How Pure Storage and VMware Deliver High Availability and Data Protection

Data protection that does not compromise performance is table stakes, which is why Pure Storage and VMware (acquired by Broadcom) have jointly engineered two critical capabilities to provide high availability and robust data protection—both natively integrated into VMware vSphere.

XCOPY for NVMe-oF and **Virtual Volumes with vSphere metro clustering**, or what is commonly referred to as stretched clusters, were designed by Pure and VMware to give IT infrastructure teams the highest levels of availability to support mission-critical workloads.

> *"These jointly developed capabilities will empower IT organizations relying on both VMware and Pure Storage to achieve unparalleled data protection—seamlessly integrated and delivered as a native experience on the VMware platform."*
>
> *Paul Turner, Vice President of Products, VCF Division at Broadcom.*

For years, VMware has provided this caliber of data protection with traditional datastores such as VMFS and NFS. Now, VMware users can mirror that standard of equally high availability storage using the Pure Storage platform with all of the feature and lifecycle benefits provided by VMware vSphere Virtual Volumes (vVols). Both of these features are exciting in their own ways. Let's dig in!

Learn why FlashArray is the best storage for your vSphere environment

Virtual Volumes Support for vSphere Metro Clustering (Stretched Clusters)

As announced by VMware, vSphere 8 U3 provides official support for vSphere Virtual Volumes (vVols) with vSphere metro clustering, or what is commonly referred to as "stretched clusters."

Over the years, the operational efficiencies and advantages of using vVols over VMFS have long been discussed and noted (check out this white paper).

Simplification of VM provisioning, easier troubleshooting, and no compromises when using snapshots are just a few. But there was one feature that VMFS could hold over its more feature-rich vVols sibling, vSphere metro clustering.

Metro clustering provides unparalleled business continuity and operations for environments where “downtime” just isn’t an option. Utilizing synchronous data replication over short distances (think deployment over a WAN or campus network), metro clustering gives you recovery point objectives (RPO) of zero and near-zero recovery time objectives (RTO).

Your **RTO** is how fast your virtual machine powers on from a vSphere High Availability (HA) restart. Your **RPO** is how much data will be recovered.

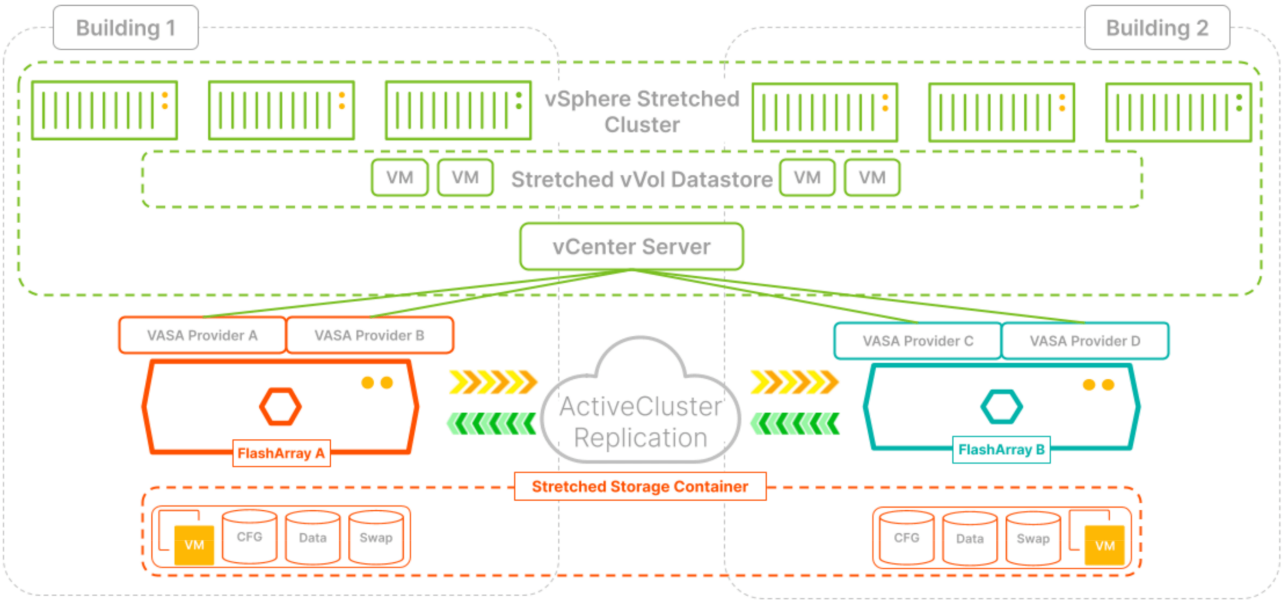


Figure 1: Virtual Volumes with Stretched Cluster

XCOPY for NVMe-oF (Cross Namespace Copy)

There is little doubt about the need for VMware’s vSphere API for Array Integration, or VAAI, to offload storage operations from your ESXi hosts to your storage hardware, saving on ESXi host resources and utilization and having them perform faster as the storage array is completing the operations.

