FCMAT

Simi Valley Unified School District

Technology Review

January 5, 2007

FISCAL CRISIS
& MANAGEMENT ASSISTANCE TEAM

Administrative Agent
Larry E. Reider
Kern County
Superintendent of Schools

Chief Executive Officer
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January 5, 2007

Kathryn Scroggin, Superintendent
Simi Valley Unified School District
875 E. Cochran Street
Simi Valley, CA 93065

Dear Superintendent Scroggin:

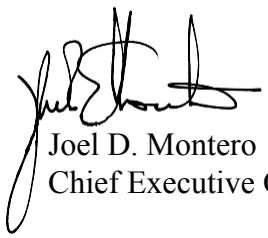
In February 2006, the Simi Valley Unified School District contacted the Fiscal Crisis and Management Assistance Team (FCMAT) to request a technology study. Specifically, the district asked FCMAT to:

1. Conduct a study of the current Novell client installation. Study the fiscal and human resource costs to upgrade all users to a current level of Novell client and licensing and compare this information to the cost to switch to a Microsoft client and licensing platform.
2. Review the various administrative and instructional technology support services provided to SUSD schools and other district departments for strategic fit with technology goals and oversight/ fiduciary responsibilities.
3. Review the district's administrative and instructional technology services organizational structure and make recommendations for improvement and for future staffing levels.
4. Assess the communications needs of the district in regards to internal use of email and shared calendars.
5. Review the network security and assess performance/reliability and make recommendations for improvement. Specifically, make recommendations for firewall, spam filtering, and content filtering based on the possibility of brining all e-mail services inside the district network.
6. Review the technology cost of services currently being utilized by the district from the county office of education.
7. Review the district's electronic communications with the outside community using tools such as a Web presence and e-mail. Specifically, can the district utilize these resources to better communicate with the Simi Valley community?
8. Review the network infrastructure LAN/WAN equipment replacement strategy and make recommendations for improvement. Specifically, going from T1 to wireless radios (or fiber from the local cable company).

9. Review the districtwide telephone system implementation and associated expenses.

FCMAT visited the district August 7-9, 2006 This report is the result of that effort. We appreciate the opportunity to serve you, and we extend our thanks to all the staff of the Simi Valley Unified School District.

Sincerely,



Joel D. Montero
Chief Executive Officer

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Foreword

FCMAT Background

The Fiscal Crisis and Management Assistance Team (FCMAT) was created by legislation in accordance with Assembly Bill 1200 in 1992 as a service to assist local educational agencies in complying with fiscal accountability standards.

AB 1200 was established from a need to ensure that local educational agencies throughout California were adequately prepared to meet and sustain their financial obligations. AB 1200 is also a statewide plan for county offices of education and school districts to work together on a local level to improve fiscal procedures and accountability standards. The legislation expanded the role of the county office in monitoring school districts under certain fiscal constraints to ensure these districts could meet their financial commitments on a multiyear basis. AB 2756 provides specific responsibilities to FCMAT with regard to districts that have received emergency state loans. These include comprehensive assessments in five major operational areas and periodic reports that identify the district's progress on the improvement plans

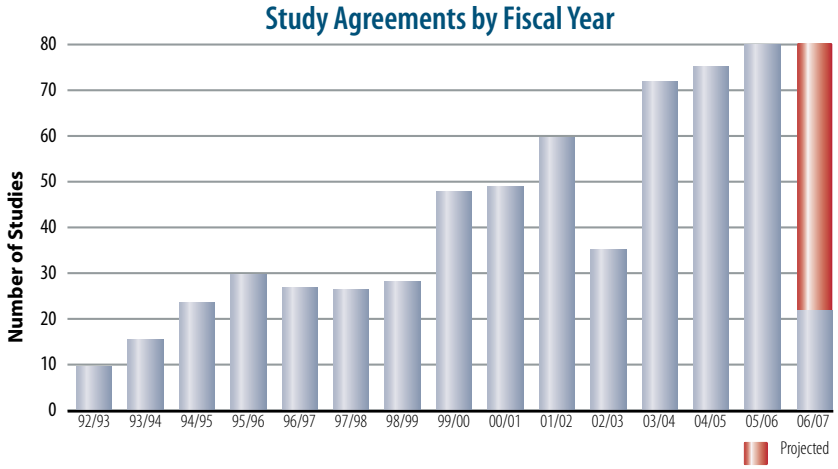
Since 1992, FCMAT has been engaged to perform more than 600 reviews for local educational agencies, including school districts, county offices of education, charter schools and community colleges. Services range from fiscal crisis intervention to management review and assistance. FCMAT also provides professional development training. The Kern County Superintendent of Schools is the administrative agent for FCMAT. The agency is guided under the leadership of Joel D. Montero, Chief Executive Officer, with funding derived through appropriations in the state budget and a modest fee schedule for charges to requesting agencies.

