VirtuCache Case Study

Ingesting and analysis large amounts of Call Center Data

USE CASE
- Storage Performance

LOCATION
- Santa Clara, USA

VIRTUALIZATION AND STORAGE ENVIRONMENT
- Verient's DotHill appliance were not able to deliver the needed bandwidth to support the throughput requirements of their Call Center Workflow Management Software

BENEFITS
- Upgrade of Verient's 8gbps FC SAN and slower DotHill appliances was negated, as VirtuCache and in-host SSDs were utilized to offload reads and significantly reduce throughput level latencies.
- Thus, Verint's existing infrastructure was able to achieve All-Flash like performance without the burden of replacing their existing infrastructure and at a much reduced cost.

The VirtuCache Difference

"All-Flash" like performance from their existing storage infrastructure.

Call Center Workflow Management software is storage IO intensive since it deals with ingesting and analyzing large volumes of audio. By caching from slower storage to in-host SSDs/DRAM, VirtuCache improves storage performance considerably thus improving performance of Call Center Workflow software running within VMs.

Verint's Enterprise Information Systems Business Unit
Verint's EIS business is the market leader in Call Center Workflow Management (WFM) Software.

Issues with VMware and storage in Verint's Dev/Ops environment
Verint's dev/ops deploys, tests, and triages customer issues in VMware VMs backed by a few hundred TBs of storage on DotHill appliances. As a result large amount of audio and associated metadata from different customers are being continuously ingested and analyzed within their application. Throughput requirement across the cluster was ~ 3.2GBps (~ 24 gbps) . DotHill appliances being primarily hard drive based couldn't withstand the 24gbps of throughput and neither could their 8gbps FC network. As result, VM level latencies were consistently higher than 100ms.

One solution was to upgrade to 32gbps FC network and large amounts of all-flash storage. This was ruled out due to the costs involved.

VirtuCache was a cheaper way to get the same benefits as the upgrade to high speed SAN and All-Flash array. By caching reads and writes from their DotHill appliances to in-host SSDs, latencies were much reduced even at peak throughput of 400 MBps, and without requiring Verint to replace their 8gbps FC SAN and slower DotHill appliances. Also since most reads are now offloadeded from the SAN to in-host SSDs, pressure on their FC network is much less. Lastly, SSDs installed in each host are much cheaper, since these SSDs are bought retail. In comparison storage appliance SSDs are considerably more expensive for the same SSD make and model.

Verint Dev/Ops Infrastructure
- Servers – HP BL380s with VMware
- Storage – Hard Drive based DotHill 2000 and 4000 appliances on 8 gbps Fiber Channel SAN

Workload Characteristics
The ability to deliver low latencies even at 400MBps VM throughput was required. This was primarily audio and associated metadata ingested and managed within Verint's application. Since VM densities were high, IO was mostly random.

VirtuCache Deployment
VirtuCache was deployed on each ESXi host, caching both reads and writes from DotHill LUNs to an in-host 960GB Samsung SM863 SSD in each host.

Benefit to Verint Dev/Ops
With VirtuCache caching to in-host SSDs, VM level latencies were now consistently under 10ms, even at high 400MBps throughput at the VM level.