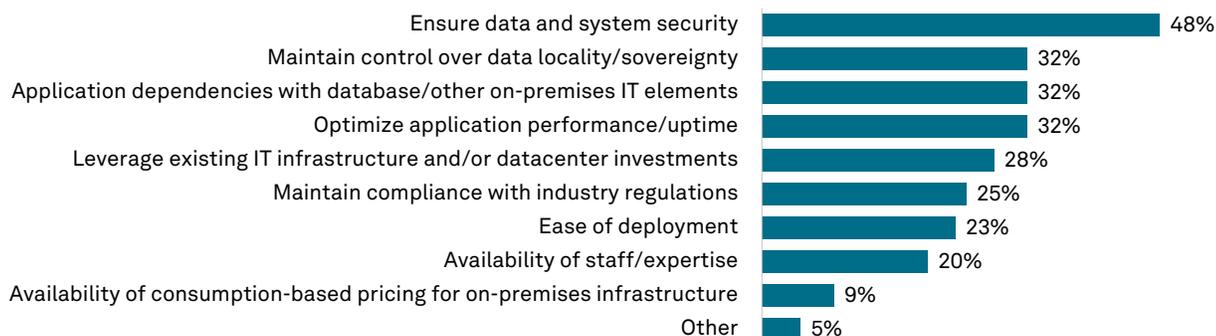# Application Modernization Is the New (Re)factor in the Hybrid Cloud Equation

The 451 Take

To modernize, or not to modernize: that *was* the question. Now the main question regarding application modernization has changed from *whether* to modernize legacy apps to *when* – or more importantly, *how.* Innovations across the IT stack are driving businesses to assess their application inventory and make a case for modernization. This shift has largely been triggered by public cloud, which has revolutionized how organizations provision and pay for IT. The convenience of on-demand compute, storage and bandwidth, along with the ability to launch IT capacity worldwide, has had a seismic impact as organizations offload undifferentiating chores (such as patching, upgrades and backup) to cloud service providers and SaaS vendors.

That does not mean every application moves to Amazon Web Services Inc. (AWS), Microsoft Azure and other public clouds. According to 451 Research's Voice of the Enterprise (VotE): Cloud, Hosting & Managed Services, Workloads & Key Projects 2021 survey, 46% of organizations have already implemented a hybrid IT environment (one that leverages on- and off-premises resources in an integrated fashion), with another 32% currently in the process or planning to implement one. Why? The case for modernizing applications in hybrid cloud environments broadly includes leveraging the flexibility of both private and public clouds, the functionality of innovative cloud-native technologies and the potential to create cost efficiencies and performance advantages.

Modernization-in-Place Drivers for Mission-Critical Legacy Applications

Driver	Percentage
Ensure data and system security	48%
Maintain control over data locality/sovereignty	32%
Application dependencies with database/other on-premises IT elements	32%
Optimize application performance/uptime	32%
Leverage existing IT infrastructure and/or datacenter investments	28%
Maintain compliance with industry regulations	25%
Ease of deployment	23%
Availability of staff/expertise	20%
Availability of consumption-based pricing for on-premises infrastructure	9%
Other	5%

Q. You've indicated that your organization plans to modernize existing critical workloads/applications on-premises. What are the most important reasons for this choice? Please select up to three.

Base: Will modernize existing critical workloads/applications on-premises (n=149)

Source: 451 Research's Voice of the Enterprise: Cloud, Hosting & Managed Services, Workloads & Key Projects 2021

However, any modernization of a legacy application to a new computing environment will present known and unforeseen challenges.

Complexity and compounding technical debt: Decades of poor documentation, code refactoring, older development methods and dependencies with outdated systems have compounded the impact of technical debt in IT environments and the applications within them. Modernizing applications with such legacy entanglements to run in a new venue is a complex undertaking.

IT talent and knowledge gaps: Outdated code is pervasive in legacy monolithic applications, but the talent pool of developers and engineers with knowledge of older programming languages (Cobol, Fortran) is shrinking, along with critical application domain knowledge. Meanwhile, newer and more powerful languages (Python, Java) are more common and purpose-built for the demands of modern cloud-native applications, creating significant talent and knowledge gaps.

Data gravity and limitations: Modernizing legacy data architectures and the applications they operate across may require refurbished security frameworks, as well as updating governance policies and practices to meet regulatory and compliance demands.

Business obstacles: Organizations will need to navigate an array of direct and indirect business obstacles, organizational silos and cultural hurdles to propel existing applications into modern environments. These can include vendor lock-in and existing long-term investments in revenue-generating systems, as well as the need to alleviate brand and reputational risks from possible outages of client-facing or mission-critical applications.

While these challenges may discourage IT leaders from pursuing application modernization projects, the hybrid cloud can provide a means to resolve them and offer immense business value for those who do.

The chart above suggests that many are investing resources to modernize applications because hybrid architectures and cloud services provide a path to do so.

Business Impact

Security for modern infrastructure: Hybrid cloud architectures have the benefit of leveraging "born in the cloud" applications, which are better equipped with current security tools, features, policies and procedures. A resilient security framework is critical for applications and data that are still intertwined with on-premises systems.

Agility for the pace of business demands: Business and IT teams need to react faster to constantly changing demands, especially in client-facing or mission-critical applications. Modern cloud-native applications fuel IT agility with DevOps processes and access to the latest tooling including containers, microservices and other IT innovations (AI/ML).

Scalability for the known and unknown: Expected and unexpected peaks in demand can significantly stress legacy applications and the monolithic infrastructures they operate on. Modernizing applications with cloud-native capabilities (on-demand compute, data analytics, etc.) enables the vertical and horizontal scaling to handle these fluctuations.

Looking Ahead

451 Research's VotE: Digital Pulse, Application Modernization 2021 survey found that 85% of IT decision-makers are bringing in external resources for assistance with app modernization. Many organizations without sophisticated IT engineering resources and burdened by IT knowledge gaps are turning to knowledgeable third parties (ideally ones with the experience, knowledge and tools to de-risk the transformation) to set up current data and service foundations and provide guidance on what components can be successfully transitioned to hybrid cloud environments and in what order.

With access to capital now greater than access to talent, partners are critical for navigating the wealth of options available to create modern architectures that take advantage of value-added services and cloud-native tools while providing the scaffolding for retiring technical debt. A modernization partner can take a lot of work off the IT operations teams by taking ownership of the infrastructure and the orchestration platform. This saves developers, DevOps teams and site reliability engineers from manual configuration tasks, allowing them to focus on new features, products and innovation instead.

Hybrid operations have become the default as they offer the best of both worlds: the flexibility, security, agility and scalability of seemingly infinite capacity on public cloud, plus the predictability and familiarity of operations done on company-owned or leased infrastructure. However, to obtain these sizable benefits, organizations need to assess their current environment, identify cost-effective components to update, align with the right partners and implement a program to transition applications to a modern hybrid infrastructure.

UNISYS

Organizations can move almost any application to the cloud. But there are approaches that can streamline and simplify the effort and others that can introduce risk and complexity.

See how Unisys can help simplify the modernization journey.

Learn more at https://www.unisys.com/app-modernization-pivot/.