



To: Toronto Public Library Board – January 21, 2002

From: City Librarian

Subject: **Digital Data Storage and Enterprise Tape Library Backup Solution – Award of Request for Proposal**

Purpose:

To obtain Toronto Public Library Board approval for the award of contract for the Digital Data Storage and Enterprise Tape Library Backup Solution.

Funding Implications and Impact Statement:

The purchase of the Digital Data Storage and Enterprise Tape Library Backup Solution has been accommodated within the Library's operating budget. As directed by City Council, purchase of information technology hardware and software is financed through a lease. The annual lease costs are accommodated within the operating budget. The one-time implementation and training costs are accommodated within the Information Technology operating budget.

The total cost of the solution, before taxes, is \$580,139, with taxes (GST at 3%) is \$643,954.29. The total cost of hardware and software to be leased, before taxes is \$536,139, with taxes (GST at 3%) is \$595,114.29. The total cost of implementation and training, before taxes is \$44,000, with taxes (GST at 3%) is \$48,840.

The annual 12-month leasing cost for the hardware and software is estimated at \$160,000, taxes included, based upon a 60-month lease.

The annual maintenance costs are \$85,099. The maintenance costs have been incorporated into the 2002 operating budget submission. There are no added staffing requirements.

Recommendation:

It is recommended that the Toronto Public Library Board approve that staff enter into contract negotiations with StorageTek Canada Inc. for the Digital Data Storage and Enterprise Tape Library Backup Solution at a price not to exceed \$643,954.29, taxes included.

Background:

The Toronto Public Library plans to implement a Digital Data Storage and Enterprise Tape Library Backup Solution to achieve a number of objectives: a long-term, overall reduction in the

unit costs disk storage and tape backup, increased Information Technology staff productivity, improved security of data and improved systems availability.

The proposed solution will address a key initiative in the Library's Strategic Plan to "maintain a reliable, stable and fast network infrastructure". The Library has numerous applications running on more than 45 servers located at its computing centre. In the current environment, each server has its own direct-attached disk storage and tape backup. The current backup environment is increasingly difficult to manage, is labour-intensive and has an impact upon service availability because of lengthy backup times. The current direct-attached disk storage means that disk storage capacity is managed separately for each application. Surplus capacity in one application cannot be allocated to another application. The Library's need for disk storage is growing dramatically because of the electronic information services it provides and the digitized collections it makes available to the public. The proposed solution will allow the Library to address the growing storage and backup requirements in the most cost-effective manner possible.

The Digital Data Storage and Enterprise Tape Library Backup Solution has a number of components: a storage area network (SAN), disk array, a tape library, backup software, support and implementation services.

A Storage Area Network (SAN) is an independent network for storage subsystems, free from the rest of the computer network. A SAN is a dedicated, centrally-managed infrastructure, which enables any-to-any interconnection of servers and storage systems. In effect, a SAN removes the storage from the servers; thus liberating the storage devices from the ownership of the servers. In such a setup where no server has ownership of storage subsystems, any server can gain access to any storage device. In other words, any user can gain access to any storage device of the SAN, regardless of the physical location of the storage or the user.

In addition to offering any-to-any connections, a SAN creates a scaleable environment. Since storage and servers are independent from each other, storage devices or servers can be added or removed from their respective networks without affecting each other. Storage devices can be added to the SAN without any worry about a server's configurations. Isolating the potential disruptions of the servers from those of the storage reduces potential for interruptions.

The creation of an independent SAN further enhances the workflow of information among storage devices and other systems on the network. Additionally, moving storage-related functions and storage-to-storage data traffic to the SAN relieves the front end of the network, the Local Area Network (LAN), of time consuming burdens such as restore and backup.

The disk array component of the SAN will enable us to move, backup and manage our data without impacting our network performance in our high-speed, high data availability multi-server environment. Future new server purchases will not include storage which will mean cheaper server acquisition costs. Storage consolidation makes cost of future storage cheaper. In the future, we can allocate space to different users from different platforms on the fly without disruption to services since storage will be independent from servers.

OVERALL REDUCTION IN THE UNIT COSTS OF DISK STORAGE AND TAPE BACKUP

By consolidating storage, Toronto Public Library will be able to better utilize storage assets and better forecast storage requirements. As a result, the excessive storage headroom that is created in a direct-attach storage model is no longer necessary in order to accommodate potential future storage requirements. Furthermore, all storage in the Enterprise is shared and therefore can be utilized fully in a pooled storage environment. Under the existing direct-attached model, the storage assets are tied to a specific server and its application and cannot be shared across the Enterprise, thus resulting in headroom and wasted assets.

Storage consolidation drives better utilization of server assets. Meaning that new servers only need to be acquired when applications require additional processing capacity rather than storage capacity, which is often the business driver in a direct-attached storage model. Additionally, some of the costs associated with acquiring new servers for storage purposes can be avoided, such as software licenses, maintenance, and system administration.

