

# VonLehman Novell to Windows 2000 Migration

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### Problem

Due to some compatibility issues with Novell 4.11 client and its Windows client VonLehman & Company has migrated from a mixed networking environment with Novell 4.11 and Microsoft Windows to a Microsoft Windows only network.

As most software is designed for Microsoft networks, compatibility issues arise when some software is used in a Novell environment. This results in constant phone support with the software in question and the constant downloading of patches from either Novell's site to patch the Windows Novell client or from the software manufacturer's site.

One program in particular can not be printed from without using a more recent Novell client on a Windows XP laptop. The problem with updating the client is that it causes printing issues with a more important program. Updating the client fixes one problem, but causes another. The program that can't be printed from isn't an important one and other workstations running an earlier Novell client can print the report. These types of problems are the ones that VonLehman wishes to avoid in the future by migrating to a Windows 2000 network. The migration has fixed these problems and the user having this problem can now print without any problems from both programs.

### Description of Solution

Users haven't seen any difference between the mixed network and the Windows 2000 network. Their login screen is different as shown in Appendix A in Figure 1 and Figure

2. The login screen they used to see is the Novell Client login screen in Figure 1. The one they see now is the Windows Client login screen in Figure 2. They also had to change their passwords the first time they logged into the network after the upgrade. All users still access their e-mail and all of their programs the same way. The network programs they use were put in the same directory they were in on the Novell servers and the drive mappings were kept the same. Another change they have noticed is that the printers all have descriptive names now. For example, there were three Hp 4050 Laserjets on the network. Two were HP Laserjet 4050s and one was a HP Laserjet 4050N. This was very confusing for users and there was no way to change the name of the printer in Windows 2000 Professional which everyone had been upgraded to. Now those three printers are called HP Laserjet 4050Admin; since it's in the Admin department, HP Laserjet 4050Share; since it's by the shareholders, and HP Laserjet 4050Cube; since it's by the cubicles. Users are much happier with these names as they can now tell which printer they are printing to. The printers are also easier to find as they can search Active Directory for them by going to the Add New Printer wizard in Windows 2000. It is also easier for the IS department to install new printers since we do not have to install the driver over and over as drivers are now installed on the Windows 2000 Server. When the printer is installed on the workstation the driver is transferred from the server to the workstation.

The way the network looks now is different from the way I thought it would be.

The original network diagram is as follows:

#### Original Network Configuration

- Two Novell 4.11 Servers
- One Windows NT Server on VLEXCH domain

- One Windows NT 4.0 Terminal Server
- One Windows NT 4.0 Small Business Server
- Mix of Windows 9x and Windows 2000 Professional workstations

The network diagram for this is shown in Figure 3. The original network consisted of 1 Novell server at both the Blue Ash and Fort Mitchell locations. The Fort Mitchell location also has one NT Server with Exchange 5.5, VonLehman's Intranet pages, and Proxy Server. There is also a NT Terminal Server running Citrix MetaFrame to allow remote connectivity for employees. At the Blue Ash location, there is also a NT 4.0 Small Business Server that was inherited when VonLehman merged with a smaller accounting firm. There are only three workstations, the employees that were added with the merger, attached to this server. The two locations are connected with a T1 line that allows people at both locations to access their e-mail, view the Intranet, and browse the Internet through the proxy. There were also a mix of Windows 9x and Windows 2000 workstations. The way I thought the network would look is as follows:

#### Proposed Network Configuration

- Two Windows 2000 Servers on VLEXCH domain
- One Windows NT 4.0 Servers on VLEXCH domain
- One Windows NT 4.0 Terminal Server
- One Windows NT 4.0 Small Business Server
- All workstations upgraded to Windows 2000 Professional

The network diagram for this is shown in Figure 4. I thought that the two Windows 2000 Servers would be on the same domain that the NT Server is on and would all replicate to each other. Going into the project, no one was sure if the NT Server would be demoted to a Backup Domain Controller (BDC) or if we would just upgrade it to Windows 2000 Server. The NT Terminal Server was left alone since there was no reason to change it. We knew it would work fine as long as it could connect to network shares on the

