systems



**Runs on choice of IBM Power Systems Infrastructure-as-a-Service (IaaS)**

**PowerVC  
PowerVM**



**KVM**  
*(dev only)*



**Red Hat Enterprise Linux**

**Bare-metal**



**Red Hat Enterprise Linux CoreOS**

**Helps you modernize and build containerized software faster!**

# OpenShift and Cloud Pak on Power Client Wins

## Hong Kong Financial Services / Stock Trading Platform **\$1.6M**

### About the Client

A major financial services provider in Hong Kong. Their business scope includes corporate banking, personal banking, and private services.



### Business Challenge

- The current Stock Trading system infrastructure is built on PureFlex and POWER7 servers, which will end support by end of 2019
- We foresee the current capacity could not address the upcoming business growth in the next few years

### Goal

To enhance Resilience/ Availability / Serviceability by using latest POWER9 technology and achieve cost savings with performance improvement

### Solution Components

- E980 and S924 for AIX based core banking platform
- LC922 for Red Hat OpenShift DevOps PoC of containerized cloud native apps to deliver new banking microservices
- V7000 SAN storage

### Client Value / Expected Outcomes

- Upgrade to E980 as secure, reliable enterprise class server for their mission critical stock trading application
- 60 to 100% more performance / core (rPerf for SMT4 and SMT8 throughput)
- Elastic Capacity on Demand and Enterprise Pools provide flexibility to dynamically allocate resource to meet ad-hoc & unpredictable market demand
- 26% lower TCO over 5 years for hardware and software

### Win Case Summary

The team proposed to keep the critical stock trading system on AIX and build a greenfield private cloud with Linux on Power and Red Hat OpenShift to test a containerized, microservice and DevOps application development approach.

This is the first OpenShift on Power Systems win in the banking industry for GCG. IBM and Red Hat will use the momentum to drive greater adoption of OpenShift on Power.



### Why IBM

- The Bank requires the 99.999% resiliency, security and high performance of Power for their critical stock trading system
- IBM is a longtime trusted partner of the Bank who fully understands the architecture and proposed solution

## Hybrid Cloud: MongoDB on POWER and New Digital Payment Cloud App on OpenShift **\$3.6M**

POWER E980s with Capacity on Demand

Australian bank needs to transform its core Payment Processing application to meet new open banking regulations

Simplified transfer of funds across financial institutions



Public Cloud

Private Cloud

- Node.js, etc
- OpenShift front end app

- MongoDB
- APIs to OpenShift app



Regional Bank

### Why Red Hat on Power Systems

- Flexible on-premises server consumption and OPEX / cloud-like pricing
- Securely connect to NoSQL cloud databases
- Rapidly develop new cloud native apps
- Platform architected for data centric applications

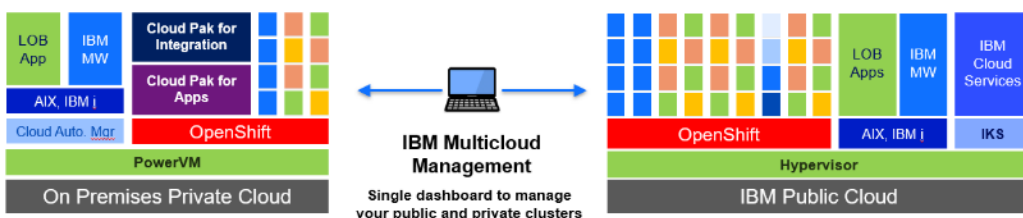
## US State Agency Modernizes with IBM Hybrid Cloud on POWER

10 x POWER S924s

### Simplify Modernization and Promote Innovation

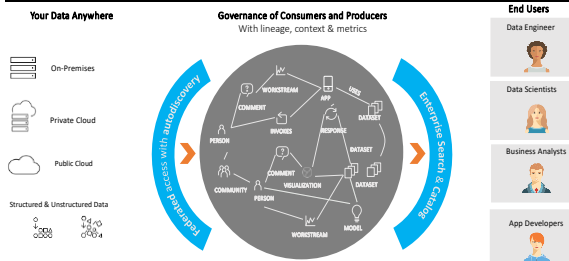
#### Modernize one function or microservice at a time

- Incremental modernization Investment
- Deploy quickly with quality
- Deliver value as you go
- Develop once – deploy anywhere



## Mortgage Lender Needs In-house Data Platform

### Use Case: Track all use of data in decision making



### Client Scenario

- Mortgage app on AIX. Other data disparate.
- Currently outsources data collection. Experiencing high latency for every query
- Require scale up and down with business demand
- Recognize value to bring data in-house

### Requirements

- Manage, govern, secure all data regardless of where it lives (public, private cloud, on-prem)
- Recognized solution requires messaging, ETL, data warehousing, security, data science workflow

### Solution

- OpenShift and Cloud Pak for Data on POWER9
- Technical expertise, SMEs. Strong BP involved.