Total Number of Studies 604
Total Number of Districts in CA..... 982

Management Assistance	555	(91.89%)
Fiscal Crisis/Emergency	42	(6.95%)
Emergency Loan	7	(1.16%)

Note: Some districts had multiple studies

(Rev. 9/21/06)



Introduction

Background

Located in the southern portion of Ventura County near Oxnard and Thousand Oaks, the Simi Valley Unified School District serves approximately 21,454 students (October 2005 CBEDS) in 21 elementary schools, three middle school, three high schools, a continuation school, an alternative education school and an adult education school. The district has experienced a slight decline in enrollment during the last two fiscal years.

In May 2006, the Fiscal Crisis and Management Assistance Team (FCMAT) received a request from the district for management assistance services. The scope and objectives of the study agreement are as follows:

In February 2006, the district contacted FCMAT to request a technology review that would perform the following:

1. Conduct a study of the current Novell client installation. Study the fiscal and human resource costs to upgrade all users to a current level of Novell client and licensing and compare this information to the cost to switch to a Microsoft client and licensing platform.

2. Review the various administrative and instructional technology support services provided to SVUSD schools and other district departments for strategic fit with technology goals and oversight/fiduciary responsibilities.

3. Review the district's administrative and instructional technology services organizational structure and make recommendations for improvement and for future staffing levels.

4. Assess the communications needs of the district in regards to internal use of e-mail and shared calendars.

5. Review the network security and assess performance/reliability and make recommendations for improvement. Specifically, make recommendations for firewall, spam filtering, and content filtering based on the possibility of bringing all e-mail services inside the district network.

6. Review the technology cost of services currently being utilized by the district from the county office of education.

7. Review the district's electronic communications with the outside community using tools such as a Web presence and e-mail. Specifically, can the district utilize these resources to better communicate with the Simi Valley community?

8. Review the network infrastructure LAN/WAN equipment replacement strategy and make recommendations for improvement, specifically, going from T1 to wireless radios (or fiber from local cable company).

9. Review the district wide telephone system implementation and associated expenses.

Study Team

The study team was composed of the following members:

Philip Scrivano
FCMAT Management Analyst
Bakersfield, CA

*Terrell Tucker
Director, Information and Technology
Panama-Buena Vista Union School District
Bakersfield, CA

Leonel Martínez
FCMAT Public Information Specialist
Bakersfield, CA

*As a member of this study team, this consultant was not representing his respective employer, but was working solely as an independent contractor for FCMAT.

Study Guidelines

FCMAT visited the district August 7-9, 2006 to review data, interview employees and collect information. This report is the result of that effort and is organized as follows:

I. Executive Summary
II. Network Operating System Upgrade
III. Server Operating System Comparison
IV. Administrative and Instructional Support Services
V. Administrative and Instructional Technology Organizational Structure
VI. E-mail and Shared Calendars
VII. Electronic Communication with the Outside Community
VIII. Wireless LAN/WAN
IX. Telephone System Implementation
X. Network Security and LAN/WAN Setup

Executive Summary

Approximately half the schools in the Simi Valley Unified School District use Novell Server Version 4, half have Novell Server Version 5, and the newest school uses Version 6. Due to the installations of the older Novell servers, many inconsistencies and inefficient practices are prevalent on all site networks.

The primary objective for the district networking staff should be the development of an IP-only environment. This upgrade would result in far less traffic on all networks and better utilize site communication links that have limited bandwidth.

FCMAT conducted research to determine how to upgrade from a minimum Novell server base of version 4.11 with service pack 9 to Novell Open Enterprise Server version 6.5, Microsoft Standard Server 2003, or a Linux-type build.

An upgrade to the latest Novell operating system will not require upgrading the 5,000 desktops in the district or re-engineering the directory structure. In the future, there will be a migration path from the current Novell version 6.5 systems to Microsoft Active Directory. At this time, there does not seem to be a clear migration path to Microsoft unless there is an entire directory rebuild, and each machine is upgraded.

The county consortium entered into an agreement with the Ventura County Office of Education for fiscal services through the Escape system more than five years ago. The goal was to remove a legacy mainframe and an in-house developed financial information system that were outdated, expensive to maintain and difficult for the IT staff to support and provide with enhancements for users.

The Escape software does not currently meet district needs. The reporting structure is incomplete, requiring a great deal of IT staff time to develop the needed reports, and the lack of payroll encumbrance capability is very problematic for site personnel.

The district should impress upon Escape Technology representatives the importance of a faster response time to improving unacceptable pieces of the financial information system. With better offerings than were available six years ago, it would behoove the county consortium to re-evaluate financial systems and consider the possibility of moving away from Escape if no progress is made on this matter.

The district also should conduct a study to determine how critical the deficiencies in the Escape software are to the district staff. Those deficiencies appear to be great, but would have to be compared to the overall cost of another district conversion.

The TSIS/Maximus implementation has been more successful, but not without problems. Site users are required to go through an extremely complicated process to create suspension letters. Maximus should have been asked to custom design a district-specific letter to ease the burden on site staff.

