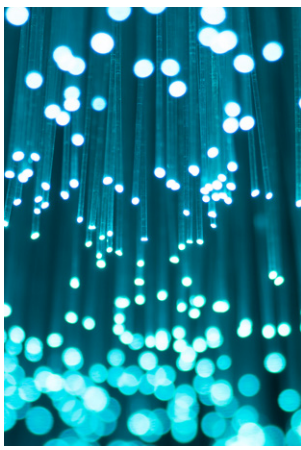
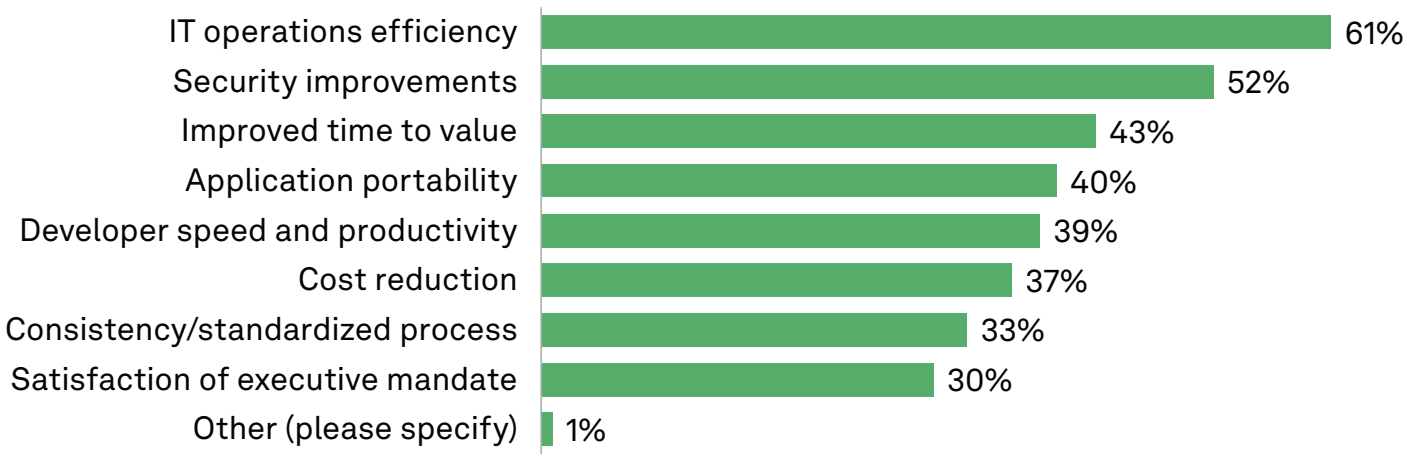
Modern Enterprises Need Cloud-Native Microservices and Applications



The Take

Application modernization means different things to different people, but a universal goal is making IT resources more responsive to business needs. Modernization of application estates using cloud-native microservices and technologies — whether new development or refactoring existing code — delivers exactly this. 451 Research's Voice of The Enterprise: Cloud Native, Adoption & Usage 2022 study finds that IT operations efficiency, security improvements and improved time to value are the primary benefits of cloud-native technologies such as containers, Kubernetes and serverless. It's a trifecta that can be summarized as "better, faster and cheaper."

Primary benefits of using cloud-native technologies



Q. What are the primary benefits of cloud-native technology such as containers, Kubernetes or serverless for your organization? Please select all that apply.
Base: Organizations with cloud-native technologies in use or proof of concept for application development or deployment (n=230).
Source: 451 Research's Voice of the Enterprise: Cloud Native, Adoption & Usage 2022.

With ever-shifting market foundations — including a stream of new hyperscaler services, fresh hardware consumption models, and a mix of open-source and commercial software — application modernization can be intimidating. While the overall transition is still in its early days, for many organizations the risk of not updating IT development and operations is beginning to outweigh the cost of doing so. This is where an application platform for cloud native is required, offering a way to get the work done without some of the heavy lifting and cost. And with the next wave in demand set to come from companies that don't have Kubernetes "ninjas," better tooling needs to be baked in.

