

To:	Warden Halliday and Members of Grey County Council
Committee Date:	May 24 th , 2018
Subject / Report No:	ITR-CW-02-18
Title:	IT Infrastructure Refresh
Prepared by:	Jody MacEachern
Reviewed by:	Kevin Wepler, Director of Corporate Services
Lower Tier(s) Affected:	None
Status:	Recommendation adopted by Committee as presented as per Resolution CW140-18 on May 24, 2018; Endorsed by County Council on June 14, 2018 per Resolution CC57-18.

Recommendation

1. That report ITR-CW-02-18 regarding the 2018 IT network infrastructure refresh be received; and
2. That the following IT network infrastructure procurements be awarded to the following approved OECM suppliers:
 - Dell Canada Inc. – VxRail, Dell Switches and Router Rack Mounts in the amount of \$247,668.95 (excluding HST);
 - Compugen Inc. – HP Switches in the amount of \$102,690.84 (excluding HST);
 - CDW Canada Inc. – UPS Replacements and Backup Storage Replacements in the amount of \$32,708.51 (excluding HST); and
3. That the additional funding required to complete the IT network infrastructure refresh in 2018 be funded from any surplus realized within the 2018 Information Technology operating budget, and if insufficient, that the shortfall in funding be funded from the IT Infrastructure Reserve

Executive Summary

- Grey County IT staff identified as part of the 2018 budget that the County's IT network infrastructure needed to be updated in 2018.
- The 2018 budget included \$325,000 in capital funding to upgrade the IT network infrastructure. Based on current OECM procurement pricing, an additional \$64,810 is estimated will be required to replace network hardware and to engage professional services for set up and configuration of this network hardware and switches.
- OECM (Ontario Education Collaborative Marketplace) issued Request for Proposal #2016-261 for End-User Computing Devices and Services in 2016.

Background and Discussion

In 2017 Grey County Council adopted a new five-year information technology strategy plan. That plan, along with a subsequent network security assessment, made several recommendations for investment and replacement in core network infrastructure.

OECM is a not-for-profit sourcing partner for Ontario's education sector, broader public sector. In 2016, OECM contracted with Dell Canada, CDW Canada Corp. and Compugen Inc. through an RFP for End-User Computing Devices and Services. Grey County entered into a non-exclusive Client-Supplier Agreement with OECM on May 5th, 2017. This contract allows Grey County to take advantage of products and prices which have been established through a procurement process managed by OECM. It does not insist that the County source these products exclusively from this agreement.

Prior to 2018, the County IT departmental budgets had not accounted for life cycle management in network hardware. The network was expanded when required, and components were replaced when deemed necessary. County staff began the process of budgeting for component replacement in 2017, and developing an inventory of network hardware so future budgets could properly account for life cycle management of network hardware. Like any other asset inventory, a basic amount of information such as a description of the asset, date installed, warranty period, and replacement cost, would allow staff to account for replacement costs several years into the future following industry standards for expected life spans.

There are several components of the County's network infrastructure that need to be replaced. The server hardware is nearing capacity. This poses a limit on the ability of staff to deploy new network applications. The limited capacity has introduced some problems with network backups and managing larger applications like Microsoft Exchange (email). There have been a few incidents where network components have failed, and support from vendors was required to restore network services.

Grey County IT staff recommend proceeding with budgeted procurement for network infrastructure (servers and switches). Staff also recommend purchasing seven new UPS units (battery backup and power conditioning) to protect network equipment, replacing backup storage devices at the administration building and each of the three long-term care homes, and engaging Dell to assist with set up and configuration of new switches and server hardware.

Descriptions of Equipment

Dell VxRail – Essentially Grey County's proposed server solution. This storage and compute

hardware runs all applications that are on the network (Alfresco, Great Plains, GIS, Bellamy, etc.), the database server, and file storage.

Switches – Switches connect devices to build the network and allow access to the outside internet. Grey County staff propose purchasing HP switches to continue pursuing a single vendor solution by replacing existing switches. The exception would be Dell switches to connect VxRail.

