IBM

Cloud Advisory, Migration, Modernization and Application Development on Azure

Client Presentation

IBM **Consulting**

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Client Context

The voice of our clients ...

1. How do we **exploit Cloud for business transformation** and innovation & what's the best way to **assess TCO & business benefits** from a hybrid multicloud world?

2. We want to **create new business models** through **adoption of exponential technologies (AI, Blockchain, IOT)** by consuming Cloud platform services and architectures.

3. We need to **build digital capabilities at scale** with speed and agility while tackling the complexity as we **integrate the old with new.**

4. How do we address **application supportability risk** created by an ageing workforce?

5. We need **consistent governance and service management** across multiple clouds that delivers **high availability, resiliency & security.**

6. How do we anticipate changes and keep the business moving in disruptive situations (e.g. pandemic).

Key solution trends ...

1. **Azure Target Operating Model** helps organizations to best leverage hybrid multicloud.

2. Institutionalized **co-creation models with Azure Adoption Framework** create new business capabilities and more efficient ways of working.

3. **Continuous modernization** of applications through **Azure compute & containerization** or reengineering as cloud-native app.

4. Drive efficiency from **tech debt removal & automation** with **Azure DevOps.**

5. **Azure Multicloud Management & Governance** to orchestrate management, compliance and security aspects of enterprise services on hybrid multicloud.

6. Dynamic Delivery with **Azure Well-Architected Framework** to address changes in operating environment.

Azure Transformations Benefits to Clients

A Finnish state-owned global energy major transforms their application portfolio through an Azure hybrid multicloud strategy	• **Digital journey** led portfolio simplification, multicloud platform enablement and governance • **Technical debt reduction** • **Ease of support and flexible** portfolio
A global oil and gas company is modernizing their on-premises IT portfolio with Azure	• Biz **accelerations, cost savings**, migration factory for onboarding future apps into Azure • Reduced **time-to-market**, increase **flexibility** and **scale** • Address ageing workforce and **supportability** risk
A global logistics, freight and SCM service company is transforming their development & delivery model with Azure	• Build **digital capabilities at scale** for agility supporting a rapidly changing market • High **availability and resiliency** • A flexible, continuous deployment, integration and **delivery model**
A European cosmetics company driving significant automation to operate their Azure platform	• **Exploit cloud for business transformation** • DevSecOps **reduce time-to-market** • Increase **global system availability** • Improved **scalability and stability**

IBM Differentiation

Innovative Engagement Model

Strong alliance and joint engagement with **MSFT**/Red Hat 1

- Garage Method (GM4C) for Azure 3
- Dynamic Delivery Model for Azure

Azure Hybrid Cloud SME Acquisitions (NordCloud, Taos)

Strong Client Engagement Experience on Azure

Pre-built Solution Offering Components

- Azure Hybrid Multicloud Journeys 2
- Azure Reference Architectures
- Azure Reference Implementations
- Azure Industry Solutions

Speed of Delivery

- Experiential Squads for Azure Solutions
- Assets, Accelerators, and Tools from IBM and Azure 4
- Continuous Modernization

DevSecOps Services for Azure

Skills, Capabilities, and Capacity

- Cloud Center of Competence
- Certified Azure Professionals
- Large Pool of Azure Delivery Practitioners

Integrated with Azure Security Solutions

Credentials

- Azure Certified Solution Experts (Advanced) ~ 1,300+ 5
- Azure Expert MSP Certification
- Azure Advanced Specializations (Kubernetes)
- MS Gold Cloud Platform Partner
- MS Gold Application Platform
- MS Gold DevOps

Top 5 IBM Differentiation Factors

Strategic Alliance and Joint Engagement with Microsoft / Red Hat

Start Engagement

Create a co-sell opportunity in Microsoft Partner Center supported by the regional GTM Azure Alliance Team * (Deal Registration)

In Atlas, attach the appropriate 'Azure campaign' to the opportunity and feature code(s) for Azure ***

Connect with the appropriate Microsoft and Red Hat opportunity owners/account execs to create joint engagement plans supported by the regional GTM Azure Alliance Team *

