



## VIRTUNET SYSTEMS VIRTUCACHE 2.0 FOR VMWARE HOST BASED SOFTWARE FOR VMWARE TO ACCELERATE STORAGE PERFORMANCE OF ANY SAN BASED STORAGE APPLIANCE

VirtuCache is a kernel mode software for VMware that clusters any in-host SSDs installed across VMware hosts in a VMware cluster together and then caches frequently and recently used data from any SAN based primary storage appliance to this clustered pool of host based SSDs. Subsequently, by automatically serving more and more data from in-host SSDs, VirtuCache substantially improves storage performance for VMware from our customer's existing storage appliance, thus improving the performance of applications running within VMs and increasing the density of VMs running on each host, without requiring an expensive upgrade to SSD based storage appliances.

Deploying VirtuCache requires no downtime to customer's existing VMware and storage infrastructure. It is also seamless to the customer's existing SAN based storage architecture, in the sense that end users and applications running within VMs do not realize that the data is being read from and written to the local SSD, instead of the back-end SAN based appliance.

### BENEFITS

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- Significantly improves VM level storage throughput and reduces latencies.
- Much lower cost per MBps of storage throughput versus SSD based appliances.
- Increases number of VMs deployed per host.
- Improves performance of applications within VMs.

### FEATURES

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- Accelerates both reads and writes. All frequently read data is cached to the host based SSD and all recent writes are written to this same SSD. Writes cached to the SSD are asynchronously synced with the backend storage appliance.
- Cache coherency – Since writes are written to only the local SSD without synchronously writing to backend storage, writes need to be protected against host or SSD failure. This is done by mirroring writes across hosts. In case of host or SSD failure, such mirrored copies of writes from another host are immediately synced with the backend storage appliance.
- Only a single software component needs to be installed within the hypervisor. No agents required in guest VMs and no virtual appliance required per host.
- No storage reconfiguration required.
- Ability to control caching policy at VM and datastore level.
- Seamless support for VMotion, High Availability, Snapshots, DRS, Linked Clones, and Storage VMotion.
- Data center wide cache management using CLI or graphical UI within VCenter.

### HIGH PERFORMANCE

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VirtuCache is the highest performing caching architecture for VMware. This is because:

- It accelerates both reads and writes.
- All software components in the I/O path are in the hypervisor kernel. There is no VM or Userspace software.
- In Linked Clone deployments like VDI, data from the parent VM that is repeatedly called by multiple desktop VMs is cached only once.
- Cache metadata is stored in host RAM to quickly decide if the data has to be fetched from cache or shared storage.

## MINIMAL ADMINISTRATION

VirtuCache is fully automated and requires zero ongoing administration.

- Dynamically caches data.
- Dynamically allocates cache across VMs.

## SYSTEM REQUIREMENTS AND DEPLOYMENT DETAILS

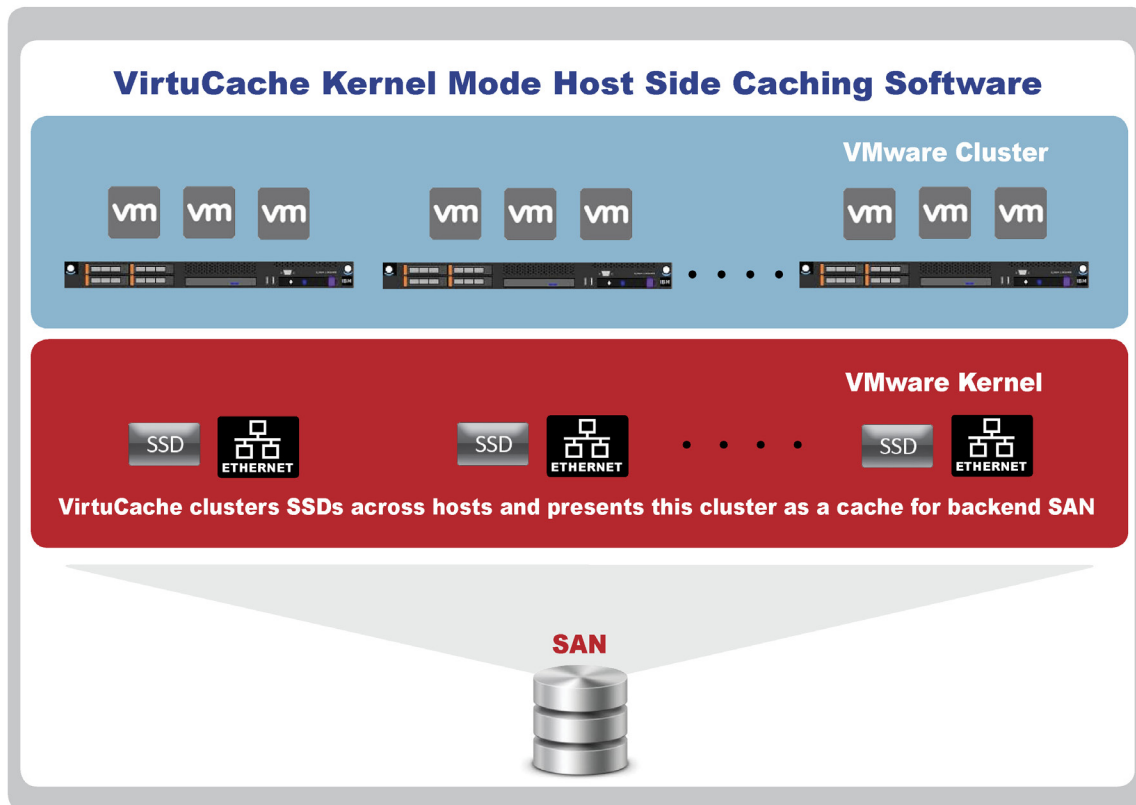
- Supports any operating system in the Guest VM.
- Supports VMware 5.x and 6.x.
- Can cache data to any SATA, SAS, PCIe, and NVME interface based Flash card or SSD.
- Can cache data from any SATA, SAS, FC, iSCSI, and FCoE based storage device.
- Installation does not need VM or host reboot.

## VMWARE PARTNER VERIFIED AND SUPPORTED

VirtuCache is PVSP certified by VMware as attested by this link  
<http://kb.vmware.com/kb/2116221>

## COMPETITIVE DIFFERENTIATORS

Since VirtuCache accelerates both reads and writes using a kernel only software architecture, and since in our case the SSD is closer to the CPU, the performance boost VirtuCache provides to our customer's existing storage appliance rivals that of an upgrade to a SSD based array or SSD based converged appliance, and without the expense, downtime, or re-architecture involved in a storage hardware refresh.



Block Diagram :VirtuCache deployment in a VMware cluster