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CONTAINER MANAGEMENT 2.0

Using IBM Cloud Pak® Solutions to Enhance Your Container Experience
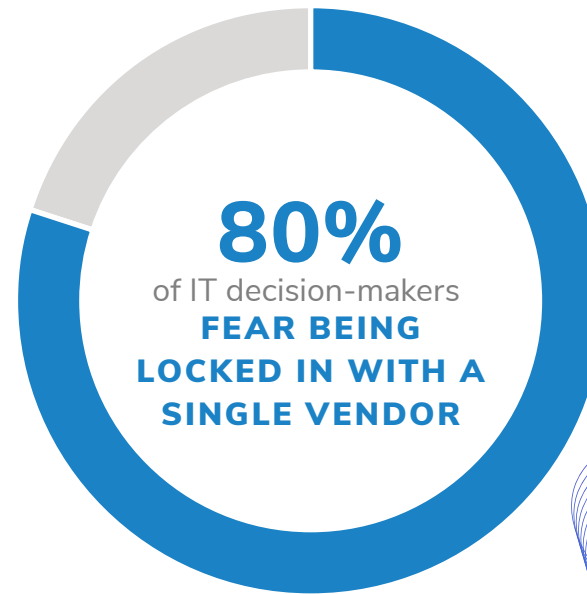
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INTRODUCTION

As you digitally transform your business, you need to simplify critical functions like:

- Migrating applications across different clouds

- Optimizing legacy applications

- Introducing new functionality and services to applications.

For many businesses, containers help ease the challenges associated with moving applications in a hybrid environment.

80%
of IT decision-makers
FEAR BEING LOCKED IN WITH A SINGLE VENDOR

Source: Frost & Sullivan 2019 Global Cloud User Survey

Containers **HELP EASE THE CHALLENGES** associated with moving applications in a hybrid environment.

Source: Frost & Sullivan 2019 Global Cloud User Survey
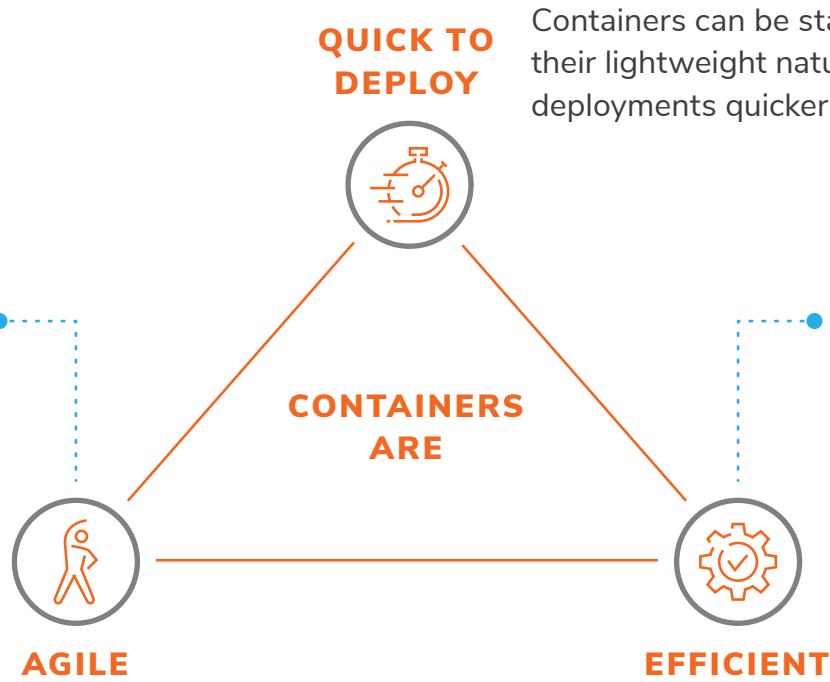
THE DRAW OF CONTAINERS

Containers are fast becoming an IT standard for new application deployment. But what are they, and how do they differ from virtual machines (VMs)?

Containers are self-contained "packages" that can be built, deployed, and moved across a variety of infrastructures.

They package an application's code and dependencies into a lightweight unit that also holds CPU, RAM, a file system and storage resources that are dedicated to the application it houses.

