Alt-N MDaemon Migration

Case Study Regarding

The WinWell Companies
QUALITY DRIVEN LOGISTICS

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The WinWell Companies, Inc.

Vision Quest Client Since 1994

Client Profile

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Larry Wells, CEO
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The WinWell Companies, Inc. consists of three operating companies and acts as a utility to support the subsidiary operations where the customer-direct work is performed. The parent serves as a consultant, marketing agent, and financial reporting and control arm to the subsidiaries. The company has 7 offices strategically located throughout the United States.

- Norwalk - California
- St. Louis - Missouri
- Detroit - Michigan
- Las Vegas - Nevada
- Arlington - Texas
- Houston - Texas
- San Antonio - Texas

WinWell provides customized logistics services including transportation, warehousing, inventory control, delivery, pickup, and installation of high technology products.

Vision

To provide comprehensive logistics services that are so flawless and friendly that our customers are astonished if a glitch occurs.

Mission

WinWell's mission is to provide our customers with customized logistics services that always meet or exceed our customer's needs. Such services will include transportation, warehousing, inventory control, delivery, pickup, and installation of high technology products. WinWell will accomplish this mission by being quality driven, and by treating employees, customers, and suppliers as we would each hope to be treated, while always seeking to maintain the highest level of integrity.

Business Philosophy

To achieve superior results, an organization must have a powerful underlying philosophy that drives its strategies and tactics. WinWell tries to use the technique of Performance Management as the fuel to drive the precepts of Total Quality Management. The direction focuses on five, interrelated corporate goals:

- Customer Satisfaction
- Employee Satisfaction
- Total Quality Management
- Business Results
- Keeping the Focus on the Customer

Historical Background – A.K.A. Reason for Change

Vision Quest began providing services to the WinWell Companies in spring 1994. In 1998 Vision Quest designed, developed, and implemented a Total Quality Management System for WinWell. This program included Leadership Development Training for WinWell's management staff, Work Group Development Training for all WinWell associates, and Total Quality Management Training and Process Development for all WinWell associates. This initial project took about 6 Months to implement.

At that time in the transportation industry, most computer technologies in use were provided to the carrier by major clients and were proprietary systems. Desktop computers were just beginning to make a practical impact on business in terms of both usability and cost of ownership. Managing a TQM project requires prolific volumes of process documentation and service analysis reports and these were difficult to create and manage manually. Over time, WinWell began to acquire desktop PCs and with the development of Windows 95 and the pervasive use of the Internet, began making practical use of the technology.

Vision Quest also changed with the advances in technology. As technology improved and made it easier to manage quality systems, Vision Quest began to offer more technology services. This was mainly due to the fact that most of our clients had very little experience with technology and it was often easier to provide the service than to outsource it. In addition to providing network, computer, and software sales and service, Vision Quest purchased its own web servers, email servers, DNS servers, and other web-based systems to provide services to our clients.

In July of 2000 Vision Quest installed WinWell's first Wide Area Network connecting the Dallas, St. Louis, and Norwalk Offices. This first network was built around 3 small Windows 2000 servers, one in each location. The offices were then linked via a managed T-1 frame relay system. The system was mainly used to allow internet access for the offices, backup services to the workstations, and email communication between the locations. Email services were provided through Vision Quest's email servers.

In May of 2002 Vision Quest upgraded the WinWell WAN. We upgraded WinWell from the three small servers to one HP NetServer TC3100 as a Primary Domain Controller located in the Norwalk office. A new WinWell location in Detroit was added to the network. The offices continued to be linked via a managed T-1 frame relay system. The system was still mainly used to allow internet access for the offices, however, terminal services were added to the PDC and WinWell began to centralize accounting functions on the PDC. With the basic VPN in place, file sharing was also possible. Email services were still provided through Vision Quest's email servers.

The big change for WinWell came in October 2004. WinWell had added another office located in Las Vegas. In addition, remote access by offsite personnel and senior management increased. This load was more than a single server could handle efficiently. To compensate for this new growth, Vision Quest acquired a new ProLiant ML350 duel processor server for WinWell. The NetServer TC3100 was upgraded to Windows 2003 SBS Premium and continued to function as the PDC while terminal services, remote access, and accounting functions were migrated to the new, more robust server.

