Client   St Ives plc

Date   2005 - 2006

Project   Active Directory 2003 Migration

Role   Project Manager, Network Manager

Background St Ives plc was a multinational printing company that had grown over 35 years by merger and acquisition and was comprised of over thirty production sites collected into six divisions, with each division facing a particular printing market, such as books, city financial, magazines, music and catalogues. Each division had an independent information technology structure, the majority using Microsoft Windows NT4 and Exchange 5.5 servers with Windows 95, 2000 and XP desktops. Some Red Hat Linux and Netware servers were also in service.

In 2004, Microsoft announced the timetable for termination of support for Windows NT4. The end of support would result in an unacceptable risk to the company's operations, so divisional IT Managers agreed to co-operate on a migration to a sustainable common platform and security structure. An exhaustive investigation of Linux, Netware, VMware and Windows options was performed by a forum of IT Managers. This came to the conclusion that the key application for the company was Exchange e-mail, and as this relied upon Active Directory, the latter was mandated. Other operating systems would be permitted only where explicitly justified because their use would increase support and training costs; at the time there were also litigation and financial risks associated with Novell and Linux.

The company's USA division had updated its three sites to Windows 2000 and Active Directory during the previous year, so the USA division directory structure was proposed as a basis for development of a group-wide structure. The USA IT team was nominated to lead the project but it relinquished the role after some months of zero progress because it was overloaded due to other projects of high divisional priority.

Project Management At this point, the Group Finance Director asked me to take over as project manager. A fresh start was made using consultants from Calyx Ltd who had been involved in previous projects. A study of divisional requirements and organisational and security structures was conducted. A design document was drafted in September 2005. This covered the following areas:

- naming conventions
- active directory design (forest, domain and OU)
- organisational unit structure (DC location, replication, delegation and groups)
- security group structure (trusts, domain mode, policies)
- file and print design and data replication
- backup strategy
- migration strategy
- system monitoring and management
- deployment
- Exchange and OWA design, backup and resilience
- domain controller hardware
- software licensing and software update strategy

The design was finally agreed in December 2005. The key features were:

- all servers would run Windows 2003 R1
- a single forest would comprise initially of two domain trees, "Group" and "USA" with trusts
- a migration of the USA domain would be considered after the initial project
- new server hardware would be purchased for all domain controllers and Exchange 2003 servers
- all new server hardware should be from one manufacturer and product range
- an Exchange resilience solution would be implemented using EMC Replistor
- file server resilience would utilise distributed file service replicas
- old domain and mail servers that were suitable for upgrade would be redeployed as file, print and application servers
- Microsoft licenses and software assurance would be negotiated for a three year period
- Applications should be updated to the current releases when hardware was
- fast deployment and migration tools such as Altiris and Quest to be utilised
- VMware would not be used, due to lack of Microsoft support
- Outlook Web Access would be published by servers in London, Leeds and New York

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- All desktop PCs would be upgraded to Windows XP or replaced
- All laptops would be upgraded at least to Windows 2000 and ideally to Windows XP
- An asset management tool would be used to control software licenses
- Management of divisional OUs would be delegated to divisional IT teams but the root domain management would be performed by a central support team under the authority of the Finance Director
- Windows software update services for servers would be subject to a patch pre-staging by the central support team, then automatically distributed to all servers
- Microsoft Operations Manager would be run from a central server in London with agents on each server considered worthy of monitoring
- All divisional IT support staff would be trained to MCSE level in Active Directory administration, Windows 2003 server and Exchange 2003 server administration
- The project would be split into three phases:
  - A core phase where Windows 2003 domain controllers and Exchange 2003 servers would be staged, then deployed to all divisions under my project management
  - A divisional phase where each division would project manage the migration of its own servers, applications, data and users at its own pace and agreed schedule
  - A clean-up phase where any remaining Exchange 5.5 and NT4 or Netware servers would be removed, the MOM agents activated and the Active Directory switched to native mode and design documentation updated, project managed by me

Audit and Cost Estimate I performed an audit of each division's hardware to determine its suitability or need of upgrade and the costs of licensing its operating system and application upgrades. A hardware and software upgrade cost of £1,520,000 with migration, training and consultancy costs of £118,000 and an annual running cost of £58,000 was estimated.

Purchasing A hardware selection committee was formed from three divisional IT managers and me. A number of hardware suppliers were approached with a view to tendering but were quickly reduced on the basis of budget quotes to two front runners, HP and Dell. Although St Ives is a major purchaser of HP imaging division and computer division products, HP's computer division refused to negotiate directly, instead referring us to its resellers. This put Dell at an advantage as far as price negotiation was concerned. In addition, Dell could offer substantial discounts on Microsoft, Symantec and EMC software licences. A contract was negotiated with Dell for the supply of core hardware and software licences with three year premier hardware support and software assurance. A discount agreement was negotiated for the future purchase from Dell of divisional hardware and licences over the following three years.

Capital Expenditure St Ives main board approved the expenditure of £787,000 for the core phase of the project and instructed the divisional boards to propose the divisional expenditure they considered necessary. Divisional capital expenditure of £778,000 was approved. The budgets for divisional capital expenditure were rationalised to my cost estimates and a schedule of divisional cost allocation for each element of the core project was agreed. A schedule of stage payments for the implementation consultants was agreed.

Core Phase Implementation A series of workshops for divisional IT staff was scheduled to familiarise the staff with new hardware such as the Dell blade chassis and EMC storage arrays, software such as DFS, Altiris and Replistor. The AD structure was explained and feedback from the divisional IT staff was used to fine tune the build of the domain controllers. Divisional IT staff members were trained on Microsoft courses as appropriate.

In March 2006, the domain controllers and Exchange servers were deployed to the six divisional data centres and tested. During this testing, it became apparent that the Replistor resilience solution for Exchange was not working as expected. Exchange implementation was suspended and a protracted investigation with Microsoft, Dell and EMC ensued. After a mutually agreed deadline had expired in April 2006, I rejected the product and negotiated a refund of our licence. Alternative resilience solutions were investigated but advance information from Microsoft inclined me towards Exchange 2007 SCC or CCR resilience, so a conventional overnight backup solution (Backup Exec) was used until Exchange 2007 was released. The core phase of the project was completed within budget in May 2006.

Divisional Implementations The six divisional implementations were executed by the divisional IT teams during the summer and autumn of 2006. Two two-man implementation teams spent about a week in each division supervising trial migrations of a small number of mailboxes, users and storage areas but left the

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local IT teams to perform the bulk of the migrations. I monitored the divisional project costs and reported variations from budget to the teams.

Clean-Up Phase The clean-up phase was completed by the end of December 2006. One agreed scope change was that the MOM agents were not deployed because a more attractive product (SCOM) had been announced. In the event, a server management appliance from Kace Inc was purchased.

Post-Project Other than some instability with OWA and need for minor changes to divisional administrator rights, there have been no issues since the project was completed.

The Exchange server configurations were upgraded to four-server Exchange 2007 continuous cluster replication during the summer of 2008. OWA was upgraded at that time and now runs more reliably.

St Ives sold its USA operations before the domain trees were merged.

St Ives later bought a further ten-site printing company that uses Active Directory but has yet to migrate it to the St Ives forest because it first needs to upgrade the new division's wide area network to a secure and reliable service.

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