VELOCITYDOMAIN. network solutions. Mac OSX, UNIX, Windows XP

VELOCITYDOMAIN NETWORK SOLUTIONS

PROPOSAL FOR NESHAMKIN FRENCH ARCHITECTS, INC.

PHASED NETWORK AND SYSTEMS UPGRADE PLAN

Prepared by Nicholas R. Iandolo, Director of Technology
VelocityDomain Network Solutions
13 March 2003

Everett, MA 617.899.7275 ▪ Boston, MA 617.566.1767

Table of Contents

Everett, MA 617.899.7275 ▪ Boston, MA 617.566.1767

1 Introduction & Overview

VelocityDomain Network Solutions is proud to present our proposal for a Phased Network and Systems Upgrade Plan (heretofore referred to as, the upgrade plan) for Neshamkin French Architects, Inc. (NF Architects). It is the goal of VelocityDomain to provide its clients with a high quality of service in providing specialized solutions for each organization. In this regard, we would like to introduce our model of a highly robust and competitively priced upgrade plan for NF Architects.

This proposal is organized as follows:

1. Introduction & Overview
2. Detailed Statement of Work
3. Cost Analysis Matrix
4. Conclusion
5. Additional Services

Small Business Networks and Digital Media are merging into a new paradigm of commerce and enterprise. This expansion into the digital, networking**,** and wireless realm requires skilled and talented experts to integrate and support these new technologies into a seamless, robust and efficient organization. VelocityDomain Network Solutions is dedicated to supporting this new model of digital media and networking solutions running on a multitude of Windows™, UNIX, and Mac OS X™ platforms. Our commitment to our clients is a full-board service to design, implement and maintain these solutions that uniquely suit your digital media and networking needs.

Keeping with our company mandate (stated above), a “hands-on” diagnostic survey of all of NF Architects network related assets was conducted, resulting in the following conclusions:

All user workstations (with the exception of a few that will be decommissioned in the near future) have been upgraded to Windows XP Professional Edition for efficiency and stability. No future workstations should be integrated in the NF Architects' network environment that are running anything less than Windows XP Professional Edition or higher.

Networked printers should be removed from workstation control and moved directly on the network via print servers. Without this upgrade option, continual printer issues will arise necessitating the services of IT consultants/administrators to address these issues on a routine basis. The back end server is inappropriately utilized as a print server for some of these printers, thereby causing printer access problems (as evidenced in the VDNS Action Report**,** separately submitted to NF Architects).

The back end server and primary domain controller**,** running Windows NT Server with Service Pack 6a, needs to be upgraded to at least Windows 2000 Server Edition (with appropriate licenses, and the latest service packs). If this is not done, compatibility issues will arise when joining new workstations and software upgrades to the domain (as evidenced in the VDNS Action Report separately submitted to NF Architects). Ultimately the system may exhibit an unrecoverable failure if this upgrade is not performed, causing a drastic loss in productivity and revenue.

The back end server has no viable backup solution. Currently, all pertinent files are manually backed up by copying them to a local user workstation. This is a disaster waiting to happen. If the system goes down and is unrecoverable, and the aforementioned user workstation is inaccessible, there will be no way to restore these precious files. Multiple hardware and system failures are not uncommon in a networked environment. Furthermore, there is no guarantee that these backups are current and viable. What is required here is a "dedicated" backup solution that takes the risk management out of the

hands of one user and his or her workstation and puts it where it should be: in the hands of the appropriately designed system and the network administrator. Details for this backup solution will be discussed in the next section.

The existing Software Management is currently antiquated and should be redefined for efficient use and setup for new and existing users. All software should be kept in a secure location, be fully licensed, and installers should be located on the network or as a ghosted image (or both). The rationale for this is simply that should any key piece of software on disc be lost, stolen, or damaged**,** there is a viable way to restore access to it (NF Architects is paying large amounts of money for this software and should be assured that it is safe, sound, and accessible). Furthermore, network installs (and ghosted image installs) make setting up new users extremely efficient and help to track licensed usage much more reliably. Details for this procedure will be discussed in the next section.