### New IBM Footprint

- Cloud Pak for Data
- Spectrum Scale
- POWER9 in Production and +10 more in DR
- FS-5100 with FCM
- OpenShift
- Db2, DB2WH

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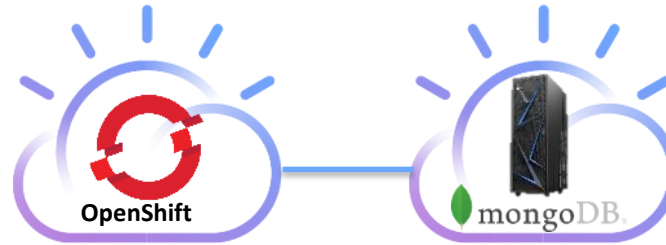
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Public Cloud

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- OpenShift front end app

Private Cloud

- MongoDB
- APIs to OpenShift app



Regional  
Bank

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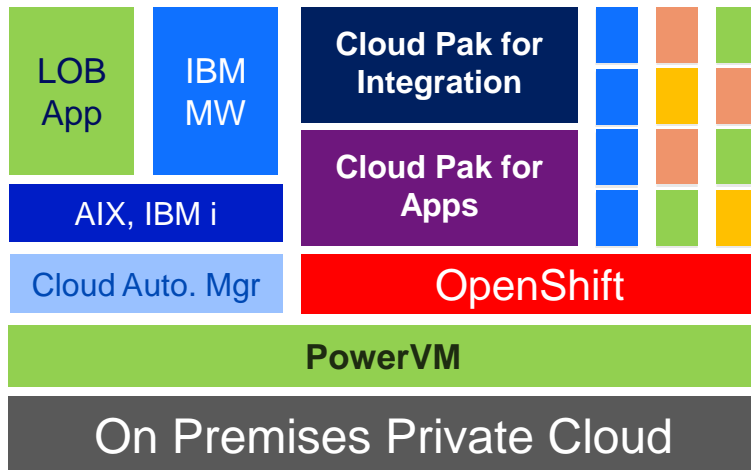
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10 x POWER  
S924s

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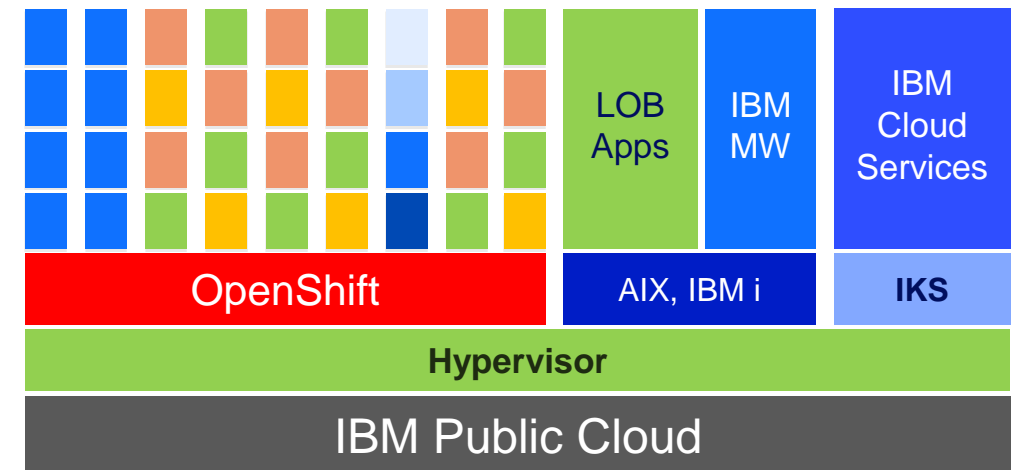
### Modernize one function or microservice at a time

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- Deliver value as you go
- Develop once – deploy anywhere



### IBM Multicloud Management

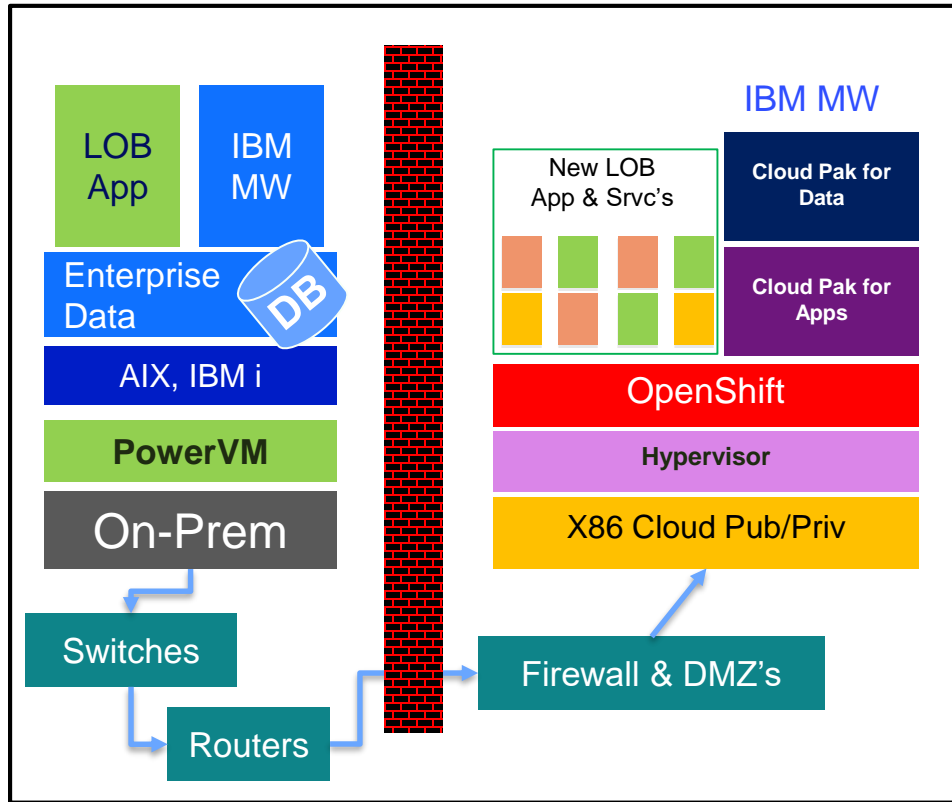
Single dashboard to manage your public and private clusters



