

kaminario.

Storage for what's next.

**All-flash storage for the modern
healthcare datacenter**

Lowering costs while improving patient care

THE 21ST CENTURY HEALTHCARE DATACENTER

As hospitals strive to deliver better care and control costs, they're facing far more than just increasing volumes of patient data. The very nature of the patient relationship, reimbursement and the use of healthcare data is undergoing fundamental change. These changes are driving the evolution of the modern healthcare datacenter.

The evolution of healthcare data

The volume of US healthcare data grew by a massive 48% during 2014¹ – with no slow-down in sight. Electronic Health Records (EHR), mobility and patient portals are transforming the applications that generate healthcare data. Mobile, tech-savvy patients themselves are demanding faster, mobile access to their health records. By 2018, 50 percent of the more than 3.4 billion smartphone and tablet users will have downloaded mobile health applications².

The business of getting paid

Beyond data, the business side of healthcare is changing too. The move towards outcome-based payments and pay for performance is increasing the importance of healthcare analytics. A 2015 study found that organizations that had adopted analytics are experiencing both clinical and operational benefits. Hospitals are looking to data analytics to improve clinical outcomes and reduce operational costs.

Additional demands from regulators

Governmental regulations will continue to influence healthcare systems – well beyond just the protection of Personal Health Information (PHI). Reimbursements for qualified meaningful use were codified in the HITECH Act of 2009. HIPAA instituted administrative, physical and technical standards to protect PHI. One can be sure regulations that impact healthcare data management will not diminish.

"Meaningful use has a direct impact on our datacenter strategies."

**Gene Thomas, CIO,
Memorial Hospital
at Gulfport**

¹ "The Digital Universe: Driving Data Growth in Healthcare," IDC, December 2014.
² 8 CIO concerns for 2016 and Report preview

SCALING YOUR EHR STRATEGY

All-flash arrays can transform the performance of Electronic Health Record (EHR) applications, helping your organization deliver improved quality of care and patient satisfaction.



Managing Growth

EHR implementations need to accommodate more users, more devices, and more data. The data explosion coupled with tightening regulatory and security requirements demand scalable and agile application delivery infrastructures.



Delivering Performance

As EHR implementations grow, application performance can become a major challenge. Right at the point of care is not where you want to suffer performance problems. Choosing the right all-flash solution to cost-effectively support application performance is critical.



Improving EHR Health with Kaminario

The Kaminario K2 all-flash storage array was built from the ground up to be the high performance backbone of database driven applications. Kaminario is helping healthcare IT organizations modernize application delivery infrastructures to ensure consistently high performance for EHR systems.

“We measure our technology costs in the benefits to patient care. Better performing queries that shave a few seconds mean every visit is smoother, faster, less intrusive. Time saved adds up to more people being seen, more people getting quality health care.”

Todd Portz, Technology Manager, El Rio Community Health

Speak to an expert today! Call us on **1-855-876-2441** or email info@kaminario.com

THE RISE OF VIRTUAL DESKTOP INFRASTRUCTURE

By 2014, 52% of hospitals had adopted Virtual Desktop Infrastructure (VDI) for their EHR system implementations, and that figure is forecast to grow to 65% by 2016³. VDI is transforming application delivery infrastructure for healthcare organizations by enabling:

- Secure access to clinical applications and patient information from anywhere
- Centralized control over Protected Health Information (PHI)
- Cost-efficiencies in datacenter infrastructure and end user computing support

VDI has the potential of enabling enterprise IT groups to more easily provision and manage desktop computing while better utilizing IT resources. However, virtualized desktop operating systems and applications generate a random blend of storage I/O requests with periodic "storms" of boot, login, and shutdown that stresses both servers and storage infrastructure. All-flash storage has become a popular strategy for delivering consistent VDI performance that can weather the unpredictable workloads of these storms.

Speak to an expert today! Call us on
1-855-876-2441 or email info@kaminario.com

Super-charging VDI with Kaminario

The Kaminario K2 all-flash array combines high availability, performance, and best-in-class cost efficiency to VDI infrastructures. Key benefits to using Kaminario K2 to support VDI include:

- Best-in-class data reduction reduces useable capacity requirements by 90% or more
- Low latency/High throughput ensures virtual desktops remain responsive even under peak workloads
- Highly efficient cost structure and best-in-class capacity efficiency ensure the lowest possible all-flash costs
- Management features and VMware vCenter plugin speed deployments and simplify management

"Leveraging all-flash for our institution was important. We could reduce our datacenter footprint. We can reduce costs over time. We are able to futureproof the datacenter. Delivering applications over a persistent, fast, reliable virtual desktop infrastructure is key to our success."