In 2005 several decisions regarding the WinWell network needed to be made. The first decision was what internet connection to use. WinWell's contract commitment with its T-1 provider would expire in May. WinWell had also added three new offices in Texas - Arlington, Houston, and San Antonio. A cost effective and efficient network system needed to be implemented for all eight locations. Additionally, WinWell had grown in employee numbers and the monthly service cost for Vision Quest to host WinWell's email was now a burden.

After several weeks of research it was decided that WinWell would be moved off the managed T-1 service and create its own Virtual Private Network using VPN routers and high-speed DSL service. Also, since Windows 2003 SBS included Exchange server, it was decided to move WinWell's email services from Vision Quest to the PDC.

In May of 2005, Vision Quest installed new VPN routers throughout the WinWell locations and created a VPN. Unfortunately the VPN was only linked in Norwalk, Dallas, and St. Louis. The outlying smaller offices could only access the network via Terminal Server. After completing the migration to the new network infrastructure, Vision Quest moved WinWell off our email server to the SBS PDC's Exchange Server. Almost immediately, Vision Quest and WinWell learned significantly more about Exchange Server than either company wanted to know.

The first thing we learned was Exchange Server's reliance on DNS and Active Directory. While in a small business, single office environment this may not be an issue, in a larger, multi-location setting it creates challenges, especially for those offices that are not part of the VPN. Since authenticating to Exchange Server requires domain credentials, users in Norwalk, Dallas, and St. Louis had no issues with Outlook 2003 connecting and authenticating. However, the other locations could not easily use Outlook because of the requirement to either setup a remote desktop VPN connection before using Outlook or, use the new Outlook connect over HTTP recently launched by Microsoft to resolve this issue. Neither solution proved very effective.

While Exchange Server's Outlook Web Client Access was available, it was not satisfactory in providing all of the functions users looked for in the Outlook client. Keeping remote users' Outlook/Exchange cache synchronized proved to be almost impossible. Running IMAP proved to be almost as unfeasible. Issues synchronizing with remote users began to cause issues with Exchanger Server's mailbox and public stores. Maintaining stable and clean stores practically requires a dedicated Exchange administrator. It was overwhelming for the undertrained users located at the Norwalk facility. Especially when the client NEVER deletes anything from Outlook, nor understands the need to do so, even when technically the Exchange database size limits are16 GB but the customer has 40 Gigs of data.

The next thing we learned about was the difficulty in backing up the PDC while it ran Exchange Server. This was discovered after a major crash of the system. Exchange Server uses a lion's share of the server computer's resources in terms of memory and hard drive space. The server crash was due to an unrestricted growth of the database store which filled the hard drive. This caused the page file system to lockup due to lack of space and because there was not enough memory in either RAM or in pagefile.sys, the system crashed.

At the time, backup of the system was done using Backup Exec. We had successfully tested Backup Exec to recover the PDC prior to adding Exchange to the PDC. However, we had not tested if after adding Exchange Server. We were assured that the product would backup Exchange, but after the crash we learned that it was not very effective. It was also not all Backup Exec's fault. The system should have been tested for recoverability. The test was not performed for all the usual reasons, such as down time, cost, availability, etc. Also, while Backup Exec did back up several Exchange stores, those stores were already corrupted by synchronization issues with Exchange and could not be recovered.

Using ASR, the main functions of the PDC were recovered; however, the Exchange Data Base Stores were unrecoverable. Since it was only a short time since we moved WinWell from the Vision Quest email server, we were able to recover all of the email prior to the migration from MDaemon and re-import it back to the rebuilt Exchange Server. It's good to keep old backups.

Another thing we learned was Exchange's lack of natively provided anti-spam and zero anti-virus support. With this we also learned that not just any anti-virus service can be used on the server running Exchange. We recommended Symantec Anti-virus for SBS; however, we learned that you must place the Exchange folders on the Symantec Antivirus' exception list so as not to interfere with Exchange tasks. This effectively rendered the antivirus protection useless. Of course this was only discovered after a major virus outbreak. We won't even discuss the issues with setting up general SMTP services, and special SMTP services to relay to AOL, and preventing unauthorized email relaying.