This is why momentum continues shifting toward tools that resolve Kubernetes complexity for developers and IT ops teams, especially those that don't require DevOps or SE resources, or expert database administrators. With Kubernetes as the chosen substrate for cloud-native applications, vendors and end users are wrestling with the complexity and limitations of deploying and maintaining applications. Issues of security, connectivity, telemetry and resiliency are bound together in a way that IT hasn't had to confront in the past, and many vendors — from cloud-native startups to hyperscalers and incumbent hardware suppliers — are floating solutions to meet the market need.

Enterprises need options that mitigate the challenges, including time to market, developer and DevOps skills availability, architectural complexity and cost. In the cloud, the hyperscalers take care of managing the hardware and networking, virtualization, OS and Kubernetes. But the customer largely handles security, transport, database, frameworks and business logic. Application platforms (a developer PaaS) can assume the management of these aspects, so developers don't need to be concerned about any integration with Kubernetes, databases, security, services meshes, caches, pub/sub or API gateways.

Business Impact

Cloud-native tools are widespread, with a strong pipeline. Nearly half of organizations surveyed (48%) say they have cloud-native technologies and methodologies currently in use. Another 15% are in discovery or proof of concept, and about 20% plan to implement them within two years.

Many expect cloud-native technologies to be ubiquitous. The cloud-native approach lets organizations abstract away functional components of applications as microservices, and to upgrade and maintain them independently. This opens up innovative possibilities, especially given the tools that cloud providers are supplying, such as machine learning and AI.

The rise of platform engineering. Platform teams — which negotiate the needs of developers, security, operations and finance in curating and integrating components into a cloud-native stack — have a role in taming the complexity that has hindered Kubernetes adoption. This function can be implemented in-house by organizations with sufficient cloud-native engineering talent or licensed from software vendors, hyperscalers or systems integrators. Collectively, the aim is to improve the developer experience, allow automatic application of policy and security controls, and enable consistent operations across an organization's Kubernetes footprint.

Cloud-native security. Security remains critical in the Kubernetes ecosystem — the loss of security visibility in the shift to distributed applications is being mitigated with vulnerability and image scanning as part of software releases. This is not enough, though. With a large share of code being procured via open-source repositories, software bills of materials and code signing are proactive measures to ensure that inputs haven't been tampered with. Securing applications and data is a huge challenge, and the prevalence of open-source software in cloud-native deployments only adds complexity.

Cost reduction is critical. The need for cost governance is rising. Enterprises have begun to cite spiraling cloud costs as a material impact on financial results. At the same time, they point to the accelerated innovation, developer productivity, availability and security they gain from cloud use. So organizations will continue using cloud while seeking suppliers that can support cloud development and modernization at the lowest price and also help curb the costs of Kubernetes and container sprawl.

Looking Ahead

In under a decade, cloud native became the prevailing methodology for application and infrastructure transformation. Net new and modernized applications are increasingly deployed on cloud-native platforms, and once organizations get started, a flywheel of momentum comes into play. Loosely coupling infrastructure, logic and data in cloud-native environments via containerization brings greater flexibility in development and runtime execution. Containers are the atomic unit here, the abstraction making this all possible. Thus, cloud-native technologies and practices are now common among enterprises, with operational efficiency and security among the top drivers of adoption.

Organizations investing in cloud native are poised to expand their usage to a greater portion of applications. IT buyers have largely moved beyond ad hoc initiatives championed by line-of-business owners and are going all in on cloud-native development. While cloud native is now the mainstream architecture for modern applications and infrastructure, significant deficiencies remain, and addressing them will take time. As much of the effort lies ahead, we foresee a decade of rich opportunity for market participants. But access to talent remains a key constraint. Mastering cloud-native skills will involve outside help for the majority of organizations.