**Gene Thomas, CIO,
Memorial Hospital
at Gulfport**

GETTING THE MOST FROM BIG DATA

The explosion of data brings incredible opportunities to extract new value and insights using advanced analytics. These opportunities range from improving patient care to reducing the cost of care to predicting epidemics to drug discovery. Extracting this value requires a specialized set of tools and a data storage strategy that can support big data initiatives.

Big data workloads and real time analytics require a specialized storage strategy. Traditional HDD or hybrid storage arrays are quickly swamped by the level of I/O activity analytics generate. All-Flash Arrays can provide the consistently high level of throughput and low latency needed for analytics processing.

Realizing the Big Value from Big Data with Kaminario

Kaminario K2 delivers the flexibility and performance needed for Big Data infrastructures. Native snapshots make it quick and simple to clone and process very large data sets with very little overhead, delay or wasted storage capacity. Further, K2's best-in-class data reduction capabilities can substantially improve capacity efficiency and save costs.

Most importantly for Big Data, K2's unique scale up and out architecture lets you optimize analytics infrastructure for both capacity and performance. This delivers substantial advantages over other all-flash approaches, and ultimately delivers higher performance at a better cost point.

—
“The Kaminario K2 enabled us to consolidate our database environment onto one fast, reliable and scalable storage system and to expand our platform to multiple application servers to respond to the increasing demands from our users.”

**Gregory S. Thomas,
Vice President of IT,
Managed Health
Care Associates, Inc.**

—





KAMINARIO K2 ALL-FLASH STORAGE: AGILE STORAGE INFRASTRUCTURE

Healthcare IT is facing unprecedented challenges in the volume and scope of data storage requirements.
Ask these critical questions in developing your strategy:

- What will my costs look like over time?
- Will I be able to deliver consistent performance as the environment grows?
- What is the cost of down time?
- Will I be able to upgrade the environment non-disruptively?

Kaminario all-flash storage delivers predictable low cost, scalability, reliability and performance, with the flexibility of a software-defined architecture to generate the best value moving forward. Kaminario stands behind the K2 all-flash array with K-Assured™: The storage industry's most comprehensive, most straightforward, most valuable business guarantee program.

Shared All-Flash Infrastructure for All Applications.

The Kaminario K2 is the only all-flash array platform architected to manage a wide mix of applications from a single shared infrastructure. The K2 array can support the highly scalable databases supporting EHR systems, VDI infrastructure, and analytics platforms with the efficiencies of a shared infrastructure - without compromising performance on any of the applications. This unique capability delivers significant capital and operating cost benefits.

Speak to an expert today! Call us on
1-855-876-2441 or email info@kaminario.com

K2 ALL FLASH IN ACTION...

El Rio Community Health Center (Tucson, Arizona) eliminates latency for its 1,800 users based across 40 locations.

Before adopting Kaminario K2, El Rio's EHR platform suffered unpredictable latency issues, typically between 7 and 20ms but sometimes as much as 100ms. The reason for the slow-downs was block conversions being processed while handling SQL together with file shares and documents generated for the EHR.

K2's ability to optimize workloads on the fly without compromising on IOPS, latency, or bandwidth resulted in average latency falling to just ½ms.

Memorial Hospital at Gulfport (Gulfport, Mississippi) chooses Kaminario K2 as a cost-effective, flexible, fast and future-proof solution for their VDI implementation.

Rising patient numbers and changing digital records meant that Gulfport needed to look for a new high performance, cost effective storage solution.

Kaminario K2 all-flash storage delivered reliable, fast, consistent performance for their VDI infrastructure with reduced long-term costs.

"Any issues related to performance were immediately eliminated, 100%, and query times have accelerated across the entire network. The SAN became the opposite of a bottleneck."

Todd Portz, Technology Manager, El Rio Community Health

Kaminario makes the all-flash datacenter a reality, delivering consistently high performance and flexible scalability without compromising cost-efficiency and control. Kaminario's unique set of capabilities deliver the benefits of all-flash at price points that are competitive with hybrid and legacy disk storage. Healthcare providers can realize the full benefits of all-flash arrays so they are better positioned to successfully handle whatever comes next.

Speak to an expert today!
Call us on **1-855-876-2441**
or email **info@kaminario.com**