Installing and managing Exchange server in this small business environment put a significant strain on the relationship between WinWell and Vision Quest. To resolve the memory issues we added more RAM

to the server. To resolve drive space issues we added more hard drives. To resolve the virus issues we added Symantec's Anti-virus for Exchange Server.

We also started to double check all backups and regularly ran data store maintenance tools on the Exchange stores. We upgraded the backup system to include networked backup drives. We also implemented the use of Windows Backup in addition to Backup Exec. We learned that on Windows SBS, only by using Windows Backup does deleted data records get removed from Exchange data stores enabling the data store database to be reduced in size. In Exchange Server on a standard Windows 2003 server, you can use SQL tools to perform this function.

To address off-site users' technical and performance issues, we removed them from using Exchange mailboxes altogether. Instead we moved them to using Exchange in POP3 mode. Of course this crippled much of the functional gains associated with Exchange server such as shared folders and calendars as well as the use of public folders and calendars. It also prevented those users from using Outlook Web Access.

The Exchange issue climaxed in January and February of 2006 when WinWell incurred over $6,000.00 worth of service calls. At this point Exchange and the PDC were completely down and out of service.

It was clear that Exchange server was not the best solution for WinWell and it also appeared that Vision Quest could not provide WinWell with adequate service. We were basically given one last chance to resolve ALL email service issues.

Needless to say, because WinWell had been a loyal customer for more than 12 years, Vision Quest was going to resolve the issue one way or another. The solution was literally at our fingertips. While sending our own emails we realized that the email solution Vision Quest used would be the ideal solution for WinWell.

In October 2002 Vision Quest had switched its own email systems from SendMail to MDaemon. In the four years that we had been using MDaemon, we had never had any significant issues with the system. It was easy to use, ultimately reliable, had WorldClient Access, ComAgent, and had recently started making inroads on Exchange Servers' collaboration functionality with Outlook Connector. MDaemon also had strong security features such as blacklist support and many other security tools. It was also well designed with several tools to prevent open relaying such as POP before SMTP. Additionally, if purchased separately, MDaemon had integrated spam prevention and antivirus capabilities.

MDaemon had a low price point, could handle as few as 6 users and could accommodate as many users as the hardware it was loaded on could handle. At the time, Vision Quest had several hundred users on just one server. It was easy to backup, even easier to recover, and moving to new hardware in an upgrade was a breeze. Also, WinWell was familiar with the applications of MDaemon including WorldClient because they had used it when Vision Quest hosted their email prior to moving to Exchange Server. In March of 2006 everyone agreed to move to MDaemon.

The Move to MDaemon – A.K.A. A Learning Opportunity

Vision Quest began the migration from Exchange on March 9 and completed the migration on March 14. The migration process was technically challenging, however, it ended up being easier and far more successful at then end than we ever thought it would be when we began.

When we first began looking at the migration, it seemed that all we would need to do is disconnect everyone from Exchange, install MDaemon, install Outlook Connector on the client, and let MDaemon pull the users' email into the MDaemon server from the user's cached Outlook file, (OST).

Surprise, this did not work. MDaemon did not recognize the OST file as a valid Personal Data File, (PST).

No problem, we would create empty PST files for each user and import their cached OST data into the PST file and use that PST file to import data to MDaemon.

Surprise again, it seems you cannot import OST files into PST files because of permission issues related to how Exchange creates credentials on the OST file. Since a PST file by its nature cannot be given the same credentials as the OST file, the import fails.

Okay, since Exchange Server is built on SQL Server, we'll simply extract the email stored in Exchange Server out of the store databases one mailbox at a time as EML or TXT files. Then we'll import the email into MDaemon. This is where we learned that extracting emails from an Exchange store is one of the most demanding challenges any administrator can attempt.

The recommended method for mailbox recovery is to start out by installing a second Exchange Server at the same time you install the Primary Exchange Server. Then use the second server for backing up the primary server. When, (not if), the primary server fails, the second server becomes the Primary Exchange Recovery Server. This method enables the administrator to recover a mailbox that was archived to the recovery server without disrupting the primary server. There's just one problem with this method. "How many small businesses that can only afford one server running SBS, afford another server just for Exchange backup and recovery"?

