Strategies for Retiring Novell NetWare:
A Case Study Example

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Reasons for Retirement

- **Elimination of IPX/SPX protocol from network**
- **Get back to one network operating system instead of two**
- **Reduced number of LAN administrators**
- **Reduced on-going training cost**
- **Simplified log-on process for end-users**

Project Scope

- ## NetWare as a…
  - ### File Server
    - The sharing of files amongst employees throughout the organization using NetWare will need to be relocated; NT has file sharing capabilities
  - ### Print Server
    - The printing of documents throughout the organization using NetWare will need to be relocated; NT has network print capabilities

Project Scope (cont'd)

- **NetWare as a…**
  - **Application Server**
    - **Most applications running on NetWare today can effectively operate on NT or an NT-friendly version of the application is likely available**

Financial Scope

- Internal labor costs to manage and execute the conversion
- NT Server (Windows 2000 Server) licenses
- NT/W2K CALs (Client Access Licenses) may be available through a competitive upgrade option
- Current hardware (servers) may need to be upgraded if at the end of their life cycle

Project Communication

- **Communicating with business unit/department (customer) regarding the official project, building of the NT server, and migration plan and schedule for moving the customer from NetWare to NT**

- **Standing communication channels will need to be identified for project updates and ad hoc needs**

Data Structure: Design & Layout

- **The layout of data in NT will be flatter in comparison to the data layout in NetWare**
  - **Many directories will exist off the root directory instead of the taller design which may have existed in NetWare**
  - **This is due to the functionality of NT security**

NT Shares & NTFS Permissions

- **Both NT shares and NTFS permissions can be used**
  - **Users can map only to shares in NT**
  - **All directories on the root are shared to the Everyone group with Full Control to permit users to map**
  - **On all directories immediately below the share, NTFS permissions are used to restrict access**
  - **The most restrictive security is the result**

Resources

- A Project Manager to lead the effort and set the server retirement schedule

- Skilled NT/W2K network administrators/engineers to perform the technical conversion functions

- Business Unit/Department representative(s) to make decisions regarding the data and act as liaison

Best Practices

- **List technical problems that have been solved**
- **List outstanding technical issues that need to be solved**
  - – **Summarize their impact on the project**
- **List any dubious technological dependencies for project**
  - – **Indicate source of doubt**
  - – **Summarize action being taken or backup plan**

Caution Areas

- **Some applications--particularly shop-floor equipment--may not have an NT-ready version**
  - **They may need to remain on NetWare for the time being**
- **The restructure of data is a manual, time intensive process**
- **The entire effort is a project management endeavor--careful planning is key to succeed**

Retirement Process

- **The next group of slides are highlights from the *Planning* and *Execution Checklists***
  - **These checklists may be available on the Proceedings CD**
  - **The plan is to have these documents available through a WWW address too**

Planning: Printing Needs

- **Identify obsolete equipment**
  - **Older model printers**
  - **JetDirect cards not capable of supporting an IP address**
  - **Non-JetDirect network printers (using NetWare's Nprinter feature)**
- **Identify non-standard print requirements**
  - **Special "forms" requirement where NetWare facilitates control characters**

Planning: Operational Needs

- **Older PC technologies**
  - **DOS-based and Windows 3.x PCs**
- **Diskless workstations**
- **Various shop-floor equipment**
  - **CNC routers in a manufacturing environment**
  - **Imported equipment**

Planning: Hardware Resources

- **Determine lifespan of current equipment to house NT/Win 2000**
- **Consolidation of data onto an existing NT/Win 2000 server should be considered**

Planning: Client Software

- **Determine what network clients are loaded on the PCs connecting to the network**
  - **End result will be the removal of all NetWare client software following the retirement of the NetWare server**
  - **All network access will utilize Microsoft-created client software**

Planning: Data Structure/Security

- **Determine and document the data structure in the existing NetWare server**
- **Determine security settings on the NetWare server**
  - **Use the NetWare TBACKUP utility to determine trustee access**
  - **Use the NetWare GROUP SHOW command to inventory groups, members of groups, and access**

Planning: Applications

- **Inventory the applications that reside on the NetWare server**
- **Contact the application vendors to determine if an NT-capable version exists**
- **Opportunity: Consider retiring the application all together**

Planning: Login Script

- **Determine the functionality and need of the current login script**
  - **The need to replicate the same functionality in the NT environment may exist**
  - **Accomplishing the needs of the current login script using a more efficient method may be a consideration too**

Execution: Resource Roles

- **"Retirement Coordinator" is the business unit/department resource (likely a non-IT-trained resource)**

- **"Corporate Contact" is the LAN Administrator handling the technical aspects (definitely an IT-educated resource)**