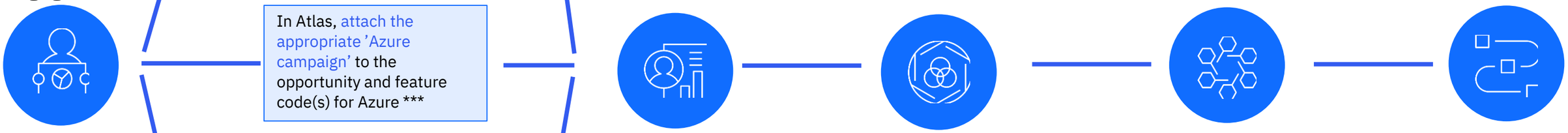
Engage with the Account team and client to finalize POC and/or assessment scope

Engage with the Campaign Management team to avail of the available Azure incentives **

Work with the Campaign Management team to create engagement with the IBM Garage team for POC development supported by the regional GTM Azure Alliance team

Engage with Campaign Management for POC Build Out and final Playback supported by the regional GTM Azure Alliance team

Final contract prep supported by the GTM Azure Alliance team



IBM Solution Offerings

1 IBM Services for Cloud Strategy (Advise)

- Help clients to **connect their Azure strategies to their business strategies**.
- We advice clients on **right Azure solution for business needs.**
- We advise on the best ways to ensure **security and compliance across hybrid infrastructures**.
- We leverage **Azure Services capabilities and architecture best practices** for enhanced portability, security & open source adoption.

2 IBM Services for Cloud Migration (Migrate, Modernize)

- We help our clients in **identifying, migrating or modernizing** application portfolios to Azure using **Azure Migrate Framework** in combination with IBM migration factory , framework and toolkits.
- We leverage our **IBM Garage Method for Cloud for Azure**, IBM's proven cloud services delivery and rich set of **Azure Specific Migration tools** and **accelerators** combined with Microsoft recommended tools.
- We leverage **ARO (Azure Red Hat OpenShift) Reference Implementations** to expedite adoption of services and client use cases implementations.

3 IBM Services for Cloud Development (Build)

- We help our clients in **building digital capabilities through co-creation model** from MVP to scale.
- **Build cloud-native apps at scale** using Azure service capabilities.
- **Build hybrid cloud infrastructure** based on Azure Stack.
- **Establish enterprise wide Azure DevSecOps** framework and help accelerate adoption.
- We leverage our **IBM Garage Method for Cloud for Azure**, IBM's proven cloud services delivery and rich set of **Azure Specific accelerators**.
- We leverage ARO (**Azure Red Hat OpenShift**) **Reference Implementations** to expedite adoption of services and client use cases.

4 IBM Services for Cloud Management (Manage)

- **Manage their new multi cloud environments** with Azure Arc as they build & scale them.
- **Establish Azure AI based Services Control Tower** for visibility into end-to-end application operations.
- We **monitor and manage applications and infrastructure** leveraging principles and practices for Azure DevSecOps, Azure SIEM, Azure Monitor, Azure Health Service
- We **leverage Azure specific service management & operations** best practices & toolchains.

*Advise, Move, Build & Manage offerings are enabled with **Dynamic Delivery model***

2

IBM Services for Cloud Migration (Migrate and Modernize)

Migrate & Modernize

What we do	How we do it	Azure value prop for clients

IBM Services - Application Migration on Azure
• Migrate applications to Azure and Accelerate the containerization of legacy applications on Azure / Azure Stack / ARO
  • Optimize IT portfolio for improved cost and agility
  • Upgrade applications for security / maintainability
	Powered by Accelerators
	• Discovery and Insights for deeper source system (s) analysis using a combination of IBM tools and Azure specific tools such as Azure Migration Assistant for Apps & DB AMT, ASR, Azure Migrate, etc.
	• Azure Reference Implementations
	• Azure Code Analytics Guidance and Tooling
	• Fastpath Modernization to Containers (Ansible / ARM for Azure) or Azure Red Hat OpenShift
	• DevOps (Provision configurable toolchains & Self-service models by leveraging Azure DevOps)
		• Improved enterprise agility , faster time to market (40 to 50%), improved user experience
		• Reduced Risk & Improved quality through analytics-led, structured re-engineering approach
		• Improve portfolio availability and resiliency by 20-30%
		• Ensure application portability through containerization
		• Up to 30% reduction of operational costs of IT portfolio
		• Improved time to market by 40-45%

