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Technology Audit

Presented to The Sinecure Organization

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Contents:

Overview

Sinecure is in a precarious position because of the age and stability of its systems. Some of the computers have exceeded their life expectancy. Some of the systems in use are no longer supported and/or are unable to integrate with other systems in use. Not all mission-critical information is backed up.

The failure of any one of these "weak links" could jeopardize the ability of Sinecure to deliver its services – and possibly result in a short- or long-term shut down of the organization.

While system failures are *potential* threats to Sinecure's services, inefficiency is a current factor that certainly must limit Sinecure's ability to deliver services with the existing human resources. Sinecure needs more than robust equipment and security procedures; Sinecure must replace the inefficient systems they use to run their programs and internal operations.

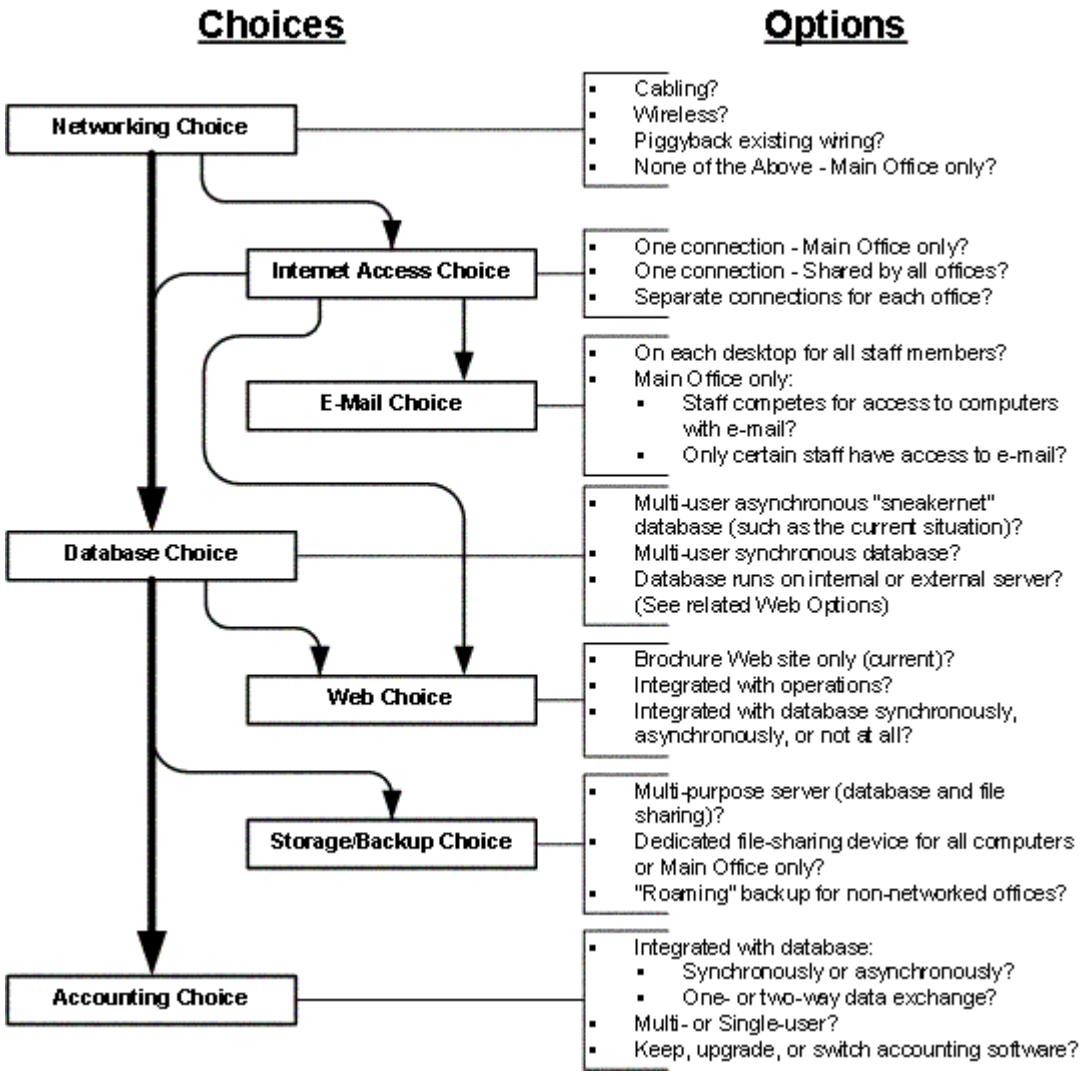
Realizing the current funding constraints of the organization, Sinecure must develop a coherent vision for its use of technology in the short- and long-term future, and seek funding to implement full technology upgrade. When possible, this audit will outline some short-term recommendations in order to improve stability with minimal cost, and long-term recommendations that might be incorporated into a technology plan.

