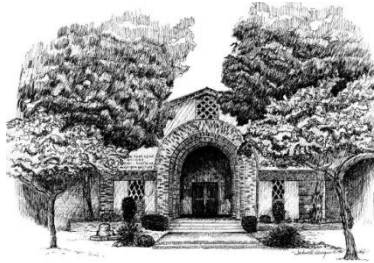SOUTH PASADENA UNIFIED SCHOOL DISTRICT
Business Services Office

TO: Board of Education

FROM: Dave Lubs, Assistant Superintendent of Business Services
PREPARED BY: Derek Aoki, Director of Technology

DATE: May 10, 2016

SUBJECT: Approval to Purchase VM Host Server

Background

The District has made many recent aggressive technological purchases to bring devices in the classrooms up to date. Unfortunately, the same cannot be said about the physical infrastructure yet. The district has not made a major server purchase for six years, and the result of that is starting to show.

Discussion

Careful evaluation of the current state of the network has led the Technology Department to recommend that the first two major purchases should be a Firewall (already ordered) and a new physical VM (Virtual Machine) host server.

The District is currently running over twenty physical servers and over forty virtual machines. Three of the most critical servers are currently housed on physical Dell PowerEdge 2850 servers that are eleven years old. These servers are relied upon to distribute the internet to all sites. Forty virtual machines are housed on two Dell R710 Servers that are six years old. Some functions of these VM's are file storage, the Aeries SIS and Aeries.net Databases, Nutrikids Food POS System, and the Destiny Library Catalog. Recent problems have included DNS related computer login issues, internet outages from operating system corruption, and management issues caused by a multi-tiered domain and unnecessary servers. Microsoft Windows 2003 is also now end of life without support. Approximately 75% of our servers are running Windows 2003 and need to be updated/reloaded.

This purchase would consist of a Cisco UCS Mini Blade Server, Tegile 3100 Hybrid Flash Storage Array, VMWare Software, installation, materials, and on-site warranties.

The result of this purchase would be to lower the number of physical servers in the district from twenty to five. Virtual machines could be consolidated from over forty VMs into approximately fifteen. This would also give the Technology Department a solid base to rebuild a "flat" Active Directory domain from scratch. Updating Windows 2003 servers would be part of the scope of this project.

The current six-year old Del R710 Servers and array would be moved to South Pasadena High School and repurposed as backup servers. Once configured, they would provide an off-site back up solution.

The District has worked with Network Integration Partners (NIC) on several projects over the past few years. They are knowledgeable in both our current setup and the devices being purchased. NIC is also very accustomed to working in K-12 environments. The majority of this purchase applies to the CMAS contract, thus eliminating the need to create a request for proposal.

This installation, along with the Palo Alto Firewall, would be considered the first year of a six-year plan to overhaul the entire network, while maintaining a stable connection with a robust wireless network. Year two would involve continued work of migrating servers onto this Cisco UCS. Years three and four would be the replacement of core switches and routers. Intermediate Distribution Frame (IDF) equipment would begin to be upgraded in years five and beyond.

Fiscal Impact

Total costs of this data center upgrade would total $95,191.68. This would include all hardware, software, installation, and some VM migration. Recurring costs would be approximately $8000 for on-site maintenance and licenses, minus current charges we incur from servers that will be retired. Other notable savings due to consolidating would be energy and manpower.

Recommendation

Dave Lubs, Assistant Superintendent of Business Services, recommends that the Board of Education authorize the purchase, configuration, and installation of the Cisco Unified Computing System and the Tegile Hybrid Storage Array from NIC Partners.