How K–12 School Districts and Municipalities Use VergeOS to Solve IT Challenges

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School districts and municipalities are under mounting pressure to modernize aging infrastructure with minimal resources. Budget unpredictability, reduced IT staffing, and complex legacy environments limit flexibility and responsiveness. Simultaneously, operational demands are rising, requiring improved data protection, more efficient storage, and readiness for AI and VDI workloads. VergeOS addresses these challenges by delivering a unified infrastructure platform that integrates virtualization, storage, networking, backup, and disaster recovery in a single software-defined system. The result is increased performance, lower cost, and simplified operations.

This paper examines how VergeOS helps districts and municipalities modernize their infrastructure by utilizing technical insights and deployment examples from St. Clair County RESA, Lancaster Central School District, and the City of St. Peters, Missouri.

Hardware Longevity and Budget Constraints

Challenge

Deferred capital expenditures and strict budget cycles characterize public sector IT infrastructure. Administrators are forced to extend the useful life of servers and storage well beyond standard refresh timelines. Traditional infrastructure, composed of discrete servers, SANs, and backup appliances, becomes costly to maintain, consumes valuable rack space, and requires ongoing support contracts that strain limited budgets.

VergeOS Solution

VergeOS breaks this cycle by abstracting hardware from the software layer, enabling organizations to repurpose existing x86 servers, including hardware dedicated to storage. VergeOS pools available resources into a single cluster, distributing workloads dynamically across all nodes. Administrators can add memory or drives to aging servers and place them back into service as part of a resilient, converged environment. This not only avoids expensive forklift hardware refreshes but enables lifecycle extension to 8–10 years or more, depending on workload demands.

Customer Example

At the City of Saint Peters, the IT team upgraded memory and added SSDs to their existing HPE servers rather than purchasing a new SAN. This avoided a planned $500,000 infrastructure refresh while enabling higher performance and increased resilience.

> **With VergeIO, we could extend the life of our existing hardware while reducing licensing costs.**
>
> —Brian Bazzell, IT Director, City of Saint Peters

Operational Efficiency and Reduced Staffing Burden

Challenge
Traditional infrastructure management involves separate interfaces and policies for the hypervisor, storage platform, backup software, and network fabric. This siloed architecture increases complexity and requires specialist expertise that most school districts and municipal IT teams are unable to support.

VergeOS Solution
VergeOS eliminates these silos by providing an integrated management plane across all core infrastructure services. Storage volumes, VM management, data protection, replication, and multi-tenant security are handled through a single interface. VergeFS, VergeOS's native storage layer, eliminates the need for external SANs or vSAN licensing. ioGuardian provides near-real-time data protection and inline recovery, removing the need for third-party backup software.

Customer Example
Lancaster Central School District replaced VMware and Veeam with VergeOS and VergeFS, enabling a single point of control over storage and compute without performance penalties.

> **VergeIO is so good at handling things behind the scenes that we can concentrate on improving and developing new solutions for our District.**
> —Tim Johnson, Senior Systems Administrator

Multi-Tenant Security and Infrastructure Flexibility

Challenge
As infrastructure centralizes across campuses and civic buildings, isolation becomes critical. K–12 districts should separate workloads by school, department, or use case. Municipalities must enforce boundaries between public safety, finance, and community applications—all while maintaining centralized control and visibility.

VergeOS Solution
VergeOS implements Virtual Data Centers (VDCs) as isolated logical environments within a single cluster. Each VDC has its own compute, storage, and network domains and supports delegated administration. This design allows IT teams to securely offer self-service capabilities to individual districts, departments, or municipalities while maintaining strong separation and centralized oversight. Integration with SSO and support for two-factor authentication enhances security even in edge deployments.

Customer Example

At St. Clair County RESA, VergeOS enabled the creation of secure, tenant-separated environments for each of the five school districts and seven municipalities it supports.

> **Verge's tenanting system is elegant—brilliant, even... Every customer now has the ability to service their own VMs, driving down our management costs.**
>
> —James Marsack, Senior Network Engineer, RESA

Eliminating Traditional Backup Software & Hardware

Challenge

Backup infrastructure has become one of the most expensive and operationally complex components in the IT stack—particularly for public sector organizations with limited staff and flat budgets. Traditional solutions like Veeam, Commvault, and Rubrik require costly software licenses and dedicated hardware—often including NAS arrays, object storage appliances, or secondary backup clusters. When hardware and licensing are combined, the total cost of backup infrastructure often matches or exceeds the cost of the virtualization platform itself.

Compounding the problem is the operational complexity: backups must be scheduled, monitored, tested, and stored separately. Recovery is slow and multi-step—requiring staging space, volume rehydration, and VM re-registration. Missed backup windows, failed jobs, and inconsistent restores are common. Immutability, a modern data protection requirement, often depends on external object storage services, increasing both complexity and recurring costs.

For K–12 districts and municipalities—where downtime affects classrooms, payroll systems, public safety databases, and government operations—this fragility is unacceptable.

VergeOS Solution

VergeOS removes the need for external backup software and hardware by embedding data protection into the core platform. Snapshots are performed inline with ioClone, VergeOS's native snapshot engine. These snapshots are globally deduplicated with VergeFS, meaning they consume no additional space unless unique data is introduced. Snapshots are independent, avoiding chain corruption and enabling fast rollback without impacting performance.

Because all features are built into VergeOS—including replication, DR, and snapshot management—there are no add-on licenses, backup agents, or hardware-specific requirements. Organizations can retire backup Rubrik appliances, end Veeam or Commvault license contracts, and reclaim rack space.

