



cardium solutions

CASE STUDY

AES

Novell NetWare to Windows 2003 Migration



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Partner



Executive Summary

This is a brief overview of the approach taken by Cardium Solutions to design and implement a Windows 2003 solution complete with a migration strategy for users and clients in a Novell NetWare environment.

Client Profile

AES (Analytical and Environmental Services) is a leading environmental company providing a wide range of high quality monitoring, analysis and technical consultancy throughout the UK and Ireland. The company employs over 300 people from a network of locations including extensively equipped UKAS accredited laboratories and is part of Northumbrian Water Group plc.

Their existing infrastructure was based around Novell NetWare servers and services utilising Novell Directory Services (NDS) for account and server management and also software deployment. The WAN connected sites are home to a NetWare server which hosts file, print and DHCP services. There were a number of Windows 2000/2003 servers employed in various roles; Remote Access Server (RAS), Lotus Notes and various departmental applications. The desktop infrastructure is primarily consisted of Windows XP. The clients have locally installed applications deployed using Novell's ZEN application delivery mechanism which hooks into the NDS. Lotus Notes is used for email services.

Project Objectives

The objective of the project was to implement the Windows 2003 domain and migrate users with minimal disruption. An option to roll back to the previous solution needed to be available at all times. Given the number of users and that they were spread across a number of sites, a strategy had to be devised where they could access the same data irrespective of whether they'd been migrated or not, i.e. whether they were using a Novell client and logon, or using the Microsoft client and Active Directory authentication. As both environments were required to run concurrently, it was essential that both the new and existing infrastructure could coexist effectively. The domain design also needed to address the following.

- Single user logon for access to resources.
- Standardisation of infrastructure configuration.
- Minimal business disruption during the migration.
- A different set of policies for different organisational units within AES.
- A user to retain their desktop settings no matter where they logon.
- Scalable/Extensible – allow for the introduction of any new businesses that may be incorporated into the group.



Project Approach

Based on Cardium's real experience of these types of projects and in migrating large scale networks, Cardium broke down the project into the following areas.

Project Management

This included all of the following however is not an extensive list.

- Appointment of an overall project manager.
- Use of a Project Definition Workshop to establish the requirements of the project and shape the overall project.
- Production of a Project Plan and detailed plans for each stream.
- Establishment of a regular reporting cycle and escalation process.
- Controlled sign-off of each phase.

Technology Streams

Cardium suggested that the detailed design and 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 are delivered coherently a Technical Architect would oversee each technology stream. The technology streams consisted of the following.

Design

- Project Definition Workshop (PDW).
- Audit of the existing environment; NetWare and Windows 2000/2003 infrastructure, physical locations, networking, connectivity, etc.
- Windows 2003 Domain Design.
- Windows 2003 Active Directory Design.
- TCP/IP Design; including DHCP, WINS and DNS.
- SMS 2003 Design (discussed in a separate case study).
- Proof of concept testing; Domain migration, user migration, data migration and systems co-existence.

Once the design and proof of concept testing had been completed Cardium were then able to identify the technology streams required to implement the solution in the live environment.



Implementation

The following streams were identified from the design and proof of concept phase:

Windows 2003 Domain Implementation

Cardium were tasked with implementing the new Windows 2003 single domain. This included:

- Building of six domain controllers, one for each separate location.
- Installation, configuration and migration of DNS as per the design.
- Migration of DHCP from Novell NetWare to Windows 2003 servers.
- Implementation of WINS services.
- Identification of TCP/IP subnets and addressing any WAN implications.
- Implementing FSMO roles as required.
- Implementing the Organisational Units (OU) as identified in the design document.
- Implementing group policies with a specific policy to "lock out" the machine and user if they were not identified in an OU.

Remote Site Broadband Solution

A number of remote sites required an Active Directory replication strategy and method for sharing data using a broadband ADSL connection. This was factored into the design and is discussed in detail in a separate case study.

Logon Script Implementation

It was decided at an early stage to use a Batch script as the standard logon script language rather than KiXtart or VBScript. There were two key factors in this decision, first the functionality required was simple and could be easily implemented using batch, and secondly, it is known entity and required no special training in order to support.

User and Group Migration

It was decided to use a custom scripted approach to migrate the users from the Novell NetWare NDS to the Windows 2003 Active Directory. There are a number of utilities available that can be used to migrate user accounts and group information, however the majority don't offer the flexibility required for many migration scenarios. An approach that Cardium has employed during many other migrations is a two-stage scripted approach, whereby the existing data is exported to a spreadsheet before being imported into the Active directory. The scripts offer flexibility in that user and group properties can be validated and further customised before they are imported into the Active Directory.



Data Migration

This aspect of the user migration process provided additional complexities to the approach. The migration of personal user data was a relatively simple task, in that in most cases the data is only accessed by one person, namely the owner of the data. Therefore user data could be migrated on a site by site basis. This allowed all the personal user data to be copied in advance and then refreshed as each site was migrated.

The migration of shared data was significantly more complex as data needed to be available at a single point for both non-migrated and migrated users. The method employed was to leave the shared data on the Novell server until all sites and users had been migrated. Once this was complete then the data could be "cut over" to the Windows file servers. The method proposed for providing access to Novell hosted data through newly migrated clients without the Novell Client 32 was to provide a Gateway Services for NetWare (GSNW) server at each site to allow Microsoft only clients to connect through to Novell served data. The advantage of this approach is that only a single client visit will be required and it allows all the data to be copied in advance and then refreshed when the data is finally "cut over".

A Windows resource kit utility, Robocopy, was employed to migrate data and its use was vital to the success of the migration process. There was a vast amount of data to copy and Robocopy allowed us to schedule data copies and perform incremental updates once the core data was migrated. Therefore the data copy process for a site could be performed repeatedly (out of hours) well in advance of the site migration and then refreshed on the day.

Client Migration

The client migration process would involve several changes including the following.

- Removal of the NetWare client.
- Network configuration; removing hard coded entries, etc.
- Domain configuration; joining the new domain.
- Printer configuration.
- Various other changes.

Cardium produced and tested a client migration procedure and where possible automated changes.

Printer Migration

Existing Novell NetWare print services were audited. Given the relatively small number of networked printers and automated process was not devised to create new print queues and shares. The queues were created in advance and common applications used to test the new Windows 2003 printer drivers.



Documentation

Each stream of the design provided detailed documentation that was then passed onto the client.

Project Conclusion

This project was complex and the Windows 2003 infrastructure was delivered in a very short space of time. 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. The solution also had its complexities and the approach applied allowed us to tackle and comprehensively test before visiting the sites involved, adding to the success of the implementation.



Notes

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