QUICK TO DEPLOY

Containers can be started in seconds due to their lightweight nature, making infrastructure deployments quicker than with VMs.

CONTAINERS ARE

75%

of IT-decision makers expect their clouds to **better support business agility**

76%

of IT-decision makers cited **"reducing their hardware maintenance"** is a key goal in moving to new, cloud-based infrastructures and services

AGILE

Because everything the application needs is defined in the container, it can be easily moved to any infrastructure that has the appropriate operating system.

EFFICIENT

Containers are lighter weight and use fewer server resources, so more of them can fit on a single physical server.

Source: Frost & Sullivan 2019 Global Cloud User Survey

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CHALLENGES IN CONTAINER MANAGEMENT—KUBERNETES

Businesses using containers have largely standardized on Kubernetes—an open-source system that manages Linux containers and microservices across public, private, and hybrid cloud environments.

Kubernetes uses a master node—the control plane, and worker nodes—infrastructure where the container will be deployed. Each node requires numerous components to work.
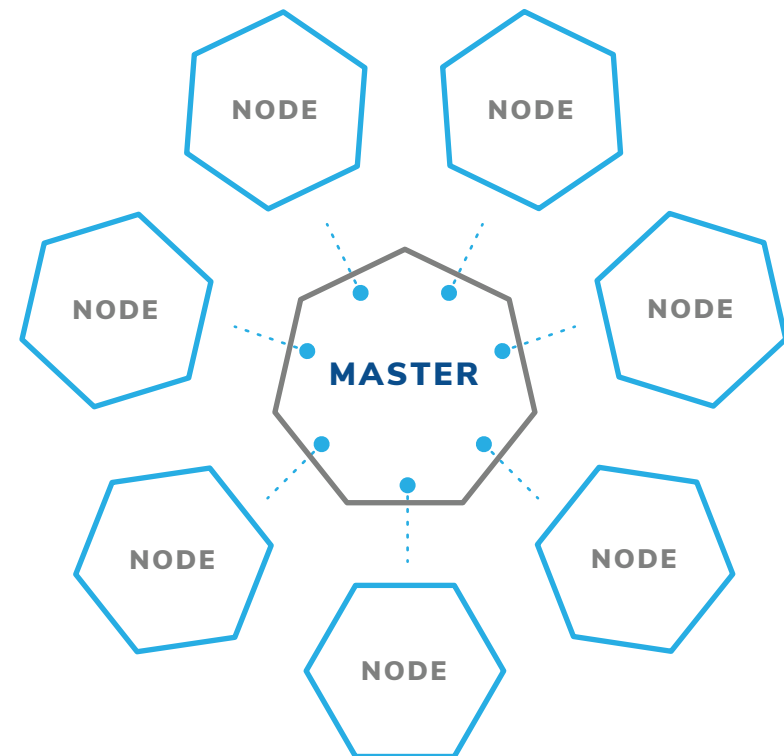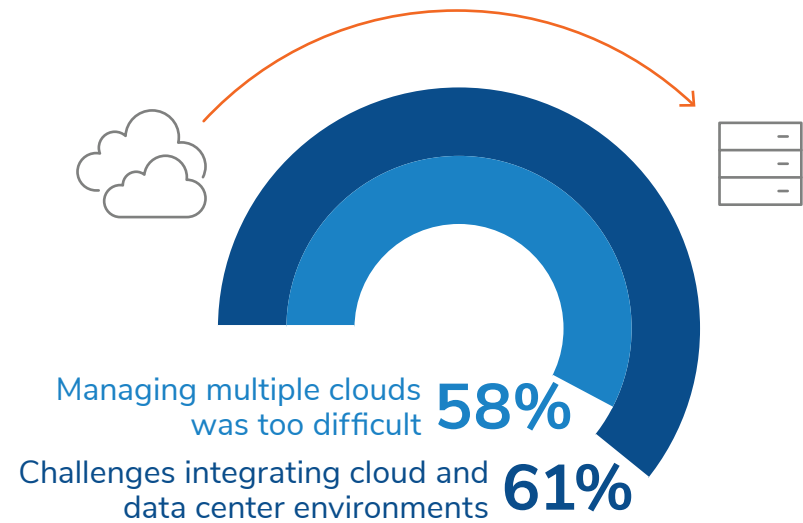
CHALLENGES IN CONTAINER MANAGEMENT—OTHER PLATFORMS

As businesses choose different open-source container management platforms—like Docker Swarm or Cloud Foundry Diego—the necessary components and updates increase complexity, especially when managing at scale.

