4 Forces Accelerating Infrastructure Modernization

verge.io

At VergeIO, we hear every day from IT leaders facing urgent decisions about how to modernize their infrastructure. The same four challenges persist: disruption from the VMware transition, rising public cloud costs, the infrastructure demands of AI, and the struggle to do more with shrinking IT teams. This paper reflects those real-world conversations.

To validate and quantify what we're hearing, VergeIO co-sponsored a study with TechTarget's Enterprise Strategy Group (ESG), titled Private AI, Virtualization, and Cloud: Transforming the Future of Infrastructure Modernization. The study surveyed 380 midmarket and enterprise IT professionals across North America, providing clear data to support the trends explored in this paper.

This paper is a detailed look at the four forces accelerating infrastructure modernization—and why VergeOS, a unified data center operating system, is uniquely positioned to address all of them.

4 Forces Accelerating Infrastructure Modernization

Infrastructure modernization has traditionally followed a predictable, methodical rhythm. Every three to five years, organizations assess new hardware options, revisit licensing agreements, and make incremental upgrades. But that cycle is breaking down.

A new sense of urgency is reshaping infrastructure strategies across the industry. A recent ESG study, "Private AI, Virtualization, and Cloud: Transforming the Future of Infrastructure Modernization," indicates that the vast majority of organizations are no longer treating modernization as a routine refresh. They are accelerating timelines, reallocating budgets, and rethinking platform choices. The driver isn't a single breakthrough or failure—it's a convergence of four external pressures that are compressing decision windows and forcing action.

- **The Broadcom-VMware acquisition** has disrupted the virtualization market. Customers are experiencing abrupt licensing changes, reduced support engagement, and new restrictions that threaten both cost predictability and operational continuity.
- **The public cloud's limitations** are becoming more visible. Organizations are confronting the reality that while cloud services offer flexibility, they often introduce higher long-term costs, performance trade-offs, and control issues, particularly around data locality and egress.
- **AI has arrived with infrastructure consequences.** It's no longer theoretical. Businesses now see clear use cases for AI. They are scrambling to deploy secure, performant environments capable of supporting model training, inference, and data privacy, without waiting on traditional IT refresh cycles.
- **Complexity and staffing pressures** are hitting a breaking point. As IT teams shrink or stagnate, the operational burden of managing fragmented stacks is becoming unsustainable. Simplification isn't a nice-to-have—it's necessary for survival.

Taken together, these forces are collapsing the traditional planning horizon. The issue is no longer about fitting modernization into the next budget cycle. It's about re-architecting infrastructure to remain viable—technically, operationally, and financially—within the constraints of today's environment.

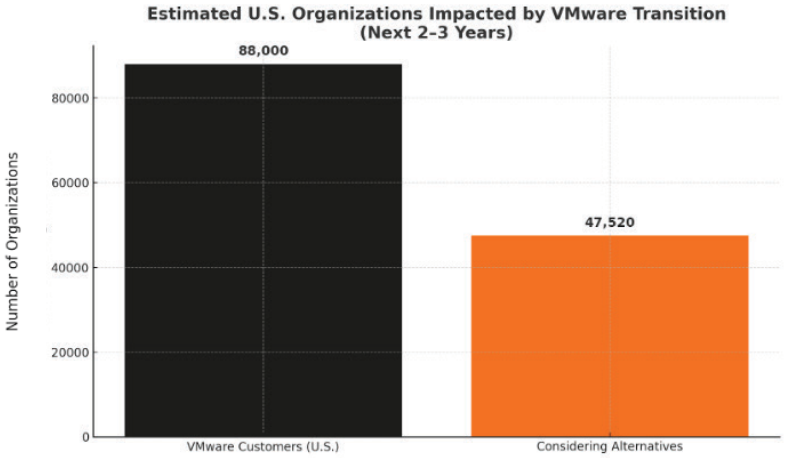
This is where VergeIO and its flagship platform, VergeOS, stand out. Rather than perpetuating the trend of building multi-tiered silos—one for virtualizing business applications, another for backup, and yet another for AI—VergeOS consolidates everything into a single, software-defined platform. It replaces the layered infrastructure model with a flat, unified system that runs all workloads—including AI—on a single, efficient, and scalable foundation. For organizations under pressure to modernize quickly and decisively, VergeOS provides a compelling alternative: a path to simplicity, control, and cost efficiency without sacrificing capability.

Force #1: The VMware Disruption

First and most obviously, the infrastructure software that many organizations have relied on for nearly two decades is no longer a viable long-term option. VMware's acquisition by Broadcom has triggered a seismic shift—not just in pricing and support models, but in strategic direction. Customers who once trusted VMware as a stable, enterprise-grade foundation are now facing a portfolio restructuring, reduced product transparency, and licensing changes that undermine predictability and continuity.

The response has been immediate and widespread. The ESG study referenced earlier found that over half of all organizations are actively seeking an alternative to VMware. That figure is staggering when you consider VMware's long-standing dominance, historically controlling over 80% of the enterprise virtualization market. This isn't a niche migration—it's a full-scale realignment.