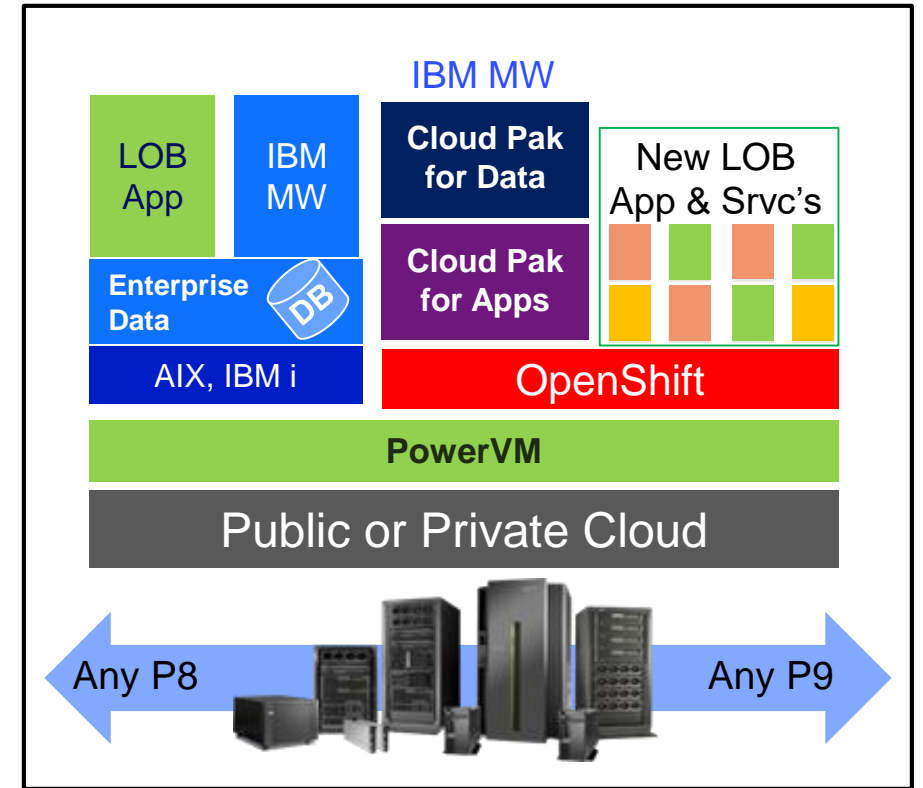


# Data Gravity Makes Power the Best Place to **Modernize** with OpenShift

*x86 as Modernization Platform  
Power as Enterprise Data Platform*



*Power as Modernization Platform  
AND Enterprise Data Platform*



Hundreds of Terabytes  
Of Critical Enterprise Data  
On Power Systems

- More Latency for Data Access
- More & Slower data movement
- Buy new hardware

- Less Secure, more attack surface
- Less Flexible & More Failures with more gear to break

- Run on Existing Equipment, Utilize dark capacity where it exists
- Fast Memory based Data Access between OpenShift & AIX/IBMi
- Zero PowerVM Security exposures

- 99.999% reliable HW design
- Less servers required
- Flexible Utilization with Dynamic Capacity and SLA Guarantees

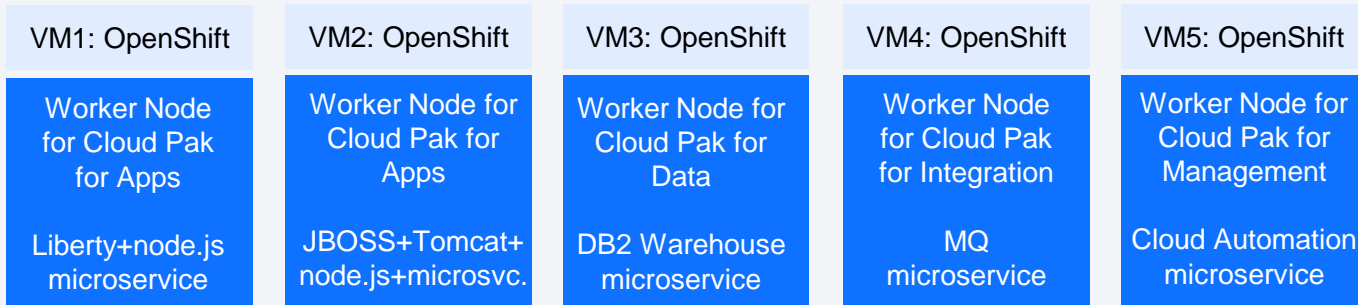
# Why Power for Cloud Native – Flexible, Efficient Utilization