Managing all of the runtimes and services for each containerized application becomes a challenge. Management can require multiple tools and services to handle everything from data ingestion to workflow automation to security and compliance. Multiple tools means less consistency in cloud governance, and the potential for decreased availability, downtime, and even security breaches.

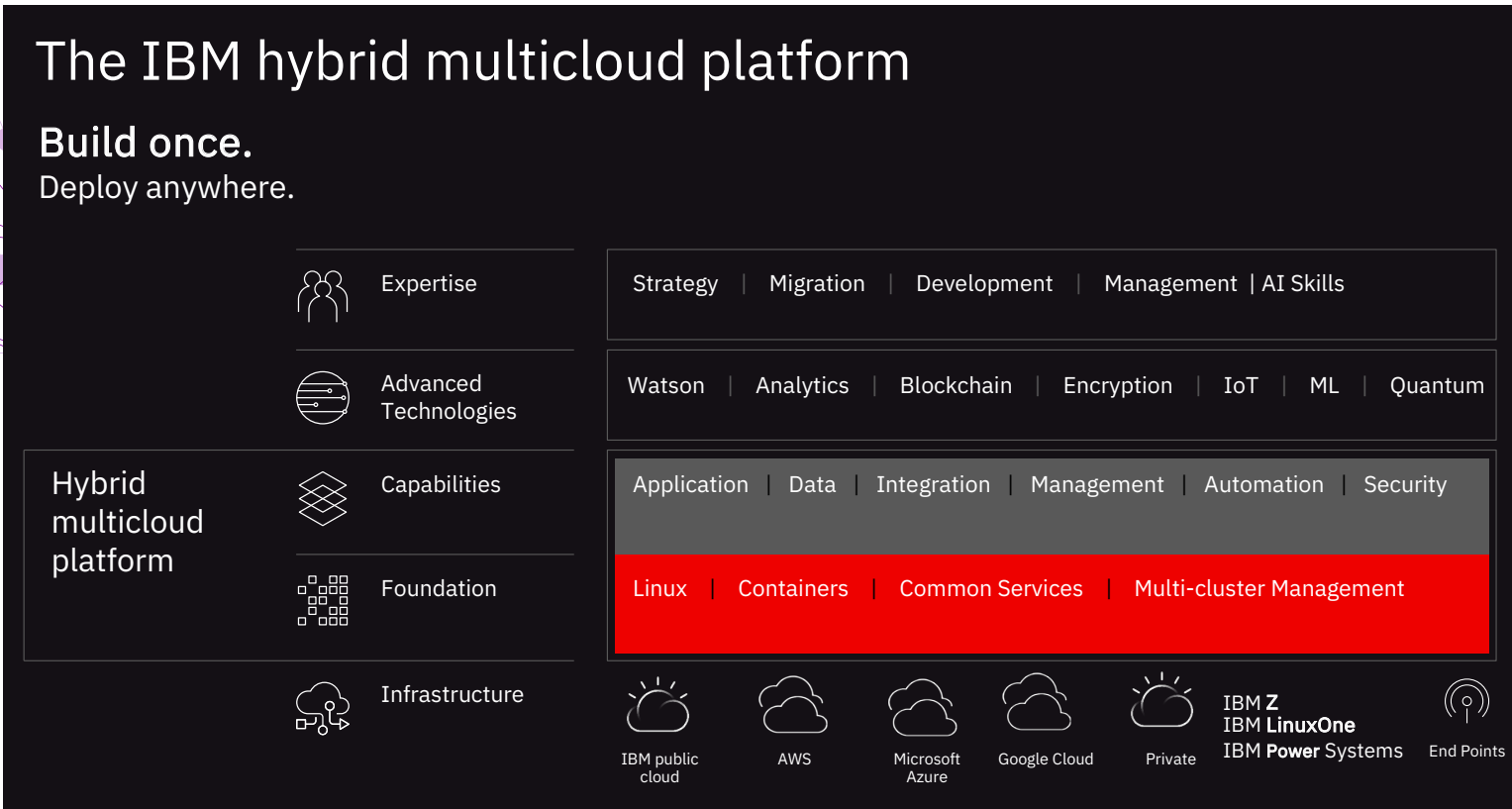## TOP REASONS FOR REPATRIATING WORKLOADS FROM THE CLOUD

Managing multiple clouds was too difficult **58%**

Challenges integrating cloud and data center environments **61%**

Source: Frost & Sullivan 2019 Global Cloud User Survey

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IBM CLOUD PAKS EASE CONTAINER MANAGEMENT

