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Cloud-Native Applications Driving Enterprise Development, Digital Transformation

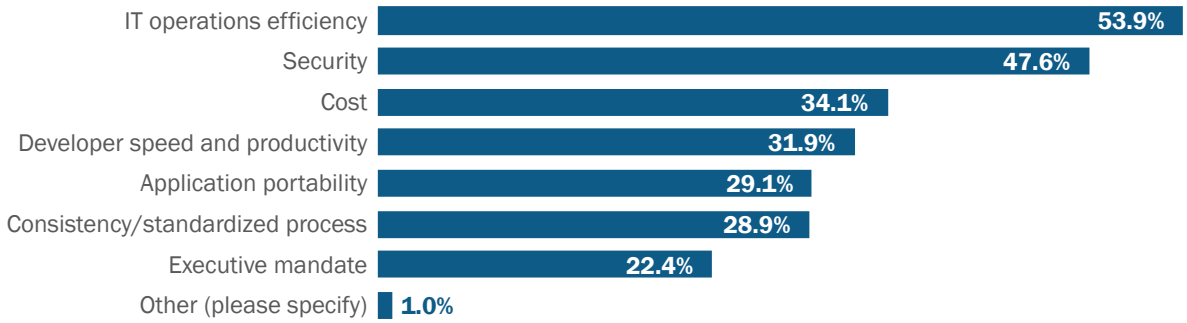
The 451 Take

Today's businesses are under more pressure than ever to drive faster application and feature releases while managing larger-scale infrastructure and deployments more efficiently with smaller teams. Cloud-native technology and methodology are critical for developer productivity and speed, as well as more automated and abstracted infrastructure management. Cloud-native consists of infrastructure software such as Kubernetes and application software deployed in containers – both of which are equally important. Our Voice of the Enterprise: DevOps, Workloads and Key Projects 2020 survey highlights how cloud-native is being driven by a variety of benefits (see figure below). This is part of the reason we believe cloud-native technology and approaches help organizations effectively achieve digital transformation, which is critical to surviving and succeeding in the market in the best of times and crucial amid societal and economic disruption.

Cloud-Native Advantages Critical to Digital Transformation

Source: 451 Research's Voice of the Enterprise: DevOps, Workloads & Key Projects 2020

Q: What are the primary drivers/benefits of cloud-native technology, such as containers, Kubernetes or serverless, for your organization? (Please select all that apply.) Sample size = 508. Base: all respondents.



Business Impact

CLOUD-NATIVE IS CRITICAL TO DIGITAL TRANSFORMATION, FASTER SOFTWARE DEVELOPMENT, MORE EFFICIENT IT OPERATIONS AND STAYING COMPETITIVE IN TODAY'S MARKET. Cloud-native can improve developer productivity, providing the right automation and abstraction to help developers focus on new applications, features and innovation rather than managing or waiting for their environments. With portability across different infrastructures, containers can also enable organizations to deploy and manage applications in the most appropriate environment, whether it is on-premises, private cloud, public clouds or hybrid clouds.

CLOUD-NATIVE DOES COME WITH CHALLENGES, INCLUDING SECURITY AND COMPLIANCE CONCERNS, COST, AND COMPLEXITY, ACCORDING TO OUR RESEARCH. Many of these concerns have to do with cloud-native infrastructure, but by focusing on cloud-native applications, organizations will be better positioned to take advantage of cloud-native benefits such as speed and innovation without getting bogged down in cloud-native challenges that center on infrastructure. There is value in combining cloud-native microservices and cloud-native infrastructure for consistency and sustainability, particularly with automation and self-healing capabilities to lessen the burden of managing distributed systems and applications.

KUBERNETES, WHILE IDEAL FOR MANAGING DISTRIBUTED APPLICATIONS ACROSS HYBRID AND MULTICLOUD ARCHITECTURES, ALSO CREATES A KEY CLOUD-NATIVE CHALLENGE: COMPLEXITY. Organizations deploying Kubernetes must contend with a myriad of associated projects such as Helm package management, data store, and Prometheus monitoring and alerting. In addition, deploying a Kubernetes cluster presents many different configuration choices and challenges, contributing further to deployment complexity.

ENABLING HYBRID IT IS KEY. Digital transformation hinges not only on effective use of cloud-native software, but also having the agility and flexibility to leverage a variety of application components and services that include on-premises investments, public clouds, SaaS and open source software. Amid the use of all these different software components, services and infrastructures, it is also critical that organizations be able to consistently manage release processes and environments so they are not reinventing the wheel each time. Measuring and proving successful digital transformation is also important and should involve not only technical metrics such as time to deploy, performance and uptime, but also business metrics such as digital user experience and customer satisfaction.

Looking Ahead

Cloud-native applications are broadening beyond web and stateless applications to increasingly include more stateful, data-rich applications. As cloud-native software continues to evolve and we see additional support for features such as persistent data volumes, we expect this trend to continue, expanding the scope of cloud-native to more applications across enterprise portfolios, including legacy applications. This means the containerization of databases and data services now and moving forward, as well as increasingly sophisticated data analytics and data science components and services – an example of how using cloud-native applications in conjunction with cloud-native infrastructure optimizes the overall value of the technology.

We also see increased use of additional cloud-native approaches beyond containers, microservices and Kubernetes. For example, 30% of enterprises that have deployed software to production in the last year report full or some adoption of serverless computing, which abstracts infrastructure management using event-driven services. That compares to 55% of those enterprises with full or some adoption of containers, but it is impressive given containers were in the enterprise market years ahead of serverless.

While organizations can benefit technically by increasing speed and efficiency using cloud-native infrastructure and applications, they can also gain business benefits. Forward-looking organizations are among those departing from the view that software development and IT operations are simply budget line items or cost centers. Instead, the 'total cost of ownership' perspective is giving way to a customer-experience approach, whereby organizations are more focused on improvements in time to market, performance, stability, efficiency and competitiveness. These are ultimately the true measures of digital transformation and how effectively businesses are leveraging cloud-native, which has been talked about for years but is still an emergent technology in the enterprise.