## Introducing: Shared Processor Pools

CPU cores in Shared Processor Pool



Autonomously share  
CPU cores across VMs



Simplified deployment

Improved TCO for  
hardware and software

PowerVM



## Cloud Pak for Data on Power

### Client experience in Comm/CSI Industry

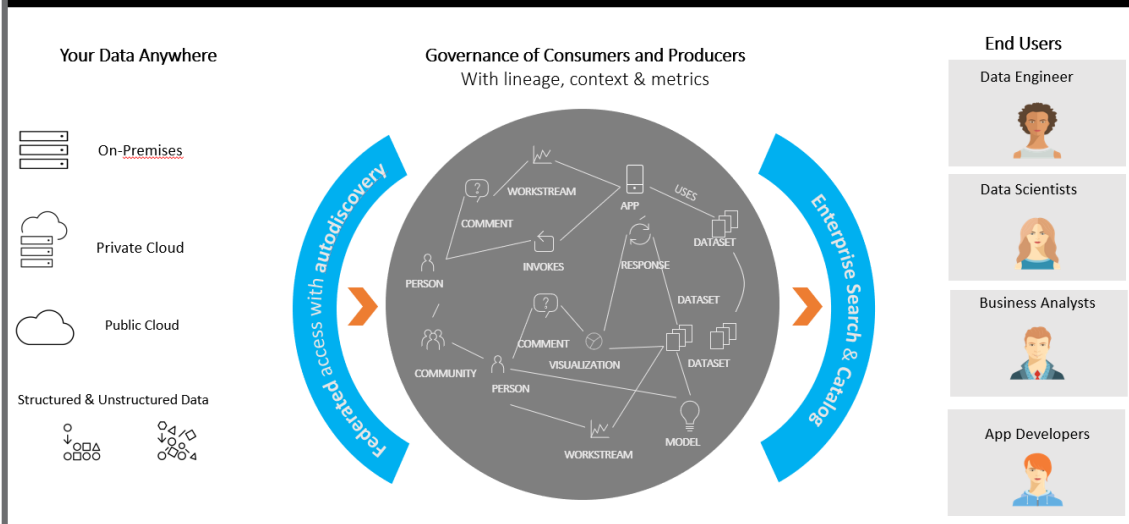
Proshanta Saha, Ph.D.  
Cognitive Solution Architect  
Comm/CSI Market  
[pasha@us.ibm.com](mailto:pasha@us.ibm.com)

July 2020

### Business Scenario

- Customer currently outsources almost all of their data collection, creating **high latency** for each query by their Data Scientist.
- Customer imagined one solution to their problem is to bring data **in-house** and offer an **enterprise data platform** for users to query against. One such solution was to use **Kafka** to manage data subscription
- Along the way the customer realized their solution would need to expand to include **messaging, lineage, ETL, data warehousing, security, data science workflow**, and more.

