

Legacy mission-critical apps increasingly getting the cloud-native touch

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The decision of whether – and if so, how – to modernize legacy mission-critical applications is one of the most vexing for IT leaders. For many organizations, a digital transformation strategy cannot be considered complete if a large slice of the applications (and the infrastructure that supports them) that have underpinned key business processes for decades or more remain untouched. The benefits that such modernization promises – greater agility, more scale, lower operating costs – hardly need to be stated, but complexity, technical debt, organizational inertia and choosing the 'best' path forward from multiple potential options can all combine to inhibit such transformation. Nonetheless, recent data from 451 Research suggests that some clarity is beginning to emerge, and that two forms of application modernization are emerging as clear favorites: in-place modernization, and refactoring and shifting using cloud-native frameworks.

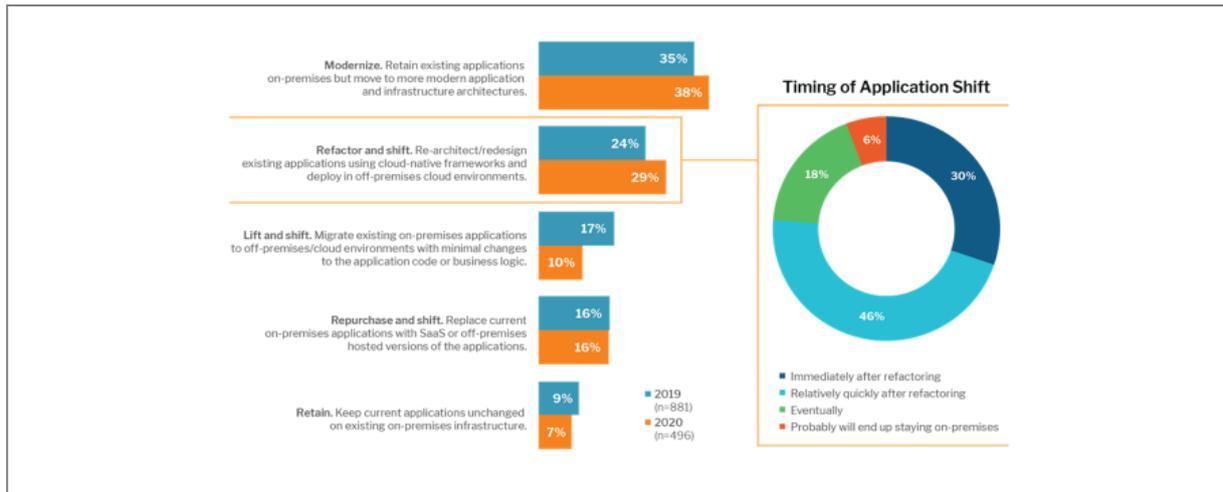
The 451 Take

While digital transformation can take many different forms, for many organizations, tackling legacy mission-critical applications has required a strong plan and an even stronger nerve; after all, these are often still an organization's crown jewels, and any modernization process is not to be entered into lightly. While the nature of exactly what a 'legacy mission-critical application' is also varies widely (and is not necessarily a 50-year old app written in Cobol and running on a mainframe), it's encouraging to see that the vast majority of firms are at least starting down the modernization path. The growing adoption of cloud-native-based efforts to refactor and shift to public clouds – particularly for a plurality of the largest companies – is notable, and is a trend we will continue to pay closer attention to. Indeed, the large organization C-suite points to cloud native as a weapon to counter variables such as uncertainty, rapidly changing market conditions and capex constraints. COVID-19 brings all those variables in spades.

Details

Our recent Voice of the Enterprise: Digital Pulse, Workloads & Key Projects survey probed IT decision-makers about various aspects of their digital transformation and application strategies. In particular, we asked about their approaches to mission-critical legacy applications and workloads (Figure 1). As in previous surveys, organizations are pursuing a range of strategies; nonetheless, some clear trends are emerging, which are especially evident when we compare year-on-year changes.