The existing Cabling is currently out of control. Aside from the obvious potential OSHA hazards that a scattered cabling environment can present, the hazards to network operations can be equally as pernicious. All Ethernet cables need to be taken off the floor of the office and either mounted/run along the walls in proper housings, or a comprehensive professional cabling job should be considered. Details for this procedure will be discussed in the next section.

In conjunction to the cabling upgrade necessity, all network routing equipment (DSL Router, 8-port HUBs, and print server appliance) **need** to be lifted off the floor and out from under the user workstation where it currently resides. The potential for disruption to network operations by keeping these devices in such a hazardous environment is almost as great as the cabling issues. These devices should be kept in a telecommunications (telco) closet or in a secured server room, where they can be

easily administered. Furthermore, the two existing 8-port HUBs are virtually “maxed out” and should be replaced with at least a 24-port 10/100/1000 Bit switch. Details for this procedure will be discussed in the next section.

Finally, network security needs to be considered. All related networking and back end server equipment should be located in a secured location where only the network administrator and executive staff should have access. Policies for: software usage and licensing, tracking equipment usage, and usage of network resources should also be drafted in order to ensure a seamless and tightly integrated workflow with the highest efficiency standards. The internal network environment should also be protected against attacks from outside sources via the Internet through the use of firewalls and network security systems. The potential for sabotage by a disgruntled employee, ex-employee, or by a competitor, along with various disasters from Acts of God or nature, could result in NF Architects losing vast amounts of data, productivity, revenue, and industry reputation.

This overview is designed to illustrate where improvements are imperative in ensuring a stable, robust, expandable, and secure network environment for NF Architects day-to-day operations and for their future expansion needs. The following section will detail how these tasks may be accomplished in a logical and timely manner that compliments ongoing operations with little disruption.

Achieving some or all of the proceeding improvements, detailed in the next section, will undoubtedly save NF Architects protracted costs and lost productivity that will benefit the organization will into the next ten years. VelocityDomain will introduce and discuss the most cost-effective means to accomplish these goals.

2 Detailed Statement of Work

The following upgrade plan is a comprehensive phased outline of how the aforementioned improvements to network operations can be accomplished:

Phase I. Immediate network maintenance tasks and diagnostics/survey

VelocityDomain has completed this phase of the upgrade plan.

Phase II. Cabling upgrade

This phase of the upgrade plan should be considered **top** priority. These cables are the arteries and veins of the entire network; if they are not immediately reorganized, secured, and upgraded, the network could suffer from a catastrophic failure that will require many hours, at great cost, for recovery.

What is needed to carry out this operation is a firm commitment from NF Architects' executive management to undertake re-cabling the entire office environment. This cannot be done in a half-hearted manner. Patching up the system will only create more problems than it solves. There are three potential ways to address this operation, let us look at each one of them in order of efficiency:

MOST EFFICIENT

A professional cabling organization can be contracted to come onsite and work up an estimate to re-cable the entire office in such a manner that network expansion can be easily accomplished. Usually all user cubicles and offices would be equipped with new data ports and wired with cables fed internally through the walls of the office.

This has many benefits:

- All cables are rated for high performance network operations (10/100/1000 Bit speed throughput and reliable data transfer) that traditional Cat 5, 5e, or 6 Ethernet cables cannot accomplish.
- All cables will run to a central HUB and patch panel, making transferring users, and setting up new nodes on the network (workstations, servers, printers, etc.) a simple process. All nodes can be catalogued and tracked for easy troubleshooting and problem resolution.
- Network security becomes much easier to manage when HUBs and patch panels are located in a secured room along with the servers.
- Data ports will allow easy expansion of new nodes on the network (and subdomains), which is exceptionally difficult to do with the current setup. When NF Architects is ready to expand up to the next floor of the facility, one cable connected to another router (such as a high bandwidth T1 line or a fiber optic cable) will be all that is required to expand the entire organization with ease.
- There will be no risk of OSHA violations with a professionally designed and implemented cabling operation.

The only drawbacks to this plan are cost and time. Such estimates can be facilitated by VelocityDomain under a separate Professional Service Agreement (PSA).