In August 2019, IBM launched Cloud Paks—a key component in the company's hybrid multicloud platform—that aims to make container management and application modernization easier. IBM Cloud Paks are containerized software solutions built to run anywhere; they are underpinned by Red Hat's Kubernetes-based OpenShift Container Platform. To understand the IBM Cloud Pak value proposition, let's look at the full software stack.

OpenShift provides a strong foundation for Cloud Paks, because it is:

- Enterprise-grade, not subject to continual community updates
- Fully supported by Red Hat to run anywhere
- Capable of supporting deployment on any infrastructure— from mainframes to commercial public clouds.

The IBM hybrid multicloud platform

Build once.
Deploy anywhere.

Hybrid multicloud platform

| Expertise | Strategy | Migration | Development | Management | AI Skills |

| Advanced Technologies | Watson | Analytics | Blockchain | Encryption | IoT | ML | Quantum |

| Capabilities | Application | Data | Integration | Management | Automation | Security |

| Foundation | Linux | Containers | Common Services | Multi-cluster Management |

Infrastructure

IBM public cloud | AWS | Microsoft Azure | Google Cloud | Private | IBM Z IBM LinuxOne IBM Power Systems | End Points

IBM CLOUD PAK USE CASES

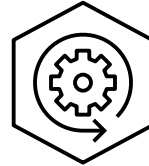IBM offers different Cloud Pak varieties that support different use cases, including:
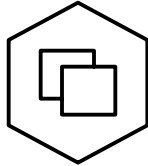
For Applications

Designed to help application developers build, deploy and run applications in a modern, microservices framework.

Benefits

Application and data portability, enables application modernization and simplifies cloud-native development.
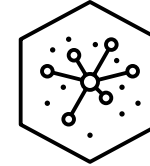
For Automation

Designed to help automate business processes and streamline operations.

Benefits

Transforms business processes based on data insights, improves productivity by automating work flows.

For Data

Designed to help data scientists collect, organize, and analyze data, as well as accelerate the shift toward artificial intelligence (AI) usage.
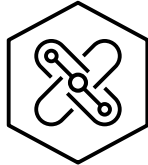
Benefits

Enables application data to be ingested into platform-based analytics services, allows for easy artificial intelligence (AI) deployment, streamlines development for AI-based workloads.

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IBM CLOUD PAK USE CASES (CONT'D)

By launching container services that are aligned with customer use cases, IBM solves persona-specific challenges in consistent and repeatable ways, regardless of the customer's underlying infrastructure choice.
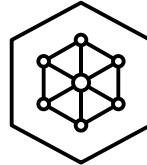
For Integration

Designed to help integration specialists and developers more easily integrate applications, data, cloud services, and APIs.

For Multicloud Management

Designed to enable proactive management and help you obtain a deeper understanding of your apps, applying AI for predictive analytics and infusing it everywhere for governance and cost management.

For Security

Designed to help more quickly integrate existing security tools to generate deeper insights into threats across hybrid, multicloud environments.

Benefits

Integrates cloud and SaaS applications, creates secure API portals, broadens integration capabilities between applications and cloud services.

Benefits

Automation driven by AI improves ITOps efficiency and frees teams to focus on innovation instead of day-to-day management.