The district should upgrade the TSIS software as soon as a viable update is available. This would provide the site staff with better student management options and make issues such as the suspension letter easier to resolve.

Findings and Recommendations

Network Operating System Upgrade

Approximately half the schools in the Simi Valley Unified School District use Novell Server Version 4, half have Novell Server Version 5, and the newest school uses Version 6. Due to the installations of the older Novell servers, many inconsistencies and inefficient practices are prevalent on all site networks.

The district Information Technology (IT) staff installed the newest version of Novell when Arroyo Elementary School was reopened. Since Novell Version 6 cannot properly communicate with Version 4, that network is somewhat isolated from the rest of the district networks.

The IT staff has done a commendable job of maintaining consistency of user look and feel from site to site. Most user log-ons result in common drive mappings with adequate storage available on servers. Microsoft group policies are used to control desktop access for students, and network security allows teachers to share documents with students in a secure fashion.

Hardware refreshes have been performed on some servers, but there is no formal plan to ensure that adequate levels of hardware exist for site servers. Since a great deal of effort is required to replace a network server, upgrading the network operating system at the same time would have been expected.

Server and network switch installations do not appear to be properly protected from power issues or inappropriate use. Most servers that were observed were located in a room with limited access by the site staff. However, each server was logged on with no additional security credentials required to peruse the server's contents. Uninterruptible power supply units were prevalent in all locations, but many appeared to be undersized for the application, and at least two had battery issues that have not been addressed.

The site server backup strategy appears somewhat haphazard and is performed without enterprise-level software. Backups are accomplished with the XCOPY statement (old DOS-level program), resulting in incomplete and often nonrestorable content. A previous installation at all sites of server-class machines with adequate disk space for storage of two full server backups was rather costly. Given the level of hardware investment, enterprise backup software would have added little to the overall cost while greatly increasing efficiency of site data backups.

The optimal strategy would involve upgrading all sites to the latest Novell or Microsoft server environment. The IT Director wants to switch to Microsoft, while the current network administrator prefers Novell or Unix. FCMAT would recommend against using Unix because of software limitations and the difficulty in supporting/maintaining the system given the current staff. Microsoft might be considered the preferable replacement

for server operating systems because of the relative ease of finding support and qualified individuals for consulting or employment. Cost difference will certainly be an issue in the decision. An estimate of the cost differences is included in a later section of this report.

Any solution the district implements will come at great cost. Newer server operating systems will likely require more robust hardware, so numerous servers will probably need to be purchased. A detailed server hardware configuration list needs to be completed so that the district can determine which servers need to be upgraded.

The operating system software and associated server and client access licenses will also be costly. New licensing structures by both Microsoft and Novell are formulated using ADA and yearly subscription. This cost will be detailed in one of the following sections of this report. It is possible that Novell will offer more attractive pricing because the base for that system is already installed in the district, and the company will want to retain a longtime customer.

The greater cost of upgrading all networks to a current server operating system falls on the client. If the district chooses to install a Microsoft system for the server platform, every networked computer will need to be reconfigured. This will require a significant amount of time and most likely involve hiring outside help to accomplish the task in a timely manner. When a site server operating system has been replaced, machines on that site will be largely unusable until the server upgrade and local client install/repair have been accomplished. The client install/repair process could easily take 30 to 60 minutes per computer multiplied by 5,000 computers. At an average of 45 minutes per computer and utilizing an eight-hour workday, this equals 59 days of full use of eight full-time equivalent (FTE) technicians. In practical terms, FCMAT estimates that it would take a group of eight FTE technicians half the school year to complete the client install.

Another cost issue is upgrading software that depends on the IPX protocol (i.e. Athena library cataloging software). Upgrading to the newest network operating system architecture will also require removing or upgrading the software currently in use in district classrooms. In the case of Athena library software, school sites have paid for this application. This will force an upgrade of this application and incur a cost to each site unless the district is willing to negotiate to share this cost.

Electrical power, especially in older buildings/neighborhoods, can result in regular surges and/or brownouts, which is very detrimental to electronic devices. Upon completion of the server configuration list, a detailed plan for providing an adequate uninterruptible power supply (UPS) at each site's main distribution facility (MDF) must be completed. New server hardware will have higher levels of power consumption so UPS purchases should not be made until the IT staff has a definite idea about specific power needs. This also requires an analysis of network switch installations since most are protected with the same UPS as the server. Not only will the UPS provide for an orderly shutdown of servers and switches in the event of a power failure; it will also provide conditioned power that is free from surges or power spikes.

Recommendations:

The district should:

1. Upgrade all district servers to at least version 5.22 of the Novell server. This is an absolute minimum strategy for all district servers that would allow for the elimination of IPX and other unnecessary network protocols and would position the district for an easier upgrade to newer versions in the future. The primary objective for district networking staff should be the development of an IP-only environment. This upgrade would result in far less traffic on all networks and better utilize site communication links that have limited bandwidth.