Approaches to Mission-Critical Legacy Applications



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

First, it's clear that 'doing nothing' is no longer regarded as a strategy; only 7% of respondents indicated that their approach is to retain their current mission-critical legacy applications on existing on-prem infrastructure, with no application changes. These tend to be the smallest firms – 19% of respondents with under \$1m in revenue selected this option – as well as those in the government/education space.

So what of the multiple paths to application modernization? We see exactly the same percentage as in 2019 (16%) choosing to repurchase and shift – the 'jump ship to SaaS' approach. (As a side note, there is a notable difference between the plans of Oracle and SAP users when it comes to their ERP applications; Oracle customers are largely on a path to Oracle SaaS, while SAP customers are on a much more blended journey utilizing a range of public cloud and third-party managed service providers.)

Meanwhile, we see a notable (seven-percentage-point) year-on-year drop in those pursuing lift-and-shift strategies – essentially the 'old wine, new bottles' play of picking up your legacy app and throwing it onto a third-party cloud. Why the drop? A couple of reasons suggest themselves. First, many firms have a limited number of apps that suit such a straightforward transformation, so it could be that many firms have done all they can on this front and the low-hanging fruit has already been picked. It is now larger and more complex migrations that lie ahead. Second, legacy mission-critical apps tend to be complex (with many interdependencies) and architecturally monolithic, making it difficult (if not impossible) to fully leverage cloud's cost and agility benefits. Many enterprises have attempted lift-and-shift modernizations that have yielded underwhelming results.

By contrast, we see notable increases in the usage of two other modernization paths that, combined, account for two-thirds of total responses. We saw a notable uptick in the percentage of

respondents choosing to modernize in-place (for 38% total), typically by moving to newer application and infrastructure architectures (something we used to call 'private cloud'). This on-premises IT evolution is supported by data from infrastructure-focused VotE surveys that shows increased adoption of next-generation technologies such as hyperconverged infrastructure (HCI) and all-flash array (AFA) storage systems. Despite the modernization-in-place crowd's intention to maintain on-premises IT for mission-critical applications, we believe hybrid/multicloud environments will be part of the mix as enterprises' digital transformation efforts lead to the creation of composite applications featuring workflow processes such as database lookups, payment processing and AI/ML that may be distributed across different workload execution venues.

Arguably most interesting of all, we also see a five-percentage-point year-on-year increase in the number of respondents selecting 'refactor and shift' (now 29% total) as their approach to legacy mission-critical applications. This method involves application refactoring using cloud-native frameworks prior to redeployment in off-premises cloud environments. Although application refactoring is generally regarded as a time- and resource-intensive process, many organizations seem to view this as a good investment to transform what are often their most complex and most important 'run the business' applications.

The continued evolution of the technology provider ecosystem featuring cloud-native software tools and best practices (enterprise-grade Kubernetes) is also fueling momentum of the refactor-and-shift approach. Examples include [VMware Tanzu](#), [Red Hat OpenShift Container Platform](#) and [HPE Container Platform](#). These take care of the operational effects of using Kubernetes and ensure that the container is further established as the fundamental (atomic) abstraction used. Enterprises can get on with putting applications in containers while these tools 'have their back.' Such approaches also enable enterprises to attack monolithic apps in other ways by converting functions into 'aaS' operations or turning smaller features into individual microservices that can talk to each other using cloud-native service meshes.

Larger organizations, in particular, are adopting 'refactor and shift' as their primary approach to legacy modernization, with 41% of firms with over 10,000 staff and 44% of firms with over \$10bn in revenue selecting this option. As one might expect, organizations that are classified as digital transformation leaders also have higher selection rates of this option (40%) versus DT laggards (15%); members of the latter group are much more likely to modernize their legacy mission-critical applications in-place (45%). Refactor and shift is also far more popular in verticals such as finance (34%) than in the government/education vertical (12.5%).

We also asked those organizations pursuing the refactor-and-shift approach precisely when they planned to shift their applications to cloud environments after refactoring; the results were also revealing. More than three-quarters of respondents (76%) choosing this option said they intended to shift the application to cloud either 'immediately' or 'relatively quickly' after refactoring, with only a small minority expecting that the application will stay on-premises. Evidently, organizations aren't hanging about in the move to off-premises cloud.