FCMAT
FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
CSIS California School Information Services

Nuview Union School District

Technology Review

February 12, 2014

Joel D. Montero
Chief Executive Officer

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FISCAL CRISIS & MANAGEMENT
ASSISTANCE TEAM
CSIS California School Information Services

February 12, 2014

David Pyle, Superintendent
Nuview Union School District
29780 Lakeview Avenue
Nuevo, CA 92567

Dear Superintendent Pyle:

On August 20, 2013, the Nuview Union School District and the Fiscal Crisis and Management Assistance Team (FCMAT) entered into an agreement for FCMAT to conduct a review of the district's technology operations and services. Specifically, the agreement stated that FCMAT would perform the following:

Policies and Plans

1. Review the district's board policies, administrative regulations, equipment replacement plans and technology master plans to ensure that technology is effectively integrated into the schools. The evaluation will include the district's plan for using technology to support education reform by acquiring new hardware.

Hardware and Software Standards, Procurement, Replacement, and Tracking

2. Review innovative or emerging technologies and make recommendations to standardize the purchase of technology hardware. Evaluate the district's procurement practices to determine whether performance and reliability are maximized to help increase student learning.

3. Review hardware standards and specifications to minimize the risks associated with the type of technology purchased.

4. Evaluate the district's method of establishing hardware and software standards for computers and the process used to communicate this information throughout the district.

5. Review the district's technology asset inventory process including receiving, tagging, logging, assignment, and disposal. Review the district's board policies and administrative regulations related to mandated inventory and reporting of such assets. Make recommendations for improvements to the process, policies, and regulations to increase efficiencies and the accuracy of the data.

6. Review the district's plans and policies for ongoing replacement of critical systems such as servers, network infrastructure, and desktop computers, and make recommendations for any needed improvements.

Network Infrastructure

7. Evaluate the network infrastructure, focusing on the suitability of the installed equipment for its purpose. Perform an analysis of the infrastructure maintenance and support costs and make recommendations for any needed changes.

Staffing, Organization, Service and Support

8. Evaluate the organizational structure, staffing, workflow, efficiency and duties of the technology department personnel. This component of the study will include a review of technology-related board policies, administrative procedures, and operational practices. The team will evaluate the workflow and distribution of technology-related duties and make any needed recommendations for improved efficiency.

9. Review all technology-related job descriptions, interview staff, and make recommendations for improvements. All recommendations will include the estimated cost or savings of any proposed reductions or increases in positions to improve the organizational structure. In addition, the team may interview other staff including, but not limited to, site principals, department directors, and certificated and classified personnel to determine the efficiency and effectiveness of services to school sites or other departments.

10. Analyze staffing and organizational support for the following:

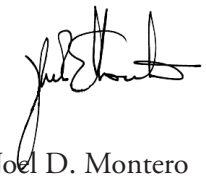
    a. User and desktop support
    b. Network administration
    c. Website development and support
    d. Email support for district and site staff
    e. Hardware installation and setup
    f. Support of technology in the classrooms

11. Review the delivery of technology support to district classrooms, focusing on response times, help desk processes, and prioritization. Evaluation will be based on staff interviews and documents the district provides. The team will provide recommendations for improved quality and efficiency.

12. Evaluate the technology department's readiness for online student assessments for the new Common Core State Standards. This will include examination of data bandwidth to school sites, network infrastructure to support testing, and the district's plans regarding testing devices. The team will provide recommendations to improve implementation and support.

This final report contains the study team's findings and recommendations in the above areas of review. FCMAT appreciates the opportunity to serve the Nuview Union School District, and extends thanks to all the staff for their assistance during fieldwork.

Sincerely,



Joel D. Montero
Chief Executive Officer

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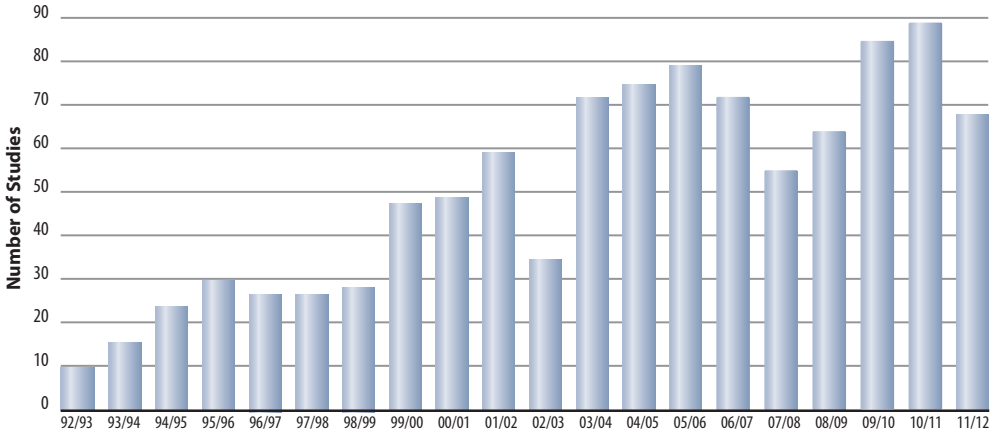
About FCMAT

FCMAT's primary mission is to assist California's local K-14 educational agencies to identify, prevent, and resolve financial and data management challenges. FCMAT provides fiscal and data management assistance, professional development training, product development and other related school business and data services. FCMAT's fiscal and management assistance services are used not just to help avert fiscal crisis, but to promote sound financial practices and efficient operations. FCMAT's data management services are used to help local educational agencies (LEAs) meet state reporting responsibilities, improve data quality, and share information.