Also, even if you recover lost email boxes, you must still reconnect an Outlook client either directly or through OWA to actually see the email in the box. If you have a recovery server, no problem, if you attempt this on the production server, the backed up mailbox will overwrite the user's current box eliminating any new email delivered since the restored mailbox was saved. If this does not matter, which in our case it did not, the issue still becomes how to get the individual emails and attachments out of the cached Outlook client or out of the store directly?

In researching a solution for this issue, we found that Exchange Server itself also has no tools that enable an administrator to extract individual emails from an Exchange store. This revelation was very disappointing and left us with very few viable options. The options included:

1. Purchase a third party tool at significant cost to extract the email
2. Recover only the email Vision Quest still had for WinWell from the years prior to moving to Exchange losing a year's worth of new email
3. Not extract the email from Exchange and only recover it if it became absolutely critical
4. Go back to using postal email and buy some stamps

None of these options were pleasant and the only viable solution seemed to be to purchase a third party product for the extraction. Of course WinWell was not to keen on this unless Vision Quest wanted to foot the bill since it was our recommendation to move them to Exchange in the first place and our recommendation to move out of Exchange to MDaemon. Needless to say we weren't thrilled with footing the bill; however, we would do so to maintain the customer's satisfaction.

While researching the best tool for the extraction process, We came upon a novel solution that might not be practical in a large Exchange migration, but for under 100 users, especially broken into 7 offices with around 12 users each, the solution was not only feasible, it was remarkable simple and efficient. It was also one of those things that appeared so obvious that no one tells anyone else about it.

It seems that while you cannot extract email from a cached Outlook Exchange file (OST), nor will MDaemon import from an OST file, nor can you import an OST file into a PST file, you can convert an OST file into a PST file and then reconnect the Outlook client to the newly created PST file. Of course there is a trick to the process that one needs to know to make this work.

Recall that the reason an OST file cannot be imported to a PST file has to do with permissions. Microsoft did this specifically so that someone could not take an OST file and just import it into a PST file because then anyone could do it regardless of the user. This would not be a very secure way to store something as sensitive and critical as email. Another thing you cannot do is convert an OST to a PST file if the user is only accessing their cached file while offline from Exchange server.

The trick to make the whole thing work is that each individual must be logged onto the domain and connected online to Exchange Server before exporting their OST data to a PST file. Being logged in and on-line provides the necessary permissions and credentials needed to access the OST data and export it to a PST file. Even if Outlook required the user to password protect the PST file, it could still be accessed by the user using a simple password.

Here are the steps we used for the migration:

1. We restored Exchange Server to working order by restoring the databases to a consistent state using ISINTEG and ESEUTIL and several tools from the Exchange Server 2003 Resource Kit.
2. Once back online, we disabled Exchange server's SMTP and POP3 services and reconnected everyone back to Exchange server accessing their Exchange OST data.
3. One office at a time we had each user export their OST file to a local PST file on their hard drive and give it a password.
4. Once everyone's PST file had been created we removed Exchange Server off the PDC. We also removed the Symantec AV for Exchange and the Exchange version of Backup Exec.
5. We installed MDaemon Pro for 100 users along with Outlook Connector, and at that time, Antivirus Standard for MDaemon onto the PDC.
6. We had each user access WorldClient and install Outlook Connector on their workstation.
7. We had each user remove their current Outlook profile using the Email snap-in in Control Panel and then immediately create a new profile using an MDaemon Connector account for the new WinWell email server.
8. Once we verified that all users were connected properly and accessing their accounts that were moved from the Vision Quest server, we had each user import the data from the PST file they create from their Exchange OST file.

That's all there was to it… sort of.

The only real glitch we ran into was a naming convention issue. Outlook and Exchange will allow a user to use special characters in naming files and folders such as back slashes. Unfortunately MDaemon did not and we had to have several users open their exported PST file directly and rename non-compatible folders and files and then re-import the data. Not a huge issue, just frustrating.

Migration Results – A.K.A. The Day After

Upon completion of any major project involving change, the last question to be answered is, "was it worth the change?" Here are the numbers:

We'll start in 2004 since this was the first full year Vision Quest hosted WinWell's email.

