IBM Multicloud Manager:
The enterprise-grade multicloud management solution for Kubernetes

Introduction

Web-scale technologies have enabled enterprises to take advantage of the innovations in analytics, artificial intelligence, machine learning, and cloud that can directly affect their bottom lines and business competitiveness. These advances have required traditional applications to be modernized, new cloud-native applications to be built, public cloud services designed for analytics, and AI and IoT to be used in conjunction with their on-premises datacenter applications.

Kubernetes has become a popular source for building these applications, with many major public cloud providers reportedly having a Kubernetes service, and enterprises deploying an increasing number of clusters. Kubernetes is also a means for application modernization and cloud native development for enterprises transforming their application portfolios.

Unleash the innovation: Those enterprises that are not constrained by regulatory requirements or some of their workloads are using best of breed signature services from different cloud providers, and combining them with the advantages of using a private cloud. This results in a multicloud system that provides an innovative platform for their business solutions.
In this environment, clusters are deployed in one or more public clouds and in their datacenters, and development teams from different units deploy their production applications based on cost, data segregation, elastic scale requirements, disaster recovery, and other business priorities. Workloads that need public cloud services like AI are deployed in the public cloud clusters, while applications that use internal databases that cannot be moved are deployed in their datacenters.
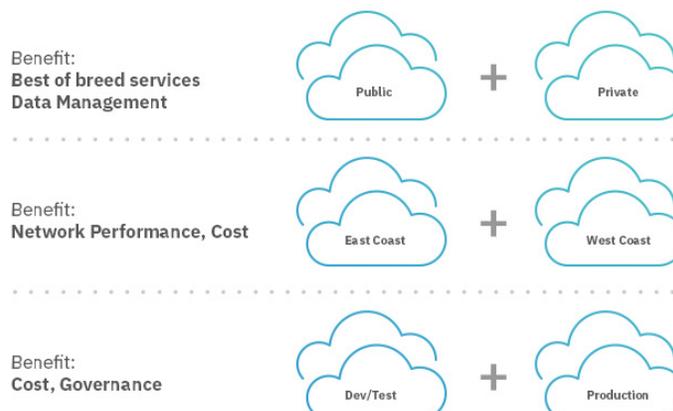
66% of respondents chose the ability to support containers securely across multiple Cloud environments and providers.

Source: "The State of container-based application development"

Multicloud environments can provide the flexibility in spurring innovation, reducing cost, and providing a reliable production environment.

Multicloud gives organizations the flexibility to meet unique requirements as needed. They can choose to innovate with new technologies like AI on public clouds like IBM Cloud, deploy a private cloud on premises to support regulatory requirements, or tap into infrastructure as a service from any vendor to develop new applications on demand.

Multicloud Environments

Benefit:
Best of breed services Data Management

Public + Private

Benefit:
Network Performance, Cost

East Coast + West Coast

Benefit:
Cost, Governance

Dev/Test + Production

Challenges in managing a multicloud environment:

Some of the challenges in running a multicloud environment are complexity, governance, and cost.

Along with the flexibility comes the added complexity of the multicloud and multi-cluster environment. For example, how do you gain **visibility** into all the clusters so see where the components of the application are running? How do you know which systems are failing? How can you monitor usage across the clouds and clusters? How do you **govern** the configuration and changes to this environment?

Why IBM Multicloud Manager?

With its focus on security, scale, built-in support for compliance management, and support for multi-cluster and multicloud applications, **IBM Multicloud Manager is the enterprise-grade multicloud solution for Kubernetes.** It is based on the Kubernetes community direction, and includes advanced functions important to running enterprise-grade environments.

Visibility - IBM Multicloud Manager provides visibility of resources across Kubernetes environments, whether they are in public or private clouds. Development teams can see the deployments, pods, Helm releases and other resources. Operations teams can look at the clusters and nodes.
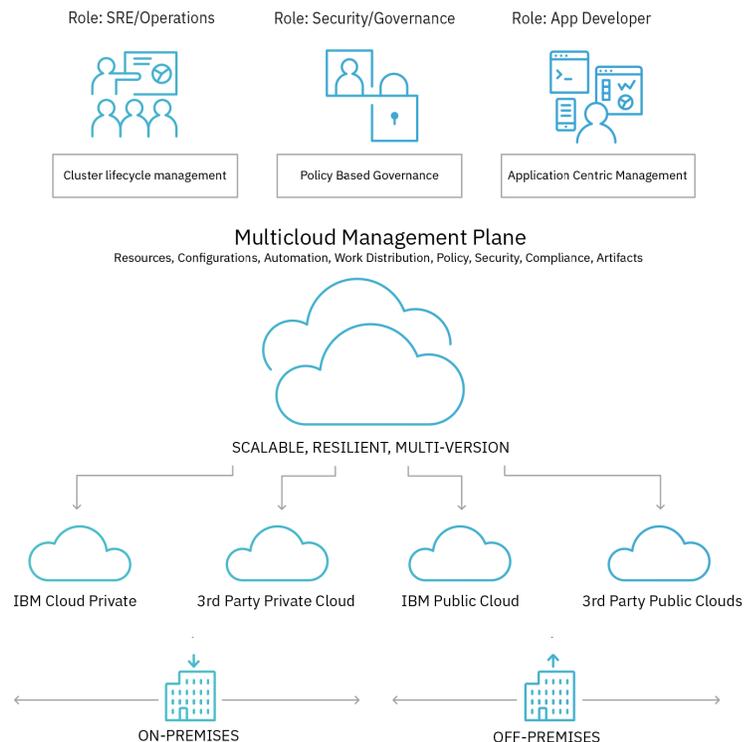
Governance and security - As Kubernetes environments proliferate across the enterprise, IT Operations and SREs are tasked with ensuring that they are managed according to the enterprise's governance and security policies. IBM Multicloud Manager allows them to be managed by a consistent set of configuration and security policies so that an increase in the number of clusters does not mean an increase in management cost. These policies are enforced at the target clusters, and operate even when connectivity to the management system is lost.