Primary Constraints: Networking and Database

Other than funding, the critical constraint to nearly all technology decisions to be made by Sinecure revolve around the fate of your database. The fate of the database cannot be adequately determined until Sinecure has resolved whether or how to network their offices.

Figure 1 illustrates the interrelationships between these choices, and how the choices impact, influence, and constrain other technology opportunities.

Figure 1: Primary Constraints



Technology Plan

Sinecure currently has no technology plan. A technology plan will serve three purposes. First, it will describe how technology fits into the organization's mission, and strategic vision. Second, it will provide a road map and goals on how to get there without disruptions in services. Third, it will help funders to understand the connection between their funding for technology and the ability of Sinecure to continue to deliver and improve services – that it's not technology for its own sake.

Recommendation

The Board and staff should engage in a process of developing a technology plan that addresses the needs of Sinecure for at least the next three years. If there is no one

available with sufficient time and skills, this should be done with the help of a technology consultant.[1]

Computers and Network

Workstations

Most of the workstations currently in use by Sinecure have been stretched far beyond their life expectancy.[2]

Figure 2: Sinecure Workstations

Computer	OS	Processor	RAM	Disk Space	Recommendation
Finance	Windows 98 SE	450 megahertz Intel Pentium III	128 Megabytes Installed Memory	8.44 GB	Replace within two years. Needs network card for networking.
Micron (a.k.a. "student")	Windows 98 SE	800 megahertz Intel Pentium III	128 Megabytes Installed Memory	6.45 GB	Replace within two years. (Has network card.)
Pcustomer (a.k.a. "Carol")	Windows 98 SE	500 megahertz Intel Pentium III	128 Megabytes Installed Memory	9.57 GB	Replace within two years. Needs network card for networking.
"Instruments"	Microsoft Windows for Workgroups (on Microsoft DOS 6.20)	166 Megahertz Intel Pentium	48 Megabytes	8 GB	Replace within one year, or when network is implemented, whichever is sooner.
"Sign-in"	Microsoft DOS 6.20	75 Megahertz Cyrix 5x86-S	7 Megabytes	4 GB	Replace within one year or when network is implemented, whichever is sooner.[3]
"Sylvia"	Microsoft DOS 6.22	90 Megahertz Intel Pentium	7 Megabytes	815 MB	Replace within one year or when network is implemented, whichever is sooner.

Recommendations

- Sinecure should budget to replace their existing computers every three years at the most. Leasing options should be investigated as well. Any new computer, whether purchased or leased, should be acquired with a support agreement.
- As indicated in Figure 2, some of the workstations will need to be replaced when/if a network is installed. This should be factored into any network project budget.

[2] These are the workstations I was shown when I conducted the inventory. I've been told that Sinecure may have other workstations available that are currently not implemented.
[3] The "sign-in" computer performs only one function, but otherwise would not be suitable for a workstation, and would need to be replaced immediately.

- For support of the existing computers, Sinecure should sign a support contract with a local technology support company that provides "on-call" support (as opposed to scheduled support).

Networking and Server

Sinecure has no server and no network other than "sneakernet" (the practice of transporting – on foot – files stored on diskettes). I've been informed that running cable between the offices is not an option, nor is wireless networking. Having no network severely constrains the options to implement a shared database solution, as well as the abilities to easily backup data, protect from viruses, and recover from system failures.

Recommendations

Assessing the networking options for the Sinecure offices is beyond my technical capabilities.

- Take advantage of their TWFG member benefit for free or reduced cost network consulting from one of our strategic partners. A list of these partners is provided in the Appendix.
- Test the assumptions that wireless and cabling are not possible in your building, and if not,
- Investigate networking options that piggyback on existing phone or electrical wiring.

Server recommendations based on specific outcomes are found in the File Sharing and Backup Protocol subsection of the Tech Audit.

Security

File Sharing and Backup Protocol

With the exception of the Kludgybase database, data is not backed up in any methodical way, and files are shared only through sneakernet.