2. Perform a survey of the site staff to determine a proper backup strategy. It is likely that server backups performed once per week with only two generations saved is adequate for many of the schools. However, this may not be adequate for high schools and probably not for middle schools. An enterprise-level backup software system, such as Veritas, should be purchased immediately to guarantee data integrity and the ability to restore backups of school data throughout the coming school year.

Server Operating System Comparison

The district has approximately 30 servers and 5,000 desktop computers that will be affected by an update to the server operating system. Although the district has been exceptional in creating partners and funding modern desktops for students and the district staff, the server hardware will need to be upgraded regardless of what operating system is chosen.

FCMAT conducted research to determine how to upgrade from a minimum Novell server base of version 4.11 with service pack 9 to Novell Open Enterprise Server version 6.5, Microsoft Standard Server 2003, or a Linux-type build. The Linux-type build was ruled out first, based on the maturity of a fully supported server operating system. In the future, both Novell and Microsoft are incorporating a Linux-type operating system into their products.

The next step was to calculate the expense and practicality of touching all 5,000 desktops in the district. Discussions with the district IT staff, representatives from school districts that have switched operating systems, and the Novell technical staff indicated that each machine would require 30 to 60 minutes to upgrade. For purposes of calculating this number, FCMAT used an estimate of 45 minutes per machine to develop the following calculation:

Calculation	Estimate
45 minutes X 5,000 Desktops	225,000 minutes
225,000 minutes / 60 minutes	3,750 hours
3,750 hours / 8 hour day	468.75 days
Utilizing 8 FTE	59 days
If each FTE works 6 direct hours	78 days
At $25 / hour sample wage	$93,750

Further research indicates that a thorough review of the most practical upgrade path is in order. At this time, there is no upgrade path to the Microsoft Standard 2003 Active Directory. This means that the current Novell directory structure, which contains all user accounts, security, and network resources, would have to be redone from scratch. This alone could take the district a full year to complete and will be factored in as engineering support. Furthermore, this type of work would require the district to maintain both operating systems until a cutover takes place. All changes to one system would have to be paralleled on the new system. The added overhead to the network engineering staff will be significant.

An upgrade to the latest Novell version 6.5 will not require upgrading desktop machines or a directory rebuild. A combination of Novell networking and ZENworks deployment can be completed by the network administration staff.

The following table represents a cost comparison of the two operating systems. The Novell pricing came directly from the Southern California Novell Sales representative. Microsoft pricing is based on an active Microsoft Select Agreement contract through Dell computers for a similarly sized district.

Item	Quantity	Price	Cost
Open Enterprise Server, ZENworks Desktop Management, GroupWise Bundle License,	21,454	$2.00	$42,908.00
ADA Model Based on a Yearly Subscription			
Open Enterprise Server, ZENworks Desktop Management, GroupWise Bundle License,	5,000	$30.00	$150,000.00
Software Purchase w/ One year upgrade.			
Windows Server 2003 Standard Addition	30	$79.20	$2,376.00
Windows Server CAL - Client Access License	5000	$4.94	$24,700.00
Windows Exchange Server 2007	2	$265.92	$531.84
Windows Exchange Server CAL - Client Access License	500	$1.68	$840.00
			$28,447.84

The pricing listed is only for the software and licensing costs. An upgrade to the latest Novell operating system will not require upgrading the 5,000 desktops in the district or re-engineering the directory structure. In the future, there will be a migration path from the current Novell version 6.5 systems to Microsoft Active Directory. At this time, there does not seem to be a clear migration path to Microsoft unless there is an entire directory rebuild, and each machine is upgraded. The following table is a cost comparison following a subscription basis for Novell. FCMAT recommends a subscription basis. This approach will provide the district with better flexibility in the next two years to convert to Microsoft if this product better meets district needs. Subscription-based licensing also factors in free upgrades and product support.

The following table represents a summary of the cost of proceeding with Novell or converting to Microsoft. The district has competent network engineering staff. Engineering support to upgrade the current Novell system to current topology would consist of assistance in transitioning the district office, one high school, one middle school, and one elementary school. The district staff will be able to continue the transition for the remainder of the school sites and other facilities.

Item	Quantity	Price	Cost
Open Enterprise Server, ZENworks Desktop Management, GroupWise Bundle License,	21,454	$2.00	$42,908.00
ADA Model Based on a Yearly Subscription			
Engineering Support Estimate	1	$30,000.00	$30,000.00
Total Novell Installation			**$72,938.00**
Windows Server 2003 Standard Addition	30	$79.20	$2,376.00
Windows Server CAL - Client Access License	5000	$4.94	$24,700.00
Windows Exchange Server 2007	2	$265.92	$531.84
Windows Exchange Server CAL - Client Access License	500	$1.68	$840.00
8 FTE to touch 5,000 computers in 58-78 days	3,750	$25.00	$93,750.00
Engineering Support Estimate	1	$75,000.00	$75,000.00
			$197,197.84