FCMAT may be requested to provide fiscal crisis or management assistance by a school district, charter school, community college, county office of education, the state Superintendent of Public Instruction, or the Legislature.

When a request or assignment is received, FCMAT assembles a study team that works closely with the local education agency to define the scope of work, conduct on-site fieldwork and provide a written report with findings and recommendations to help resolve issues, overcome challenges and plan for the future.

Studies by Fiscal Year



FCMAT also develops and provides numerous publications, software tools, workshops and professional development opportunities to help local educational agencies operate more effectively and fulfill their fiscal oversight and data management responsibilities. The California School Information Services (CSIS) arm of FCMAT assists the California Department of Education with the implementation of the California Longitudinal Pupil Achievement Data System (CALPADS) and also maintains DataGate, the FCMAT/CSIS software LEAs use for CSIS services. FCMAT was created by Assembly Bill 1200 in 1992 to assist LEAs to meet and sustain their financial obligations. Assembly Bill 107 in 1997 charged FCMAT with responsibility for CSIS and its statewide data management work. Assembly Bill 1115 in 1999 codified CSIS' mission.

AB 1200 is also a statewide plan for county offices of education and school districts to work together locally to improve fiscal procedures and accountability standards. Assembly Bill 2756 (2004) provides specific responsibilities to FCMAT with regard to districts that have received emergency state loans.

In January 2006, SB 430 (charter schools) and AB 1366 (community colleges) became law and expanded FCMAT's services to those types of LEAs.

Since 1992, FCMAT has been engaged to perform nearly 850 reviews for LEAs, including school districts, county offices of education, charter schools and community colleges. The Kern County Superintendent of Schools is the administrative agent for FCMAT. The team is led by 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.

Introduction

Background

Nuview Union School District is located in rural Riverside County, and serves the small, unincorporated community of Nuevo. The district encompasses 45 square miles of high desert farmland and rocky foothills and operates two K-5 schools, one 6-8 middle school and the Bridge Early Charter High School, which serves students in grades 9-12. During their four years at the high school, students who meet specific academic criteria have the opportunity to earn 24 to 60 or more transferable college units while earning their high school diplomas. The district partners with Moreno Valley and Mt. San Jacinto colleges for this program. Although this program has some fees, there are no college tuition costs to students who attend either college program as a high school student.

The district is governed by a five-member board of education whose members serve four-year terms and are elected at large. The district's 2012-13 unaudited actuals financial report includes revenues of $12,135,046 and expenditures of $11,447,373, with an ending fund balance of $2,865,985. The district also operates six other funds including the bridge charter school fund, child development fund, cafeteria special revenue fund, building fund (bond), capital facilities fund and bond interest and redemption fund. All funds are projected to have positive ending fund balances and none required contributions from the unrestricted general fund.

The district faces numerous challenges with the implementation of the new Common Core State Standards for the 2013-14 fiscal year, including but not limited to program leadership, staffing, allocation of resources, and aligning curriculum standards with the use of technology. This report provides findings and recommendations related to the district's technology department.

Study and Report Guidelines

FCMAT conducted its fieldwork during two separate visits to the district on October 22 and 23 and November 4, 2013. The study team met with board members, the superintendent and selected staff members to discuss the expectations and objectives of the study, conduct interviews, collect data and review documents. A list of positions interviewed is included in Appendix D and a list of documents reviewed is included in Appendix B. The final day of the first site visit included an exit meeting to brief the superintendent and chief personnel officer on the team's preliminary findings and recommendations.

This report is the result of those activities and is divided into the following sections:

- Executive Summary
- Technology Policies and Procedures
- Hardware and Software Standards; Procurement, Replacement and Tracking
- Network Infrastructure
- Information Technology Staffing and Structure
- Student Data Assessment and Accountability
- Appendices

In writing its reports, FCMAT uses the Associated Press Stylebook, a comprehensive guide to usage and accepted style that emphasizes conciseness and clarity. In addition, this guide emphasizes plain language, discourages the use of jargon and capitalizes relatively few terms.

Study Team

The study team was composed of the following members:

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*As members of this study team, these consultants were not representing their respective employers but were working solely as independent contractors for FCMAT. Each team member reviewed the draft report to confirm the accuracy and to achieve consensus on the final recommendations.

