

# VirtuCache Case Study



## USE CASE

- Primary Storage
- Backup storage
- Storage Performance

## LOCATION

- Goldendale, WA USA

## CHALLENGES

- KVH required a low cost, high performance storage solution that was simple to maintain.

## SOLUTION

- VirtuStor replaced their existing storage product and delivered exceptionally cost-effective scale-out Server SAN technology – similar to the technology hyperscale and cloud service providers use.
- VirtuCache delivered "All-flash" like performance without the cost of an All Flash or Hyper-converged Infrastructure.

## Reduced cost and complexity from storage while delivering high performance with low latencies

VirtuStor runs on commodity servers. It clusters servers together and presents this cluster of servers as an iSCSI appliance. Considering that each 3.5" inch hard drive now carries 10TB capacity and costs only \$300, a server with 200TB of storage costs just \$15K.

The advantages of VirtuStor versus big brand storage appliance is that you can keep adding servers to this cluster, with storage capacity and performance scaling linearly as you add servers. You manage this cluster, however large, with a single GUI. It is open source and part of mainline Linux, hence inexpensive.

The one drawback with VirtuStor is that write latencies are high even if one uses SSDs for journaling.

### VirtuCache + VirtuStor

By deploying VirtuCache which caches hot data to in-host SSDs, we have been able to get All-Flash array like latencies for VirtuStor based storage despite the fact that our VirtuStor deployments use slower (7200RPM) SATA drives.

### Use Case at Klickitat Valley Health (KVH)

KVH runs a hospital and few clinics in Klickitat Valley, WA.

VirtuStor deployment: We deployed a 3 server cluster at KVH with each server carrying 24TB (3x 8TB HDD) raw storage and 480GB SSD (for journaling). So total raw storage capacity of 72TB was deployed with VirtuStor.

VirtuStor was presented over iSCSI to VMware hosts. Since a replication factor of 2 was used, 72TB of raw storage amounted to 36TB of usable capacity.

VirtuCache was configured to cache Datastores created in VirtuStor to a 3TB SSD in each host. Both reads and writes were cached to the host based SSD. As a result, latencies at the VM level were now under 10ms, regardless of how high or random the workload.

## The VirtuCache Difference

Using VirtuStor and VirtuCache, KVH was able to deliver exceptional performance at a low investment with minimal management required.

# VirtuCache Case Study



**VirtuCache makes slow backend SAN Storage ultra-fast with low latencies**

Below chart shows VirtuStor latencies (blue) versus VM latencies (yellow). The reason VM latencies are much lower than SAN/VirtuStor latencies is because of VirtuCache.

## Result

VM level latencies are much lower than SAN latencies because of VirtuCache caching to in-host SSDs.

Chart 1: Write latencies at the SAN versus at the VM