Customer Example

St. Clair County RESA eliminated Veeam and its half-rack QNAP array by switching to VergeOS. They now perform hourly snapshots with zero performance overhead and no risk of backup job failure.

> **Veeam jobs fail regularly. If a job fails, you're waiting until tomorrow. With VergeOS, snapshots always work, and if a snapshot fails to replicate to the DR site, it retries automatically—and we've NEVER had one fail after a second attempt.**
>
> —James Marsack, Senior Network Engineer, RESA

Lancaster Central School District similarly replaced Veeam, resulting in reduced costs and shorter recovery times. Snapshots under VMware vSAN had degraded performance to the point that they were avoided. With VergeFS, snapshots are now an integral part of the primary data protection strategy, enabling fast and reliable recovery across their entire environment.

Across VergeIO's customer base, other public sector organizations have eliminated Commvault and Rubrik, consolidating backup and DR into the VergeOS platform without compromising retention, security, or performance.

By removing the need for external backup software and storage, VergeOS transforms data protection from a siloed liability into an integrated, low-touch service that saves money and simplifies operations.

Resilient, Inline Data Availability

Challenge

Modern infrastructure must ensure continuous data availability, even in the face of multiple simultaneous hardware failures. Traditional systems are designed to tolerate single-node or single-disk failures. Protecting against multiple concurrent failures requires more complex architectures, such as triple-mirrored storage or stretched clusters, which increase latency, consume additional capacity, and drive up both operational and capital costs. Recovery from these situations depends on manual restore workflows, which introduce delays and increase the risk of data loss or extended downtime.

VergeOS Solution

VergeOS eliminates the need for external high-availability configurations or complex mirroring schemes by embedding data resiliency directly into the platform. Its ioGuardian engine is continuously updated through the native snapshot schedule and functions as a self-healing recovery layer. In the event of catastrophic failures—such as multiple drive or node losses—ioGuardian automatically provides the missing or damaged data in-line without requiring data reconstruction overhead.

This inline recovery process occurs without administrative intervention and does not require rehydration, staging, or third-party tools. Unlike traditional backup systems, which operate out-of-band and introduce restore delays, VergeOS maintains service continuity through intelligent, software-defined redundancy.

Customer Example

During RESA's VergeOS PoC, a multi-node failure occurred. ioGuardian delivered that data back to the production environment without disruption to services.

> ## ioGuardian was seamless, if it weren't for the alerting system, we wouldn't even have known there was a failure.
> —James Marsack, RESA

Storage Optimization and Deduplication

Challenge

Storage efficiency is critical when budgets limit the ability to expand capacity. Deduplication under legacy systems introduces latency, is unavailable without additional licensing or specialized hardware or creates silos of deduplicated data because production storage uses a different deduplication algorithm than backup storage.

VergeOS Solution

VergeFS performs inline global deduplication during write operations, optimizing memory usage, network bandwidth, and disk consumption. Snapshots leverage deduplication thanks to VergeIO's ioClone technology, allowing them to remain independent of one another. It ensures fast and reliable recovery without the performance overhead seen in chain-based systems, such as VMware vSAN.

Customer Example

RESA achieved a 16:1 deduplication ratio on VergeOS, compared to 3.7:1 under their previous SolidFire array.

> ## We utilize global dedupe and compression—VergeOS VSAN is giving us a 16:1 ratio. SolidFire iSCSI was 3.7:1.
> —James Marsack, RESA

Cost Control and Audit-Free Licensing

Challenge
Broadcom's acquisition of VMware has introduced aggressive licensing changes, removed educational discounts, and triggered widespread audit threats. These shifts have made cost forecasting nearly impossible for public sector IT teams.

VergeOS Solution
VergeOS eliminates per-core and per-feature licensing, using a flat per-node model that includes all functionality. There are no arbitrary limits on VMs, snapshots, storage capacity, or features. Customers retain complete control over budget and procurement strategy.

Customer Example
Lancaster Central School District saved over $150,000 annually by transitioning to VergeOS and eliminating VMware and Veeam.

> **Broadcom froze all updates and patch releases. Now they send audit notices and threats. Why should anyone stay when leaving is so easy with VergeOS?**
> —James Marsack, RESA

AI and VDI-Ready Infrastructure

Challenge
Districts and municipalities are under increasing pressure to support AI education, teacher enablement, and student access through virtual desktops. Traditional infrastructure often lacks GPU support, orchestration tools, and secure multi-tenancy.

VergeOS Solution
VergeOS supports GPU pass-through, pooling, and inference workloads. VergeIQ, the platform's AI service layer, enables private AI capabilities—including RAG, virtual agents, and automation pipelines—without requiring Kubernetes or external orchestration.

Customer Example
RESA is actively exploring VergeIQ to deploy AI-powered support agents using internal documentation, improving self-service for the district's day-to-day use.

Conclusion

K–12 school districts and municipalities face budget pressure, limited staffing, and rising technical demands. VergeOS delivers an all-in-one platform that simplifies operations, reduces cost, extends hardware life, and improves data protection and performance. It is more than a replacement for VMware—it is a modern foundation built for long-term sustainability.

Next Steps

- Request a technical demo to evaluate VergeOS in your environment.
- Schedule a call with a VergeIO architect to plan your VMware exit strategy.
- Explore case studies from other public sector deployments.

For more information, visit https://www.verge.io