REPORT REPRINT

Putting cloud native to work: Application implementation trends and cloud maturity

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Nearly 75% of organizations developing software in-house are using cloud-native frameworks and tools for some of this internal application development. A recent 451 Research survey shows that certain workloads are more likely to get the cloud-native treatment than others and how the timing of the cloud-native journey has a lot to do with organizations' levels of cloud maturity.

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Introduction

Organizations' approaches to 'cloud nativizing' different categories of applications are strongly influenced by their level of cloud maturity. Cloud-native frameworks are currently being deployed across multiple workload categories, most notably in the high-profile 'run the business' arenas of data/analytics/BI (e.g., decision support, online transaction processing), customer-facing functions (e.g., e-commerce, self-service) and specialized business process functions (e.g., industry-specific software, custom-developed code). Back-office 'support the business' workloads such as employee productivity, IT systems management/monitoring and core business functions (e.g., CRM and ERP) are being treated to a dose of cloud native as well.

Nearly 75% of organizations developing software in-house are using cloud-native frameworks and tools for some of this internal application development. Our Voice of the Enterprise: Cloud, Hosting and Managed Services Workloads & Key Projects survey shows that certain workloads are more likely to get the cloud-native treatment than others and how the timing of the cloud-native journey has a lot to do with organizations' levels of cloud maturity.

451 TAKE

Most enterprises are already working at some level with cloud-native approaches and exploring what new IT and business outcomes can be achieved. In the digital economy, every company becomes a service provider seeking to better engage with customers, partners and suppliers with new digital services and experiences. These services and experiences are composite in nature, facilitating dynamic assembly of individual components that collectively deliver business value and rapidly respond to changing market conditions. The fact that most cloud-native components and frameworks are open source and freely available is also likely contributing to this internal development focus on cloud native. While cloud-native development activity spans most major workload categories, customer-facing and value-enabling applications are in the forefront. As organizations move along the public cloud maturity continuum, they also advance on their digital transformation journeys, bringing cloud native along for the ride.

Cloud-native development: Standard operating procedure for homegrown software

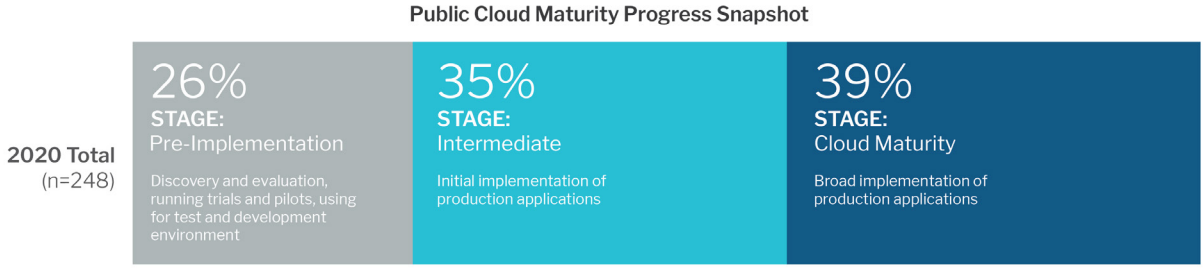
Enterprise workloads are on the move – re-platforming to cloud and cloud native is reaching the mainstream of the market. Cloud is the infrastructure view; cloud native is the application view. Driven by speed, efficiency, cost and scalability advantages as well as the move to hybrid/multicloud IT infrastructure, organizations are incorporating containers, microservices, Kubernetes, serverless, service mesh and other cloud-native constructs into their application development and execution environments.

Among organizations developing homegrown application software, nearly three-quarters report that at least some of this development is cloud native. However, viewing this issue through the lens of cloud maturity (see Figure 1 for organizational distribution across the cloud maturity spectrum) yields insights into degrees of 'cloud nativity.'

Figure 1: The Cloud Maturity Lay of the Land

Source: 451 Research's Voice of the Enterprise: Cloud, Hosting & Managed Services, Workloads and Key Projects 2020

Q. Which of the following best describes your organization's adoption of IaaS/public cloud? Base: Respondents whose organizations use IaaS/public cloud (n=248)



Nearly 30% of organizations in the 'cloud mature' category (i.e., broad implementation of production applications in public cloud environments) are deploying cloud-native frameworks and tools across the bulk of their homegrown application estates – compared with single-digit percentages of organizations in the pre-implementation (i.e., test/dev, proof of concept) and intermediate (i.e., a handful of production applications in public cloud environments) stages of public cloud usage. Cloud-native software development can also take place in on-premises infrastructure environments, but our research indicates that organizations get more cloud native as IaaS/public cloud becomes an increasingly important application/workload execution venue.

The stage of cloud implementation also has an impact on the use cases (building new applications versus modernizing existing apps). Cloud-mature organizations skew slightly toward employing cloud native primarily to refactor existing apps, while those in the early stages of cloud implementation are somewhat more oriented toward new application development.

Which types of workloads typically get the cloud-native treatment?

Organizations at different stages of cloud maturity adopt different approaches to the workloads slated for cloud-native application development (see Figures 2 and 3).

Figure 2: The Current State of Workload Cloud Native-ness

Source: 451 Research's Voice of the Enterprise: Cloud, Hosting & Managed Services, Workloads and Key Projects 2020

Q. To which of the following categories of application are you currently applying cloud-native computing frameworks and tools today? Please select all that apply. Base: Organizations developing cloud-native software in-house.