Regardless of the operating system choice, the district's server hardware will not support current server operating systems. The district should consider using a tier one vendor such as Compaq, IBM, Dell, or Gateway based on the following minimum specifications:

District office master server and E-mail server

- Intel Zeon dual processor
- 4 GB RAM
- 3 1000 RPM 72 GB SCCI hard drive with hardware, Raid 5 configuration
- Dual power supplies
- DAT internal tape drive for back ups
- Rack mount
- Maximum internal fans

Estimate $5,000 each

School Site Servers

- Intel Zeon processor
- 1 GB RAM
- 3 1000 rpm 72 GB SCCI hard drive w/ hardware Raid 5 configuration
- Dual power supplies
- DAT internal tape drive for back ups
- Rack mount
- Maximum internal fans

Estimate $4,000 each

All servers should have new UPSs.

Item	Quantity	Price	Cost
Master Server at District Office	1	$5,000.00	$5,000.00
E-mail Server at District Office	1	$5,000.00	$5,000.00
Front End Server for E-mail	1	$4,000.00	$4,000.00
School Site Servers	27	$4,000.00	$108,000.00
District Office UPS	1	$2,000.00	$2,000.00
School Site UPS	27	$500.00	$13,500.00
Back Up Software License	30	$800.00	$24,000.00
			$161,500.00

Final Cost Comparison

Item		Costs
Novell Platform	Operating Systems	$72,938.00
	Server Expense	$161,500.00
		$204,438.00
Microsoft Platform	Operating Systems	$104,233.84
	Server Expense	$161,500.00
	Desktop Expense	$93,750.00
		$359,483.84

Administrative and Instructional Support Services

The district entered into an agreement with the Ventura County Office of Education for fiscal services more than five years ago. The goal was to remove a legacy mainframe and an in-house developed financial information system that were outdated, expensive to maintain and difficult for the IT staff to support and provide with enhancements for users. The county consortiums chose to purchase and install a product by Escape Technologies. Escape representatives indicated the financial software would be upgraded in the near future, but that has still not occurred.

The Escape software does not currently meet district needs. The reporting structure is incomplete, requiring a great deal of IT staff time to develop the needed reports, and the lack of payroll encumbrance capability is very problematic for site personnel.

Site staff members voiced concerns about the slow response time of the software located at county office, but those issues may be cleared up when the microwave link is installed. The problem experienced by the site staff appears to be related to a lack of bandwidth and the amount of traffic on the current two T-1 lines that connect the district to the county office.

The connection from schools to the county office requires a VPN connection, which is difficult to establish with heavy traffic or low bandwidth. The district office staff uses a Citrix connection and has experienced no response-time problems.

The TSIS/Maximus implementation has been more successful, but not without problems. Site users are required to go through an extremely complicated process to create student suspension letters. The district should ask Maximus to custom design a district-specific letter to ease the burden on site staff. FCMAT received assurances that the TSIS software would be upgraded as soon as a viable product is available, most likely next year.

Some confusion seems to exist among district technicians about installation requirements/ issues with TSIS. At least one principal's computer originally had Windows 2000 installed, but was downgraded to Windows 98 so it could function with TSIS. Numerous machines with Windows XP had no problem accessing or using TSIS.

Implementation of a collaboration system (i.e. Groupwise, Microsoft Exchange) would increase user productivity and provide tools that would make district communication more efficient. The resultant product will depend on which network operating system is selected, but is sorely needed by the district office and site staff. A collaboration system would provide easy sharing of calendars and documents as well as better access to district staff lists. E-mail and other communicated documents would reside on a district server, resulting in easy backup of critical data and messages.

Recommendations

The district should:

1. Impress upon Escape Technology representatives the importance of a faster response to problems with the financial information system. With better offerings than were available six years ago, the district should raise the possibility of re-evaluating financial systems with the county office and the consortium.

   The district could consider the possibility of moving away from Escape if no progress is made on this matter. Replacement of a financial information system is a long arduous process, particularly for a large district. The cost of a new software package could easily exceed $500,000, would be difficult to implement and would require a great deal of time for installation, conversion and training.

2. Conduct a study to determine how critical the deficiencies in the Escape software are to the district staff. Those deficiencies appear to be great, but would have to be compared to the overall cost of another district conversion.

3. Upgrade the TSIS software as soon as a viable update is available. This would provide the site staff with better student management options and make issues such as the suspension letter easier to resolve.

Administrative and Instructional Technology Organizational Structure

Years ago, school computers were built by the in-house staff, which was a time consuming process and no longer cost effective. Since the decision to purchase computers from IBM and HP, work orders are normally handled in less than 48 hours.

Interviews with technical and site staffs indicated that there is little backlog of work orders for technology services with the exception of a principal, who indicated that IT needs more support staff to complete work in a timely manner. It was later learned this was a reference to a need for better communication.

