City of Davenport, Iowa Conquers VDI Performance

VDI DEPLOYMENT SUCCESS WITH LOW LATENCY PURE STORAGE FLASHARRAY

The Challenge: HDD-based Array Can't Support VDI

Like many municipalities, the City of Davenport wanted to transition to the more flexible and efficient IT infrastructure afforded by virtual desktops (VDI). The City of Davenport IT department supports hundreds of employees, while needing to provide a specific level of service to those employees to ensure their productivity.

However, the mechanical disk-based array they were using wasn't able to meet the performance requirements for their initial VDI pilot deployment of 50 VMs; the randomization of the IO stream caused by virtualization slowed the existing array beyond what would allow the IT team to succeed in getting new users on board. "Had we tried to force users to move to VDI using the disk array, the project would have failed," said Cory Smith, City of Davenport IT.

> Anyone who is going to do a VMWare View deployment should put their linked clones on a Pure Storage array. It's essential.
>
> **Cory Smith**
> *Network Administrator, City of Davenport*

The Answer: Replace Mechanical Disk with a Pure Storage FlashArray

City of Davenport decided to trial VMWare View and a Pure Storage FlashArray concurrently. They deployed a pilot of VDI users, starting with 150 desktops. Since then, department heads have started calling IT asking when they can have all their physical desktops replaced with VMs. Why? Because with the FlashArray, the virtual machines are faster than the physical desktop machines.

The environment comprises six vSphere(tm) ESX 5.0 hosts and the workload is a 70/30 mix of reads/writes. The applications running within these virtual machines are Windows-based, with Exchange 2007 and SQL dominant in the workload. Test results on these workloads were tremendous! "When we move people back to the mechanical array, we get a lot of complaints," said Cory. That's because with the FlashArray, Davenport IT was able to reduce latency to less than 1ms, down from 20ms.

City of Davenport now uses linked clones to improve maintenance and upgrade efficiency of virtual desktops. By creating clones of a VM, installing and upgrading user applications can be done on a single VM instead of across many. However, using linked clones concentrates IO to a specific location in a mechanical array, which slows all machines down. Using the FlashArray, a linked clone environment is easily handled because the Purity Operating Environment disperses the IO and data across the entire array.

The Results: VDI Outperforms Physical Laptops

The City of Davenport IT infrastructure deployment project is progressing with the storage performance they need at a budget they can support. The City of Davenport plans to increase their VDI deployment up to 500 or more! Because departments have decided to use virtual desktops instead of buying physical desktops, the FlashArray has already paid for itself within their budget. And there's still extra capacity to take on additional workloads.

Without the FlashArray, the successful deployment and maintenance of these hundreds of VMs using linked clones in VMWare View would not have been possible within the budget, even with mechanical disk.

City of Davenport

SOLUTION

- Initiated pilot VDI deployment using a FlashArray and vSphere ESX 5.0 and used linked clones

PERFORMANCE IMPROVEMENT

- Reduced average write latency from 20ms to 1ms
- Reduced average read latency from 17ms to 0.5ms
- Sufficient performance to mix workloads on the FlashArray
- Linked clones replication from 45 to 2 minutes

DATA REDUCTION

PURESTORAGE