### Use Case: Track all use of data in decision making



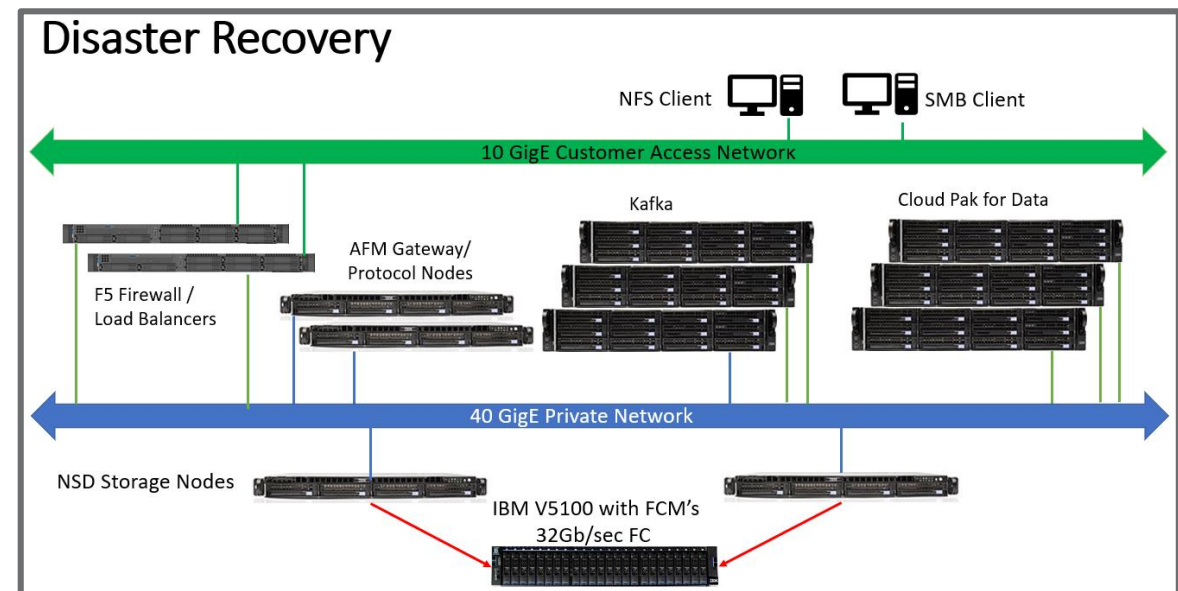
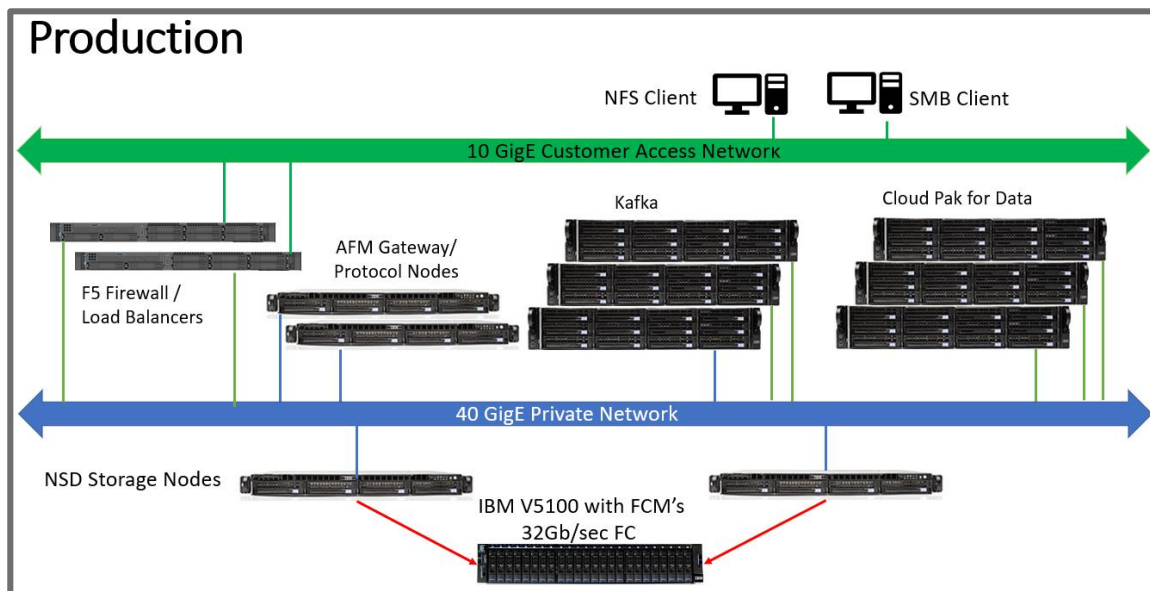