However, if you’re using NVMe over Fabrics (NVMe-oF) as your storage protocol, there was a crucial VAAI primitive unavailable to you: Hardware Accelerated Copy (or what is referred to as XCOPY in SCSI and Cross Namespace Copy in NVMe-oF). Without Hardware Accelerated Copy offloading cloning, Storage vMotion, or template deployment to the storage array, these tasks would be completed by the ESXi host using the VMkernel software Data Mover driver.

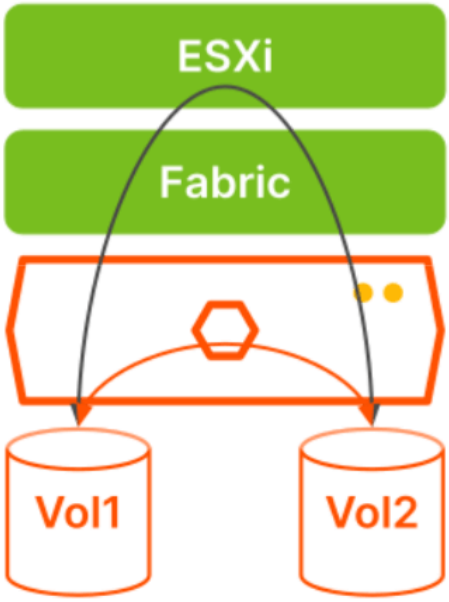
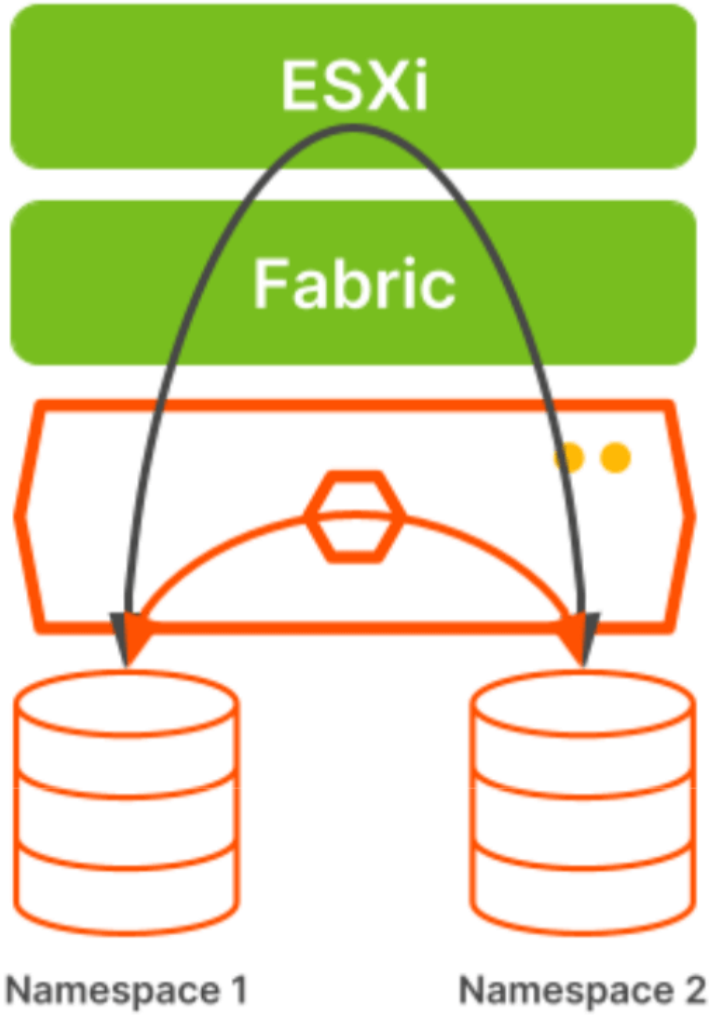


Figure 2:



Now, that changes! On day one of the feature being supported by vSphere, Pure Storage is in lockstep with VMware to announce our support of XCOPY on our FlashArray™ platform. Take full advantage of the performance that FlashArray delivers in copy data management for databases or the spinning up of new virtual machines like you haven't seen before with NVMe-oF. In our performance testing we have seen drastic reductions in the time needed to complete these tasks, up to a 7x decrease in the time required to complete copy data operations!

Just like with the support for Virtual Volumes with Metro Clusters, the engineering teams at Pure Storage and VMware have been working in tandem to bring XCOPY support to vVols and to bring feature parity to vVols compared to VMFS. vVols is the present and future for how VMware workloads will consume storage.