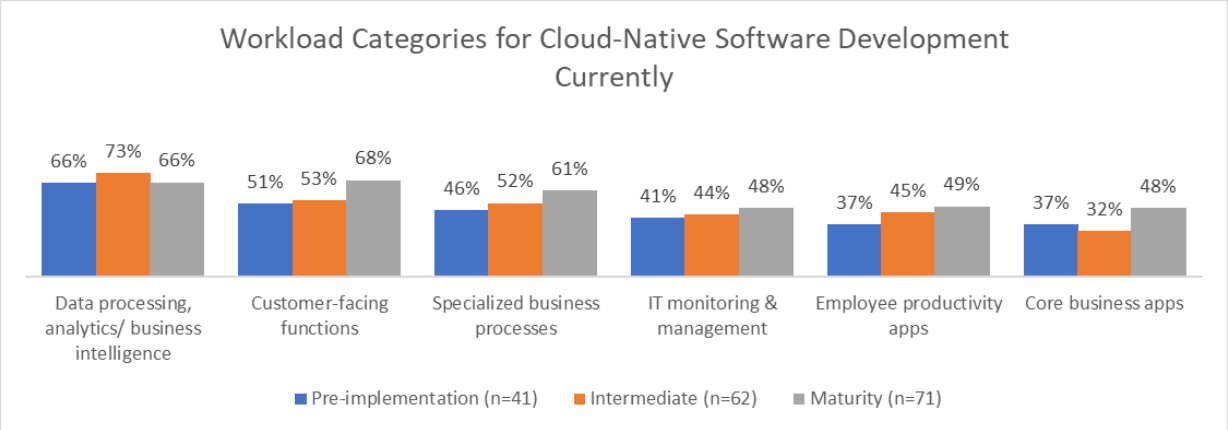
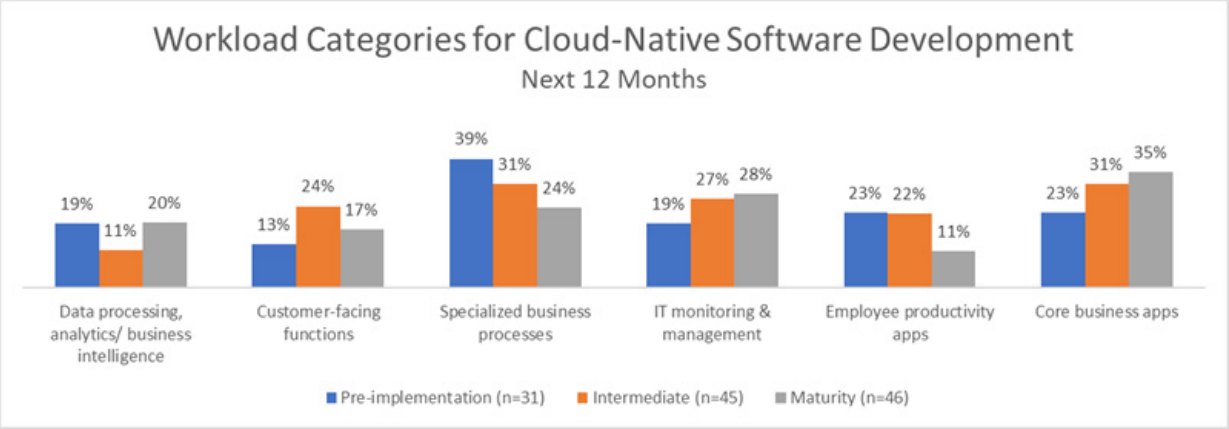


Figure 3: Workload Cloud Native-ness 12 Months from Now

Source: 451 Research's Voice of the Enterprise: DevOps Q1 2019 and Digital Pulse: Budgets and Outlook 2019



Across all cloud maturity categories, data/analytics/BI emerges as the top workload type for cloud-native application development. This comes as no surprise, given that data/analytics ranked highest as the technology with the most game-changing impact on business operations (see our Voice of the Enterprise: Digital Pulse, Budgets and Outlook, 2020). Early-stage cloud organizations tend to focus their initial cloud-native efforts on this space while data/analytics is a continuous area of development effort for cloud veterans. Analytics applications help turn raw data into the type of business insight that fuels digital transformation, and organizations are taking a roll-your-own approach to add value and differentiation to both front- and back-office business processes.

Customer-facing functions such as e-commerce, self-service and media streaming/downloads are a more significant area of current cloud-native development for cloud-mature organizations, while those in the intermediate maturity bucket plan to ramp up efforts in the coming year. As digital transformation imperatives usher in new business models and customer engagement approaches, organizations look to homegrown cloud-native development to deliver differentiated front-end customer experiences and facilitate back-end integration with legacy applications and distributed data repositories.

The specialized business process workload category hews to a similar pattern as an area with a higher level of cloud-native development from cloud-mature organizations actively executing on their digital transformation strategies. Organizations in early stages of cloud maturity intend to ramp up their cloud-native development for specialized business processes during the next 12 months as they move along the digital transformation spectrum and innovate for operational efficiency (e.g., predictive maintenance, fleet tracking, smart cities, etc.) and to support differentiated/personalized customer experiences.

We see relatively less focus on cloud-native application development in the IT monitoring/management, employee productivity and core business process categories. On the IT monitoring/management front, organizations are likely modernizing (or replacing) legacy systems and script-based automation to extend visibility into workloads operating in public cloud environments and accommodate hybrid/multicloud IT estates. Integration of on-premises and public cloud environments is also a likely driver of cloud-native development in the employee productivity and core business process realms.

We would also note that we see most organizations adopting a mixed approach to their cloud-native strategies that includes existing on-premises tools – often for monitoring or security where value has already been established – as well as open source tools, public cloud and SaaS. We expect deployment of public cloud and SaaS to grow most moving forward, but service outages and enterprise preferences will likely prolong mixed use of these different components in developing, deploying and managing applications.