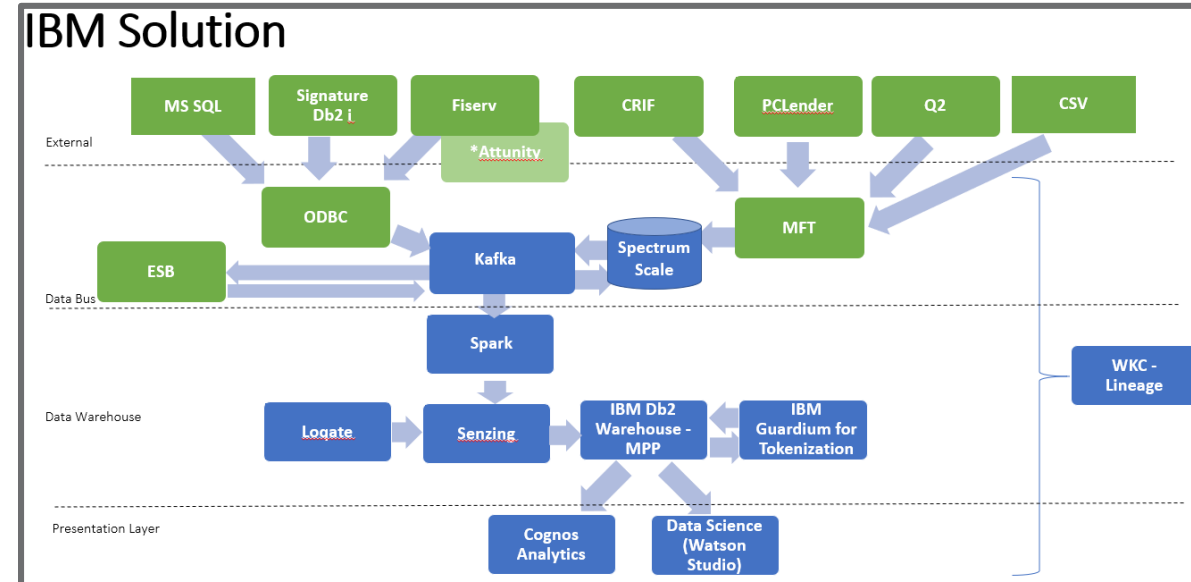
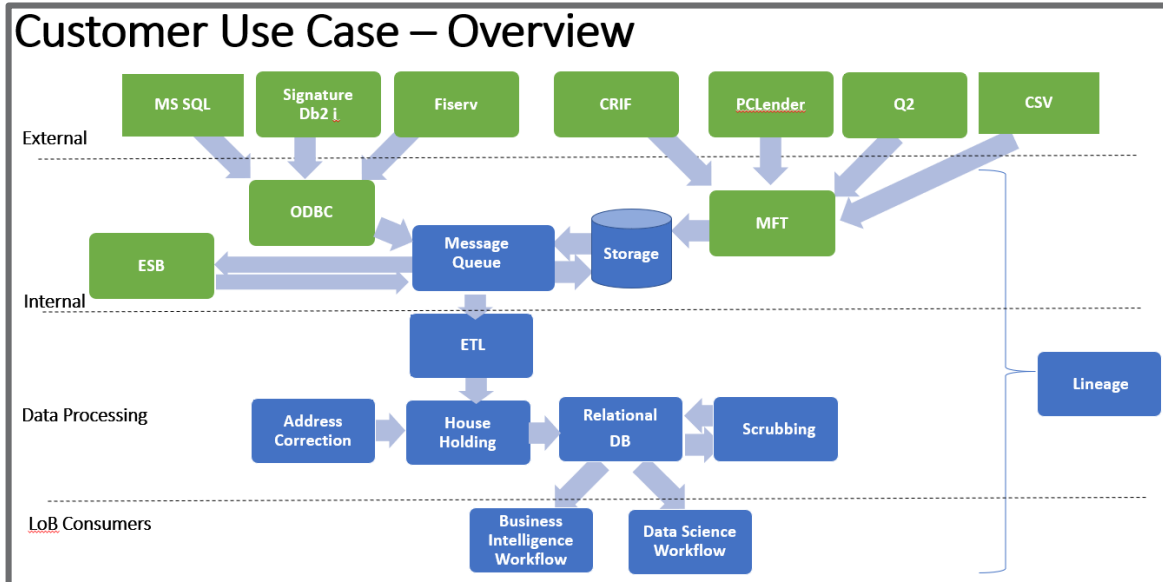
### Starting Point