Automation - Whether an enterprise application is a cloud-native 12 factor application or a modernized legacy application, IBM Multicloud Manager provides a consistent way to deploy that application across clusters. Placement policy provides control of deployment based on multiple factors.

This solution is a cloud-native application and uses a scalable multi-version hybrid management plane to manage a large number of clusters. It has a secured communications architecture that also supports unidirectional traffic to support various datacenter configurations.

What is multicloud management?

As enterprises transform and expand, they often find themselves leveraging multiple clouds, both private and public, in order to deliver the most compelling solutions to their clients. Multicloud management is the ability to effectively manage enterprise applications running across multiple datacenter or cloud environments as if they were one seamless environment – providing visibility, governance, and automation.

Role: SRE/Operations   Role: Security/Governance   Role: App Developer

| Cluster lifecycle management | Policy Based Governance | Application Centric Management |

Multicloud Management Plane
Resources, Configurations, Automation, Work Distribution, Policy, Security, Compliance, Artifacts

SCALABLE, RESILIENT, MULTI-VERSION

IBM Cloud Private   3rd Party Private Cloud   IBM Public Cloud   3rd Party Public Clouds

ON-PREMISES   OFF-PREMISES

Help improve cost and flexibility - With the ability to manage environments in private clouds and public clouds, enterprises can take advantage of the flexibility and optimize for performance, scale, or cost. Applications can be deployed in a public cloud environment when elastic scaling is needed, while using the private cloud for more control.

Integrate with existing management tools and processes - With the ability to connect to existing process and tools, IBM Multicloud Manager fits into all the capabilities that enterprises have built over time to manage mission critical environments. Events from the multiple Kubernetes clusters can be sent to existing event management or alert management tools.

Leverage IBM's commitment to Open Source and community - IBM continues to contribute to Open Source communities and is a Platinum Member of the Cloud Native Computing Foundation (CNCF). IBM Multicloud Manager is built on open-source capabilities and uses open standards to help avoid lock-in.

More about IBM Multicloud Manager

IBM Multicloud Manager is a Kubernetes management platform built with security, flexibility, and an open architecture to manage an enterprise hybrid cloud environment across datacenters and clouds.

The target Kubernetes clusters need to be standards-based and run basic services provided by IBM Cloud Private. These basic services allow a consistent security model, common logging, monitoring of environments, and a common way of deploying application services.

This solution is a cloud-native application, and uses a scalable multi-version hybrid management plane to manage a large number of clusters. It has a secured communications architecture that also supports unidirectional traffic to support various datacenter configurations.

A world of possibilities

The new set of capabilities in IBM Multicloud Manager can open up new avenues of accelerating innovation, reducing cost, and enhancing your governance and compliance protocols.

Enterprises can leverage Kubernetes clusters across datacenters and public clouds in a single management environment, including policy based managed for true multicloud innovation.

Accelerate development and test - Departments in an enterprise like to have access to Kubernetes environments when their developers are building new applications or modernizing existing ones. The self-service provisioning of a cluster in IBM Multicloud Manager allows departments to request environments in a datacenter or a public cloud for rapid access.

Increase application availability - Since applications can be deployed in various clusters and locations using placement policy, enterprises can quickly deploy them in different locations for availability reasons or capacity reasons. Kubernetes can restart individual components of the application in case of failure in the same cluster.

An enterprise developer, Jane

can then build applications that can be deployed locally in a datacenter, in a public cloud, or across them by changing placement policies of the application. She can develop and test in a private cloud and deploy in a public cloud easily. Scale testing can be performed in public cloud where additional load testing can be done.

Transform IT - IT departments can setup a self-service mechanism that allows departments to request clusters from a catalog, and those clusters automatically become manageable by the central IBM Multicloud Manager. Therefore, central IT is no longer the bottleneck in delivering environments to the applications teams.

Ease compliance - Compliance policies can be written by the security team and enforced at each cluster, allowing environments to conform to your policy. Thus, along with accelerated delivery of environments, they are also well managed using your policies.

Reduce operation costs - Since current Kubernetes environments require management at an individual cluster level, the cost of managing these across an enterprise can quickly increase based on the number of clusters. Each cluster has to be individually deployed, upgraded, and configured for security. In addition, if applications need to be deployed across the environments, it has to be done manually or outside the Kubernetes environment control. Bringing all the clusters in a single management environment reduces operations cost, makes the environment consistent, and removes the need to manually manage individual clusters.

As a Site Reliability Engineer, Todd can *monitor the environment and applications, and act in case of failure and redeploy applications if needed.*

IBM Multicloud portfolio of capabilities

Start your mutlicloud management journey.
Schedule an **IBM Cloud Garage Consultation**, and meet with an IBM Cloud expert for up to four hours.

IBM Multicloud Manager is part of an IBM portfolio that helps enterprises build cloud-native applications or modernize existing applications. These capabilities include:

IBM Cloud Private – Build a private cloud on your data center, and optimize the right workload to the right cloud.

IBM Cloud Automation Manager – Manage and deliver services through end-to-end automation while building applications aligned with enterprise policies. Using IBM Watson®, optimize the landscape within minutes.

IBM Cloud Brokerage Managed Services – Plan, buy, and manage - or broker -IT resources across various cloud models from multiple suppliers while reducing compliance risk and overall IT costs.