



## COMPANY

Camden Board of Education oversees the education of over 13,000 students, spread across 29 different institutions including elementary, middle, and high schools as well as alternative education facilities for early childhood development and adult education. Located in New Jersey, Camden uses technology as a critical learning and administrative tool, keeping their 14-person information technology (IT) group very busy meeting the needs of students and over 3500 full time employees.

## INDUSTRY

Education

## CHALLENGES

- Meeting the evolving business needs of a vibrant and growing school district with limited budget
- Finding and deploying technologies that allow the district to flexibly meet performance requirements

## SOLUTION

Microsoft Windows Server 2008 Hyper-V R2 and Virsto

## RESULT

Leveraged Virsto to get more out of their Hyper-V budget and environment by doubling virtual machine (VM) density per host and cutting provisioning times by as much as 80%

## CHALLENGES

In education settings, systems are being deployed and/or retired on a regular basis. With physical servers, it generally took 30-60 days for Camden to respond to a request for a new system. The benefits that server virtualization technology would provide were clear to Patrick McGlinchey, Camden's Technology Systems Specialist, who brought Microsoft Hyper-V R2 in to improve their ability to respond to these types of requests in 2009. With Hyper-V, new systems could be provisioned in just a few hours, significantly improving the IT group's response times.

Camden's IT infrastructure was built around Dell PowerEdge servers running Windows and Dell EqualLogic iSCSI storage using both SAS and SATA drives. To meet their high availability requirements, McGlinchey had also deployed his Hyper-V Hosts in a 5 node Windows Server Failover Cluster configuration.

As Camden continued to grow, McGlinchey began looking for ways to get more out of their Hyper-V environment. A limited IT budget presented challenges as McGlinchey sought to increase the number of VMs he could support per host while continuing to get the performance he needed out of his existing storage.

*"Virsto met our expectations for performance and an increased VM density, but the rapid provisioning capabilities were a pleasant and very welcome surprise."*

*Patrick McGlinchey  
Technology Systems Specialist*

"We have a mix of application environments on our VMs, including SQL databases, file servers, and domain controllers, among others, and we are spinning up new VMs on a regular basis," said McGlinchey. "I was concerned that, as we added more VMs to our hosts to meet growth requirements, we would need to add more disks to our EqualLogic storage to continue to provide the performance we needed."



“High availability is also very important to us, which is why we’re using failover clustering today,” continued McGlinchey. “Whatever we chose had to continue to support our ability to use both failover and Live Migration.”

## SOLUTION

The desire to get more scalability out of his existing storage is what initially prompted McGlinchey to start looking around for options. In his online research, he found Virsto in early 2010. What initially piqued his interest was Virsto’s claim to increase the VM density any given storage configuration could support through a combination of increasing IOPS/spindle and thin provisioning. The fact that Virsto worked with his existing storage and did not require any additional hardware purchases was attractive, and he brought Virsto in and put it into production after a short trial.

Virsto’s solution deploys at the hypervisor-level with a single software install on each Hyper-V Host, regardless of the number of VMs supported. Virsto establishes a virtual storage layer that can boost VM I/O performance, reduce storage capacity consumption, cut provisioning times, and simplifies VM management by supporting storage operations at the virtual hard disk (VHD) instead of at the LUN level. Virsto’s optimized snapshot technology enables very rapid creation of an unlimited number of clones without taking up any additional space. Virsto’s innovative architecture offers performance, storage capacity utilization, and management advantages for either virtual server or virtual desktop environments, helping customers to get the most out of their Hyper-V deployments.

“Virsto met our expectations on the storage performance and VM density issues, but Virsto’s rapid provisioning capabilities were a pleasant and

very welcome surprise,” added McGlinchey. “With Virsto, I can spin up a new VM, complete with storage that gives me a predictably high level of performance, almost immediately. This has noticeably improved our response times to end user requests in a way that is very evident and very much appreciated by them.”

The Virsto vDisks are all cluster-aware to support high availability, while at the same time being thinly provisioned and supporting very high performance in runtime operations as well as with VSS/DPM backups.

## RESULT

The bottom line for Camden was simple: using Virsto, Camden increased the VM density they could support with existing storage by 2x, allowing them to accommodate VM growth without having to buy new storage hardware, while continuing to provide the high storage performance and high availability so highly prized by their end users. “And the provisioning productivity gains were a real bonus,” quipped McGlinchey. “Virsto’s snapshot/clone technology lets me keep the VM templates around that I need to spin up new VMs quickly and very space-efficiently, and it handles all the space reclamation automatically and instantly when we de-provision. I can’t imagine going back to the old way.”

“We’ve got a limited budget and a small group to handle all the IT requirements of a large school district,” concluded McGlinchey. “Virsto increased our storage performance, thinly provisioned all storage for space savings, and cut our provisioning times down to almost nothing. Tools like Virsto make the difference in our ability to continue to meet growth requirements, ensuring that we get the most out of our Hyper-V environment with our limited resources.”