LESS EFFICIENT

NF Architects can subcontract out to VelocityDomain to reroute existing cables along the walls with proper mountings/housings and terminations. A semi-permanent space would need to be allocated to install a new 24-port HUB alongside the DSL Router and print server appliance. This would also be the home of the back end server. As an interim measure, the telco closet where the phone panel access equipment and Cable/DSL modem could suffice as the location for this setup. The various configurations could include:

1. Move all aforementioned equipment into telco closet and run a bank of Ethernet cables outward to individual workstations et al. or to local workgroup HUBs.
2. Move only the DSL Router to the telco closet and then run one Ethernet cable to an “elevated” 24-port HUB (and of course elevate the print server appliance as well) centrally located in the office, possibly in a wall-mounted cabinet, and then run Ethernet cables to individual workstations, et al.

This plan in not as elegant of a solution as the previous one, and it would take several weeks to a month to implement; yet, it does significantly reduce the cost of having the work done professionally. Other drawbacks would be that expansion up to the next floor of the facility would require a rethinking of the existing network and cabling setup, and expansion on the current floor is limited. All new nodes would have to be either pre-cabled or individually cabled/mounted as they are added to the network.

VelocityDomain is more than happy to take on this project, but a separate proposal and PSA would have to be negotiated and signed prior to doing any work.

QUESTIONABLY EFFICIENT

NF Architects could invest in an 802.11a/b/g wireless network. VelocityDomain has experience in this regard, and can setup all Windows XP workstations and various other nodes to access such a wireless network. New standards such as the 802.11g standard are proving to be a reliable alternative to the cabling problems that some organizations are facing these days (primarily whose facilities are located in older buildings). Bandwidth and data transfer issues would have to be addressed ahead of time prior to committing to upgrading most of the nodes to wireless networking (the server and some of the other printers can remain Ethernet-connected to the network with only a marginal amount of re-cabling/mounting). A pilot program could be devised to test and slowly implement this network improvement.

Obviously the benefits of having such a network eliminates the need for re-cabling/mounting the entire office, and allows users to be setup anywhere a space is available. The WEP (Wireless Encryption Protocol) security is very strong and would keep unwanted users from hacking into the network.

The drawbacks to this plan would be the need to purchase new equipment (including the Access Point transmitters, Client Bridges for printers, and wireless networking PCI cards for the worstations etc.) and installing them in all relevant nodes. This would probably cost the same as the previously mentioned plan, but it would be quicker (several weeks at the most), easier to setup, and would be less disruptive than trying to mount cables and housings onto the walls.

VelocityDomain is more than happy to come up with a separate proposal (supported by current documentation on this service) concerning this phase of the upgrade plan. VelocityDomain will find the most cost effective means to accomplish this should NF Architects decide to choose this option. A separate PSA would have to be negotiated and signed before moving forward with this project.

Whichever plan is ultimately decided upon, VelocityDomain will be happy to facilitate any operation related to said plan. It cannot be restated enough that an upgrade plan **needs** to be decided upon concerning the re-cabling of the office or else any further upgrades discussed in this proposal will not make any difference, and be counterproductive to NF Architects' hiring VelocityDomain to help with their networking and system operations issues.

Phase III. Back end server upgrade, backup solution, and software management

This phase will take place over a longer period of time and possibly during off hours. Essentially, NF Architects would purchase the following items to be implemented into their networked environment:

- Windows 2000 Server (with a significant number of user licenses)
- An external DAT or DLT tape drive with sufficient tapes for backup rotation schemes
- Fully licensed professional backup software compatible with the aforementioned hardware
- Ghosting image software for new user setups
- Any relevant diagnostic and network management tools and software

The existing Windows NT Server would need to be upgraded to Windows 2000 Server. This can be done over a weekend with little or no disruption to NF Architects' operations. A **full backup** of all data would be performed and certified on multiple media formats (tape backup, user workstation backup, optical disc backup, etc.) before any upgrades would begin. All compatibility issues would be researched ahead of time and a conference with Microsoft technical support should be conducted in order to pre-address any issues that might come up before, during, and after the upgrade.

When said upgrade is complete and the system has been tested and functions satisfactorily, then VelocityDomain will move to the next part of this phase: installation of the new backup solution.