Recommendation

Figure 3 shows four different recommendations. For the scenarios where no database server is needed, I am recommending a "Snap Server" which is a low-cost, low-maintenance dedicated file-sharing device. Once installed, they require virtually no maintenance.

Figure 3: Recommendations based on four combinations of networking and database constraints

Database Requirements	Networking	
	All Offices	Main Office Only
Server	Implement a server capable of running the database plus file sharing for the entire network. Server OS depends on database solution.	▪ Implement a server capable of running the database plus file sharing for the main office. Server OS depends on database solution. ▪ Implement a high-capacity portable hard drive, such as a FireWire drive to backup/synchronize the non-networked computers.
No Server	Implement a Snap Server 2200 for file sharing on the entire network.	▪ Implement a Snap Server 1100 for the main office. ▪ Implement a high-capacity portable hard drive, such as a FireWire drive to backup/synchronize the non-networked computers.

Sinecure should engineer its server or Snap Server so that there are multiple shared folders, and access to those folders is granted based on the function and need of the staff member. Figure 6 is a worksheet to help plan for file sharing.

Anti-Virus Solution

Currently only the "Finance" and "Pcustomer" computers have anti-virus protection, and both the software version and virus definitions are outdated. Currently, with no network or Internet access, there is a relatively low risk of infection, except for viruses transferred on diskettes.

Recommendation

When/if Sinecure installs a network and Internet access, Sinecure should budget to purchase licenses for Norton Antivirus Professional for all Windows-based computers.

Databases

The various databases used by Sinecure are apparently well-designed. However these databases are built in Kludgybase, a programming language that is, if not dead, not feeling very well. The most critical limitations of the current database are:

- Limited availability of support
- Not possible for simultaneous, synchronous access by multiple users – even if Sinecure had a network.
- Not possible to migrate some functions to the Web (which has been identified as a long-term goal)
- No automated interoperability with the accounting software: requires multi-step procedure to transfer data, and only in one direction.
- Custom and ad-hoc queries and reports difficult to generate.

MS Access: Neither a Panacea nor a Foregone Conclusion

MS Access has been mentioned several times as a possible replacement for Kludgybase. There may be unrealistic expectations at Sinecure over how easy a transition to Access would be.

Access is merely a platform from which to build a database. Purchasing the software is akin to purchasing a load of construction materials. Without an architect, an engineer, a purpose, and a plan, all you have is a load of construction materials. And just as you would not expect your staff (or volunteers) to plan and construct a new building for Sinecure, you should not expect them to build your database.

I do not recommend considering MS Access as a foregone conclusion, and would certainly not *require* that developers build using a specific platform such as Access, Oracle, MySQL, etc. Sinecure's job is to define the needs (functionalities), and let the developers propose solutions that meet the needs. An Access solution may be among the contenders.

Upgrade Kludgybase?

Upgrade Only

Kludgybase is, in fact, still supported by KludgeCo Computer Systems[4], and there are versions of Kludgybase that run in Windows. However, upgrading to the new version of Kludgybase would merely (a) allow you to work in Windows instead of DOS, and (b) provide you with a support option other than Iva Footingrave.[5] (It may, in fact, eliminate Footingrave as a support option, if the new version is significantly different, and his knowledge doesn't easily transfer.)

"Simply" upgrading Kludgybase would not provide multi-user access to the databases (assuming Sinecure is networked). In short, Sinecure would likely end up worse off.

Upgrade Plus Modifications

To achieve a multi-user version of Footingrave's databases would require paying a developer to modify the databases, possibly several thousand dollars. In the end, Sinecure would have a better version of Kludgybase, but be dependent on a relatively small community of developers – perhaps only one[6], and have few options for expanding the functionality or interoperability of the database.

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[4] KludgeCo is based in the UK, but has a US rep based in Seattle. See KludgeCo Computer Systems: http://www.KludgeCo.com/

[5] It is possible to purchase a relatively inexpensive support contract from KludgeCo with an upgrade to the new version of Kludgybase.

[6] The KludgeCo representative I spoke with could not identify with confidence any Kludgybase programmers on the East Coast. It's worth noting that many obsolete computers and programming languages are still supported by communities of programmers and technicians. For example, there are still user groups for the Apple IIc, and other early computers. Not so for Kludgybase. Other than KludgeCo, I could not find any resource of users or support.

