

Quasar Data Center Enhances Service Levels with Clustered Data ONTAP

Last month, Tech OnTap brought you the first in a series of interviews with NetApp® customers on their clustered Data ONTAP® migrations and the benefits to their organizations. This month, we spoke with the CTO of Quasar Data Center.

Cloud service providers require storage that satisfies a variety of needs in terms of cost and performance. Hundreds of cloud providers have chosen NetApp FAS storage running Data ONTAP as their storage platform of choice to satisfy requirements for nondisruptive operations, secure multi-tenancy, and value-added storage services.

[Quasar Data Center](#) is a Houston-based provider of cloud services. *Tech OnTap* sat down with Casey Jones, Quasar CTO, to discuss why his team chose clustered Data ONTAP, the upgrade process from 7-Mode, and the overall advantages for both Quasar and its customers.

April 2015

Explore

Learn More about Clustered Data ONTAP

Read the first installment in our customer interview series to find out what other customers are saying.

- [DuPage Chooses FlexPod with Clustered Data ONTAP for NDO](#)

New to clustered Data ONTAP? These past articles will help bring you up to speed.

- [Enterprise-Ready Scale Out with Clustered Data ONTAP](#)
- [What's New in Clustered Data ONTAP 8.2?](#)
- [Nondisruptive Operations in Clustered Data ONTAP](#)
- [Clustered Data ONTAP 8.3: A Proven Foundation for Hybrid Cloud](#)
- [Making the Transition To Clustered Data ONTAP](#)

Full Graphics Acceleration for VDI

To replace the physical workstations required for graphics-intensive applications used in technical and creative fields, FlexPod Datacenter with Citrix XenDesktop and NVIDIA GRID combines the advanced capabilities of Citrix XenDesktop HDX 3D Pro with NVIDIA GRID GPU technology to deliver full graphics acceleration in a VDI solution for [oil and gas](#), [manufacturing and design](#), [media and entertainment](#), [healthcare](#), and other industries.

About Quasar Data Center	
Industry	Cloud Computing, Business Continuity, Managed Service
Corporate Headquarters	Houston, Texas, USA
Customers	400
Facilities	<ul style="list-style-type: none"> • Carrier-neutral tier I POP • Dual-underground power grids and diesel-generator backup • Dedicated offsite business continuity • Tier 3-capable facility per TIA-942 Standard/Uptime Institute criteria • SSAE 16, Type 2-compliant • COBIT 5 cloud security
Storage Environment	<ul style="list-style-type: none"> ▪ 4-node mixed cluster: two FAS3220 nodes, two FAS2240 nodes <ul style="list-style-type: none"> – Flash Cache and Flash Pool ▪ 2-node FAS8000 cluster
Main Applications	<ul style="list-style-type: none"> ▪ VMware vSphere ▪ Citrix XenDesktop ▪ vGPU-accelerated remote desktops ▪ Microsoft SQL Server, Exchange, and SharePoint

