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Elizabeth Janowiak
Director of Technology
Geneva School District

To: Donna Oberg
From: Elizabeth Janowiak
Re: Server Virtualization Proposal
Date: April 2, 2012

Please submit this purchase information to the BOE for the April 9th, 2012 meeting.

One of the components of the Technology Capital Outlay Plan is server replacement. As stated in the plan, "We are currently utilizing servers which are not capable of running current Microsoft Windows Server operating systems; therefore this equipment would be replaced first. The remaining servers that the technology department has targeted to be replaced are already under performing the needs of district staff and students."

After thorough evaluation of our options, we are recommending that we begin this server replacement process using a virtualized server solution. Virtualization of servers enables us to replace aging server level hardware that is nearing the end of its usable life-cycle, without having to replace one for one. Recent studies demonstrate that a typical physical server uses less than five percent of its processing power. A virtual environment makes more efficient use of processing power and memory. Virtualized servers have already become an industry standard primarily due to their reputation as a secure, cost effective, energy efficient solution for a wide-range of enterprise networks.

The Server Virtualization Project that we have designed and are proposing at this time accomplishes our initial goal of replacing obsolete server hardware while providing, improved manageability and automated redundancy to maintain our network, while bringing us up to date with the flexibility to expand in a cost effective manner.

A virtualized server environment has multiple hardware and software components that function as a comprehensive, integrated system. The foundational element in virtualizing a server environment for Geneva CUSD 304 is a Storage Area Network (SAN) which provides enough storage space to match the existing storage on our current servers as well as provides for expansion. The proposed EMC SAN solution is configured to accommodate replacement of the majority of Central Administration servers and the district's current six-year old SAN drives.

This four tiered SAN solution includes built-in fast cache, flash drives, SAS drives, and high capacity drives which automatically adjust to allow the services with highest demand to utilize the fastest drives. This process is managed by the Unisphere Block and EMC Fast Suite software packages. A redundant battery backup to prevent data loss is also included.

Three years of premium support and maintenance for both the hardware and software components of this solution are included. These support services allow for automatic monitoring of the system by EMC, which includes predictive failure of the hardware prompting the shipment of replacement parts prior to failure.

Any virtual server environment still needs some physical servers to provide the processing power and memory, albeit in a drastically reduced manner. The proposed solution includes three host servers which will provide the processing power and the memory for the virtualized servers. These physical servers will be clustered to provide complete redundancy in the event of any single server hardware failure. Fiber channel switches which allow communication between the EMC SAN and host servers are also included in the proposal.

VMware is the industry standard software that makes virtualization possible. Licenses are based per socket, so with three physical hosts having two physical processors each a total of six licenses of VMware are required. The solution runs on a SQL platform so a SQL license is necessary, along with Microsoft Windows Server Data Center licenses – which are also based per socket. The Data Center license will provide us the ability to virtualize an unlimited number of servers as specified in this environment.

Installation, configuration, training, and support hours provided by Heartland Business Systems, our HP / EMC / VMware partner, are included in this proposal. Ongoing partner support is critical for the timely implementation and extended success of this updated shift in network design.

The following Server Virtualization Project is submitted for your consent. The HP and Microsoft products included in this proposal are priced via IL State contracted pricing. EMC and VMware do not have a state contract so pricing was gathered from three suppliers.

MFG	Description	Cost		
		HBS	CDW	B2B
EMC	SAN Drives, Slots, Fast Cache, Power Supply	51,360	56,400	53,480
EMC	Unispere Block, VNX OE, Fast Suite Software	7,635	7,600	7,765
EMC	3-YR Premium Software and Hardware Support	10,899	8,200	9,175
VMware	Vsphere / Vcenter Software w 3yr Prem Support	18,553	18,835	18,518
	Subtotal	88,447	91,035	88,938
		State Contract		
HP	Fiber Channel SAN Switches & Transceivers	7,775		
HP	Proliant DL380 G8 Host Servers (3)	27,970		
Microsoft	SQL Server & Windows Server 2008 Datacenter	2,245		
HBS	Installation, Configuration, Training, Support Hrs	33,800		
	Total	**$160,237**		

Heartland Business Systems, who provided the best overall pricing for all products included in this proposal, is our recommended vendor.