



The Mantra for Fast Path to Value: The Cloud Needs Containers

WHITE PAPER

Abstract



According to Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, “In the new world, it is not the big fish which eats the small fish; it’s the fast fish which eats the slow fish.” In today’s digital-first world, businesses must innovate faster than ever, aided by new technology-led solutions.

With containers as the value acceleration layer of the cloud, businesses can co-innovate faster with customers and partners. Today’s cloud platform providers can be easily compared to shipping platforms who leveraged shipping containers to simplify freight transportation and enhance international trade.

This paper explores how organizations can accelerate business value with containerization and delves into the various approaches to leverage containers in modernizing legacy applications.

Leveraging containers to accelerate business value

In today's digital-first world, businesses must release new features and functions in hours or days rather than weeks or months. Containers increase developer velocity and efficiency with agile application creation and deployment. As shipping containers are modular, they can be efficiently stacked, sealed and secured and conveniently ported while reducing labor for loading and unloading (see Figure 1).

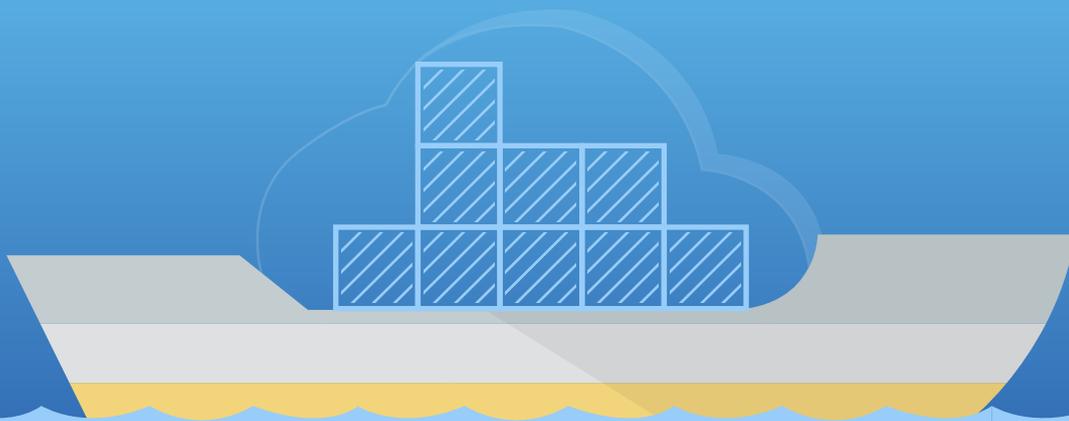


Figure 1: The modular and portable containers

Similarly, IT containers are technologies that can package an application as portable modular units decoupled from the underlying code, the operating system, the infrastructure, and the machine. They abstract and simplify access to the underlying infrastructure and offer guaranteed consistency across environments, from the developer's laptop to the cloud, resulting in higher efficiencies.

This helps businesses take a cloud-native approach for accelerated application delivery through continuous integration and deployment, thereby accelerating the business value of cloud. The reason leading Fortune 500 companies and cloud providers likewise are turning to containers. For instance, everything at Google runs in containers as each week Google starts over several billion containers. Amazon Web Services has expanded their 6 R's: Application Migration Strategy to include a strategic path as relocate to containers. Forrester predicts that 30% of developers will use containers regularly by the end of 2021, creating a spike in global demand for both multi-cloud container development platforms and public cloud¹. Here are three key benefits of leveraging containers:

¹ Forrester, *Predictions 2021: Cloud Computing Powers Pandemic Recovery*, October 19, 2020,

<https://go.forrester.com/blogs/predictions-2021-cloud-computing-powers-pandemic-recovery/>, accessed on February, 6, 2021

1. Enable agile innovation

Decoupled from the underlying infrastructure, containerized applications improve application portability, with no vendor lock ins. In addition, they can run across hybrid platforms such as on-premise data centers, private cloud, public cloud, as well as on the edge. As multiple containers run on the same machine and share the operating system resources, they are light weight and take up less space than traditional virtual machines, making them adaptable and agile for both startups and scale out.