As unappealing as this scenario may sound, I would not rule it out until Sinecure has identified other viable options to compare it to.[7]

[7] A "viable option" is one that will meet the needs identified by Sinecure, and has a realistic chance of being funded.

Buy, Rent, or Rebuild from Scratch?

The obvious alternative to the Kludgybase upgrade is to rebuild the database from scratch. The solution with long-term stability and sustainability would be to first carefully define your requirements, and then seek solutions. Ideally, Sinecure will have three or four viable options to choose from – and realistic cost estimates to use when raising funds for implementation. There would be several phases to such a project, including:

1. Document the core functionalities and data structures of the existing Kludgybase database.[8]
2. Create a requirements document that includes existing functions as well as desired functions that do not currently exist.[9] This should include functions needed by the staff as well as functions needed by the Board, such as common reports.
3. Seek solutions:
   - Send a Request for Quote (RFQ) or a Request for Proposal (RFP) to database developers.[10]
   - Look for pre-existing solutions that meet your requirements and vendors who can implement and support the solution.[11]
4. Find the money: Use the quotes as supporting documentation in proposals submitted to donors, and funders.
5. Select a vendor to build and/or implement the database.[12,13]
6. Once the developer begins working on the database, there will likely be many meetings and consultations with staff, with Footingrave, and possibly other stakeholders – including the board.
7. When the database is implemented, the data from the Kludgybase database will be migrated to the new database.[14]
8. Train staff to use the new database. There should also be a period where the developer provides follow up support and debugging.
9. Retire the Kludgybase database.

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[8] My understanding is that there is a missing diagram that described the interrelationships between the different database modules. If this diagram can be found, it may save a significant amount of work.

[9] For example: Interoperability with your accounting software, Web interface for student registration or online payment. It is important to aim high, even if you do not expect all of the functions to be built into the first phase of the database. Knowing the future needs will help the developers make important decisions on data structures, platform, hosting environment, etc.

[10] An RFQ is less demanding of a developer, and allows you to put a price on the project when you don't currently have funding for the project.

[11] In consider it unlikely that you will find a pre-built solution, but due diligence demands that you make an effort.

[12] A critical predecessor to this phase of the project is to implement a network among all computers needing access to the database. No small task in itself.

[13] The RFP/RFQ should set down the selection criteria, help the vendors emphasize the right aspects of their solutions – and to prevent any suspicion of cronyism or unfairness in the selection process.

[14] This process will likely go more smoothly with the cooperation of Footingrave.

Recommendation

In order to create the best solution for Sinecure, I recommend that the board and staff undertake a process such as then one described above to carefully determine your needs, put a price on fulfilling the needs, find the funding, and implement the project.

Accounting

Sinecure needs to upgrade to either a newer version of the existing accounting software (Great Plains), or needs to change to another accounting package entirely. As indicated in the Overview, the best decision will be driven by the choices for Sinecure's networking and database.

Recommendation

No decision on accounting software should be made until Sinecure has chosen a course on networking and their database.

Internet Services

Figure 4 shows the providers of Sinecure's various Internet Services.

Figure 4: Sinecure Internet Services

Provider	Internet Services					Cost
	Internet Access	Domain Registrar	Domain Name Service	Web Host	E-mail Host	
JOKER.COM		◆	◆			$12/year
bbn.org				◆		Free

Internet Access Provider

Sinecure has no Internet access. The Office Manager, and probably other staff, has a need for Internet access – if only for e-mail.

Short Term Recommendation: Dial-up for The Office Manager

Create an account with a dial-up provider. Figure 5 shows inexpensive options for dial-up Internet access. The Office Manager can share the fax line, and dial up intermittently throughout the day.[15]

[15] The Office Manager's computer has e-mail client software installed (MS Outlook), but will need a modem. The "Finance" computer has a modem that could possible be removed and installed in The Office Manager's computer.

Figure 5: Dial-up Internet Access Options

Product	Price per Month	Price per Year
Verizon Offers free dial-up access to qualifying NPOs[16]	$0.00	$0.00
ZZAPP! (http://www.zzapp.org) A nonprofit Internet provider serving the Metro Washington DC area.	$ 12.95	$155.40

Long Term Recommendation: Broadband

Sinecure should have a high-speed, full-time Internet connection. How high-speed the connection should be depends on several factors, as indicated in the Overview. DSL service is available for as low as $50 per month. However, if your database solution is hosted off-site, you will likely need a faster, more expensive connection in order to efficiently access your information.

