How to Expand, Innovate, and Automate with Containers for the Cloud

Introduction

Forrester found that organizations using cloud services reduce average development time by up to 70% per application and increase operational efficiency by 50%.[1] The realized benefits go far beyond savings on IT overhead: Risk reduction through security and compliance innovations that result from flexibility, and advantages gained from implementing the latest technologies are just a few additional benefits of cloud services.

Now with cloud + containers, moving to the cloud is faster than ever before. Teams can integrate applications and modernize within hours without lengthy setup and deployment time.

Overcome Modernization Challenges with Containers

Modernizing legacy applications takes weeks, sometimes months, with lots of hands-on work done by entire teams. Extreme efforts are poured into something as simple as an upgrade. And even once an upgrade is completed, it might not only break the application at hand but interfere with other applications.

Containers change that.

Thanks to independently running components with containers, teams can update or scale up or down with a few clicks. This eliminates the need for setup overhead and increases the ease of administration and deployment. It creates stability and consistency, and makes maintenance patching a breeze.

What Does Containerization Mean?

Cloud computing models are helping IT organizations improve operational efficiency and modernize IT infrastructure. A significant catalyst driving these transformations is containers. Before containerization, there were Virtual Machines (VMs). VMs provided the flexibility to increase server processing power and resources easily. Still, in comparison to containerization, they require additional layers, can slow development, and generally incur more costs than containers.

A VM virtualizes the hardware, but a container virtualizes the operating system (OS). Containerization allows you to automate and expand elastically without limits of servers, VMs, or other hardware restrictions. Containers help expedite application integration and modernization by isolating pieces of software, so they run independently.

Containers are ideal for application modernization in hybrid or multi-cloud scenarios so you can facilitate and accelerate your journey to the cloud.

ABOUT GENUS TECHNOLOGIES

Genus Technologies is an IBM Gold Partner specializing in Business Automation with more than 1,200 successful implementation and migration projects. Genus utilizes a proven methodology to solve real-world business problems and drive the most out of our customers' technology investment. We deliver high-ROI projects that improve operational effectiveness in the critical areas of cost, productivity, quality, service, and risk. **genustechnologies.com**

Containers can be managed with Kubernetes, a powerful orchestration system. A Kubernetes container is a self-contained package that holds everything needed to run an application, including the code, files, application, system libraries, and other related components. Because the containers are independent of the underlying host infrastructure, they are easy to deploy in the different cloud or OS environments. With IBM Cloud Pak for Business Automation, you can take full advantage of the Kubernetes open-source tool.

The Containers and Kubernetes Revolution

In 2019, IBM acquired Red Hat Corporation and standardized its Kubernetes offerings based on Red Hat® OpenShift®. By delivering enterprise software via containers on OpenShift Kubernetes, teams can build applications on a standard, hybrid cloud architecture platform that can run anywhere.

While your team can successfully implement a hybrid cloud strategy with OpenShift, you may need more than Kubernetes alone. As application ecosystems continue to grow in complexity, enterprises will need to transform at scale. This includes orchestrating their production topology, offering a ready-to-go development model based on open standards, and providing management, enterprise-grade security, intrusion detection, and efficient application and data governance. Traditional implementations of IBM FileNet do not allow for this level of agility and scalability.

Adapting to change quickly while optimizing and predicting future issues continuously are essential for businesses to gain a competitive advantage. Enterprises across all industries — from healthcare to finance to insurance — can benefit from the functionality of public and private clouds combined with the agility that the hybrid cloud provides

In the last decade of commercial cloud, only about 20% of workloads have moved to the cloud. Learn how to accelerate innovation with IBM Cloud Paks which are pre-integrated, pre-certified, AI-powered hybrid cloud software.

Security in the Cloud

The thought of not housing and storing data within your own four walls can be daunting – scary, even. But when you decide to move to a private, hybrid, or public cloud solution, rest assured that every avenue has been taken to ensure the complete safety and security of your data and intellectual property.

IBM Cloud Paks are certified by IBM with high standards and up-to-date vulnerability scanning software to provide cloud security protection of sensitive data and full-stack support from hardware to applications.

With cloud and containers, you can stay compliant while being modern and nimble.

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The top five advantages of implementing a Cloud Pak for Business Automation container-based architecture in your organization:

With the right approach and partner, a move to containers is more than just a chance to modernize - it can provide much broader benefits like:

Agility and productivity. Simply implementing containers means your IT team is empowered with agility and speed on their side. For example, deploying new code takes fewer resources and less time because less code needs to be built, tested, and managed overall. And since components are free from dependencies, teams can test changes faster, diagnose problems rapidly, and quickly deliver fixes. They no longer need to schedule releases with other groups, share environments, or worry about versions of shared libraries interfering – all they need to focus on is being as agile, productive, and creative as possible.

Fine-grained resilience: Independent deployment of highly available components removes single failure points. With fine-grained features, you can safely deploy a new function or a change to an existing one without the risk of affecting another function. Not only is there little to no risk functionally, but with fine-grained components, you need much less code and fewer libraries, meaning re-start times during recalibration or iterations are significantly faster.

Scalability and infrastructure optimization: Components working independently make it easy to scale to the perfect size every time. Fine-grained components working independently provide true differential scaling only available through containerization. Your team can enjoy lower overheads for isolation than virtual machines, dynamic and elastic provisioning of resources, maximized component/resource density, and individualized functionality scaling.

Operational consistency: You no longer need to know intricate details about the command-line tools specific to products or runtime environments to perform builds and deployments. Regardless of the functionality within the container, the way you build, deploy, upgrade, provide high availability, and scale all happen the same way. This is what operational consistency means. You no longer need to be a product or runtime specialist to monitor and administer the runtime environment. You just need to know how a generic container orchestration platform such as Kubernetes works. And with a few clicks, you've successfully scaled the components.

Component portability: Containers generally have good portability, making it easy to move, copy, or rebuild components on a different platform. They can be re-distributed dynamically across nodes within a specific cloud with images built and run on any container platform, thanks to the fine-grained and isolated component structure.