It appears the number of technicians in the district is adequate for current district needs. The district has two technicians and one certificated teacher who works in a technical role at the high-school level. There is little communication between this group and the district IT Department.

Recommendations

The district should:

1. Merge all high-school-level technicians into the IT Department for project continuity and greater efficiency on districtwide technology initiatives. These technicians currently have little involvement with the district IT Department.

2. Hire an additional FTE to share some responsibility with the telecommunications technician and free more of this person's time to deal with phone-related issues. The district has been placing greater emphasis on communications, primarily voice-over-IP and infrastructure provided by the district staff. Wiring projects at schools, combined with portable movement and modernization projects, have created a difficult situation for the current staff. In addition, long-term projects create a situation in which critical needs (i.e. phone problems) cannot be addressed quickly.

   Another staff member could also help facilitate better communication with the Maintenance, Operations and Transportation Department (MOT). There is substantial inefficiency in this area because of the IT Department's lack of involvement in the MOT planning process. For example, portables are moved without adequate notice, and wiring is inadvertently cut during the site work.

3. Assign the certificated teacher who works in a technical role to have an informal reporting relationship with the IT Department.

E-mail and Shared Calendars

The district is of sufficient size to justify the need for an internal e-mail hosting system with shared calendars. Many tools are available that offer high-level collaboration. The hosting services offered by the county office are adequate for many district staffers, but quite inadequate for others.

Staff members indicated that Microsoft Outlook Express is the only client allowed on the district's networks due to the spam and virus issues experienced with Microsoft Outlook. The district has several tools installed on the enterprise network that would eliminate these problems.

A calendar sharing system has recently been purchased and will need to be maintained by an IT staff member. This system is most likely freestanding and will require a great deal of maintenance due to an existing nonstandard user database.

Recommendations

The district should:

1. Begin converting to either Microsoft Exchange or Novell GroupWise for e-mail and shared calendars, depending on the network operating system that is eventually selected. Each of these programs offers many benefits and fits well into a well-structured user environment. Both programs support shared calendars, Web accessible e-mail and server hosting.

2. Allow Microsoft Outlook to be used as an e-mail client in the district office facilities. Setup is fairly simple, and the program offers numerous benefits that Outlook Express does not offer. Outlook will also allow staff members to synchronize with hand-held devices and maintain a personal calendar that is sharable as well as an extensive contacts list. All these tools are easily convertible to other e-mail clients should the district decide on a different option in the future.

   A Microsoft Exchange Server-based e-mail system also facilitates easy backup and restoration of e-mail for all users. Since all e-mail is stored on a server, client machines are not encumbered with messages or attachments, and quota systems are available to limit a user's ability to occupy a large amount of server disk space. Novell GroupWise has similar features.

Electronic Communication with the Outside Community

The district's Web site appears to be adequate. The various links and pages are similar enough in appearance that visitors will recognize each page as owned by the district, and navigational buttons are the same.

Individual school pages are completely different from the district standard as well as each other. Each offers an autonomous and independent array of design and functionality.

Communication with the community via E-mail is somewhat limited by the present status of a hosted service. Collaborative tools are not installed, resulting in limited functionality.

Recommendations

The district should:

1. Redesign each school's initial Web page so that it has an appearance similar to other district pages. This would create a feeling of continuity and district ownership for visitors. The schools could direct visitors to their individual site creations with a link on that initial Web page. It is important that a district maintain "ownership" of sites through the use of common home Web pages. Schools should be allowed to show creativity, initiative and professional license through Web pages that pertain to a specific school.

2. Implement collaborative tools, combined with a Web portal system, to allow teachers and parents to maintain a steady stream of communication. The Web portal would allow daily/weekly assignments to be posted easily by teachers and provide parents with valuable information pertaining to their child's performance or expectations.

   The district demographics indicate a large percentage of parents own personal computers. This creates an easy dynamic for communication between schools and home. By using the proper tools, communication can be made highly effective and much more efficient.

Wireless LAN/WAN

T1 links to schools utilize old cabling that was provided by the local phone company. When these lines malfunction, the school loses Internet access as well as access to the student information and business financial systems. This creates a heavier workload for communications staff members and a lack of access to critical information to sites.

When Arroyo Elementary School opened, a Cisco Aironet wireless link was installed for communication to the district office. It is difficult to determine why that occurred, but interviews indicated it was a last-minute decision made because T1 service was not ordered early enough. Staff members indicated that the antenna was placed in a location deemed unacceptable by the communications staff. A visit verified that a large tree at the school site is approximately 100 yards away from the antenna and is obstructing it even though several other possible locations are unobstructed.

The district's approach to wireless installations appears to be haphazard at best. The district recently has investigated an Orthogon wireless system with little knowledge of the technology and no site survey information. Communications staff members are seldom involved or advised as to the method used to determine optimal antenna location.

Internal infrastructure appears to be well engineered with respect to IP subnetting, use of DHCP and limited use of routable IP addresses. A lack of network switch continuity could be an issue in the future if quality of service needs to be invoked for the voice over Internet protocol (VOIP) or other information delivery systems.