It cannot be stressed enough that a **new reliable and external backup solution** needs to be implemented in this highly active networked environment. Either a DAT or DLT tape drive with autoloading or rotational-tape capacities can provide a sufficient means of backing up vast amounts of data, keeping it current and viable. A program of tape rotation can be devised and configured automatically on the administrative and software side of the solution. This part of the project could take up to three days depending upon the needs of the system.

Finally, with the backup solution in place and running properly the software management part of the phase can begin. This involves gathering all **original** software install media and licenses and securing them in a safe location. Site licenses of this software should be purchased by NF Architects for each piece of software that is used (and will be used) on a daily basis. This will make the network installs

much easier. Network installs of these software packages can then be created and tested. Once these installs are running smoothly, any new user workstation, or a battery of new user workstations, can be easily and reliably setup in a fraction of the time. Ghosting image software such as, Symantec's Ghost Corporate Edition can make this process even easier. The benefits outweigh the costs of having to pay a consultant by the hour to come in and setup each new user, over and over again. Implementing such measures will save NF Architects much time and money immediately, and over a long period of time.

This would also be a good time to devise and implement the security policies discussed in the previous section (or it can wait until Phase V of the upgrade plan is underway).

If NF Architects were to standardize on certain equipment such as Dell workstations (along with all user data being backed up externally on a regular basis), then new computers can be setup from scratch with a pre-approved image in less than an hour. This is also beneficial should an existing user's machine die for whatever reason. He or she could be back up and running in no time!

VelocityDomain is happy to workout a separate comprehensive proposal and PSA concerning this phase of the upgrade plan.

Phase IV. Printers and print servers

With the back end systems upgraded and properly maintained, the focus on the front end systems can now be addressed. This includes getting the printers off the workstations and on to the network directly via print servers. This phase of the upgrade plan could take up to a week or more depending upon the needs of the system, but it should be a relatively easy operation with little or no drawbacks.

All printers would be attached to companion/compatible print servers (separate small appliances that allow the printers to be seen directly on the network). Completely dedicated computers running server software can be used, but this can become quite expensive and the urge to use these computers for other concurrent operations could negate their purpose as a print server. Using shared printers via workstations invite a lot of "access and privileges" problems that can take a long time to resolve (as evidenced in the VDNS Action Report separately submitted to NF Architects).

Print server appliances, hence, print servers, eliminate the aforementioned issues and make troubleshooting printer problems a lot easier and efficient; along with setting up new users to access the printers in general. Furthermore, print jobs can be easily monitored and assigned priority depending on the needs of the office and current "crunch-time" project.

There is no better way to conduct reliable and efficient printing operations than getting **all** of NF Architects printers off the workstations and the back end server and moving them directly onto the network via print servers.

VelocityDomain is happy to workout a separate PSA concerning this phase of the upgrade plan.

Phase V. Network security and miscellaneous issues

With Phases II, III, and IV complete, NF Architects and VelocityDomain can look at the network security needs of the organization. These concerns would include:

- Locating the server, company software, networking components (such as HUBs, routers, and firewall appliances), and unused equipment in secured location with "keyed access" available to only the current network administrator and executive management or approved staff.
- Installing a dedicated firewall appliance configured to meet the growing needs of the organization while protecting it from outside attacks.
- Servers and other active network components should be rack-mounted or elevated on steel "baker's racks." Ultimately, one server will not be enough to handle all of the needs of a growing organization. NF Architects may want:

    - An in-house mail server
    - More dedicated and expanded file storage options
    - A web server with client tools to allow clients to see current progress of projects that they are funding in real-time
    - A VPN (Virtual Private Network) for secured remote access to the internal network
    - Open file transfer services for telecommuters working from home or in other locations
    - Many other future options as technology and business demands grow

- All of these servers will need to be secured, and efficiently rolled-out. Thinking and planning ahead, allocating secured space for these systems will undoubtedly save NF Architects from needless frustrations, time delays, and huge expenditures if such measures were enacted up front.
- Security policies, previously mentioned, can be drafted and implemented during this phase.
- Maintenance of all of the above systems on a monthly basis can be negotiated into a separate and satisfactory PSA.

Some of the aspects of this phase may go along concurrently as previous phases are being implemented. All in all, efficient network operations are a comprehensive endeavor and cannot be easily broken out into isolated tasks—that is why they call it a network, the whole is greater than the sum of its parts.