- **Customer Request:**
  - What kind of platform should we run Kafka on?
- **Existing footprint:**
  - IBM z Mainframe – Core Banking
  - IBM Power running **IBMi** – Fiserv, RPG
  - IBM Cognos Analytics – Loan Risk Assessment
  - Microsoft SQL Server
  - Managed File Transfer ([Mulesoft](#))

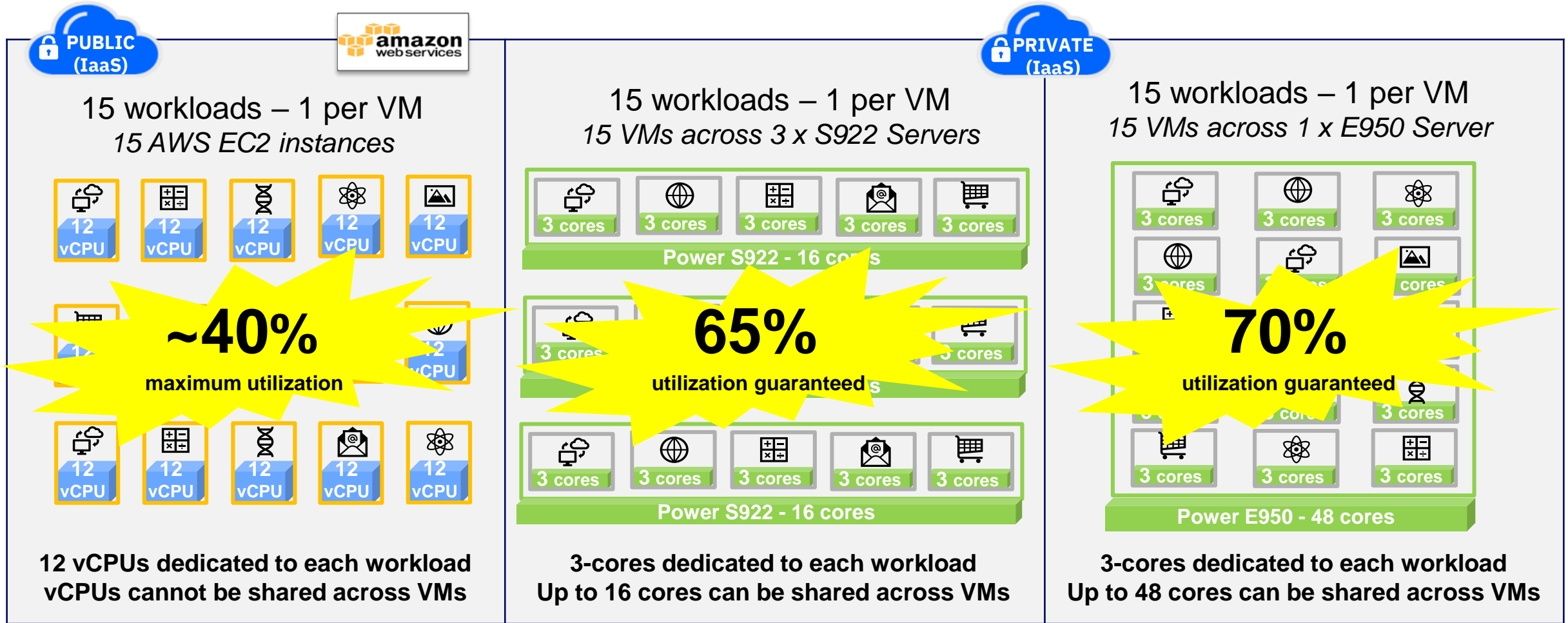
### End State

- **Customer Request:**
  - How do I perform lineage?
  - What Data Warehouse technology should I use?
  - What tools can I enable for my Data Scientists to run campaigns, model risk, help customers?
  - How should I do customer house holding?
  - Help me replace my Fiserv data source
- **New IBM footprint:**
  - Power9 LC922 x10 in Prod today
  - Power9 LC922 x10 in DR soon
  - FS-5100 w/ FCM
  - Spectrum Scale
  - Cloud Pak for Data
  - DB2, DB2WH

# American Savings Bank – Anatomy of a Deal (continued)



# Why Power for Cloud Native – More from software with less servers



15 VMs - 180 x86 vCPUs

15 VMs - 3 x 16-core Power S922s

15 VMs - 1 x 48-core Power E950



Lower TCO



# Running IBM Cloud Paks on AWS can cost up to ~7x more than private cloud on Power and

## up to 2.3x more for private cloud on x86 vs. Power

*Here are the 3 reasons why*

1) POWER9 is ~**2x** per core more performant than x86; hence x86 servers require ~**2x** more cores and licenses

2) AWS and Azure public cloud licensing of VPCs is by thread (vCPU) or ~1/2 an x86 core, requiring **2x** more licenses



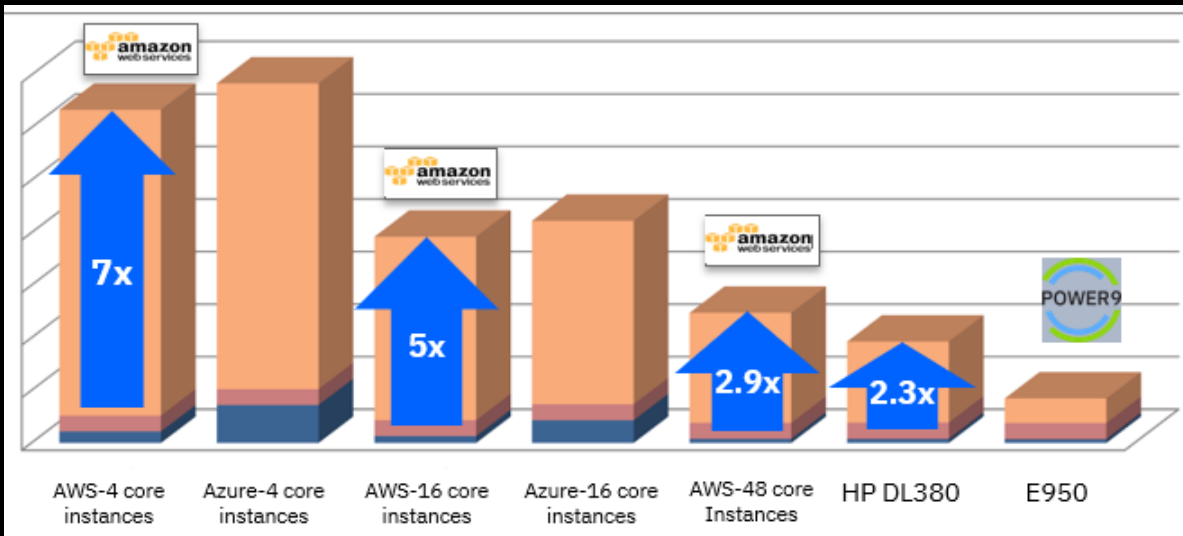
IBM Software > Passport Advantage > Licensing > IBM Eligible Public Cloud BYOSL policy >

**IBM Eligible Public Cloud BYOSL policy**

Under this policy, IBM authorizes you to deploy your eligible IBM software on an eligible public cloud Infrastructure as a Service (IaaS) provided by IBM or a third party subject to the

Virtual Processor Core (VPC) licensing is 1 VPC per 1 virtual CPU (vCPU) unless otherwise noted.

