Isos Housing Constructs Elegant Virtual Desktop Infrastructure

Not-for-profit UK housing firm uses Fusion ioMemory™ ioDrive® Duo cards to improve infrastructure and application performance by 20X

Solution Focus

- VMware Horizon View 5.x

Summary of Benefits

- 120 desktops per server
- 24X faster login times
- 20X faster application load time
- 24X faster disaster recovery time
- 50% reduction in service desk requests
- Transparent migration from physical to virtual desktops
- Precise budget control with linear performance scaling

The Challenge

Isos Housing Limited is a not-for-profit organization providing affordable housing for those in need across the North East of England. Isos was created when four separate housing providers merged their services. Each of these companies previously operated its own distributed infrastructure. Transitional and Technical Supervisor, Iain Knott and his team faced the daunting task of migrating 300 employees onto a single, centralized system to streamline management and improve user performance.

Mr. Knott explained, "We had a number of different desktops and IT systems, some of them quite old. We needed to modernize and restructure to facilitate the needs of the group. Because many workstations were being "End-of-Lifed", it was a good time to pursue virtual desktop infrastructure."

Implementing virtual desktop infrastructure across disparate IT infrastructures needed a solution that met the following requirements:

1. An easy migration path from physical to virtual desktops
2. Performance equal to or better than existing physical workstations
3. Cost-effective solution for persistent desktops that doesn't require the cost and management overhead of a SAN
4. High Availability for uninterrupted operation
5. Precise planning for growth-related future purchases

The Solution

As Mr. Knott's group began to research solutions, they discovered Fusion ioMemory products. He explained, "We had seen a demo of Fusion ioMemory, which is certified with VMware Horizon View, and we liked that. So we picked a supplier that was happy to work with SanDisk® as a solution."

Easy Overnight Migration

Mr. Knott wanted a migration that was transparent to end-users and easy for his team to manage: "We needed a 'big bang' solution where each organization would run its own location on one night, and the next morning would be serviced by the central location."

Fortunately, the ioDrive Duo cards deployed in industry standard servers made what might otherwise be a herculean migration easy. First, it made virtual desktop infrastructure easy to deploy remotely: "Because each ioDrive Duo card hosts up to 120 desktops per server, we could build, test, and deploy the desktops on servers at each remote location that communicated initially with central storage at corporate headquarters," said Mr. Knott.

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This high desktop density made it possible to start remotely and then centralize the servers physically when each location was up and running. "Once we were ready to bring things into the middle, it was easy to just pick up the servers and physically relocate them to the data center. Users logged on in the morning without noticing any difference," Mr. Knott said. "Our biggest success here was that we were able to break the migration down into smaller components."
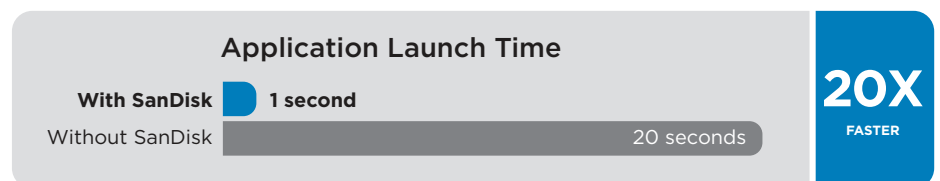
Faster than Workstation Performance

One of the critical aspects of any virtual desktop infrastructure installation is performance. Users have low tolerance for delays, and especially for unpredictable delays beyond what they see in a physical desktop. Because virtual desktop infrastructure essentially replaces a local, dedicated PC with shared central storage, it can be very expensive to implement using traditional disk-based SAN or NAS products because of the sheer number of disks required to meet this expectation.

ioDrive Duo products elegantly solve this challenge with persistent, high-performance, high-capacity flash technology that resides in an industry-standard server. ioDrive Duo provides the storage performance needed for both reads and writes, even when many users contend for resources, such as during a simultaneous booting of many systems. At Isos Housing, Mr. Knott explained, "While moving to a virtual desktop infrastructure, we took the opportunity to enhance security using Secure Two-Factor Authentication with Smart Cards and Pin numbers. With the older physical machines, our staff would turn on their computer and then go get a cup of coffee, because it took at least three to four minutes for desktops to boot. Now they put in their Smart Card, punch in the pin, and within seconds they have a usable desktop."