Domain Registrar

Your domain (sinecure.org) is registered through JOKER.COM, and paid through to June 31, 2003. Mal Icious is listed as the owner, administrative contact, billing contact, and technical contact. Ideally the owner should be the organization, and the administrative contact should be someone with a long-term commitment to the organization, such as the ED or a Board member. If you need to make any changes to your domain (such as change Domain Servers when you change Web hosts), you need to have access to the person who is authorized to make such changes.

Recommendations

- Document the JOKER.COM login and password in the Sinecure Tech Binder.
- Change the billing contact to the Accounts Receivable person for Sinecure. Do this *after* the staff has been provided with e-mail access.[17]

Web Hosting

Currently the Benevolent Big Nonprofit hosts the Sinecure Web site as a subdomain under their domain:

http://www.**sinecure**.org → redirects to → http://**sinecure**.bbn.org

My understanding is that this hosting is provided at no cost. However, depending on decisions made vis-à-vis the database, online registration, and other factors not covered here, Sinecure may need access to more features than are offered by BBN.

[16] I have already provided a copy of the application to Guy Noklu who will complete it and submit it to Verizon.

[17] Alternatively, an e-mail alias such as "billing@sinecure.org" could be created and pointed to whoever is the "postmaster" for Sinecure e-mail.

E-mail Hosting

Currently there is no mail exchange (MX) for the domain sinecure.org, so the domain is not being used for e-mail at all.

Short Term Recommendation: Get E-mail Hosting

I can help you find a free or cost-effective solution for e-mail hosting with your domain. Your registrar, Web host, or dial-up provider may include this already. If not, accounts can be set up for as low as $36 per year that would allow you to have multiple e-mail accounts, e-mail aliases, regular and Web-based mail, using the sinecure.org domain. Such a solution would also allow you to host your Web site under your domain – not under bbn.org.

Web Site

Guy Noklu actively maintains the Sinecure Web site. It is essentially a "brochure" Web site, and is easy to find using search engines. It is lacking in some of the advanced functionality Sinecure wants – online registration, for example.

Short-Term Recommendation: It isn't broke. Don't fix it.

- Although it may be possible to implement some of the desired features in the short term using Application Service Providers (ASPs), it would probably be a distraction from the larger technology issues facing Sinecure.
- Only if Sinecure began using an e-mail host that also provide domain hosting for Web sites, would I recommend the short-term change of transferring the site to a new Web host.
- Document the Web site maintenance information (FTP server name, login, password, etc.) in your Tech Binder.

Long-Term Recommendation: Depends on Networking and Database

Referring again to the Overview, long-term recommendations for the Web site will be driven by the networking and database scenarios that are implemented.

Staff Training

Sinecure is an organization of people who generally have the technical skills to do their jobs, using the blend of systems currently in place. Training for all staff will be required as Sinecure adopts new solutions that meet the organizations mission. It is likely that not all of the staff will have similar starting points.

Recommendation

Once the main solutions have been identified, Sinecure should conduct a skills assessment for the basic technical skills that will be necessary for each staff member to smoothly transition from the current systems to the new systems. If some staff is lacking necessary skills, use the training resources available through TWFG, our training partners, or other reasonably priced training resources.

Conclusion

It would be more than optimistic to say that once Sinecure had determined its networking and database solutions, the rest will fall into place. It won't. However, Sinecure will continue to be in its current precarious state until these choices are made.

Sinecure has a lot of catching up to do, and a lot of legacy systems that can't simply discarded – and likely some legacy systems that *can* be discarded.

It will take a significant commitment from the board, and re-prioritizing of the staff to make this happen. In the end, however, Sinecure will be a stronger, and more stable organization.

Appendix: Networking Vendors

These vendors are all partners of TWFG and provide a benefit to members, such as a discounted rate, or a free one-time evaluation.

Community IT Innovators (CITI)

Company Description

Since 1993, Community IT Innovators (CITI) has provided technology consulting to over 300 nonprofit organizations in the DC Metro area. With a staff of over 35 technology professionals, CITI provides helpdesk support, technology planning and assessment, web and database design and support, software analysis and selection, network and Internet implementation, ongoing maintenance and administration, and customized on-site training. All services are provided at up to 50% below market rates. Clients include organizations working in social services, arts and culture, education, health care, advocacy, faith-based groups, learning centers, and associations.