The district's use of Internet resources has exploded in the K-12 environment. T1 communication lines are inexpensive, but don't provide enough bandwidth for an average school. A high school typically needs 3-5 megabytes of bandwidth, which would require the installation of two to four T1 lines at each high school. That number assumes an efficient pooling system that ties the lines into a single communications link. As T1 lines are aggregated for a school, routing equipment gets expensive.

Recommendations

The district should:

1. Commission a professional site survey to determine quality of line-of-sight to each site, amount of possible interference that will be encountered when links are installed, height of antennas at each site and the district office, number of repeater sites that will be required to sites without line-of-sight and any DSA requirements that may be encountered with greater antenna height. A districtwide site survey could cost as much as $25,000. The district appears to have already made the decision to install a wireless WAN. While this is an ambitious goal, it will be filled with problems if proper preinstallation precautions are not taken.

Wireless technology has increased exponentially in recent years, and many consider this a panacea for WAN implementation. However, numerous technical issues create obstacles to building an effective wireless infrastructure, and interference from new local installations can disable a wireless link quickly. Resolving problems caused by interference often takes a substantial amount of time and can become expensive.

2. Investigate the possibility of utilizing leased fiber service from local providers such as Telco and cable franchises. With California Teleconnect Fund (DAS) and Erate discounts, products like CSME offered by AT&T or cable fiber offered by local cable TV companies can be attractively priced. Wireless systems are typically not eligible for Erate funding (there are some exceptions based upon leased wireless service) or DAS discounting. While fiber connectivity is not inexpensive, it offers many benefits including greater reliability, higher bandwidth than would be feasible with wireless and error-free communications (most wireless systems have built-in errors inherent with the technology).

Telephone System Implementation

The Cisco VOIP was installed in a haphazard manner. The system was purchased before the technology was fully mature, and it was placed at schools with no local call manager or gateway for redundancy. If the communications link malfunctions for any reason (the Arroyo VOIP system is delivered by a faulty wireless link), phone system access is lost for that school.

The communications staff appears to have standardized on Vodavi equipment for new and replacement installations of phone equipment. The systems being explored are high-level digital systems with VOIP capabilities only with the addition of add-on cards.

VOIP phone systems are more expensive than traditional digital phone systems due to high cost of handsets. Numerous vendors now offer competitive systems that deliver high-level functions to appropriate staff member and low cost digital service to classrooms where traditional functions are adequate. The digital handsets are the same as those used for traditional digital systems but VOIP handsets can be placed where appropriate. A full-featured VOIP system should cost only 30-50 percent more than a traditional digital system, but will offer many features not available on traditional systems.

Recommendations

The district should:

1. Develop and post a request for proposals so that vendors can offer a VOIP phone system package that could be implemented over several years. This would allow the district to obtain more competitive pricing and maintain continuity in service and features for many years. As the district increases WAN bandwidth to sites, features of VOIP systems can offer leased line cost savings (removal of costly OPX lines) in addition to lower measured service fees.

2. Evaluate the use of UPS (uninterruptible power supply) systems. Several were either in a fault state or appeared to be undersized for the application. VOIP phone systems make UPS backup power a necessity and must be constantly monitored for battery or system faults.

Network Security and LAN/WAN Setup

A review of the router and firewall configurations found that these systems are well managed and reliable. The district staff has done a competent job in maintaining these systems with the resources available. When the district creates a dedicated server room and invests in high-speed connectivity to the school sites, these router and firewall systems will need to be re-evaluated. Introducing an e-mail system into the district will necessitate the development of a separate secure network called a demilitarized zone (DMZ). This type of work should be addressed after the network is stable from the update of the network operating system. Once a DMZ network is operational, all resources such as Web servers should be located in this network.

The district is using the Ventura County Office of Education's domain name services (DNS). A more efficient method would be for the district to host its own internal and external DNS to keep traffic local.

Recommendations

The district should:

1. Maintain the current structures and practices until the network operating systems are upgraded.

2. When appropriate, develop a DMZ network before developing high speed access to the district office from the school sites.

3. In the future, create a policy that all resources that are utilized from outside the district be placed in the DMZ network.

Appendix

A. Study Agreement

MANAGEMENT ASSISTANCE TEAM
STUDY AGREEMENT
June 29, 2006

The FISCAL CRISIS AND MANAGEMENT ASSISTANCE TEAM (FCMAT), hereinafter referred to as the Team, and the Simi Valley Unified School District, hereinafter referred to as the District, mutually agree as follows:

1. BASIS OF AGREEMENT

The Team provides a variety of services to school districts and county offices of education upon request. The District has requested that the Team provide for the assignment of professionals to study specific aspects of the Simi Valley Unified School District operations. These professionals may include staff of the Team, County Offices of Education, the California State Department of Education, school districts, or private contractors. All work shall be performed in accordance with the terms and conditions of this Agreement.

