

Technology Issues

A Active Issues

A.1 Issue: Too much of the day-to-day operation depends on Chuck Miller.

A.1.1 Analysis: Chuck has taken too much responsibility onto himself.

A.1.2 Recommendations:

A.1.2.1 Document the IT infrastructure so someone else can administer it in case Chuck is “hit by a bus”. This will require an inventory of all IT equipment. Keeping the inventory document up to date will require that each piece of IT equipment have a unique, visible, inventory number.

A.1.2.2 Document Chuck's procedures by following him around and writing down what he does.

A.1.3 Progress: Chuck is working on creating an inventory of the IT infrastructure. Tim Hutchinson is helping Chuck.

A.2 Issue: The backup procedures risk non-public data being revealed.

A.2.1 Analysis: taking unencrypted disks home risks losing them.

A.2.2 Recommendations:

A.2.2.1 Encrypt all backup disks, using Microsoft Windows full-disk encryption.

A.2.2.2 Encrypt all backup tapes, using a technique not yet identified.

A.2.2.3 Store backup disks and tapes in a town-owned facility, under lock and key. Encryption is still needed because disks and tapes can be mislaid during transit.

A.2.2.4 When choosing a site for backup, it must be separate from the site where the data is normally used, to protect the data from a single-site disaster.

A.2.2.5 Eventually, each site which houses Town data disks or tapes, whether for regular use, for backup, or both, must have a signin/signout log to record the departure and arrival of disks and tapes. To make this work, each disk and tape must have a unique, visible, identifier.

A.2.3 Progress: Chuck now places off-line backup disks in a fire-resistant vault in Town Hall. These backups include data from other Town sites. Because Town data is generally public, there may not be a need for encryption. There are plans to move half of the redundant SAN from Town Hall to the Police Station. To accomplish this the Police Station must be cleaned up and a dedicated fibre needs to be installed between Town Hall and the Police Station. There is no funding in the foreseeable future for adding another fibre link, but there may be a dark fibre already in existence. Workstations and most servers are backed up daily to NAS, except Finance is three times a day. Only two servers still use tape. The fibre that links the facilities has only 20 to 25 percent peak utilization, but NetAPP should have a dedicated fibre because its replication can cause latency problems, particularly with voice over IP. It may be possible to just move half the NAS to the Police Station, to provide off-site backup for Town Hall data.

A.3 Issue: The Town is spending a lot of money on software.

A.3.1 Analysis: Much of the software that the Town uses is licensed from vendors at a cost of about \$80,000. We have about 200 Microsoft Office licenses, of which about 150 might be converted to OpenOffice. However, Microsoft Outlook communicates with the Town's Cisco telephone system, and there might be no replacement for this capability. The Town also runs Revenue Sense and Budget Sense for payroll and

purchasing.

A.3.2 Recommendation: follow the State's lead in moving to free software, as described in HB 418. As licenses expire, convert desktops to OpenOffice, unless there is a good reason why the particular desktop needs Microsoft Office. Chuck has already replaced Microsoft Office with OpenOffice on desktops which are not assigned to a particular person.

A.3.3 Progress: The Town Council is on-board with the concept of switching to free software. In some cases the available free software may not be the best solution for the Town's needs, so switching needs to be evaluated on a case-by-case basis. See the section below on Software Licenses. Chuck is seeing resistance to moving from Microsoft Office to OpenOffice. Apparently people don't like change.

A.4 Issue: There is no plan for the future of the Town's IT infrastructure.

A.4.1 Analysis: The Town's IT infrastructure has developed based on immediate needs—when something breaks we start thinking about how to replace it.

A.4.2 Recommendation: Develop short- medium- and long-term plans for the Town's IT infrastructure. This includes replacing workstations and servers as they reach end of life. Consideration should also be given to upgrading and replacing software.

A.4.3 Progress: The Town budgets \$50,000 per year for IT hardware, software and services, beyond what the departments budget for their own needs.

B Inactive Issues

B.1 Issue: There is no disaster recovery plan for the Town's IT infrastructure.

B.1.1 Analysis: In the absence of a formal plan, much effort will be wasted trying to recover from a disaster, and the recovery will likely be incomplete.

B.1.2 Recommendation: create a disaster recovery plan, which describes what to do if a single building is completely destroyed, with all its contents, and what to do if Chuck is “hit by a bus”. The exercise of writing the plan may suggest some changes in the backup procedures.

B.1.3 Progress: Creating and maintaining a comprehensive disaster recovery plan is a major effort. This issue is inactive pending the resolution of other issues: IT inventory and training for Chuck Miller.

B.2 Issue: Chuck Miller, though he has much experience, is not able to handle some problems.

B.2.1 Analysis: Chuck lacks training in Microsoft Windows Server and Microsoft Exchange. However, he has quick and inexpensive access to local support resources.

B.2.2 Recommendation: Offer Chuck training in Microsoft Windows Server Administration and Microsoft Exchange Administration. Continue to depend on paid support for problems outside of Chuck's areas of experience.

B.2.3 Progress: Chuck is getting free training from vendors.

Software Licenses

Microsoft software and anti-virus

A Client Access License (CAL) is required for a workstation to access a Microsoft Windows Server and participate in its security domain. We have the needed 150 CALs.

Microsoft Windows, because of its vulnerability, requires anti-virus software. We use AVG Cloud anti-virus, which costs \$29 per year per active computer on a two-year license.

We use Microsoft Office and OpenOffice for document preparation, presentations, e-mail, spreadsheets and small data bases. We have licenses for Microsoft Office 2010; no license is needed for OpenOffice. Chuck attempted to move 50 of the 100 workstations that need e-mail to OpenOffice plus Microsoft Outlook, but encountered resistance. Microsoft Outlook is the component of Microsoft Office which provides e-mail service; it is less expensive than full Microsoft Office. Replacing Microsoft Outlook with a free alternative will be difficult because the available software for our Cisco telephones appears to support only Microsoft Outlook. Most of our Microsoft Office licenses are for the Standard version; we license the Professional version only for users who need the additional capabilities.

We use small data bases to hold data in an organized way, for example burn permits issued by the Fire Department. We currently use Microsoft Access for these small data bases, but we could convert them to OpenOffice Base or PostgreSQL. Conversion will need to be considered on a case-by-case basis.

Large data bases are currently handled by Microsoft SQL, for which we have 50 licenses. Assessing has been converted to a less expensive version of Microsoft SQL called Microsoft SQL Express. The data bases in Finance are too large for Microsoft SQL Express. In some cases conversion to a free data base product such as PostgreSQL might be possible.

Terminal Services allows remote computers to connect to the Microsoft Windows servers at Town Hall as though they were local, using RDP. We currently have 50 RDP licenses. We may need fewer licenses in the future when the Fire Department converts to their new software, which uses HTTP to access its server rather than Terminal Services. However, that conversion has been delayed.

Revenue Sense and Budget Sense

These are very expensive software packages used by the Finance Department for payroll and purchasing. The current versions require Microsoft SQL 2008 and Microsoft Windows Server 2008, which are also expensive. The total cost of upgrading to the current versions of these products is about \$12,000.