Implementing a shared storage pool will result in overall storage cost savings for Toronto Public Library because the right level of storage can be purchased when needed. If the storage requirements for an application grow, the appropriate amount of storage can be acquired and added into the storage pool or reallocated from an application that does not require the storage allotted to that particular application. Likewise, if the application's requirements were to shrink or if the application was to be phased out, the unused storage can then be easily re-deployed into the shared pool and allocated to other applications that require additional capacity. This is not possible under the current direct-attached model.

A Digital Data Storage and Enterprise Tape Library Backup Solution allows Toronto Public Library to share the expensive components of the storage network, namely the Disk Array and Enterprise Tape Library. When future additions to storage are required it will lower the incremental cost per megabyte for disk storage and tape backup.

IMPROVED SECURITY OF DATA AND SYSTEMS AVAILABILITY

One of the biggest challenges for IT administrators today is backup – huge amounts of data and too little time to properly back it up. The new tape library will allow us to move our backups from the local area network (LAN), to a high-speed SAN infrastructure. This will enable us to backup and restore critical data quickly, securely and with little impact on our day-to-day business operations and services provided.

The new tape library will replace the numerous slower direct attached tape drives we currently have attached to various servers on the LAN. The faster speed and higher capacity of the new tape drives inside the new Tape Library will enable us to backup all our data within the 6 hour backup window over the SAN. Tape cleaning, rotation cycles for backups and retention will be automated as well as tape retrieval during backup jobs. It will be easier to centrally manage one Tape Library compared to managing the different number of direct attached tape drives we have today.

With an Enterprise tape library, data recovery capabilities are also increased as the centralized system allows for easier management of the tapes and the information that resides on them.

Therefore, when information is lost the time needed to recover it from tape is reduced and the business impact is minimized.

INCREASED INFORMATION TECHNOLOGY STAFF PRODUCTIVITY

Storage Area Networks (SANs) enable centralized and consolidated management of storage systems and tape libraries. The workload required to add additional storage is significantly reduced. Through the use of Storage Resource Management tools, Toronto Public Library's IT Staff will be able to more easily and effectively manage the storage environment with a shared storage pool than they can under the current direct-attached model. The Library required a proponent who could provide implementation and maintenance support for the proposed solution. A "one stop" service is key to providing the best support. One source of accountability means faster and more efficient troubleshooting and problem solving.

REQUEST FOR PROPOSAL

The Library issued a Request for Proposal, which was advertised in the Toronto Star and listed on the Library website Purchasing section. Eight firms requested copies of the RFP. A mandatory proponents' briefing meeting was held on December 5, 2001. When the RFP closed on December 13, 2001, the Library received six responses. All responses met mandatory Purchasing submission requirements.

The responses were evaluated by Toronto Public Library staff based upon the specifications contained in the Request for Proposal and requested clarifications from the proponents. The evaluation procedure and scoring process used for this selection established best value, based upon criteria and points listed in the RFP.

Comments:

After an initial evaluation of the responses, three vendors were short-listed for more detailed evaluation. One proponent was not short-listed because its proposed solution addressed only one component of the requested solution. Two other proponents were not short-listed because their proposals were significantly over the Library's budget.

The proponents submitting proposals were:

Compugen Services Ltd
Kanatek Technologies
Open Storage Solutions Inc.
Storage Tek Canada
The Ram Group
Telus National Systems

The proposal submission prices ranged between \$321,612 and \$1,144,486.

The short-listed proponents were:

Open Storage Solutions Inc.
StorageTek Canada
Telus National Systems

The proposals of the short-listed proponents were evaluated based upon criteria and point weighting outlined in the RFP. The process the Library follows for evaluation of complex RFPs is similar to the process used for consultant RFPs. The City's process for consultant RFPs was presented to the Board for information at its December 3, 2001 meeting. Given the complex nature of this RFP, the Library's Purchasing department submitted it to City lawyers for review before being issued. The criteria and point weighting as outlined in the RFP were:

Proponent qualifications	10
Technical requirements	40
Implementation requirements	15
Maintenance and support requirements	15
Pricing	20

Based upon the evaluation, the solution proposed by StorageTek received the highest number of points and provides the best value to the Library.

Conclusion:

The Library recommends that staff enter into contract negotiations with StorageTek Canada Inc. for the supply of a Digital Data Storage and Enterprise Tape Library Backup Solution, at a cost not to exceed \$643,954.29, taxes included.

Contact:

Ron Dyck, Director, Information Technology & Bibliographic Services; Tel: 416-393-7104; Fax: 416-393-7083; E-mail: rdyck@tpl.toronto.on.ca

David Clark, Manager, Purchasing; Tel: 416-393-7033; Fax: 416-393-7115; E-mail: dclark@tpl.toronto.on.ca

City Librarian

List of Attachments:

Not applicable.