

Managed Service Providers

Building the Future of Managed Service Providers' Storage Solutions with Kaminario

Businesses large and small are migrating from on-premise data centers to cloud-based environments as this provides compelling value for storing, accessing, and protecting data. Managed Service Providers (MSPs) are the cloud entities that deliver application solutions including all the resources required to manage the network, storage, and server infrastructure.

By 2021, MSPs are expected to deliver approximately \$1 Trillion worth of IT products and services consumed by SMBs and large enterprises globally. Cloud storage solutions will play a key role in this, and thus far MSPs have found that not all storage solutions are alike or up to expectations. The storage solution of choice for MSPs need to ensure low cost of storage, deliver robust data services, and support end customers' Service Level Agreements (SLAs).

To address these needs MSPs must collaborate with storage vendors that meet very a stringent selection criteria:

- **Software Defined Storage Platform:** Disaggregation of software (intellectual property) and hardware (commodity).
- **Composable Storage:** Greater granular scalability to meet the dynamic and changing capacity requirements at MSPs.
- **High Performance:** Providing the IOPS, latency, and bandwidth to meet customer SLAs.
- **High Availability Architecture:** Enablement of non-disruptive upgrades and no single point of failure for MSPs.

- **Capacity Optimization:** Maximize storage with thin provisioning, deduplication, and compression for cost effectiveness.
- **Rich Data Services:** Robust storage management with snapshot, replication, security and data protection.
- **Intelligent Diagnostics and Analytics:** Automation with intelligent monitoring, visibility, and prescriptive support for infrastructure management.
- **Open API Support:** RESTful support for external application integration, automation, and configuration management.
- **Future-Proof Architecture:** Comprehensive investment protection with seamless growth of capacity and cloud-scale performance to lower costs.
- **Financial Flexibility:** Competitive advantage over other storage solutions including attractive price/performance metrics, power, cooling, rack space footprint, Pay-As-You-Go on-demand model, and predictable CapEx and OpEx cost savings.

Kaminario has built a software-defined storage solution that leverages best-of-breed commodity hardware to provide automation, orchestration, and advanced management capabilities.

Introduction

The evolution of technology has changed the way businesses operate. One such example is the growth of the Cloud. Virtualized data centers, delivered by MSPs, provide significant economic benefits for organizations. Per Gartner, Cloud Service Revenue is projected to grow at an annual growth rate of 18.5% to a total of \$411 billion in 2020. Herein lies the opportunity for MSPs to grow.

Kaminario's Composable Data Platform is the ideal platform for MSPs to create solutions for:

- **Software as a Service (SaaS):** CRM, ERP, HR, travel & expense, financials, marketing, and collaboration.
- **Datacenter Services:** Security, cloud management, unified communications, and analytics.
- **HealthTech:** EHR, practice management, and mobile health.
- **e-commerce:** Online retail portals by pure-play e-commerce and traditional retail.
- **Payments:** Payment processing, money transfer, and cryptocurrency exchanges.
- **FinTech:** Online banking, trading, and brokerage.
- **Insurance:** Claims processing, open exchanges, user portals, and benefits management.
- **Internet of Things (IoT):** Next-gen as-a-service businesses for smart city, smart industry, connected health, and smart grid.
- **Big Data and High-Performance Computing (HPC):** Natural language processing, machine learning, bioinformatics, and Big Data as a service.

Kaminario has been recognized as a Leader in the *2017 Gartner Magic Quadrant for Solid-State Arrays*, ranking highest in 3 out of 5 Critical Capabilities use cases—Online Transaction Processing (OLTP), Analytics and High-Performance Computing (HPC)—and ranking second highest for the remaining two—Server Virtualization and Virtual Desktop Infrastructure (VDI). All five Gartner use cases support cloud-scale environments, making Kaminario storage solutions ideally suited for MSPs. More reasons for why more than 85% of customers use Kaminario for cloud-scale applications.

Evolution of Cloud-Scale Data Center Architectures

Cloud-scale environments often use commercial IT infrastructure designed for enterprise data centers, primarily because this avoids the need to design, engineer, manufacture, and support custom hardware. Innovation focuses on architectures, software, and operations to adapt and optimize standard

enterprise server, storage, and networking hardware for cloud-scale use cases. Enterprise data center products are generally deployed to support cloud-scale using the following architectures:

1 Consolidated Enterprise Systems (traditional)

Bridging the gap between enterprise and cloud-scale data centers, this architecture involves using independent server systems (x86), storage systems (DAS, NAS, and SAN), and networking systems (routers and switches) to build resource pools managed with virtualization management software.

2 Shared Software-Defined Solutions (modern)

Likely the most commonly used architecture for larger environments, this architecture involves designing and deploying IT infrastructure in rack-based increments. Each rack increment adds server, storage, and networking resources to the cloud-scale environment that is managed by a cloud management software.

3 Composable Cloud-scale Infrastructure (emerging)

A new architectural approach supporting cloud-scale data centers that abstracts IT infrastructure beyond the capabilities of virtualization or cloud software alone. Scaling options include scale-up and scale-out as well as new and unique capabilities including scale-in (redistribution of resources) and scale-down (reduction of resources).

