Why All-Flash Storage Is a Critical Next Step for

Administrators of PACS and VNA Systems

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Healthcare organizations are increasingly reliant on their enterprise imaging systems to improve quality of care and deliver value-based care. But as imaging continues to grow in size and scope, the administrators responsible for building and managing picture archiving communication systems (PACS) and vendor neutral archive (VNA) solutions are facing a wide array of new and potentially difficult challenges.

PACS and VNA administrators must ensure that their solutions can deliver the latest versions of images to clinicians when and where they need them, often in real time and often at the point of care, with no margin for error. In addition, PACS and VNA systems must be able to:

- **Store and quickly access more images than ever, including images with huge underlying data sets.**
- **Eliminate the silos that can limit collaboration and negatively affect patient care.**
- **Enable capacity growth without impacting availability and performance.**
- **Migrate to a single storage tier to reduce costs and optimize the use of storage resources to meet clinical needs, including advanced analytics such as radiomics.**

To address these challenges and build for the future, it is imperative that PACS and VNA administrators ease the burden involved in managing, upgrading and

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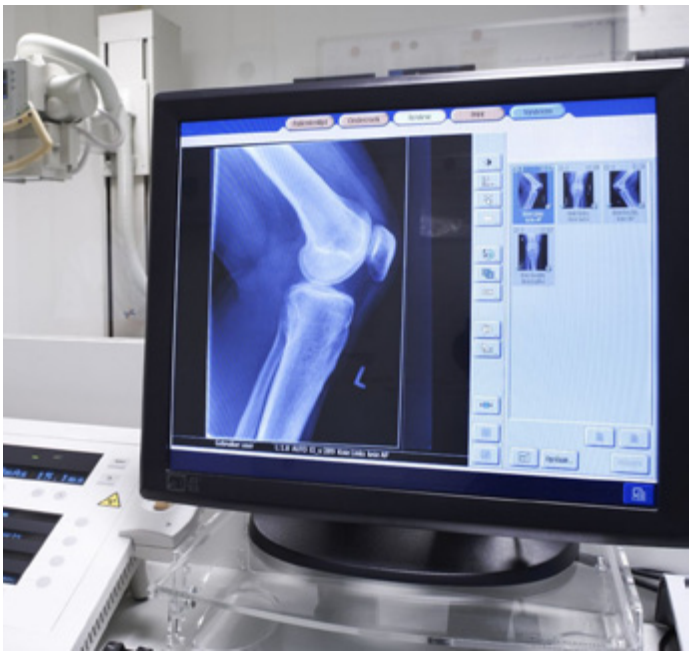

scaling their systems. At the same time, they must ensure that their systems can meet the growing performance and capacity demands of radiologists, other clinicians and hospital administrators.

It is not an easy job. One way to make it simpler is to leverage all-flash storage, particularly as an upgrade or replacement for hybrid solutions using flash as cache. With all-flash storage, PACS and VNA administrators can eliminate the constant and time-consuming manual tasks involved in managing cache. They can also improve performance and enhance access by moving storage to a single tier. In addition, with the right all-flash platform, administrators can leverage innovative deployment models to eliminate the need for risky and expensive migrations and forklift upgrades.

This white paper discusses how PACS and VNA administrators can use all-flash storage to reduce complexity, improve performance, reduce costs, simplify scalability and enhance the ability of their systems to deliver a better overall experience for clinicians and patients alike.

Administrative challenges in managing PACS and VNA systems

With major advances in both imaging technology and information technology during the past decade, the importance of PACS and VNA systems in improving quality of care and patient outcomes has grown.

Clinicians now have the potential to leverage a broader range of images from across the entire health system to make better and more informed decisions at the point of care. In addition, as these systems continue to expand in size and scope, clinicians can use advanced analytics, such as radiomics, to make even greater progress in treating patients.

This has made the role of PACS and VNA administrators more important than ever. It also places more pressure on these individuals to ensure that their systems are capable of fulfilling the demands placed on them. This means delivering performance to the point of care and meeting more stringent requirements for images, including availability, business continuity and compliance.

It also means dealing with capacity growth while ensuring that images are immediately available and not stored in an archive that is inaccessible or incapable of meeting the performance requirements of the image and the viewer. Administrators also have to align their systems with current and future customer care needs—specifically analytics, 3D rendering, remote access, and advanced radiomics and machine learning technologies.

How all-flash storage can help

Legacy spinning disk arrays can't meet the performance demands of today's enterprise imaging solutions, so they must be replaced and upgraded in order to maximize and modernize care.