IBM Services - Application Modernization on Azure • Re-engineering of legacy applications (based on COBOL, RPG, monolithic .Net / JEE etc.) to Cloud Native on Azure / ARO • Re-write of enterprise integration (for e.g. SOA Services) using Azure Integration services	**Dynamic Delivery** • Virtual First model enabling real-time network of innovation micro-centers with access to virtual global talent pools for uninterrupted, portable rapid cloud platform-based application migration & modernization	• Ability to transform culture and skills through new ways of working with IBM's approach: Virtual First model, Modernization framework, Azure Adoption Framework, Azure Well-Architected Framework, etc.

Key Differentiators

Faster "**Container led modernization at Scale**" across Application and Data by combining **Azure offerings, Azure Managed Services** (like, ARO) with **pre-built GBS Services assets**

Azure Reference Implementations (ex. Azure RH OpenShift) to expedite adoption of Azure services and client use cases implementations

Deeper **end-to-end DevSecOps** adoption by combining **GBS DevOps accelerators**, **Azure DevOps Services, Azure Automation** and IBM's security capabilities

Underpinned by **IBM's industry expertise**, hybrid Multicloud assets with **Azure** and **Journey to Cloud services**

IBM's **Garage Method for Cloud** is powered by **Azure specific Accelerators**

Continuous & uninterrupted modernization using **Anytime-Anywhere-Delivery (AAD)** framework

IBM Services for Cloud Development (Build)

Build digital capabilities @ Scale with speed & agility

Build

What we do	How we do it	Azure value prop for clients
IBM Services - Build Applications on Azure • Build cloud native applications on Azure Public cloud, ARO and Azure stack using microservice architecture Ideate & co-create MVP for innovation • Scale MVP to Production grade, full –feature representation	**Powered by Accelerators** • Digital Scenario Builder & Microservices Generator (Co-create digital scenarios and generate microservices codebase & DevOps pipeline) for Azure • Azure Reference Implementations • DevOps Accelerator (Provision configurable toolchains & Self-service models) - Azure DevOps infused with IBM hybrid toolchains	• Enable enterprise to innovate by exploring new business models, digitizing the business (co-creation, speed etc.) • Improved enterprise agility , faster time to market (40 to 60%), improved user experience • Up to 30% reduction of operational costs of IT portfolio • Up to 20% unlocking of new revenue and improved customer service experience • Cost optimization from reduced TCO – 20 to 40%

Enterprise DevOps Build
• Enterprise DevOps @ scale adoption through self-service models
  • Design-build of DevOps Toolchain and Pipelines using Azure DevOps and IBM hybrid toolchains
  • Embed SREs for improved level of automation		

Build Multicloud Infrastructure • Build public, private and hybrid cloud infrastructure for app migration, modernization and build	**Dynamic Delivery** • Virtual First model enabling real-time network of innovation micro-centers with access to virtual global talent pools for uninterrupted, portable rapid cloud platform-based application build	• Ability to transform culture and skills through new ways of working with IBM's approach: Virtual First model, Modernization framework, Azure Adoption Framework, Azure Well-Architected Framework, etc.

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2 Hybrid Cloud Journeys on Azure

For Cloud Migration, Modernization and App Development

Re-host / Migrate apps | *Re-platform / Re-architect apps* | *Build apps* | *Cross-Portfolio / Industry Solutions*

Migrate applications / database to Azure

Migrate VMware workloads to Azure
Migrate on-premises VMware-based Workloads to Azure VMware Solution, using VMware HCX and have private clouds (vCenter Server, vSAN, vSphere, and NSX-T).

Rehost workloads to Azure VM
Migrate (re-host / lift-n-shift) Windows and Linux server workload to Azure VM.

Migrate Windows apps to Azure (Windows) VM
Migrate Windows (.NET) Applications to Azure (Windows) VM, including re-platform (OS upgrade).

Migrate Linux (RHEL) apps to Azure (Linux) VM
Migrate Linux (RHEL) applications to Azure (Linux) VM, including re-platform (OS upgrade).

Migrate desktop workloads to Azure Virtual Desktop (AVD)
Migrate desktop to a modern cloud-based virtual desktop infrastructure (VDI) on Azure (AVD) for performance, security and cost benefits.