Windows 2000 Servers. The Windows NT 4.0 Small Business Server was not going to be changed either. All of the workstations were upgraded to Windows 2000 so there isn't a mix of different Windows' operating systems and we can get the full functionality of Windows 2000 Server. This is how the network is currently:

#### Actual Network Configuration

- Two Windows 2000 Servers on VONLEHMAN domain
- One Windows NT 4.0 Server on VLEXCH domain
- One Windows NT 4.0 Terminal Server
- All workstations upgraded to Windows 2000 Professional

The network diagram for this is shown in Figure 5. The Windows NT Small Business Server is gone; the data from it was transferred to the new Windows 2000 Server in the Blue Ash location. Another thing that is different is that I thought the Windows NT Server and the new Windows 2000 Servers would be on the same domain. Instead, the two Windows 2000 Servers are on their own domain. There will be two domains on the network until the Windows NT Server is upgraded to Windows 2000 Server within the year. By having two domains, we have eliminated the problems I ran into during my testing. In the original network configuration the Windows NT Server is a Primary Domain Controller (PDC), so I set up my Windows NT Server as a PDC in my testing environment. I was having problems getting the Windows NT Server to replicate with the Windows 2000 Server. Also, you had to start the NT Server first so that the Windows 2000 Server would show up as a BDC instead of trying to be a PDC. If the Windows 2000 Server tried to become a PDC, the Windows NT Server would get an error saying that it could not be the PDC because another computer was. I was unable to demote the Windows NT Server to a BDC through NT Server's or Windows 2000's Server Manager

even though I found documentation that told me I would be able to do that. Creating two domains took care of those issues.

The migration at the Blue Ash location went more smoothly than the migration at the Fort Mitchell location. The data from the Novell Server in that location was copied to a Windows 2000 laptop. When all of the data was copied to the laptop and verified then the Novell Server was formatted and Windows 2000 Server was installed in its place. The Windows 2000 Server was then made a Domain Controller just like the Fort Mitchell Windows 2000 Server and set up to replicate users and groups from the Fort Mitchell Windows 2000 Server. The Fort Mitchell Server already had all the users and groups in two Organizational Unit's (OU), a Fort Mitchell OU and a Blue Ash OU. This was done since users at both locations need to access data on both servers. The Blue Ash server replicated the user and group data with no problems. The data from the laptop was then put onto the Blue Ash server. Then all of the workstations in the Blue Ash location were joined to the VonLehman domain.

#### Deliverables

- Setup test environment with two Novell 4.11 Servers, an NT Server setup as a Domain Controller, a Windows 2000 Server with Active Directory installed, and a Windows 2000 Professional Workstation
- Migrate data and users from Novell Servers to Windows 2000 Servers
- Setup NT Server as either a PDC, BDC, or a member server

- Uninstall Novell Client from company's client computers
- Configure Microsoft Client for Windows 2000 Server on workstations

My deliverables were met. I did set up a test environment with all of the systems indicated. Data was migrated between the servers at both locations. The NT Server was left as it was since it works fine on its own domain. The Novell client was uninstalled from all workstations at both locations. The Microsoft Client was configured on all workstations to connect to the new VonLehman domain.

#### Design and Development

The project stayed within its budget and was completed on time. As you can see in Appendix C, the project required a new Dell Server and enough Windows licenses to upgrade the various Windows 9x PC's to Windows 2000.

#### Conclusions and Recommendations

For the most part, the upgrade went smoothly. The user migration tool worked as it was supposed to and we did not have to add any users into Active Directory by hand. There were some problems with the data migration from the Fort Mitchell Novell server to the new Windows 2000 Server at that location. The server had to be watched constantly since it kept erroring out while copying data. Microsoft's file migration tool would not work properly and despite playing around with it, it was decided to not use it. That probably would have solved the problems we had at the Fort Mitchell location with the data transfer.

The client workstations were easy to join to the new VonLehman domain. All that had to be done was to uninstall the Novell client and the IPX/SPX protocol and then join the workstation to the VonLehman domain. At first, the workstations could not connect to the new server until we added a DNS Server IP address into the DHCP pool. From that point on, all the workstations could easily connect to the new server and could be joined to the domain.

