Cloud-native for DevOps: Building broader, more effective DevOps with containers
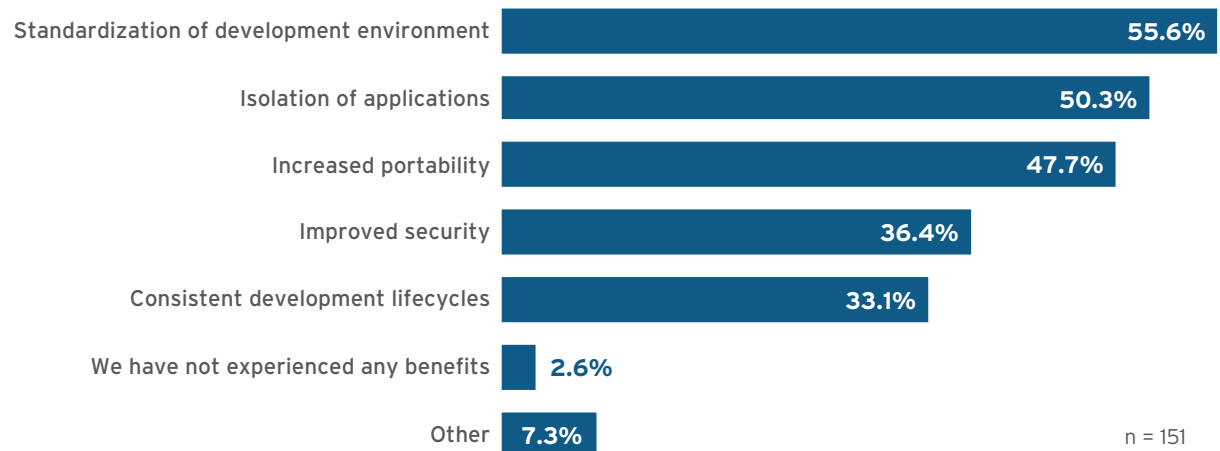
The 451 Take

DevOps and continuous integration/continuous delivery have become table stakes for enterprises undergoing digital transformation and seeking to improve time to market, responsiveness and other competitive advantages in today's fast-moving market. Developers and IT operations must align their efforts to make software releases not only faster and more efficient, but also secure and compliant. In addition, the broad landscape of tools and frameworks for planning, coding, testing, releasing and supporting applications can be exacerbated by the need to support software across a variety of environments, including on-premises and cloud infrastructure.

Container software such as Docker and Kubernetes can be key to increasing DevOps effectiveness – enabling speed and productivity for developers, consistency and efficiency for IT operations and portability across hybrid cloud infrastructure. Although these cloud-native methodologies and technologies can present challenges with complexity, data management and production use, organizations can leverage them successfully through supported offerings that fill in the enterprise gaps in the many open source projects and components that characterize cloud-native software. Companies can further enhance and scale their digital transformation by enabling a 'stakeholder spread' that pulls additional people and teams into DevOps processes. These include security, data analytics and other teams, in addition to line-of-business managers, central IT administrators and company leadership.

Enterprise Experiences with the Benefits of Containers

Source: 451 Research

Q: Which of the following benefits has your organization experienced due to deploying containers on your organization's x86 servers? Please select all that apply.

Benefit	Percentage
Standardization of development environment	55.6%
Isolation of applications	50.3%
Increased portability	47.7%
Improved security	36.4%
Consistent development lifecycles	33.1%
We have not experienced any benefits	2.6%
Other	7.3%

n = 151

Business Impact

LEVERAGE KEY ENABLERS OF DIGITAL TRANSFORMATION. DevOps, the collaboration and coordination of developers and IT operators, has become a requirement to compete in today's fast-moving markets. Organizations must leverage a broad array of tools and frameworks to make software releases faster and more efficient. At the same time, applications must be secure and compliant, as well as portable across hybrid infrastructure that includes on-premises, private cloud and public cloud environments. Containers, Kubernetes and other cloud-native software can be key enablers for organizations as they adopt DevOps and undergo digital transformation. Containers present a simpler, more lightweight vehicle for applications, including their dependencies, and can enable rapid software iteration and portability across hybrid infrastructure. Containers can also present some needed delineation of jobs for enterprise DevOps teams, whereby issues inside the container belong primarily to developers, and issues outside of the container are delegated to IT operations.

BENEFIT FROM THE ADVANTAGES OF CONSISTENCY. Containers and cloud-native software offer several key advantages. These include standardization of the development environment and consistent development lifecycles, providing some much-needed consistency for DevOps teams dealing with disparate tools and platforms. Other key container advantages are isolation, reduced attack surface and improved security, and increased portability for hybrid infrastructure.

SERVICE AND SUPPORT FOR ENSURING SCALE. Nonetheless, there are still significant challenges with containers and cloud-native software, including complexity and production use. Security, while sometimes viewed as an advantage of containers, can also be a challenge, particularly compared to the solid security and tooling for VMs. Other container challenges have to do with provisioning, monitoring, multi-cluster management, load balancing, high availability, networking and storage, which are different for containers. Enterprise end users can effectively leverage containers via supported software offerings that enhance and extend open source projects and components for enterprise use. Organizations can also scale and spread their DevOps and digital transformation efforts by including additional stakeholders beyond developers and IT operators – such as security and data analytics teams or line-of-business managers, central IT admins and leadership – in the process.

Looking Ahead

Given the importance of DevOps to digital transformation and the supporting role of containers and cloud-native software, these trends are deserving of the hype and attention around them. While containers were well-timed with enterprise adoption of cloud infrastructure in general, we are now seeing cloud-native software such as Kubernetes – which is container orchestration software and a distributed application framework – well-timed with enterprise adoption of hybrid cloud. Many enterprise and service provider end users have attempted to roll out containers and Kubernetes on their own but have run into difficulty with upgrading, monitoring, storage, networking and the overall complexity. Thus, we expect customers will increasingly seek out vendor-backed software and support.

The next two to three years will continue to be early days for containers, Kubernetes and other cloud-native technology and methodologies. Over time, we expect increased enterprise-grade robustness, but there will still be gaps to fill, likely in security, data management and administration. In four to five years, we anticipate further growth of DevOps alongside digital transformation, and further growth of cloud-native applications with hybrid infrastructure. We also expect deeper integrations and cross-over of containers and cloud-native software with adjacent trends and technology including data analytics, machine learning and artificial intelligence, and IoT/edge computing.

For enterprises keen to improve productivity through increased adoption of microservices and DevOps, Tata Communications' IZO™ Cloud Containers will provide the right balance to control and accelerate application delivery and DevOps adoption.

Based on the enterprise grade Red Hat OpenShift platform, Tata Communications' IZO™ Cloud Containers provide a multi-deployment model for customers' enterprise IT which can be easily integrated with IZO™ Private Cloud. This container as a service platform is integrated with Tata Communications' IZO™ Cloud Command portal, giving customers the flexibility of self service, monitoring, provisioning and ticketing through a single pane of glass.

Get in touch with us today for a free consultation on how IZO™ Cloud Containers can help you in adopting DevOps with containers. Also find out how the IZO™ Cloud platform can help you in your Digital Transformation journey.

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