If NF Architects is willing to commit to these improvements in this phase, VelocityDomain is happy to draft up a separate PSA (and specified proposals) to cover the long-term operations of this phase.

3 Cost Analysis Matrix

Software	Component	Cost
Server Operating System	Windows 2000 Server (With 25 Client Access Licenses)	$1799
Server-side automatic backup software	VERITAS Backup Exec 9.0 for Windows Servers Small Business Server Edition	$795
Ghost imaging software	Symantec Ghost Corporate Edition 7.5 (media kit & volume licensing)	$410
	TOTAL ESTIMATE:	$3,004
Hardware	**Purpose**	**Cost**
DLT autoloader tape backup storage device	Dell PowerVault 122T DLT VS80	$4,000
24-port HUB	3Com® SuperStack® 3 Baseline 10/100 Switch 24-Port Plus 2 10/100/1000	$495
Firewall solution	3Com® OfficeConnect® Cable/DSL Secure Gateway	$285
	TOTAL ESTIMATE:	$4,780

Services	On-site Time	Cost
Phase V Maintenance Agreement Fee Scale	**1 fixed day (8 hours) per week, monthly**	**$999 (per month)**
NOTE: Any hours over the established maximum are subject to hourly rate charges plus expenses.	**2 fixed days (16 hours) per week, monthly**	**$1,999 (per month)**
Retainer fees for services also apply.	**3 fixed days (24 hours) per week, monthly**	**$2,999 (per month)**

The costs exhibited here are for informational purposes only. They do not represent the actual costs; they will be discussed in greater detail in other more specific proposals relating to the individual phases of the overall project. Such costs can and will include (but are not limited to): installation and configuration labor and fees, troubleshooting issues as they arise, documenting of all work either onsite or back at VelocityDomain, and retainer fees that are required before any work is to proceed. Furthermore, any incidental costs such as: wiring and networking components, miscellaneous hardware (e.g. DLT tape backup media), diagnostic and utility software, travel expenses and software/hardware purchasing (including price guarantees) are also not included in this generalized proposal but must also be considered. All of the above costs include our guarantee of functionality and reliability. In order for NF Architects' network topology to be running cleanly and efficiently a substantial investment in time, money and commitment up front must be made in order to see this project through to completion—saving the organization from even greater costs in the future.

4 Conclusion

As is evident from the above Detailed Statement of Work & Cost Analysis Matrix VelocityDomain's complete package of development, implementation and service support is by far the most comprehensive solution available at a competitive price. We are offering a robust combination of "off-the-shelf" software and hardware fully licensed and supported by manufacturer's warranties, in conjunction with our own expertise in designing and developing a customized solution to your exacting specifications.

Should NF Architects decide to implement some or all of this proposal, VelocityDomain is ready and eager to help work with this organization to bring to completion a robust new network that is scalable, stable, interactive, secure, and able to meet both the current and future needs that Neshamkin French Architects, Inc. will have as they expand their operations into the future.

We are confident that your organization will not find a more comprehensive, satisfactory and competitive Value Added Quality of Service offering from any other provider. VelocityDomain Network Solutions is the ideal candidate for this project.

6 Additional Services

VelocityDomain Network Solutions also provides a broad spectrum of services beyond the proposed project. A brief overview of our additional services are described as follows:

Systems Support and Performance Tuning

VelocityDomain works with multiple platforms, installing software, performing hardware upgrades, networking components, resolving software problems, and providing comprehensive maintenance support for all client and server systems.

Backup and Recovery Options

VelocityDomain will arrive on-site to develop and implement a reliable long-term backup and recovery strategy using all of the latest “off-the-shelf” and custom options available. We will also recommend economical off-site data storage options.

Migration Services

VelocityDomain has years of experience in its members to help you move your entire organization from one facility to another. We can provide the options and strategies necessary to help you move all of your equipment and services to a new location with as little disruption to your organization’s daily operations as possible.

Network and LAN Infrastructure Expansion

VelocityDomain understands the complexities involved when an organization wants or needs to expand its operations. We can devise strategies and provide hardware and software recommendations to help your organization expand into new facilities, technologies, and operating capacities.