2004 Service Costs

Computer & Network Service	$9,942.50
Computer Hardware Sales	$13,527.91
Email Services	$2,325.00
Misc Software	$521.95
Postage, S/H	$0.00
Travel - Mileage	$337.50
Travel Exp - Other	$498.30
	$27,153.16

2005 Service Costs

Computer & Network Service	$23,709.14
Computer Hardware Sales	$1,440.95
Email Services	$775.00
Misc Software	$4,478.99
Postage, S/H	$80.00
Travel - Mileage	$726.00
Travel Exp - Other	$1,270.40
	$32,480.48

2006 Service Costs

Computer & Network Service	$26,568.75
Computer Hardware Sales	$1,443.99
Email Services	$0.00
Misc Software	$5,729.25
Postage, S/H	$115.50
Travel - Mileage	$342.00
Travel Exp - Other	$0.00
	$34,199.49

As you can see from the numbers, WinWell's hosted email service cost drops to nothing; however, after the migration to Exchange Server their service costs increased dramatically.

The 2006 Computer & Network Service costs are a little skewed because $4,700.00 of the service cost that year was for the migration to MDaemon. What is significant though is that the migration happened in March 2006 but WinWell incurred $6,087.50 worth of service fees related to Exchange in only January and February.

Now let's look at the first full year of service costs after the move to MDaemon.

2007 Service Costs

Computer & Network Service	$13,130.00
Computer Hardware Sales	$1,976.98
Email Services	$0.00
Misc Software	$2,299.50
Postage, S/H	$0.00
Travel - Mileage	$420.00
Travel Exp - Other	$0.00
	$17,826.48

When one looks at the numbers for total service costs for 2007 of only $17,826.48 and contrasts that with just the Computer & Network Service fees from prior years, we see that the total cost for 2007 is less than just the Computer & Network Service fees in prior years. Almost all of the savings was in a reduction in service fees related to email support.

Now let's look at the costs of the MDaemon migration project.

Project Labor

Regular Hours ($145.00 p/h)	$3,045.00
After Hours ($185.00 p/h)	$2,590.00
Subtotal	$5,635.00
Less Discount	$ (910.00)
Project Labor Total	**$4,725.00**

MDaemon Pro - (Based on purchase price 3/16/06)

MDaemon Pro 100 User	$ 880.00
Outlook Connector	$ 720.00
Antivirus Standard	$ 440.00
	$2,040.00
Sales Tax	$ 158.10
Project Software Total	**$2,198.10**

Project Total	**$6,923.10**

If we calculate the average service costs for 2004, 2005, and 2006 we get $31,277.

Now let's subtract the total service costs for 2007 from the average for the prior three years.

$31,277 - $17,826 = $13,451

While perhaps not all of the $13,451 saved was due solely to moving to MDaemon from Exchange, the vast majority of it was. The saving in service was certainly greater than the $6,923 it cost for the MDaemon migration. Not only did the migration pay for itself in less than one year, it helped WinWell retain an additional $6,528 in savings.

The money that was saved encouraged WinWell to improve the overall network and email performance even more by moving the MDaemon server off of the PDC and onto its own HP ProLiant ML 110 G3 Server. We also set the email server on its own dedicated public IP and router taking the email packet load off of the Norwalk and Terminal server networks increasing speeds for everyone. The cost for this project was about $2,500 and was easily covered by the savings.

About Vision Quest

Vision Quest Services

Vision Quest provides integrated computer, network, and internet solutions. Our services include:

Hardware and software sales
Network design, installation and service
Website hosting, email hosting, website design and administration
Custom software application and data system design
Business process analysis and process automation
Media solutions, digital media streaming, and media production

Vision Quest specializes in workforce automation, sales force automation, customer relationship management, and integrated web services for the Small to Medium Business Segment (SMB).

Vision Quest Advantages

Vision Quest owns and maintains its own web servers, email servers, and DNS servers located in a secure, fault tolerant data center managed 24/7 ensuring consistent services for our clients.

Vision Quest does not have a voice messaging system. If you call us, we will talk to you.

Vision Quest provides on-site support, remote access support, telephone support, and email support for all of our clients.

Vision Quest Strategic Alliances