Some organizations have tried hybrid systems using flash as cache or as one of several storage tiers. But those solutions fail to deliver the consistent performance required for PACS and VNA systems, and they are an operational nightmare for administrators—requiring constant and ongoing manual processes to manipulate data and move it on and off the cache.

As the performance demands for PACS and VNA systems continue to grow, it is clear that single-tiered all-flash storage is the only viable option. From the perspective of PACS and VNA system administrators, all-flash storage solutions are a welcome change from spinning disk or hybrid solutions, allowing them to meet the needs of the organization. They should therefore be strong advocates of their use.

Among the key benefits:

- **Simplified manageability:** An all-flash array will typically mean faster deployments, simpler scaling and less complex ongoing management and maintenance. With the right all-flash platform, administrators can use automation to eliminate a wide range of manual tasks—with no need to ever undertake an expensive and risky forklift upgrade.
- **A single storage tier:** This is valuable from a number of perspectives. In terms of performance, using a single tier of high-performance storage means that images are always available and on storage that can ensure quick and easy access. In terms of manageability, a single tier eliminates manual processes and the myriad tasks involved in managing the cache. In terms of cost effectiveness, a single storage tier means no need to manage archives and older storage platforms that are becoming obsolete.
- **A future-proof infrastructure:** All-flash storage is clearly the future for PACS and VNA systems, so there is really no point in waiting. With all-flash storage, PACS and VNA systems can deliver major improvements in performance, agility, availability and manageability. With the right solution, administrators can stay current with the latest technology without having to replace infrastructure and migrate applications, images and data. In addition, flash storage is the only storage platform that can deliver the performance required for modern initiatives such as big data analytics, machine learning and radiomics.

What to look for in an all-flash platform

Flash storage has come a long way in the past few years. IDC says 76% of enterprises plan to move more primary storage workloads into all-flash storage as legacy platforms come up for technology refreshes.[1]

In addition to performance, all-flash growth is being driven by improved cost efficiencies. By the end of 2017, the cost of enterprise-class flash media will actually be lower than 10,000-rpm and 15,000-rpm hard disk drive raw capacity units for most primary storage workloads, according to IDC.[2]

It is important to understand, however, that there are different architectural models for all-flash storage, depending upon the vendor. This is not a commodity market by any means. Companies born in the flash era tend to have a clear advantage over legacy companies that have existing product lines to protect.

Of all the companies delivering all-flash storage, Pure Storage deploys design features and functions that make its solutions particularly well-suited to address the challenges facing administrators of PACS and VNA systems.

1 "IDC's Worldwide Flash in the Datacenter Taxonomy, 2017," IDC, January 2017
2 Ibid. footnote 1

These include:

- **Performance:** A Pure Storage FlashArray delivers consistent sub-millisecond latency at hundreds of thousands of IOPS, regardless of size, even in mixed workload environments.
- **Management simplicity:** Pure Storage solutions are virtually plug-and-play solutions that can be up and running in minutes. They leverage highly automated processes to eliminate the need for tuning and other time-consuming management tasks.
- **A scale-out architecture:** A scale out architecture is critical for today's PACS and VNA systems, where capacity requirements are growing rapidly and administrators need to be able to adjust quickly without impacting system performance.
- **Single-tier storage:** With a Pure Storage FlashArray, administrators can utilize a single tier of storage that enables clinicians to access images at any time from any location without the need for archives on lesser performance storage tiers. This reduces complexity, improves performance and strengthens quality-of-care initiatives.
- **Innovative deployment models:** Pure Storage customers have the opportunity to leverage a unique deployment model called Evergreen Storage. With this model, you can stay current with new technology while protecting your existing investment. You don't have to do forklift upgrades every three or four years, and you never have to undertake costly and risky data migrations.

Conclusion

The advances taking place in enterprise imaging are exciting and dramatic. They are leading to improved quality of care and better patient outcomes. However, they are also creating challenges for the administrators of the PACS and VNA systems that facilitate those improved outcomes.

Given all of the challenges facing these administrators, it is important that they utilize solutions that reduce complexity and simplify their day-to-day workflows. That's where all-flash storage comes in. The right all-flash solutions can make life much easier for PACS and VNA system administrators, while enabling them to deliver the performance and cost efficiencies required of modern healthcare environments.

To learn more about how you can improve quality of care and reduce the complexity of managing your PACS and VNA enterprise imaging solutions, please visit Pure Storage at purestorage.com/healthcare.