But the challenge isn't just about replacing one hypervisor with another. Many of the proposed alternatives—whether based on containers, open-source projects, or public cloud stacks—introduce new architectural and operational models. While these may appeal to specialized DevOps teams, they require skill sets that don't exist in most IT departments. When asked about switching hypervisors, organizations cited three top concerns: compatibility with existing infrastructure (42%), scalability (41%), and migration complexity (39%).



VergeOS directly addresses each of these concerns by delivering a familiar, VMware-aligned experience—but without the licensing sprawl, hardware lock-in, or architectural fragmentation. It supports standard x86 hardware, traditional virtual machine constructs, and offers performance and scalability characteristics that are on par with or better than those of VMware. There's no need to re-architect applications or adopt unfamiliar paradigms. Using their existing hardware, organizations can move workloads to VergeOS with minimal disruption and continue operating them as before, while gaining operational and economic advantages.

To mitigate the skill gap, VergeOS was built to simplify infrastructure operations. It consolidates virtualization, storage, and networking into a single platform managed through a unified data center operating system. That means fewer tools, fewer consoles, and less friction. For teams that

have spent years maintaining multi-tier VMware stacks, VergeOS is immediately intuitive, but easier to support at scale. And because it's a single-code-base platform with deep integration across functions, it reduces operational complexity rather than shifting it elsewhere.

Migration complexity is addressed through the design of tools and processes. VergeOS includes features that enable non-disruptive workload migration, eliminating the need for weeks of planning and reducing reliance on professional services. Virtual machines, networking configurations, and storage volumes can be moved and rehydrated in a manner that respects existing application dependencies. The goal isn't just to replace VMware—it's to replace the complexity VMware created.

In a market full of unfamiliar alternatives, VergeOS stands out by offering something unique: continuity without compromise. It gives organizations a path forward that preserves institutional knowledge, flattens the learning curve, and reduces risk—without creating new silos or skill gaps in the process.

Force #2: Public Cloud Limitations

The public cloud redefined how infrastructure is consumed. It provided immediate access to elastic resources and shifted budgeting from capital expenditures to operational expenditures. For many, it became the default destination for new applications, especially those with unpredictable scale. But a growing number of organizations are rethinking this assumption.

The ESG study indicates that 76% of organizations have re-evaluated their hybrid cloud strategy due to the rising cost of cloud infrastructure. The original appeal of the Public Cloud pricing model breaks down when workloads are long-lived and persistent. Unlike hardware, where unit costs decline over time, public cloud CPU, storage, and performance pricing tend to remain flat or even rise. **This creates a structural mismatch: organizations are renting resources they use every day, at rates that never depreciate.**

The decision to re-evaluate Public Cloud isn't limited to economics. The cloud introduced modern infrastructure capabilities that were previously lacking in on-premises solutions, such as VMware, including automated provisioning, API-driven control, hardware abstraction, multi-tenancy, and distributed scalability. But these are **software constructs**, not cloud-exclusive features. They don't need to be tied to a remote location to provide value. ESG reports that 84% of organizations believe a consistent experience across cloud and on-premises delivers significant operational benefits, and 83% are actively working to improve self-service infrastructure delivery on-premises.

This shift reflects a more profound realization: cloud value isn't about where the infrastructure lives—it's about how infrastructure behaves. Organizations want a cloud-like experience, but on their terms.

VergeOS delivers that. It brings the core benefits of the cloud—abstracted infrastructure, linear scalability, virtual data centers, and multi-tenancy—back into the data center. By collapsing virtualization, storage, networking, and security into a single platform, VergeOS enables a flat infrastructure model that delivers flexibility without fragmentation. For organizations seeking to regain control without compromising agility, VergeOS offers a practical approach to balancing ownership economics with cloud-native capabilities.

Force #3: The Infrastructure Demands of AI

AI brings a new perspective to infrastructure planning that organizations have not experienced before. While many feel compelled to adopt AI, few possess a clear strategy for integrating it into their operations, and they lack solutions for utilizing it once it is installed. Their interactions with AI stem from publicly available, consumer-focused tools such as ChatGPT or Google Gemini. Although these platforms have significant capabilities, they are externally hosted, not transparent, and misaligned with the demands of enterprise data governance.

Every organization has proprietary data, including customer records, financial reports, operational telemetry, and research datasets. This data holds the key to unlocking meaningful, ROI-driven AI outcomes. But putting it into the public domain, no matter how secure the claim, is risky. An opportunity lies in deploying private, on-premises AI, where sensitive data remains under organizational control, thereby eliminating latency and preserving data locality and privacy.

The challenge is that on-premises AI is currently perceived as both complex and expensive. Vendors push separate, siloed infrastructure stacks for AI workloads—dedicated GPU servers, isolated storage fabrics with multiple tiers, specialized networking, and unfamiliar architectures, such as containers and object stores. Many organizations lack the in-house expertise to assemble and manage these disjointed environments.

The ESG study indicates that more than 60% of organizations aim to scale their infrastructure to support on-premises AI initiatives, and over 50% plan to deploy private AI within the next 12–24 months. The drivers are clear: **control over infrastructure, data privacy, cost predictability,** and **regulatory compliance** all rank above cost alone as primary motivators.