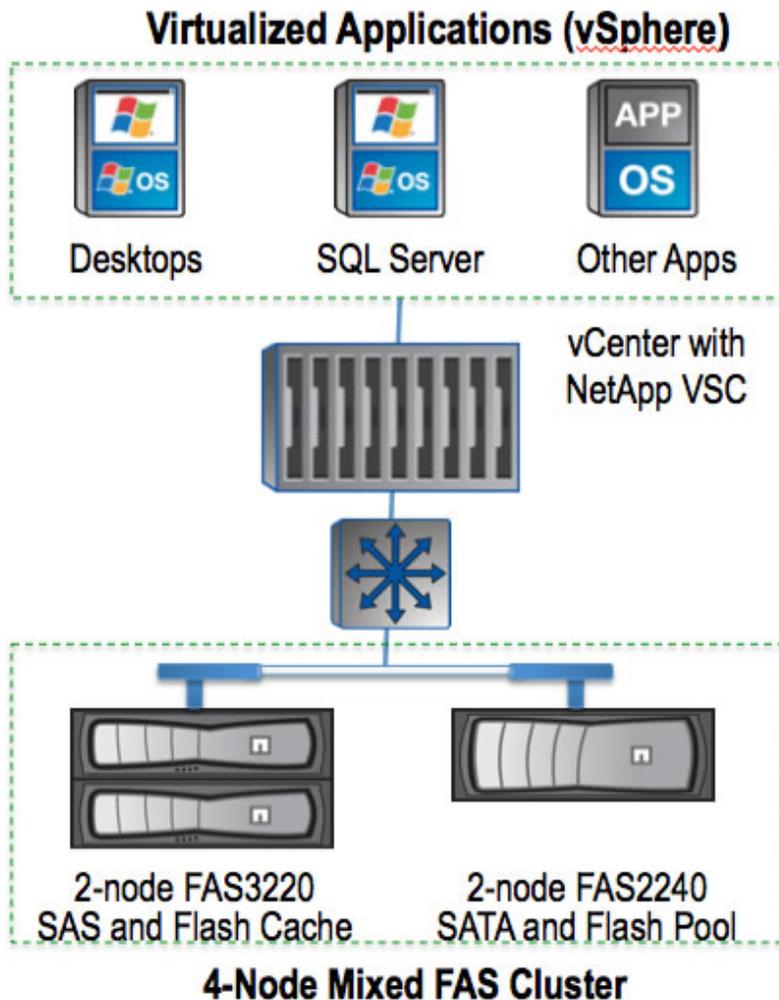
TOT: Why did Quasar Data Center choose clustered Data ONTAP?

Casey: Prior to adopting NetApp storage, we were using a combination of things, including some custom-built distributed file system infrastructure. About three years ago we had a customer specifically ask for a NetApp solution, so we implemented a NetApp FAS2240-4 running in 7-Mode to support the customer’s virtual workloads. That system did really well, and showed us the capability of the NetApp platform as a whole. We recognized that NetApp would be an asset for our overall environment.

I liked what I'd read about clustered Data ONTAP in terms of scalability and upgradeability, so when we decided to implement our second NetApp system, we went with clustered operation. That was a two-node FAS3220 dual-chassis configuration with a switch. That system ran like a champion; we absolutely adored it. We thought 7-Mode was easy, but clustered Data ONTAP is even easier for us and a better fit for our environment. It gives me all the tools I need, including the ability to quickly create volumes and move them nondisruptively between different types of storage media.

One of the clear benefits of clustered operation is scalability, and we quickly decided to add our existing FAS2240 to the cluster.

Figure 1) Quasar clustered Data ONTAP deployment.



TOT: How did you upgrade from 7-Mode to clustered Data ONTAP?

Casey: Adding our existing 7-Mode system to the FAS3220 cluster was very straightforward; we did it ourselves. Since all the workloads on the FAS2240 were virtualized, we first used VAAI for NFS in conjunction with **vol move** to reposition workloads on the FAS3220. Then we used VMware Storage vMotion to move all the running workloads from the FAS2240 to the FAS3220 cluster.

After that, we wiped the FAS2240 and installed clustered Data ONTAP, along with the necessary 10 Gigabit Ethernet cards, and added it to the existing cluster. To finish, we used a combination of Storage vMotion and simple volume copies to move the workloads back to the FAS2240 nodes. It was a painless process; anyone could do it.

TOT: How do you take advantage of this mixed cluster?

Casey: We have the FAS3220 configured with SAS storage and the FAS2240 configured with SATA. The FAS3220 has Flash Cache, while the FAS2240 uses Flash Pool technology. These flash options reduce our latency about 80% versus disk alone.

We use the SATA storage for non-critical workloads such as backend infrastructure for customer-facing environments that don't necessarily have high I/O requirements like basic file servers, authentication providers, and the like. The SAS storage and the FAS3200 nodes with Flash Cache serve higher storage tier requirements such as desktop delivery, SQL workloads, and any other application that requires a higher tier of storage. With Flash Cache plus SAS HDDs, we're able to deliver a level of performance for many applications approaching all-flash storage.