Migrate SQL DB to Azure VM (IaaS)
Migrate (re-host) SQL to Azure Self-Managed IaaS (SQL Server on Azure VM) and Azure Fully-Managed IaaS (SQL Managed Instances).

Migrate Oracle DB to Azure VM (IaaS)
Migrate (re-host) Oracle databases to Azure VM.

Migrate SQL to Azure Managed Azure SQL DB
Migrate (re-platform) SQL to Azure Managed PaaS (Azure SQL DB).

Migrate PostgreSQL to Azure Managed PostgreSQL DB
Migrate (re-platform) PostgreSQL to Azure Managed PostgreSQL DB

Modernize applications / database to Azure

Containerize apps with Azure container services (AKS)
Containerize existing application and deploy on AKS.

Modernize monolithic apps into microservices on AKS
Modernize monolithic apps into microservices and deploy on AKS (including re-factor and re-architect).

Modernize monolithic apps into microservices on ARO
Modernize monolithic apps into microservices and deploy on ARO (including re-factor and re-architect).

Modernize apps with Azure PaaS (App Service)
Modernize existing application using managed Azure App Service (non-containerization app).

Modernize apps with WebSphere Hybrid Edition on Azure
Modernize apps with WebSphere Hybrid Edition (formerly CP4A) on Azure.

Migrate MariaDB to Azure Managed Maria DB
Migrate (re-platform) MariaDB to Azure Managed Maria DB.

Migrate MySQL to Azure Managed MySQL DB
Migrate (re-platform) MySQL to Azure Managed MySQL DB.

Migrate MongoDB to Azure Managed Cosmos DB
Migrate (re-platform) MongoDB to Azure Managed Cosmos DB

Build cloud native applications, and adopt DevOps on Azure

Build cloud-native apps using Azure serverless services
Build cloud-native apps using Azure Serverless Services (Azure Functions, Azure Logic Apps, Azure API Management).

Build microservices apps on AKS
Build new apps with microservice & container on AKS.

Build microservices apps on ARO
Build new apps with microservice & container on AKS / ARO.

Build apps with Azure PaaS (App Service)
Build new applications using Azure PaaS (App Service), primarily for non-containerized apps.

Hybrid integration with CP4I on Azure
Integrate apps, data and API on Azure using IBM Cloud Pak for Integration (CP4I).

Integrate apps on Azure using Azure integration services
Integrate apps on Azure using Azure integration services (Azure Service Bus, Service Fabric).

DevSecOps adoption
Build end-to-end DevOps implementation on Azure

API Enablement on Azure
Enable / modernize existing application features/data as APIs using Azure API Management PaaS services.

Cross Offerings – across Migrate, Modernize, Build portfolios

High Availability on Azure
Build Azure solutions for high availability of critical applications.

Migrate Storage on Azure
Online Migration of Object, Block and File level Storage like NAS/SAN to Azure. Offline Migration of Object and File level Data to Azure (Azure Data Box).

Hybrid Cloud Solutions with Azure Arc
Run containers in a hybrid environment (On-Prem Kubernetes & AKS) and optimize administration of SQL Server instances in on-premises and multicloud environments.

Hybrid Cloud Solutions with Azure Stack Hub
Deliver an optimized approach to backup and restore of files and applications of VM-based user workloads between Azure Private Cloud and Azure Public Cloud.

Hybrid Cloud Solutions with Azure Stack HCI
Enable running highly available virtualized and containerized workloads in Remote Office/Branch Office (ROBO) scenarios and support disaster recovery and file share.

Hybrid Cloud Solutions with Azure Stack Edge
Deploy containerized applications and VMs (or AI and ML computing) from on-premises to the Cloud or Edge locations where data is created and collected.