What these organizations need is a platform that simplifies the deployment of AI, whether at the edge, in the core, or in completely disconnected environments, without requiring them to build a separate infrastructure stack. This is where VergeOS, combined with VergeIQ, delivers a practical path forward. VergeOS provides a unified software-defined platform that consolidates virtualization, storage, and networking into a single operational layer. VergeIQ builds on that foundation by enabling AI workloads to run alongside traditional applications in the same environment—securely and efficiently.

GPU resources can be pooled and allocated to Virtual Data Centers (VDCs) to maintain isolation and control, eliminating the necessity for separate bare-metal systems. AI training and inference data can be stored within the same distributed file system that supports other business functions, thereby simplifying processes and accelerating pipeline development. VergeIQ accommodates inference workloads, document analysis, and private model deployment—all without the need for containers, Kubernetes, or object storage. For IT teams that need to act swiftly but wish to avoid further fragmentation of their infrastructure, VergeOS with VergeIQ provides a streamlined, secure, and familiar pathway to operationalizing AI.

Force #4: Skills Shortages and Operational Complexity

The final force accelerating infrastructure modernization is the growing shortage of skilled personnel. Designing, operating, and supporting IT infrastructure has always required deep technical expertise. But today's environment introduces another level of complexity, and the talent pipeline isn't keeping up.

Legacy skill sets centered around traditional hypervisors, three-tier architectures, and single-site data centers are becoming obsolete. At the same time, organizations are being encouraged to adopt unfamiliar technologies, such as multi-cloud platforms, private AI infrastructure, GPU clustering, and container-based application models. These demands require a different kind of operational knowledge—one that blends virtualization, distributed systems, and automation.

The problem is structural. Colleges and universities aren't producing enough graduates in infrastructure-related fields. Those entering the workforce have limited hands-on exposure to modern architectures, many of which emerged while they were still in school. As a result, organizations are left trying to build and maintain next-generation infrastructure using teams that are either understaffed or underprepared.

The ESG indicates that 68% of organizations report difficulty finding staff with the skills required to manage alternative infrastructure models, cloud-native designs, and AI workloads. This shortfall is more than a staffing challenge—it's a strategic bottleneck. If IT can't scale, the business can't grow.

To progress, organizations need to simplify. This involves consolidating infrastructure tiers, lengthening hardware lifecycles, and utilizing platforms that minimize the variety of separate tools and interfaces for administrators. Equally important, IT teams require infrastructure that supports them—by integrating automation, visibility, and assistance directly within the platform.

This is where VergeOS and VergeIQ again offer a differentiated advantage. VergeOS consolidates virtualization, storage, networking, and AI into a single, intuitive data center operating environment. It dramatically reduces the number of moving parts an administrator must manage—no more patching multiple storage arrays, configuring VLANs on external switches, or juggling numerous backup vendors. VergeIQ further assists by enabling AI-driven operations, from observability to optimization. Together, they allow fewer people to manage more—more servers, more applications, more data—without increasing complexity.

Conclusion

Infrastructure modernization is no longer a passive, long-term planning exercise. The combined pressure of a destabilized VMware ecosystem, growing dissatisfaction with public cloud economics, the infrastructure demands of AI, and the persistent shortage of skilled personnel is compressing timelines and forcing organizations to act.

Each of these forces alone would justify a reevaluation of the current IT strategy. Together, they make a strong case for a different infrastructure platform—one that reduces complexity instead of shifting it, consolidates capabilities instead of fragmenting them, and accelerates innovation instead of slowing it down with integration overhead.

VergeOS is purpose-built to meet this moment. It provides a flat, software-defined infrastructure that replaces multi-tier silos with a single, unified platform capable of running all workloads—including AI—on the same foundation. It eliminates traditional pain points around licensing, support, migration, and scale, while VergeIQ layers in modern AI capabilities without requiring a separate toolchain or specialized team.

How VergeOS Addresses the Four Forces

Force	Challenge	How VergeOS Responds
VMware Disruption	Licensing upheaval, vendor uncertainty, migration risk, skill mismatch	Compatible with VMware-era workloads, Simplified migration tools, Unified interface reduces training burden No per-feature, per-VM, or per-core licensing
Public Cloud Limitations	Rising costs, unpredictable fees, loss of control, multi-tiered sprawl	Delivers cloud-like capabilities on-premises, Flat, single-tier architecture, Built-in VDCs and multi-tenancy Full control over data and performance
AI Infrastructure Demands	Siloed, complex, expensive AI stacks risk of public data exposure	VergeIQ runs private, on-premises AI workloads securely, GPU pooling No separate object storage or AI-specific cluster required
Skills Shortages & Complexity	Short supply of skilled IT staff Increasing infrastructure sprawl	Collapses compute, storage, and networking into one platform. Intuitive interface VergeIQ assists with intelligent automation and observability

As organizations navigate the next phase of IT transformation, they don't need alternatives—they need leverage. VergeOS delivers that leverage by collapsing the infrastructure stack, increasing operational agility, and restoring control over performance, cost, and risk. For organizations facing urgent modernization decisions, VergeOS is not a replacement. It's an upgrade.