Log In Time

With SanDisk	10 seconds
Without SanDisk	240 seconds

24X FASTER

Not only were login times decreased significantly, applications also performed more quickly. Mr. Knott commented, "Programs such as Outlook took 15 to 20 seconds to load, but this is now almost instantaneous."

Application Launch Time

With SanDisk	1 second
Without SanDisk	20 seconds

20X FASTER

VMware Persona for a Cost-Effective Persistent Desktop Experience

Mr. Knott discussed how he used VMware View Persona to create a persistent desktop-like experience for end users, while avoiding the costs of persistent desktops on flash. "When you move away from a SAN, you might worry about losing persistence features," he explained. "But VMware View Persona eliminates these concerns. Our users access desktops with Smart Cards and pin codes now. This gives them flexibility to use terminals at any of our sites or even login from home, and have the desktop pop up exactly how they left it."

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Distributed Architecture and High Desktop Density for Easy High Availability
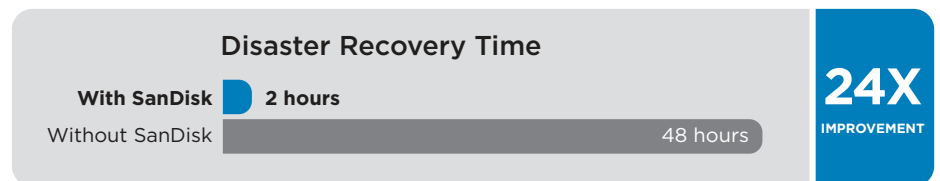
Because Isos was centralizing without a SAN, Mr. Knott needed to protect desktop availability against server failure through alternate means. The high desktop density made it easy for him to design a distributed architecture that required far less hardware than one might expect. Mr. Knott said, "Our distributed architecture, combined with ioDrive Duo scalability, allowed us to deliver full redundancy for 300 employees on just six servers."

Saving IT Maintenance Cycles

The new infrastructure immediately affected the maintenance routines for Mr. Knott's IT staff. "The average number of Service Desk requests per day has halved since moving to our new virtual desktop infrastructure architecture," stated Mr. Knott.

ICT Service Desk Requests

With SanDisk
Without SanDisk

50% REDUCTION

The distributed architecture was also a key component for Isos's Disaster Recovery (DR) program—and was put to the test within the first few months of the virtual desktop infrastructure deployment, when the main office flooded. Mr. Knott explained, "This is the second time we implemented our DR plan. The first time we had physical PCs and recovery took 48 hours. The second time, our SanDisk powered virtual desktop environment recovered within two hours."

Disaster Recovery Time

With SanDisk — 2 hours
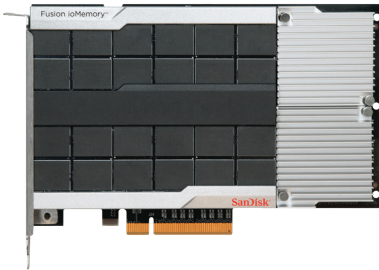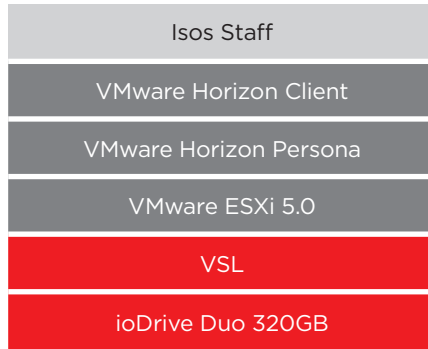Without SanDisk — 48 hours