4 IBM + Azure
Tools and Accelerators combined for acceleration of Azure Apps and infrastructure solution delivery

IBM Tools

Cloud Advisory Tool

DReaMAdvisor

Advisory level disposition recommendations

Modernization Workflow Orchestrator (MWO)

Recommends most optimized path for Modernization

+

Azure Tools

Azure Tools & Accelerators

Strategy	Discover	Recommend
Azure Assessments Examine your workload through Azure Well-Architected Framework		**Azure Assessments** Examine your workload through Azure Well-Architected Framework
Azure Advisor Insight on Azure service and configuration which helps to optimize your Azure deployments	**Azure Assessments** Examine your workload through Azure Well-Architected Framework	**Azure App Services Migration Assistant** Assess and migrate your on-premises .NET, Java, and Linux web apps to Azure
Azure Cost Management		**Azure Data Migration Assistant** Help upgrade to a modern data

For a complete list of the IBM tools, refer:

[IBM Garage Method for Cloud]

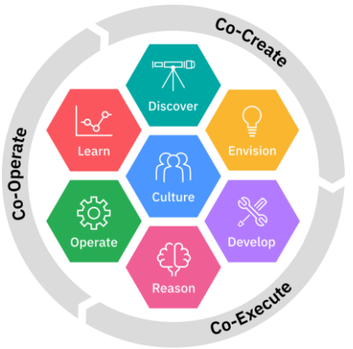
[Red Hat / OpenShift Tools]

Benefits of Tools and Accelerators

- 30-40% reduction in time and effort to process multitude of information from sources
- Accelerates Cloud Native development by 25-30%
- Helps standardize the entire development model with insights driven development compliance checks
- 15-25% reduction in time and effort to derive insights and containerization
- Up to 20% reduction in Micro Design, Coding, and Unit Testing efforts
- Up to 25% reduction in cost to quality due to technology standardization
- 2.5 – 3% of the overall cost

3

AZURE Methods and Practices has been **infused** into **IBM Garage Method for Cloud** (GM4C) as an integrated (best of both!) and uniquely differentiated approach to enable business, development, and operations to continuously design, deliver, and validate **solutions** leveraging **Azure Cloud technologies**.



Microsoft

5

IBM Investment into Microsoft Azure Partnership

Capacity

Exponential growth in Azure certified capacity 3x growth by YE 2021

Certifications

…leading partner with 16k+ certifications YTD 2021

Competencies

Enhancing the value of the partnership with 100% competency attainment, AE MSP, 3 of 8 Advanced Specializations (Data and AI Analytics, SAP on Azure, Kubernetes)

Investments

$M run rate on investments back to clients, targeted Azure Migration Program presales funds and sandboxes, 100% Partner Center pipeline registration targets

Wins

Drive traction in all sectors and markets with differentiated services with over 1000% ACR growth over the past 24 months

Azure

Gold Microsoft Partner | Azure Expert MSP

	Competency	IBM	Nordcloud	Taos
1	Application Development	●	●	●
2	App Integration	●	●	
3	Cloud Platform	●	●	●
4	DevOps	●	●	●
5	Datacenter	●	●	
6	Cloud Business Applications	●		
7	Data Analytics	●	●	●
8	Data Platform	●		●
9	Cloud Productivity	●	●	
10	Security	●	●	

- *IBM Unique **Cloud Innovate Methodology** for Azure, Industry focused **Joint Solution Initiatives** with Microsoft including Hybrid Cloud Services tools and accelerators*
- ***IBM Garage Method for Cloud tailored for Microsoft Azure** with over 1200 Azure certified practitioners. Multicloud consulting, design, deployment, migration and modernization to Azure - 10K Migrations completed, 900 Build on Cloud engagements*
- ***35+ sales plays jointly developed** with Microsoft, Global Go-To-Market coverage*
- *Joint account specific **market investments** – Concurrent focus on 50+ strategic accounts worldwide*

IBM

Customer Success Story – Global Delivery and Specialized Logistics Company

1 **Advise on Cloud**

The client was challenged by a legacy IT limited by traditional skills and infrastructure with a focus to eliminate technical debt, increase speed to market, drive cost take out, and continuously optimize IT.
IBM leveraged our application knowledge, discovery tools, and assets to conduct application assessment and built modernization roadmap for portfolio of critical application

2 **Move to Cloud**

IBM supported the establishment of a factory based modular approach to migration purposefully fit to the Cloud adoption needs while refactoring the existing reinsurance platform leveraging cross-Cloud alliances to build flexible hybrid Cloud solutions.

3 **Build Cloud Native**

IBM designed and built new Cloud Native workloads for multiple target Clouds. IBM also co-created AI and Cognitive solutions leveraging IBM Garage deployed on IBM Cloud.

