



Cardium Solutions
IT CONSULTANCY & SOLUTION PROVIDERS

CASE STUDY

Northumbrian Water

Data and Printer Migration to Windows 2000 Cluster



Executive Summary

This is a brief overview of the approach taken by Cardium Solutions to migrate data from two separate NT 4.0 File servers to a single Windows 2000 Cluster running in an Active-Active configuration attached to an EMC Storage Area Network (SAN)

Client Profile

Northumbrian Water (NWL) provides Water services for the North East of England. As part of a migration to a newer version of Lotus Notes and various other changes to their infrastructure, it was identified that the disk capacity currently available on their two NT 4.0 file servers was reaching saturation point and a requirement to move to a resilient clustered environment for file, printing and FTP services was required. The two file servers that were to be migrated also performed printing and FTP services and had various applications and services also running.

Project Objectives

NWL asked Cardium Solutions to provide them with a project plan and team who would be able to install Windows 2000 cluster services, migrate data, printers and FTP services to the Windows 2000 clusters seamlessly.

Project Approach

The first major issue identified was the number of various mandatory client profiles in existence that had shortcuts and embedded links to the NT 4.0 servers. At this point it was agreed that to limit the changes required at individual client computers (to zero) it would be necessary to name the new virtual servers (running on the Windows 2000 cluster) to the same name as the existing Windows NT 4.0 servers. This would occur on the evening of the migration however was a risk as this could not be tested exactly as it was not possible to have two computers on the network with the same name.

Cardium suggested that the detailed development activity be broken down into a number of key technology streams. This provided for specialisation and excellence in all key areas. To ensure that all aspects of the solution were delivered coherently a Technical Architect would oversee each technology stream.

Data Migration

This technical stream included:

- Analysis of services/data on existing FAP servers;
- Proof Of Concept testing;
- Data migration retaining permissions;
- Share migration retaining permissions;

- Complete transfer of data;
- Pilot to 30-50 users;
- Testing of shared applications;
- Incremental data transfers pre go live date;
- Roll back process;
- Sub Project Sign off from NWL;

Login Scripts

This technical stream included:

- Analysis of existing scripts;
- Re-mapping of drives to new file servers;
- Roll back Process;
- Sub Project Sign off from NWL;

Printers

This technical stream included:

- Analysis of existing printers;
- Migration of printers to new servers and large scale testing of the printer drivers;
- Roll back process;
- Sub project sign off;

Cluster Configuration

This technical stream included:

- Hardware Compatibility List checking for the identified servers;
- Installation of Windows 2000 Cluster Service as an Active-Active solution;
- Configuration of file, print and FTP services for failover;
- Creation of a program to automate share and file creation for help desk staff on the Windows 2000 cluster;
- Failover testing;
- Sub project sign off;

Backup Solution

This technical stream included:

- Installation of Backup Exec Enterprise Software;

- Creation of Backup Scripts to backup the Windows 2000 Cluster irrespective of the node that the virtual server was running on;
- Creation of backup scripts to backup identified external servers;
- Sub project sign off;

Project Implementation

Due to the nature of the print devices in use and previous issues seen by NWL and printing (several clients experienced "Blue Screen of Death"), providing a stable printing environment was the key for a successful migration. Cardium performed extensive tests on over 70 print queues and ensured that real life testing was performed on these print queues by pointing real users at the new print queues for over a week before the data and printers were migrated.

Data Migration was managed using robocopy and (as there was little data change during the day), a typical refresh would take approximately 2.5 hours, for 70GB of data. As the refresh time was consistent Cardium was then able to identify that a mid week switch over of the servers would be possible, performing one server one week and the second file server the following week. As all users home directories were shared, the cluster was configured to share all directories beneath the directory that hosted the user's home shares, as sharing individual shares would make the fail over time of the cluster in the event of failure lengthy. An application that would create and share any new directories on the cluster was written for NWL as the process for creating directories and shares is more complex than a normal Windows 2000 file server.

Specific applications and services that were identified were moved to a separate server configured specifically for these applications, which ensured that the cluster would only run applications that were designed for a clustered environment; namely File, Print and FTP.

During the evening of the implementation members of the Cardium team were tasked with specific implementation goals, and once the migration was completed (which included the rename of the NT 4.0 file server to a new name, the allocation of a new IP address, the rename of the Windows 2000 server to the old NT 4.0 file server name and the allocation of the IP address of the old NT 4.0 server), logon testing and various key applications testing was performed on various client machines throughout the building.

Conclusion

This project was complex and the data migration was delivered in a very short space of time (under one month). The problems that NWL had experienced with printing previously meant that Cardium needed to ensure that there was a satisfactory comfort level with the stability of the print system before this could be migrated. The use of a Technical Architect to design and oversee all aspects of the implementation ensured that this project was delivered in a timely fashion.

Client Feedback

Post completion Cardium always undergo a project closedown meeting obtain feedback from the client, shown below is the clients comments;

Feedback from Claire Burn IS Support Manager

Michael,

few words to give you some feedback...

The project to migrate the NT data to a SAN environment was awarded to Cardium after a relatively short project planning phase. This was dictated by the urgency of the project and the delay it could cause to Notes and Citrix projects. The planning included project definition workshops with Cardium to help NWL identify the true scope of the work required and proved to be very useful, as after advice from Cardium, the scope did change and become more structured.

The project scoping documents were very detailed both technically and financially and allowed the project to be considered as a whole, not two separate strands. All of the information required for the project was identified, alongside a recommended path. Contingencies were built into the plan and allowed NWL to analyse the risks involved in each section of the work.

Once the project was underway, Cardium worked quickly and without disruption in the NWL environment. Familiarity with the infrastructure did help, but once the necessary access to the systems were provided there was little involvement of the Desktop team. This was during the preparation phase of the project and when the plan required, an internal resource was assigned to work with Cardium for implementation.

The plan was disrupted after a rain storm which caused major operational

incidents. As a result the plan could not progress, but very quickly a meeting was called to agree alternative actions. This covered risk assessment of any further incidents, as well as an impact analysis of the delay in SAN project on the other systems. The implementation went smoothly with only one major issue being encountered - printing. A fix for this was identified by Cardium and briefed to the Support Centre staff who then handled the calls received.

After go live, electronic documentation has been passed to NWL and supported by visits to site to 'hand over' to the Desktop team. Specific training has also been planned for the IS Support Centre to support a wide range of day to day user maintenance.

Hope this gives you what you need, please let me know if you need more.

cheers

claire



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Contacting Cardium

- **Telephone** 01282 425111
- **Fax** 01282 425444
- **E-mail** info@cardium.co.uk
sales@cardium.co.uk
- **Address** **Cardium Solutions Ltd**
4 Dominion Court
Billington Road
Burnley
Lancashire
BB11 5UB
- **Internet** www.cardium.co.uk