Benefits

Gives security insights without moving data, enables faster responses to security incidents, automates security breach responses.
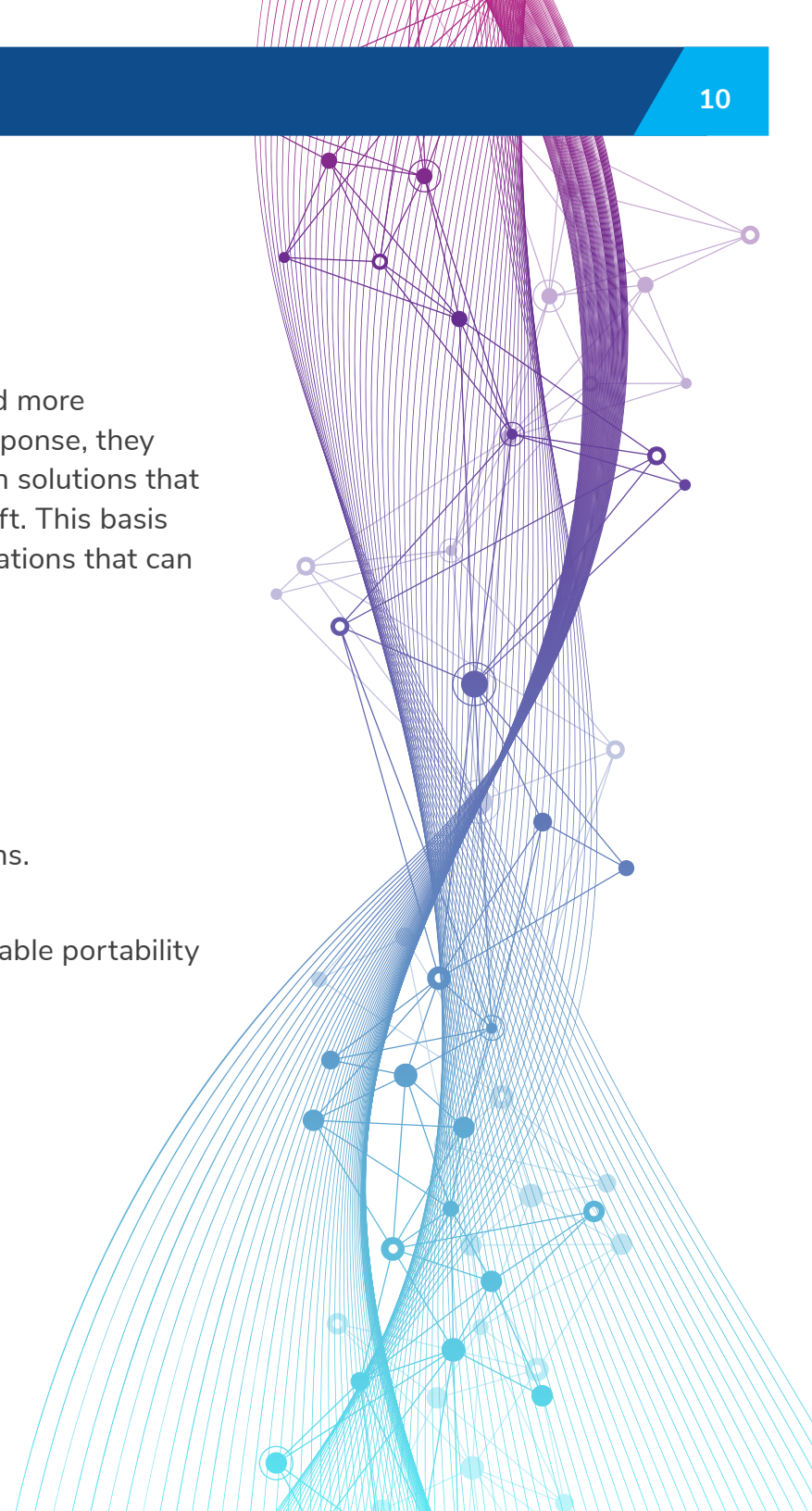
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THE LAST WORD

Enabling enterprise customers to manage containers faster, more easily, and more consistently is a key differentiator for providers like IBM and Red Hat. In response, they have launched the next generation of container management platforms with solutions that are built on proven, open-source technologies like Kubernetes and OpenShift. This basis enables the enterprise to leverage containers to create truly portable applications that can

> move across hybrid infrastructures

> modernize legacy applications with cloud benefits

> integrate new technologies and services into mission-critical applications.

IBM Cloud Paks streamline container deployment and management, and enable portability and consistent governance across infrastructures.

For more information on IBM Cloud Paks, visit

ibm.com/cloud/paks/

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