Execution: Final Assessment

- **Verify the Conversion Checklist-- Planning is complete**
- **Consider timing to begin**
  - **Avoiding month-end, quarter-end, or any other planned initiative may be advisable**
- **Educate user community about the forthcoming conversion**
  - **Differences and change will exist; end-users must be willing to adapt**

Execution: Build NT Server

- **Decision must be made: acquire server or consolidate onto existing server**

- **Build server based on revised, flattened data security structure for NT**

- **Create a login script and begin testing**

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Execution: Migrating Printing

- **Document list of printers that need to be created in NT**

- **Create printers in NT (recommend using a static IP address vs. DHCP)**

- **Test converted printers by setting up one or two users to use the NT printing**
  - After X days with no issues, convert all users to NT printing
  - Disable NetWare print services

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Execution: Migrating Applications

- **Document a list of applications to be migrated off of the NetWare server**
  - **If NT version of application exists, begin testing the new version**
  - **If NT version does not exist, decision as to trying the legacy version will need to be made**
- **If tests are favorable, migrate applications--one at a time**

Execution: Migrate Data

- **Document a list of data that needs to be migrated from NetWare to NT**
  - Create daily/weekly conversion schedule
  - Share this with end-user community
- **Migrate data in a staged fashion**
  - Move users one department at a time
  - Data migration will need to take place outside of standard work hours
  - Disable access on NetWare thereafter

Migration: Post Conversion

- **Strip licenses from NetWare immediately following the retirement of unit(s)/departments(s)**

- **May wish to keep server available for a period of time--perhaps a month--to ensure all needed data has been migrated**

- **Delete the server from the NDS**

- **Re-deploy or retire server hardware**

Case Study

- **Involved the retirement Novell NetWare 4.11--replaced with Microsoft Windows NT 4.0**

- **~40 NetWare 4.11 servers retired using this process**

- **Retired servers were replaced with eight Microsoft Windows NT 4.0 servers**
  - **Seven file servers and one print server**

History

- **NetWare had been the standard Network Operating System (NOS) for file and print services**

- **Business Units were needing a more stable, robust NOS for applications**

- **Due to the migration of applications from NetWare to NT, total NetWare servers dropped from 58 to around 40 during the '98-'99 time period**

Business Need

- **During second half of 1999, three business units went a step further and migrated file and print services from NetWare to NT**

- **The three retired NetWare servers were a result of the natural evolution toward the goal of a simpler sign-on solution**

- **The "NetWare Retirement Project" was simply formalizing the effort**

Approach

- **Project officially began in March, 2000**
- **Management's goal to complete project was 12/31/00**
- **Effort was in two phases**
  - **Phase I: NetWare as an application, file, and standard print server**
  - **Phase II: NetWare as a print server for special print needs**

Approach (Cont'd)

- **Began the effort with retiring the NetWare server in the Corporate IS department**
  - **Planning started in April**
  - **Execution began late May and completed in early June**
- **Felt it critical to "walk the talk" with respect to what was being asked of the units/departments**

Approach (Cont'd)

- **Used the *Planning* and *Execution Checklists* as templates for the work**
- **Converted anywhere from a dozen to 20 employees each day**
  - **Physically touched each employees machine just before they left for the day**
  - **Migrated data later that evening**
  - **Followed up with converted employee first thing the next morning**

Approach (Cont'd)

- **Result:**
  - **Approximately 120 employees impacted**
  - **~Nine gigs of data converted**
  - **~Thee applications migrated to NT or retired**
  - **With the exception of a few files which were migrated afterward, the conversion was seamless to the end user**

Other Servers

- – **Scheduled anywhere from three to five servers for retirement the remainder of 2000**
- – **At 12/31/00, 86% of the servers slated for retirement were retired**
- – **By the end of March, 2001, Phase I retirement was achieved**
- – **Retirement of Phase II: Special Print Needs, is underway with a goal to complete of 12/31/01**

Cost Savings

- **Annual recurring savings can be quantified using objective measures:**
  - Reduced LAN Administrators--may no longer need the same size staff with only one NOS
  - Reduced password re-set calls to help desk--the number of calls should decrease as a login in removed from the daily log on process

Kimball Project Team

- **Executive Sponsor:**
  - **Lonnie Nicholson**
- **Management Representatives:**
  - **Roger Williams**
  - **Ken Stenftenagel**
- **NT/NetWare Administrators:**
  - **Kevin Chattin, Darrell Forbes, Ken Gates, Jeff Matheis, Mike Kemker, Matt Weisensteiner**
- **Login Script Developer:**
  - **Michele Wallace**
- **Assistant Project Manager:**
  - **Michelle Steiner Fromme**