2. SCOPE OF THE WORK

A. Scope and Objectives of the Study

The scope and objectives of this study are to:

1. Conduct a study of the current Novell client installation. Study the fiscal and human resource costs to upgrade all users to a current level of Novell client and licensing and compare this information to the cost to switch to a Microsoft client and licensing platform.

2. Review the various administrative and instructional technology support services provided to SUSD schools and other district departments for strategic fit with technology goals and oversight/fiduciary responsibilities.

3. Review the district's administrative and instructional technology services organizational structure and make recommendations for improvement and for future staffing levels.

4. Assess the communications needs of the district in regards to internal use of email and shared calendars.

5. Review the network security and assess performance/reliability and make recommendations for improvement. Specifically, make recommendations for firewall, spam filtering, and content filtering based on the possibility of brining all e-mail services inside the district network.

6. Review the technology cost of services currently being utilized by the district from the county office of education.

7. Review the district's electronic communications with the outside community using tools such as a Web presence and e-mail. Specifically, can the district utilize these resources to better communicate with the Simi Valley community?

8. Review the network infrastructure LAN/WAN equipment replacement strategy and make recommendations for improvement. Specifically, going from T1 to wireless radios. (or fiber from local cable Co)

9. Review the district wide telephone system implementation and associated expenses.

B. Services and Products to be Provided

1) Orientation Meeting - The Team will conduct an orientation session at the District to brief District management and supervisory personnel on the procedures of the Team and on the purpose and schedule of the study.

2) On-site Review - The Team will conduct an on-site review at the District office and at school sites if necessary.

3) Progress Reports - The Team will hold an exit meeting at the conclusion of the on-site review to inform the District of significant findings and recommendations to that point.

4) Exit Letter - The Team will issue an exit letter approximately 10 days after the exit meeting detailing significant findings and recommendations to date and memorializing the topics discussed in the exit meeting.

5) Draft Reports - Sufficient copies of a preliminary draft report will be delivered to the District administration for review and comment.

6) Final Report - Sufficient copies of the final study report will be delivered to the District following completion of the review.

3. PROJECT PERSONNEL

The study team will be supervised by Anthony Bridges, Interim Deputy Executive Officer, Fiscal Crisis and Management Assistance Team, Kern County Superintendent of Schools Office. The study team may also include:

A. Phil Scrivano, FCMAT Management Analyst
B. Terrell Tucker, FCMAT Technology Consultant
C. FCMAT Technology Consultant

Other equally qualified consultants will be substituted in the event one of the above noted individuals is unable to participate in the study.

4. PROJECT COSTS

The cost for studies requested pursuant to E.C. 42127.8(d)(1) shall be:

A. $400.00 per day for each Team Member while on site, conducting fieldwork at other locations, presenting reports, or participating in meetings.

B. All out-of-pocket expenses, including travel, meals, lodging, etc. Based on the scope of work identified in section 2 A, estimated total cost is $10,000. The District will be billed based on actual cost. Any change to the scope will affect the estimate of total cost.

C. The District will be invoiced at actual costs, with 50% due following the completion of the on-site review and the remaining 50% due upon acceptance of the final report by the District.

Payments for FCMAT services are payable to Kern County Superintendent of Schools-Administrative Agent.

5. RESPONSIBILITIES OF THE DISTRICT

A. The District will provide office and conference room space while on-site reviews are in progress.

B. The District will provide the following (if requested):

1) A map of the local area with all District sites identified
2) Existing policies, regulations and prior reports addressing the study request
3) Current organizational charts of the Technology
4) Identification of current technology services being utilized from Ventura COE and costs associated with these services.
5) Other items that may be identified by the study team prior to the on-site review

C. The District Administration will review a preliminary draft copy of the study. Any comments regarding the accuracy of the data presented in the report or the practicability of the recommendations will be reviewed with the Team prior to completion of the final report.

Pursuant to EC 45125.1(c), representatives of FCMAT will have limited contact with District pupils. The District shall take appropriate steps to comply with EC 45125.1(c).

6. PROJECT SCHEDULE

The following schedule outlines the planned completion dates for key study milestones:

Orientation:	August 7, 2006
Staff Interviews:	August 7-9, 2006
Exit Interviews:	August 9, 2006
Preliminary Report Submitted:	September 20, 2006
Final Report Submitted:	To be determined
Board Presentation:	To be determined

7. CONTACT PERSON

Please print name of contact person: Lowell Schultze,
Associate Superintendent Business & Facilities

Telephone (805) 306-4510 FAX (805) 520-6144

Internet Address lschultz@simi.k12.ca.us

Kathryn Scroggin, Superintendent Date
Simi Valley Unified School District

Barbara Dean, Deputy Administrative Officer Date
Fiscal Crisis and Management Assistance Team

In keeping with the provisions of AB1200, the County Superintendent will be notified of this agreement between the District and FCMAT and will receive a copy of the final report.