UPS Units – UPS units are battery backup and protection for network equipment. Electronics are generally sensitive to variation in electricity (sudden spikes or outages). UPS units provide protection from such variation, and also provide battery power for up to an hour should power be lost to one of the server rooms.

Backup Units – Storage devices to maintain backups. Backups are necessary to restore for accidental data loss, which may occur through any number of causes, such as user error, equipment failure, software failure, etc.

Current State of Equipment

Server hardware – Grey County's main data center has three physical Dell servers. One is about 7 years old, and 3.5 years out of warranty. The other two are 4.5 years old and will be out of warranty this year. This equipment is nearing capacity for the applications and data Grey County supports. Further, there have been two hardware failures this year alone, resulting in outages of several hours, overtime, and vendor support. The expected life for server hardware and storage devices is about 4-5 years.

Backup Storage – There are four separate units for backup storage on Grey County's network: one in the administration building, one at Grey Roots for offsite storage, and one each in Grey Gables and Rockwood Terrace. The unit at the administration building is out of warranty, and too small to properly manage backups of Grey County's network. The controllers on this unit have failed twice, once in 2018. The units at Grey Gables and Rockwood Terrace are almost 5 years old. One isn't functioning properly. The other will be re-purposed to extend the life of the backup unit at Grey Roots.

UPS Units – The seven units staff are suggesting be replaced are beyond the normal lifespan of UPS units. Most of these have little if any battery life remaining. The UPS in the County administration building frequently issues alerts that it is failing, which is possibly an indication that the alarm system itself has failed. UPS units can be expected to last for 3-5 years depending on the load and charging conditions. Often the batteries will fail in less time than this, but can be replaced separately.

Switches – Staff initiated a project in 2017 to renew switching hardware throughout the network. This involved purchasing new switches to accommodate the administration building addition, and replacing switches in the old part of the administration building. The remaining switches, including those at satellite offices, range from 7-12 years old. There have been some minor hardware failures, but mostly the technology has become out of date. The normal lifespan on a network switch is approximately 5 years.

Cost of Inaction

Not investing in hardware replacements could result in a number of consequences. Depending on what components failed, and whether those components were under warranty, data loss for affected

services could span hours to a full day. Service outages might persist for hours to days if components cannot be replaced in a timely fashion.

As the current network is near its capacity, effects are already being felt. IT staff have been constrained in their ability to deploy new applications. There have been several occasions where large amounts of data changing on the network have resulted in backup failures. General network maintenance is slowed and often requires longer outages.

Legal and Legislated Requirements

None applicable.

Financial and Resource Implications

Grey County IT staff have received quotes for the replacement of hardware based on the competitively sourced OECM agreement. The costs are outlined below.

Vendor	Component	Cost	Cost (Net HST)
Dell	VxRail	\$ 224,571.05	\$ 228,523.50
	Dell Switches	\$ 20,847.90	\$ 21,214.82
	Router - Rack Mounts	\$ 2,250.00	\$ 2,289.60
Compugen	Remaining Switches Replacement	\$ 102,690.84	\$ 104,498.20
CDW	UPS Replacement	\$ 17,850.00	\$ 18,164.16
	Backup Replacement	\$ 14,858.51	\$ 15,120.02
Grand Total		\$ 383,068.30	\$ 389,810.30

The 2018 budget included \$325,000 in capital funding to upgrade the IT network infrastructure. Based on current OECM procurement pricing, an additional \$64,810 is estimated will be required to replace network hardware and to engage professional services for set up and configuration of this network hardware and switches.

Staff is recommending that the additional funding required to complete the IT network infrastructure refresh in 2018 be funded from any surplus realized within the 2018 Information Technology operating budget, and if insufficient, that the shortfall in funding be funded from the IT Infrastructure Reserve

Relevant Consultation

Internal (list)

External (list)

Appendices and Attachments

[Grey County Technology Strategy 2017-2021](#)