NVMe based technologies are making it beneficial to disaggregate data center resources in ways not previously possible, driving the emergence of composable infrastructure for cloud-scale data centers. For example, composable storage allows on-demand allocation of resources to scale-up capacity or performance for a customer to match peak workloads and then removing resources without disruptions, to scale-down when demand is lower.

Infrastructure scaling is carried out using resource management (or orchestration) software, without the need to make physical changes when

using a common NVMe fabric to interconnect controllers, storage, and networking components.

For storage resources, however, composable infrastructure continues supporting Fibre Channel and iSCSI for interoperability and investment protection while emphasizing newer NVMe over Fabrics—especially as the technology used to interconnect controllers and drives. Separating controllers and drives enables composable storage to meet the performance, and capacity requirements needed to satisfy customer SLAs.

Modern IT Requirements for MSPs

Traditional enterprise storage systems offer a number of problems for cloud-scale environments. Primarily, enterprise storage systems are intended to serve the needs of a single business willing to purchase the equipment at a large capital expense (CAPEX) and manage it at a moderate operating expense (OPEX).

In addition, enterprise storage systems require frequent updates, annual upgrades, and complete forklift replacements every 3 to 5 years. This inflexible business model is incompatible with managed service providers.

Instead, MSPs need certain characteristics in their infrastructure that Kaminario directly addresses:



Enterprise Class Resiliency

An optimized version of RAID6 protection with native snapshot-based replication and Kaminario Clarity™ predictive support.



Performance Optimized

Award-winning all-flash composable infrastructure delivers the highest levels of performance to cloud-scale data center environments.



Designed for Scalability

Composable storage architecture scales capacity and compute independently in five ways: scale-up, scale-out, scale-down, scale-in, and scale-off (with Kaminario Cloud Fabric™)



Manage Mixed Workloads

Optimized for mixed workloads including cloud-scale analytics, OLTP, HPC, virtual server infrastructure, and virtual desktop infrastructure.



Ultimate Cost Efficiency

Take maximum advantage of storage hardware commoditization to deliver enterprise-grade all-flash infrastructure at under \$0.50/GB at scale—and lower with Kaminario Cloud Fabric™.

Versatile Scaling for Cloud-Scale Environments

Enterprise data center architectures include inherent scaling limitations that make the architecture poorly suited for use within cloud-scale environments. Enterprise storage systems are not intended to scale beyond the enterprise needs of a single business or meet the needs of a cloud-scale MSP environment. All are limited to adding additional hardware until maximum supported configurations are reached and then requiring a forklift upgrade.

In addition, architecture and design limit the scaling of enterprise storage systems to two dimensions:

- 1 Scale-up for capacity by adding enclosures and drives.
- 2 Scale-out for capacity by adding enclosures and drives (and rarely for performance by adding controllers).

Kaminario's Composable Data Platform is optimized to meet the needs of cloud-scale environments, combining flexible software-defined architecture with industry standard hardware to deliver a highly flexible, composable storage platform. Their modular design simplifies scaling storage capacity,

performance, and connectivity by adding c.nodes (controllers) or m.nodes (storage drives) as needed.

Unlike enterprise storage solutions which support limited scalability options, Kaminario supports scalability in up to five dimensions:

- **Scale Up:** Upgrading storage systems to increase capacity without increasing performance.
- **Scale Out:** Adding storage systems to increase capacity and performance in fixed increments.
- **Scale In:** Redistribution of storage systems resources to adapt to changes in capacity and performance requirements.
- **Scale Down:** Reduction of available storage system resources to adapt to declines in capacity and performance requirements.
- **Scale-off:** Reallocate assets by removing storage software licenses from hardware.

Unique to Kaminario is the option to deploy composable storage infrastructure using the Cloud Fabric™ option that introduces a unique scale-off option—reallocation of hardware assets from storage or compute resources through the retiring of storage software licenses.

Composable Infrastructure for MSPs

Only a composable infrastructure allows MSPs to freely and individually scale compute, storage, and network resources. For instance, scaling out composable storage involves using software to allocate more controllers or drives while scaling in involves allocating fewer resources.

Application of composable storage within MSP environments include:

- Managed Private Cloud
- Bare Metal as a Service
- DR and Backup as a Service

- Multi-tenant IaaS
- Multi-tenant SaaS
- Multi-tenant PaaS

Kaminario Composable Data Platform for MSPs

Kaminario VisionOS Software-defined Storage Software

VisionOS is Kaminario's software-defined core architecture and framework for delivering advanced data services. MSPs require a software architecture like VisionOS that powers advanced functionality across multiple generations of all-flash platforms. Multi-generational support is critical for MSPs since it is extremely difficult to replace older data center infrastructure when scaling in the future.

DataShrink

VisionOS delivers the most innovative optimization techniques with global and selective deduplication coupled with inline byte-aligned compression, thin provisioning, and zero detection. This continually minimizes the total amount of physical storage resources required.