Contact: Ms. Jennifer Keller Jackson (Senior consultant)

Address:

1330 U Street, NW, Suite 200

Washington DC, 20009

Phone: 202-234-1600

Fax: 202-478-1827

E-Mail: jennifer@citidc.com

Web-Site: www.citidc.com

Computer Network Systems, Inc. (CNS)

Company Description

Since 1997, Computer Network Systems, Inc. (CNS) has provided highly scalable and customized network management and support services to over 250 nonprofit organizations as well as small and medium enterprises (SMEs) in the Baltimore-Washington metropolitan area. CNS provides world-class IT consulting, project management, network administration, and help desk services, as well as a complete line of networking and computer-related products and services designed to meet the operational expectations and cost needs of Nonprofit and SME business owners and managers.

Our core competencies include comprehensive network consulting and design, complete project management, complete integrations and installation, desktop integration / software deployment, network performance engineering, network security analysis & development, operating systems, databases, messaging systems (email), network cabling engineering / installations, wireless network engineering / installations, eCommerce solutions, and Internet technologies.

Contact: J. Kelly Stewart (Director of Sales & Marketing)

Address:

10407 47th Avenue

Beltsville, Maryland 20705

Phone: (301) 931-7091

Fax: (301) 931-3096

E-Mail: kstewart@cnsnetworks.com

Web-Site: www.cnsnetworks.com

Confluence Corporation

Company Description

Confluence is an IT Services firm dedicated to supporting the technical needs of the nonprofit sector. Confluence tailors its support around the needs and budgets of its customers. Capabilities include: On-Call Support; Application Design, Development and Maintenance; Technical Research and Trade Studies; Purchasing / Installation; Web Design; Information Technology Assessment; and IT Project Management.

Contact: Ms. Lisa Rau

Address:

2164 West Glen Court

Vienna, VA 22182

Phone: (202) 296-3920 x31

E-Mail: lisa_rau@confluencecorp.com

Web-Site: www.confluencecorp.com

NationalHelpDesk

Company Description

NationalHelpDesk, the official technology partner for members of the Maryland Association of Community Services and the Maryland Association of Resources for Family and Youth, is your Total Technology Solution. Through our Human Services Technology Initiative (HSTI), we provide non-profit organizations with cutting edge technology solutions at a Premium Discount. Amoung our present HSTI clients are Howard County ARC, Vocational Services Inc. and Community Living Inc. NationalHelpDesk provides these fine organizations with technology services such as High Speed Internet Access, Network Integration, Ongoing Computer Maintenance, Equipment Purchasing and Technology Consulting. Those services are just the tip of the technology iceburg of what we can do for YOUR organization. Visit us at http://www.nationalhelpdesk.net for more information.

P.S. All TWFG members get a FREE Network Security/Efficiency Audit. This audit will tell you if your present technology is equal to your present workload and render suggestions on how it may be improved in the most cost effective way possible. Contact us for more details.

Contact: Mr. Kevin Jordan (Vice President for Sales)

Address:

8000 Towers Crescent Drive, #1350

Vienna, VA 22180

Phone: 888-844-4392

Fax: 703-277-9840

E-Mail: KJ@nationalhelpdesk.net

Web-Site: www.nationalhelpdesk.net

Portal Systems

Company Description

Portal Systems is a network system integrator for small to medium sized businesses. Portal Systems performs a complete technology assessment before designing any solution and provides training before and after the project.

Contact: Mr. David Korté (Partner)

Address:

4094 Majestic Lane

Fairfax, VA 22033

Phone: 703-277-9832 x203

Fax: 703-277-9840

E-Mail: sales@portalsystems.net

Web-Site: www.portalsystems.net

Figure 6: File-Sharing Regime Matrix Worksheet

Network User Groups	File Shares R = Read W = Write ● = Full access									
	Personal Folder/Home Directory	Access to network printers	Access to Volunteers File share	Access to public file share	Access to Admin file share	Access to financial Information	Access to [DeptA] File Share.	Access to [DeptB] File Share	Access to [DeptC] File Share	Access to [DeptD] File Share
	H:		**O:**	**P:**	**Q:**	**R:**	**S:**	**T:**	**U:**	**V:**
Guests		●								
Volunteers		●	●							
Staff[18]	●	●	●	●	R		R	R	R	R
Senior Staff					●	R				
Accountants						●				
[DeptA]							●			
[DeptB]								●		
[DeptC]									●	
[DeptD]										●

[18] The privileges and restrictions for Staff apply to all of the sub-groups (indented), except as noted.