The beauty of clustered Data ONTAP is that we can move volumes around nondisruptively in real time based on the needs of our customers.

TOT: How does clustered Data ONTAP help you meet your service-level agreements?

Casey: As a service provider, downtime is a showstopper. With high-availability infrastructure and nondisruptive operations, clustered Data ONTAP not only gives us great availability, it eliminates the need for planned downtime. We can scale our cluster, upgrade software, and perform other tasks without disrupting our customers. When we upgraded from Data ONTAP 8.1 to 8.2, it was a painless process and completely transparent to our customers.

As a result, we're able to take on new and larger customers, and we can offer higher service-level agreements. Clustered Data ONTAP is the competitive differentiator that we needed

TOT: How do you use storage virtual machines (SVMs) to create a multitenant environment?

Casey: We have our environment divided into multiple VMware clusters. For each cluster, we have an SVM for public access and additional SVMs for private storage. We can give a customer whatever they want, ranging from an SVM using volumes on a shared aggregate to an SVM provisioned with storage on a dedicated aggregate. This gives us the flexibility to containerize every workload at multiple levels depending on the need.

We have a separate 2-node FAS8020 switchless cluster running as part of a private cloud on a customer's campus. We configured that cluster the same way because it simplifies overall administration.

TOT: What's your experience been in terms of total cost of ownership for NetApp?

Casey: Initially, we had to overcome the perceived cost per gigabyte of NetApp storage. On paper, it can look expensive compared to other options we've used. But once we realized the benefits of the overall management environment, Data ONTAP's capabilities, and the resiliency of the platform it started to make perfect sense. It saves us a lot of man-hours for storage administration. FAS hardware is designed to do one thing, and do it very well versus commodity hardware.

In the long run, our FAS clusters and clustered Data ONTAP have saved us a fortune—to the point where it's no longer quantifiable. We have customers that have equipment co-located in our data center and virtual workloads on our platform. One customer in particular runs a 3PAR shop, and they think NetApp clustered Data ONTAP is some of the coolest stuff they've ever seen.

TOT: What are the other NetApp features you depend on?

Casey: I think NetApp was one of the first storage companies to support VAAI [VMware vStorage APIs for Array Integration] for NFS. We leverage that every day; it makes a huge difference. It works so well that it's eliminated the need for 10 Gigabit Ethernet out to the servers. Storage vMotion occurs at the storage level rather than at the hypervisor level, which makes all the sense in the world.

We use thin provisioning and deduplication extensively. We don't have a volume that doesn't run dedupe. We rely on the built-in NetApp Snapshot capability along with Veeam 8; [its ability to leverage NetApp Snapshots directly](#) instead of using slower VMware Snapshots has been a huge benefit. We're looking at adding NetApp SnapVault to extend our backup functionality to secondary storage as an additional value-add for customers that want it.

OnCommand Unified Manager and Performance Manager from NetApp give us the oversight we need for our environment. I get a monthly report that shows me how much storage we're using, and how everything is performing. Regular warnings and alerts make it easy to keep the storage cluster running smoothly.

TOT: What advice would you give IT Teams looking at clustered Data ONTAP?

Casey: My advice is "clustered Data ONTAP all the way." Every release adds new features that make the environment even better. With Data ONTAP 8.3, for example, you can now use advanced disk partitioning to partition your root volume and make better use of that space. That addressed one of my last complaints with the NetApp platform.

The ability to quickly and nondisruptively move workloads has never been easier, and you can scale the infrastructure easily to accommodate multiple types of workloads on the same cluster without impacting performance on any component in the storage infrastructure.

To learn more about Quasar Data Center's upgrade, read [Quasar Data Center Supports Growth and Higher SLAs with Clustered Data ONTAP](#).

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