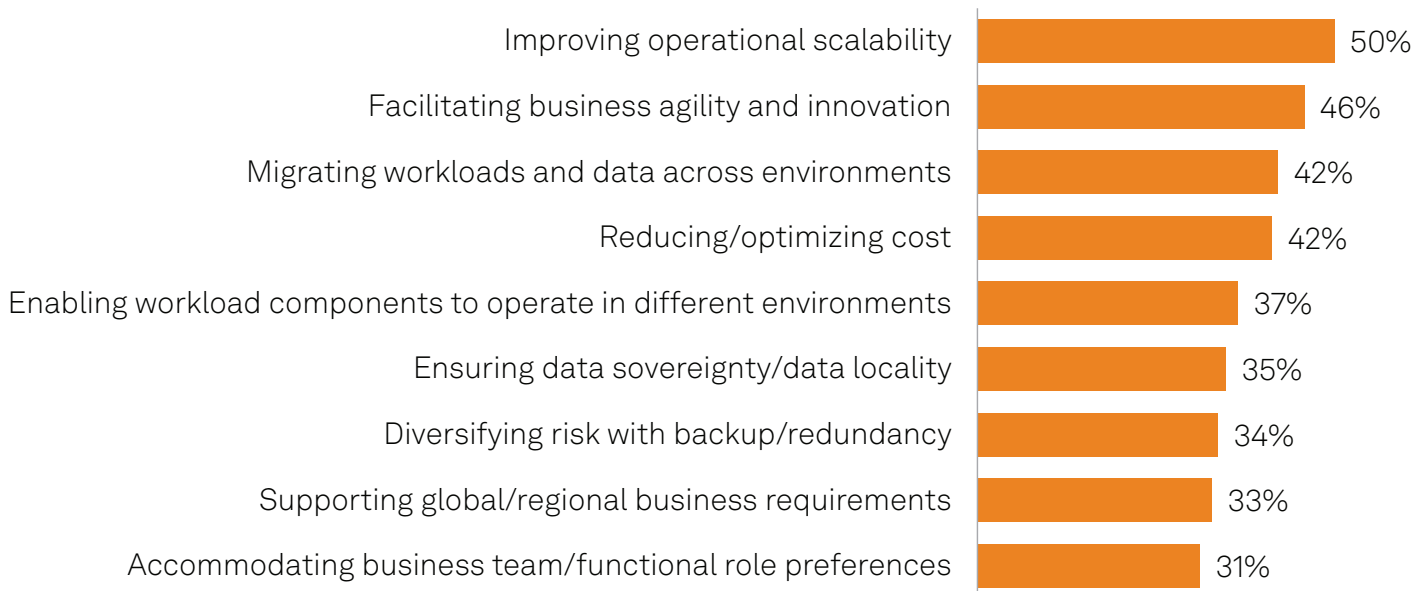# Optimizing On-Premises Infrastructure for Consistent Multicloud Operations

The Take

Research confirms that we live in a hybrid and multicloud world. According to our Voice of the Enterprise: Cloud, Hosting & Managed Services, Hybrid/Multicloud 2022 survey, even among public cloud adopters, 80% of organizations are keeping on-premises infrastructure in their IT environments. Distributed IT estates may evolve through planning (leveraging the most cost-effective services from various deployment venues) or by happenstance (different business units or acquisitions realizing value from infrastructure and platforms on-premises and in various clouds). But as a matter of course, these modern architectures create operational complexity.

Cloud is an operating model, not a location. Yet the growth of cloud deployments has revealed a harsh reality: In many cases, replicating on-premises applications in the public cloud ("lift and shift") is expensive, and data protection requirements often dictate that mission-critical volumes remain on-premises. IT departments face a new reality of continually rebalancing capex and opex investments to derive the best value and the safest security posture. Make no mistake: There are gains to be made from diversifying IT environments (see figure below); otherwise, the vast majority of businesses wouldn't be doing it. A key enabler of this transition is the container orchestration standard Kubernetes, which creates a control plane that can be configured to scale compute, storage and networking resources based on the needs of the application running on top of it.

Factors driving hybrid/multicloud adoption

Factor	Percentage
Improving operational scalability	50%
Facilitating business agility and innovation	46%
Migrating workloads and data across environments	42%
Reducing/optimizing cost	42%
Enabling workload components to operate in different environments	37%
Ensuring data sovereignty/data locality	35%
Diversifying risk with backup/redundancy	34%
Supporting global/regional business requirements	33%
Accommodating business team/functional role preferences	31%

Q. Which of the following are the most significant factors driving your organization's hybrid/multicloud strategy? Please select all that apply.
Base: Organizations with hybrid or multicloud as their current or future cloud operating model, abbreviated fielding (n=353).
Source: 451 Research's Voice of the Enterprise: Cloud, Hosting & Managed Services, Hybrid/Multicloud 2022.

While Kubernetes' extensibility allows it to adapt to the needs of any application, the dynamic nature of the environments it creates can cause headaches. According to the same survey cited above, top challenges of operating hybrid/multicloud environments include security (41%), skills shortage (40%), cost management (38%) and workload/data mobility (36%).

Any resilient IT estate needs a solid foundation. To avoid pitfalls that can sidetrack IT modernization efforts, this foundation should enable:

– A consistent operational experience across deployment venues and Kubernetes stacks whether they're running on-premises or in public clouds.

– Automation and tooling that help organizations accelerate modern application delivery.

– Sophisticated controls for governing and securing datasets and workloads as they move across these environments.

Business impact

An integrated cloud environment enables consistent operations between on- and off-premises infrastructure. This consistency delivers benefits including simpler administration, greater developer velocity, improved security, more effective skills transfer and full-stack application life cycle management. Building blocks should support diverse cloud and Kubernetes ecosystems and enable unified management to break down technology silos and present a holistic view of the IT estate. Policies can be propagated throughout, with continuous validation across the production environment.

Prioritize ease of onboarding to and operating applications from a shared environment using centralized mechanisms. Fleet management is the primary challenge when maintaining systems distributed across various venues. Doing this effectively requires a low-friction way of bringing workloads into the fold and managing them once they're in production. Swivel-chair management and configuration drift can weaken the integrity of IT foundations.

Put the locus of IT visibility and control where it will deliver the most benefit. A consistent management plane further up the stack (i.e., above the infrastructure layer) encourages organizational alignment, enabling a holistic view of on- and off-premises infrastructure usage, centralized management and policy enforcement. This also offers advantages in terms of cost awareness when deciding on workload placement.

Don't dilute valuable IT skills — flex them. Choose technologies and platforms that are easy to automate and integrate into your organization's IT, DevOps and application workflows through standards-based APIs and automation frameworks. The entire IT market is evolving to take advantage of the extensibility and scalability of modern architectures and cloud; few organizations have the option of starting with a fresh sheet of paper.

Looking ahead

IT decision-makers are spoiled for choice in today's market, but businesses need to avoid technical debt while building IT foundations that have both the strength and flexibility to deliver lasting value to customers and internal teams. Our research shows that diverse, distributed IT environments are increasingly the rule rather than the exception, and suppliers in every corner of the market are stretching their capabilities to thrive in this new paradigm.

Many infrastructure approaches lead to complexity in multicloud environments. They create silos, compromise visibility, complicate management and require IT to learn new tools and frameworks. With this in mind, organizations should choose an on-premises foundation carefully, looking for solutions that take a full-stack approach, help unify management and operations and provide a common substrate across cloud operating environments with intrinsic security and centralized governance.

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