24X IMPROVEMENT

Precise Planning for Future Growth

As a not-for-profit organization, Isos had a strong incentive to manage costs. The SanDisk-based system helped Isos to control capital and operating expenses by allowing the IT architects to scale performance and cost linearly with the needs of the organization. This provided a cost-effective starting point and a predictable budget for future growth. Mr. Knott commented, "If you reach your limits on a traditional SAN, then you are buying a new SAN and the costs involved are quite complicated. With SanDisk, we know exactly what it's going to cost. If we need to expand, we know that we get another 100–120 users for the cost of a server and an ioDrive Duo card."

From an operating expense standpoint, the SanDisk powered solution minimized overall costs because the use of accelerated servers in place of complicated SAN equipment eliminated the need for additional management or training of existing staff.

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SanDisk Powered Software Stack

Isos Staff
VMware Horizon Client
VMware Horizon Persona
VMware ESXi 5.0
VSL
ioDrive Duo 320GB

Fusion ioMemory™ - ioDrive® Duo

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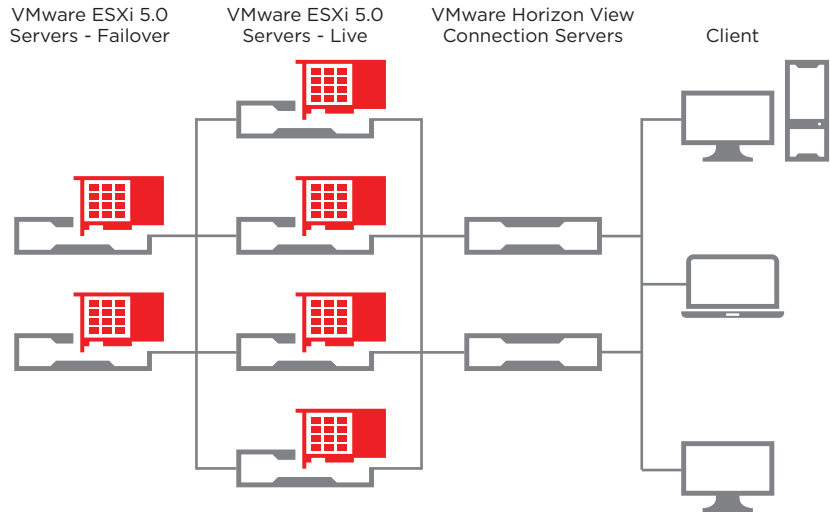Shanghai, 20031, P.R. China
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System Overview

VMware ESXi 5.0 Servers - Failover • VMware ESXi 5.0 Servers - Live • VMware Horizon View Connection Servers • Client

Servers

- 6 x 2U servers, 2 Quad Core CPU @2Ghz, 128GB RAM
- OS: Vsphere 5.0
- Application: VMware View 5.0
- ioDrive Duo 320MB card
  - Up to 120 desktops per vSphere server
  - Golden Master Image
  - User shares
  - Roaming profiles

Summary

Isos Housing Limited realized the following benefits after implementing Fusion ioMemory™ ioDrive® Duo:

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Mr. Knott is thrilled with the solution, especially as it affects the workers in each of the subsidiaries: "The benefits of the VMware and SanDisk solution were the performance, flexibility, and consistency our users receive from the new environment. Our staff now gets a persistent personal desktop from any of our offices or from home. Staff can remain logged on to a desktop and move to any office or work from home, and pick up their desktop where they left it."

About ISOS Housing

Isos Housing is now responsible for the day-to-day management of almost 12,000 homes across the North East of England, from Berwick in the north down to Stockton in the south, and across to Cumbria in the west. ISOS operates from offices in Newcastle, Hexham, Morpeth, and Prudhoe, delivering a customer-focused service tailored to individual needs. By listening and responding to what the residents want to see in their local area, ISOS is able to build real communities with the residents. Isos is a not-for-profit organization, which means that all monies raised goes back into improving service to customers.