2. Enhance scalability

The portable, resilient and automated nature of containerized applications makes them highly scalable across hybrid platforms such on-prem data centers and public cloud. Their auto-placement, restart, rollback capabilities help boost scalability while reducing additional operational tasks or overheads. At the same time, containers can handle more applications per host, reducing server density, requiring fewer virtual machines and operating systems, and freeing up valuable capacity and IT resources.

3. Create exponential value

As containers continue to be fueled by open-source innovation driven by community-based, open standards-based technology and forums, they help establish the foundation for a cloud native approach. They are ideal for deploying unit microservices and migrating legacy applications to the cloud. This helps incrementally modernize applications into cloud native architectures and rapidly scale the benefits of cloud, driving down cost across developers, operators, security professional and IT resources (see Figure 2).



Figure 2: How containers help reduce costs

Implementing containerization: Four different approaches

Given their automated and self-service nature, containers require management and orchestration that keep the things moving forward. For example, if a container stops, another container needs to be started up. Kubernetes, with its name derived from the Greek word meaning helmsman or the one who steers the ship, is an open-source platform for managing containerized workloads and services. As all cloud providers support Kubernetes, it is the de-facto standard management platform for containers.

However, Kubernetes, like container technology, is open source and lacks enterprise grade support structure. A container platforms solution can natively integrate all container and Kubernetes technologies in an enterprise grade solution.

In addition, containers are increasingly becoming the de facto choice for developers for new application development. However, it is estimated that up to 90% of current applications will still be in use by 2025, and the technical debt to support and manage these applications will continue to compound, resulting in consumption of more than 40% of current IT budget².

Customers that have existing major investments in legacy business applications can also benefit from new container technology by following one of the four summarized approaches to modernize their legacy applications:

- 1. Lift and shift** existing applications into a container architecture. This can be done without rewriting any code through a fully automated approach underpinned by tools created by open-source communities, cloud providers, system integrators and software vendors.
- 2. Build upon verified and secure container images** published by software vendors, enabling rapid modernization.
- 3. Repackage the application** by migrating the application's existing middleware to a containerized middleware.
- 4. Refactor and rearchitect applications over time** that includes refactoring of the applications code and underlying data structures to modern frameworks and microservices deployed on containers.

²<https://www.globenewswire.com/news-release/2020/05/09/2030672/0/en/Global-Application-Container-Industry.html>

Accelerating sustainable adoption

Gartner predicts that by 2022, more than 75% of global organizations will be running containerized applications in production³. However, not all applications are the right fit for containers. Identifying the best fit requires detailed assessment of the application based on the specific business use case as well as architectural, security, operational and performance requirements. At the same time, a successful move to containers requires a collaborative interplay of developers, application, security professionals and IT operations teams, while introducing new ways of working. Upskilling IT teams and orchestrating effective change management are key to success. Doing so accelerates adoption in a sustainable manner and drives a behavioral shift in performance management and stakeholder engagement, creating significant business impact and strengthening competitive advantage.

³<https://www.gartner.com/en/newsroom/press-releases/2020-06-25-gartner-forecasts-strong-revenue-growth-for-global-co>

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Parthiv Shah is responsible for building trusted advisory relationships and delivering digital transformations. Shah has over 24 years of experience helping Fortune 500 companies drive global complex multi-tower enterprise transformation initiatives. Shah is recognized for his thought leadership and ability to drive innovative solutions across supply chain, IT and data management functions.



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Nick Matahen brings to the table more than 23 years of professional experience in global organizations, architecting and delivering technology-enabled business solutions across different industries. Matahen has a proven track record to empower business digital transformation by leveraging IT-business strategic alignment frameworks. Prior to joining TCS, Matahen has worked for Microsoft for about 14 years as a principal technology architect and worked for KPMG as a global lead cloud architect. He holds a Masters in Information Systems from Stevens Institute of Technology, NJ, and a PhD from Capella University, MN, with a focus on Strategic Alignment of Business and Technology.

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