There were a couple of problems with some of the client workstations. VonLehman used to use Intel's Landesk Server to remotely control workstations. There was a Novell login script that ran to install the client anytime a PC was logged in without the client already installed. Several of the workstations that had been upgraded to Windows 2000 had the Landesk client installed. When the workstations that had the client on them were joined to the VonLehman domain and restarted, a message would pop up saying that the Landesk client could not find the Landesk server. The problem with this was that there was no automatic way to uninstall the Landesk client after it was installed. It had to be manually uninstalled and the registry had to be hacked.

Another problem was that we did not have a Windows 2000 driver for a networked copier. The manufacturer had to be called and it was not running on the network until Wednesday.

If I had the project to do over again, there are a couple of things I would do differently. I would have checked out the networked copier to make sure it was ready for Monday when everyone came back to work. I also would have gotten rid of the Novell login script that installed the Landesk client before I started upgrading workstations to Windows 2000 since the Landesk Server was not in use.

In a year or so, the current Windows NT Server with Exchange 5.5 at the Fort Mitchell location will be upgraded to Windows 2000. It will also be made a Domain Controller since Exchange 5.5 will be upgraded to Exchange 2000. The decision was made to wait on this since the migration from Novell to Windows 2000 was such a major project.

# Appendix A

Figure 1 – Novell Client Login Screen



Figure 2 – Windows Client Login Screen



# Appendix B

Figure 3 – Diagram of Network Before Migration

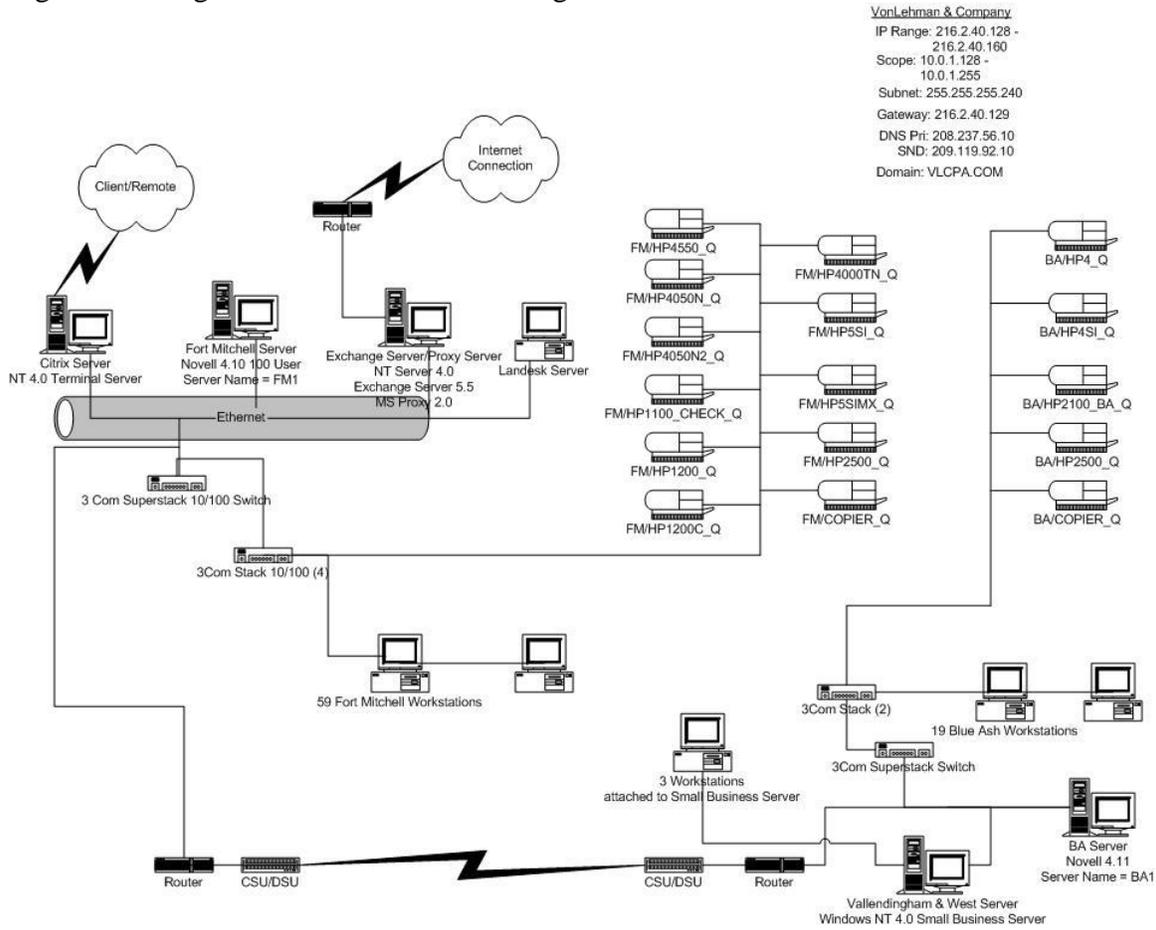


Figure 4 – Diagram of Proposed Network

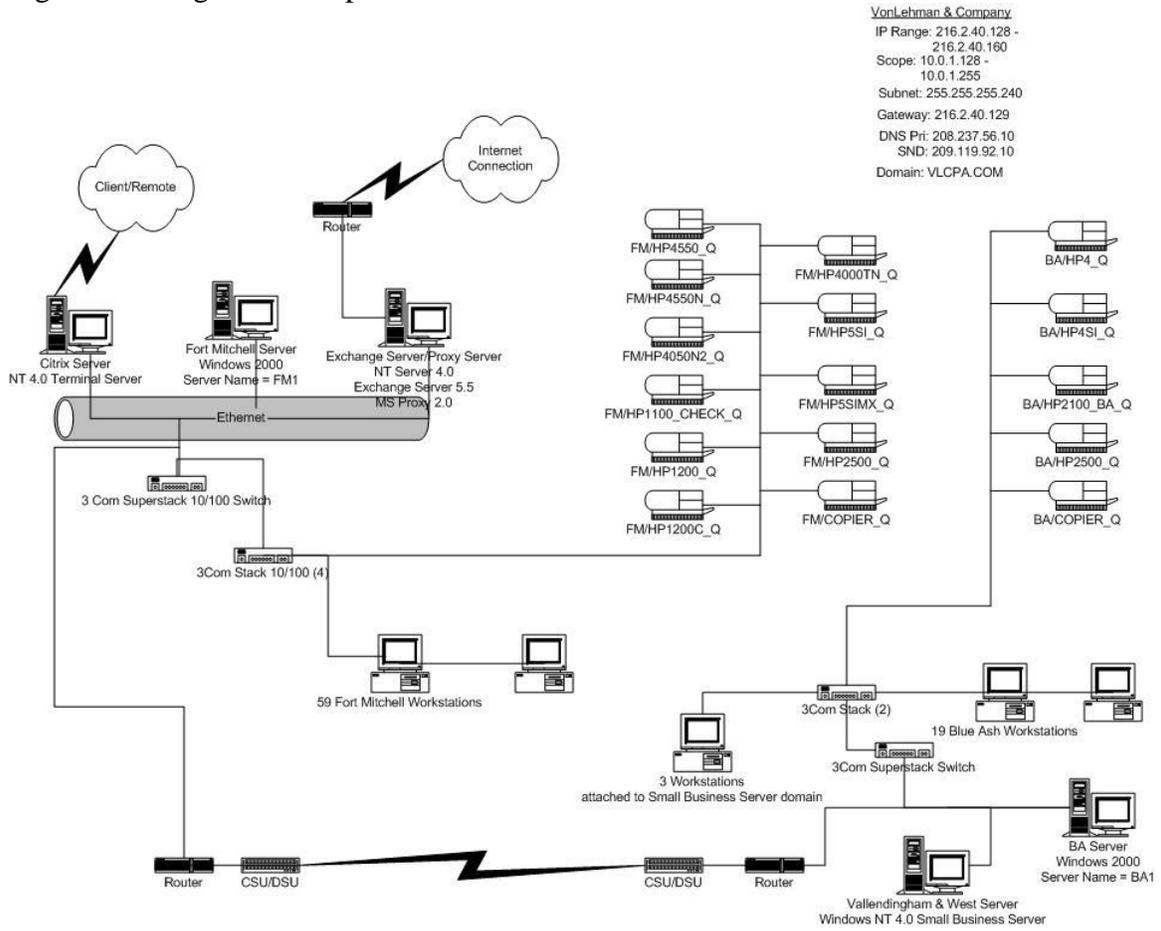
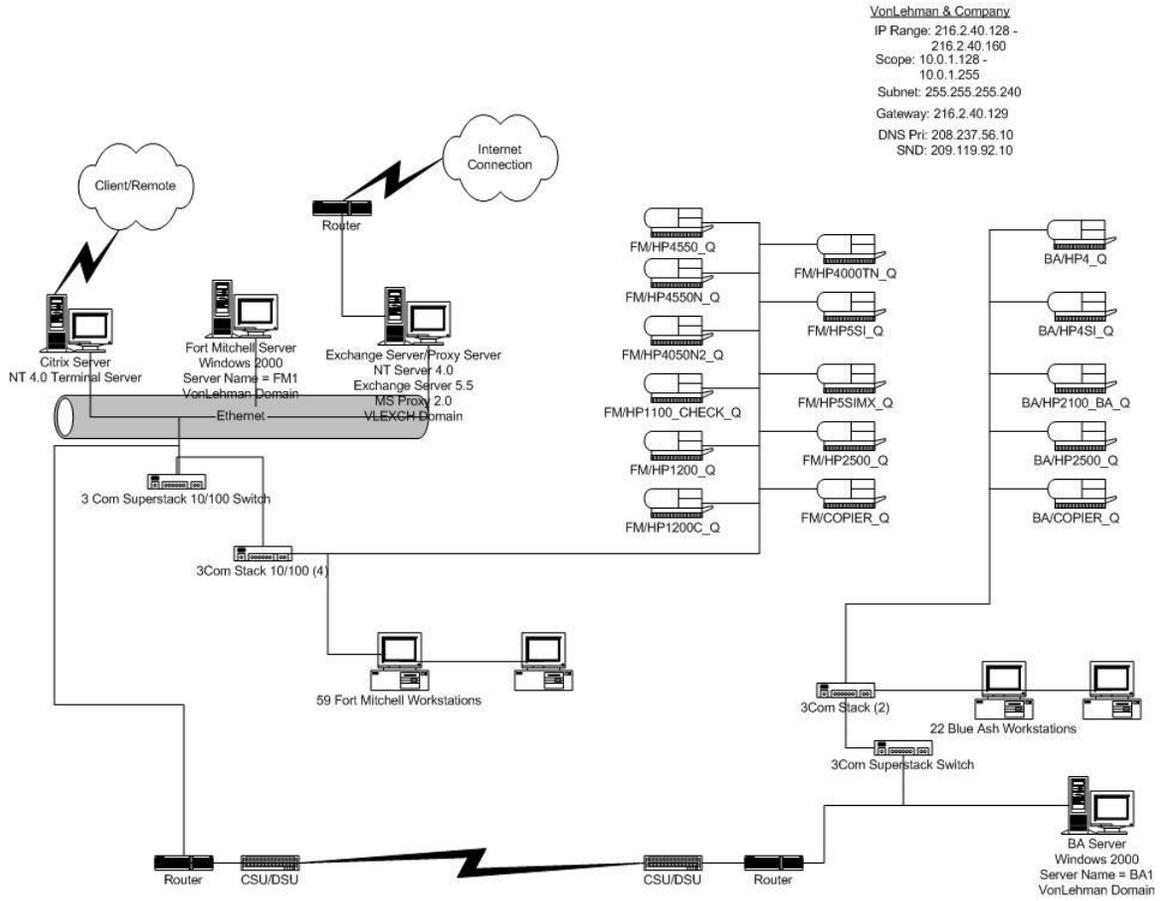


Figure 5 – Diagram of Network After Migration



## Appendix C

### Budget

<u>Project</u>	
New Dell Server	\$7,000
Licenses	\$10,000
<b>Total</b>	<b>\$17,000</b>

<u>Testing</u>	
VMWare	evaluation version – no cost
Novell Server	supplied in lab
Windows 2000 Professional	supplied in lab
Windows 2000 Server	supplied in lab
Windows NT 4.0 Server	supplied in lab

### TimeLine

Oct – Nov

Dec 4

Dec 6-8

Jan – March

March

Testing

Senior Design II Presentation

Implementation

Documentation

Senior Design III Presentation