Cost of IBM Cloud Pak for Applications (BYOSL) Monthly Licenses over 3 years (list price)



3) Power Systems customers pack multiple apps on on-premises servers & need less software licenses. Cloud Providers cannot share capacity across VM instances and only achieve ~**40%** utilization vs. **60+%** for Power, so ~**1.5x** more capacity required

$$\sim 2X \text{ cores} \times 2X \text{ VPC licenses} \times \sim 1.5X \text{ capacity} = 6X \text{ more}$$

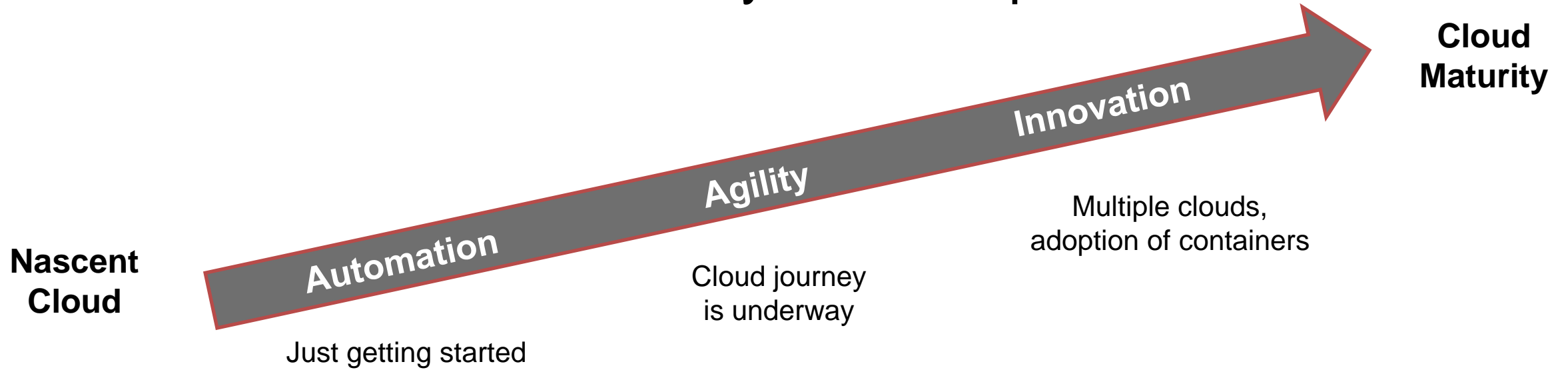
**6x** or more resources needed on public cloud vs. private cloud on Power

# Value to your client to run Red Hat Software on Power

Pursue New Business Frontiers	Optimize the Organization
<p><b>Drive business innovation</b></p> <ul style="list-style-type: none"><li>• Use new Red Hat &amp; Open Source tools, capabilities</li><li>• Build new client experiences &amp; offers, grow revenue</li><li>• <b>Lower cloud platform TCO up to 7x vs. AWS</b></li><li>• Free up cash to invest in new business innovations</li></ul> <p><b>Synchronize the enterprise</b></p> <ul style="list-style-type: none"><li>• Blend existing AIX and IBM i apps with cloud native apps on a <b>common Power platform</b></li><li>• <b>Minimize disruption</b> while also reducing risk</li><li>• Infuse sophisticated insights and analytics into apps</li></ul> <p><b>Unleash new talent</b></p> <ul style="list-style-type: none"><li>• Align technology with business units fostering talent and creative ways of working together</li><li>• Enable new generation of developers to <b>exploit RHEL, OpenShift and Ansible on Power Systems</b></li></ul>	<p><b>Build resilient operations</b></p> <ul style="list-style-type: none"><li>• Respond quickly to disruption by replicating data and application services across clusters and clouds</li><li>• Integrate traditional and cloud-native apps on resilient, <b>enterprise-grade servers with 99.999% uptime</b></li></ul> <p><b>Scale computing costs</b></p> <ul style="list-style-type: none"><li>• Capture cost efficiency of <b>cloud-like</b> pricing to <b>scale capacity on-demand with Power Private Cloud</b></li><li>• Increase or decrease capacity, pay for what you use</li><li>• <b>Efficiently scale 3.2x more containers</b> per core</li><li>• Share processor pools across VMs, reduce SW cost</li></ul> <p><b>Enhance IT security</b></p> <ul style="list-style-type: none"><li>• Use more secure, compliant cloud environments</li><li>• Provide VM and container isolation from threats with firmware-based hypervisor in IBM PowerVM</li><li>• <b>Zero security exposures</b> in PowerVM in last 3 years</li></ul>



# IBM and Red Hat Cloud Journey Workshops



## Take the Next Step

- Schedule a Power Cloud Virtual Briefing
- Setup a Virtual Discovery Workshop
- Let Us Host a Design / Co-creation Workshop
- Join Us for a Cloud Garage Workshop
- Email IBM Systems Lab Services: [bmsls@us.ibm.com](mailto:bmsls@us.ibm.com)

## Learn More Today

- Hybrid Cloud on Power whitepaper: <https://www.ibm.com/downloads/cas/G4DO3DJE>
- IBM Power Systems: <https://www.ibm.com/it-infrastructure/power>
- **Red Hat:** <https://www.redhat.com/en/solutions/financial-services>







**Red Hat**

# Thank you !

## Cloud Solutions for Power Systems

**Red Hat OpenShift  
+ Private Cloud**  
Solutions for Power

**Power Virtual  
Server: IBM Cloud**  
Powered by E8/980s, S922s

**Hybrid  
Multicloud**  
Integration across  
Public & Private Cloud

**IBM Cloud Paks**  
for Data, Management,  
Applications, Integration,  
and Automation

**Red Hat Ansible**  
Enterprise Automation for  
Power Systems

## Contacts

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