DataProtect

MSPs often support and host several mission-critical applications which require greater levels of data protection and security to meet governance, regulatory, and service level objectives.

VisionOS delivers the highest levels of data protection with native array-based snapshots and replication enabling customers to roll back to any point in time at any site. Safety and privacy of information assets are assured through data-at-rest AES256 encryption to protect MSPs and their customers against cyber threats.

DataManage

VisionOS also provides flexibility of data management for MSPs at a single site or distributed locations. The management interface includes an intuitive web-based GUI, a fully scriptable CLI, and a framework of programmable RESTful APIs along with SNMP and Syslog protocols for monitoring and reporting.

DataConnect

Storage environments at MSPs are always growing and changing to meet the demands of new applications and dynamic workloads. VisionOS supports K2's RESTful APIs enabling customers to deploy open, MSP-ready architectures like OpenStack, Flocker (containers) and industry solutions like Microsoft VSS, Cisco UCS, VMware vSphere and vRealize Log Insight.

Kaminario Clarity Storage Management Software

In order to ensure security and high availability, MSPs require a storage solution that is intelligent, prescriptive and predictable. Kaminario Clarity™ reports analytics on aggregated performance trends, capacity utilization, data protection metrics and real-time events to facilitate MSP environment planning, monitoring, and optimization.

- **Performance Metrics:** Supports configuration tuning to optimize application workloads with accelerated speed and industry-leading throughput levels.
- **Capacity Utilization Metrics:** Supports storage optimization of all global storage resources across any number of systems for maximum ROI of storage investments.
- **Data Protection Metrics:** Supports replicated backups of all storage systems to guarantee achievement of customer desired service level objectives (SLOs).
- **Real-time Event Metrics:** Supports self-healing intelligence that takes advantage of call-home data points, predictive alerts, and automated workflows to take any operational issue to successful resolution and deliver six 9's of high availability.

Composable storage is all about delivering to a new paradigm of availability,

performance, cost-effectiveness, and productivity. Kaminario Clarity provides MSPs with the storage management intelligence and cloud-based predictive analytics to monitor, report and transparently achieve the highest possible service value with the customer's storage infrastructure.



Kaminario Clarity Storage Management Software

Clarity empowers MSP administrators to focus on delivering higher-level services to their internal and external customers and to adopt a service-centric approach that creates additional value and the following advantages of a composable architecture:

- **Business Agility:** Speeding up the deployment of scale-out storage systems for storing and analyzing large amounts of data.
- **IT Productivity:** Providing greater productivity for IT operations teams to optimize the infrastructure for big data and analytics workloads
- **Automation Efficiencies:** Leveraging intelligent workflows to make provisioning and reconfiguration processes in a non-disruptive fashion.
- **Storage Optimization:** Storage resources can be rebalanced on-demand to optimize for changing workloads, and to speed up future deployments.

Kaminario K2 All-flash Composable Storage Platform

The Kaminario K2 all-flash array, now in Generation 6, delivers predictable performance, cost, scale, resiliency, and simplicity so organizations can handle ever-changing business requirements as they arise. K2 leverages modern innovations in hardware to offer the industry's only true flexible scale-up and scale-out shared architecture, challenging the status quo.



Kaminario K2 All-flash Array

K2 is the most cost-efficient, general-purpose storage platform optimized for solid-state drive (SSD) flash storage. This accommodates multiple applications and workloads such as databases, virtual servers and desktops, and big data analytics. K2 can linearly scale the number of CPU cores by adding K-Blocks for performance only and scale capacity only by adding SSD shelves.

Conclusions

MSPs winning and gaining share are those that are more in tune with their customers' business challenges and are able to translate those needs into cost-effective IT solutions. A growing part of the MSP infrastructure cost is storage technology and that is why the selection of the optimal storage solution is key to success in the highly competitive MSP marketplace.

Data storage is a business-critical part of an MSP solution. The combination of Kaminario VisionOS, Clarity and Flex form the pillars of the Composable Data Platform that Kaminario has created for MSPs. Kaminario has set a new standard for performance, availability, efficiency, and the total cost of ownership (TCO).

Selecting the right storage vendor is key to meeting customer SLAs. Kaminario enables an MSP to deploy a storage solution that delivers the cloud-scale to meet expectations today and into the future.



Contact

Contact a business development representative to answer any questions you may have.



Schedule a Demo

Schedule a demo with an engineer and learn if Kaminario's solution works for you.



Request a Quote

Request a quote for your application from our business development team.

About Kaminario

Kaminario, the leading all-flash storage company, is redefining the future of modern data centers. Its unique solution enables organizations to succeed in today's on-demand world and prepares them to seamlessly handle tomorrow's innovations. Only Kaminario K2 delivers the agility, scalability, performance and economics a data center requires to deal with today's cloud-first, dynamic world and provide real-time data access -- anywhere, anytime. Hundreds of customers rely on the Kaminario K2 all-flash array to power their mission-critical applications and safeguard their digital ecosystem. Headquartered in Needham, MA, Kaminario works with an extensive network of resellers and distributors, globally.

For more information, visit www.kaminario.com

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