4 **Manage on Cloud**

IBM continues to manage and optimize multiple On-premise, Hybrid, Cloud Native business, data, and analytics applications on IBM Cloud, GCP, Azure, and OpenShift leveraging SRE, Automation, Quality Engineering, and DevOps practices.

Outcomes for the Customer

The client realized a compelling business case that delivered their hybrid multicloud strategy, operating model, and overall successful enterprise Cloud migration.

Azure Red Hat

Customer Success Story – Global Delivery and Specialized Logistics Company

Modernizing application landscape for agility and fostering innovation

Assets and discovery tools
- IBM Garage Method for Cloud Toolkit
- CMA, RHAMT, and ARC
- CTI and MAM for Mainframe discovery

Technologies
- Mainframe modernization on OpenShift
- Modernization of IMS to DB2 (Airline Load handling)
- Global Trade Content portal, built on Azure
- Global Dynamic Analytics portal, built on GCP
- .com appl modernization, WebLogic to OpenShift
- Dynamic rating, built with IBM Garage on IBM Cloud

Strategy to win
- IBM's expertise on GCP, Azure, and OpenShift for modernization, Cloud Native build, and continuous optimization on managing hybrid Cloud workloads
- Experiential selling approach, generating ideas that are demonstrated to clients as POCs
- In few cases, these have also resulted in strategic sole sourcing to IBM

What can be replicated for other wins
- Transition and knowledge management approach with COG3 (Cognitive Knowledge Management)
- IBM Garage with a gamification approach, for enriching employee experience, reducing overtime, and leveraging advanced analytics to dynamically rate shipments

IBM Solution

Microsoft Azure · RED HAT OPENSHIFT · IBM Cloud · Google Cloud

Advise → **Move** → **Build** → **Manage**

Cloud Application Strategy, Architecture, and Roadmap
IBM conducted application assessment and built modernization roadmap for Billing presentment, Load Management, Tracking, and several Mainframe portfolio of applications

Migrate to Cloud
Target state application design and workload migration for multiple apps from WebLogic to Cloud

STARTED HERE

Modernize for Cloud
Modernize existing Mainframe applications by rewriting as Cloud Native Microservices for OpenShift

Build modern data and analytics for multicloud
Implemented FOAK Hybrid Cloud Package operational analytics platform on GCP and OCP

Build Cloud Native apps for multicloud
Designed and built new Cloud Native workloads for Loyalty and Brokerage on OpenShift, GCP, and Azure Clouds

Co-created Dynamic classification brokerage solution with IBM Garage on IBM Cloud

Managing Cloud
Manage multicloud business, data, and analytics applications on IBM Cloud, GCP, Azure, and OpenShift leveraging SRE, Automation, Quality Engineering, and DevOps practices

Future areas of growth include multicloud management, Intelligent automation, Workday, and ServiceNow application manage

Cloud Being Leveraged To Drive A Broader Digital Transformation

Results

30+ legacy JEE apps Journey to Cloud containerization by migrated from WebLogic

5+ Mainframe modernization by rewriting apps as Cloud Native Microservices for OpenShift

5+ modern data, analytics, and Cloud Native new applications for OpenShift, GCP, IBM Cloud, and Azure

100+ heterogeneous apps (Mainframe, Custom, and package) being managed and supported across on-premise and Cloud environments

Continuing to deliver on:
- Portfolio or Application Cloud assessment and Roadmap
- Application Discovery driven modernization
- Co-creation and Garage-way of working
- Modernization at scale
- Application Management on Multiple Clouds
- Agile Integration and Advanced analytics

Customer Success Story – Global Delivery and Specialized Logistics Company

Building Cloud Native Apps

100+

Heterogeneous apps (Mainframe, custom, and package) being managed and supported across on-premise and Cloud environments

30+

Legacy JEE apps containerized by migration from WebLogic

Increasing agility and fostering innovation with Cloud Native application build, legacy application modernization, and management services

Business transformation challenged by a high degree of legacy applications in their existing portfolio, the client came to IBM to assess their legacy environments for modernization aligned to hybrid multicloud roadmap. The goal was to support Speed to Market and accelerate transformation while finding opportunities to remove operating cost to reinvest in strategic areas for innovation.

Microsoft Azure · RED HAT OPENSHIFT · IBM Cloud · Google Cloud