Executive Summary

The 2013-14 state budget provided numerous changes to funding and programs for K-12 education with the implementation of the Local Control Funding Formula (LCFF) and the new Common Core State Standards. The LCFF is intended to correct historical funding inequities but will also provide new district challenges. In addition, details of the new accountability structure have not been finalized by the State Board of Education (SBE). Key components still under review by the SBE include the use of funds for the supplemental and concentration grants and the regulatory format for the Local Control Accountability Plans (LCAP). The LCAP will require the district to provide detailed goals for academic achievement for all pupils and each pupil subgroup identified as part of the LCFF.

While the Common Core State Standards focus on math and English language arts, they also emphasize the use of technology in an integrated manner to acquire knowledge and skills in these areas. As part of the Common Core State Standards implementation, the district will be required to participate in online assessments beginning in 2014-15 for all students in 3rd-8th grades, and 11th grade in English language arts and mathematics. There is no indication of collaborative efforts between the district's IT department and curriculum and instruction staff to ensure that the required technology will be in place for the testing. Network bandwidth, wireless access, proper number of online testing devices, and maintenance of these devices must all be evaluated, adjusted, and supported.

This report will identify many of the district's challenges that will need to be resolved to align the technology department with instructional services.

For the district to meet the requirements of these new state initiatives such as determining which software tools and applications will be utilized to assist students in solving math problems or what manipulatives will be implemented in the writing process, technology will need to be an integral part of the district's planning efforts.

This report will identify many of the district's challenges that will need to be resolved to align the technology department with instructional services. It will also validate that the district's classroom settings present technology issues for teachers, students and support services. Educational technology can provide a unique means for addressing many of these problems. However, the district does not have the technology infrastructure, staffing or identified leadership in either the technology or instructional services department to implement the new Common Core State Standards, Smarter Balanced Assessment Consortium (SBAC) testing. Nor does the district have a professional development program in place to support an up-to-date technology plan.

Individual campuses continue to develop their own instructional technology programs with limited planning. School principals lack a clear understanding of instructional technology and who is responsible for providing districtwide technology leadership. The lack of districtwide professional development focused on technology integration negatively affects efforts to provide consistent, measureable, and positive results in the classroom.

The district has not allocated the resources or staffing or provided the organizational leadership and policies to set the priorities needed to lead the district with regard to the Common Core and Smarter Balanced Assessment initiatives. Technology projects are not implemented districtwide and not optimally configured to meet the strategic objectives for instructional services or classroom learning.

Board Policies and Technology Master Plan

The district has board policies that address basic technology use issues. However, the district does not have acceptable use policies for social media, cyber bullying, wireless access or the use of personal electronic devices to appropriately guide and address use of technology in the classroom. No process is in place to ensure that policies and related administrative regulations are being implemented or updated regularly. The technology department operates with minimal supervision or strategic direction of its day-to-day operations.

The district's technology plan contains all of the necessary elements required for E-Rate funding and was approved by the California Department of Education (CDE). The objective of the plan is to assemble the district's goals based on a shared vision of educators, administrators and technology staff that provides planning efforts to support integrating technology into the classroom and curriculum.

The district technology use plan lacks a visible leader with a clear strategic objective and nexus to the academic goals.

The technology supervisor and staff indicated that the technology advisory council is not meeting, monitoring, evaluating and revising the technology use plan; instead, the technology department performs this task.

The district technology use plan lacks a visible leader with a clear strategic objective and nexus to the academic goals. Compounding this problem is the district's inability to fill the vacant position of assistant superintendent of instruction. This position is essential to provide leadership and collaboration to guide the district's planning efforts and implementation of Common Core.

Hardware and Software Standards, Procurement, Replacement and Inventory Tracking

The use of technology is integral to instructional services and academic learning. There are no district standards for devices, connectivity, operating systems and software, making technology implementation and support ineffective. As a result the identification and utilization of innovative technologies to support instruction does not occur in any systematic format. The implementation of technology occurs in isolated instances where individual teachers or administrators take the initiative.

The tracking of hardware and software is inconsistent, creating systems that cannot be effectively used by teachers to improve student and academic programs. The lack of an equipment replacement strategy has left the district with a variety of computers and software resulting in technology support staff spending too much time on fixing hardware and insufficient time on staff support.

Network Infrastructure

The district's wide area network cannot successfully support the projected growth with the implementation of the Common Core assessment and other planned district initiatives. The lack of a sustained replacement plan has left critical switching devices, some as old as 10 years, at the center of the network. The current assortment of servers with a variety of operating systems has resulted in a patchwork that has led to the underutilization of the hardware and unnecessary down time. Content filtering does not meet current standards. Staff at school sites stated that being blocked from legitimate educational content is a recurring issue.

The wireless access now in place is adequate for current use, but will be quickly overwhelmed by any usage increases such as 1:1 computing. The district has no policy related to student use of personal devices on the district network, and the current practices have been created as needed by the technology department. While the staff has started to update, standardize and virtualize servers, they lack resources and knowledge to quickly and efficiently move to a more reliable system.

The technology staff lacks experience in managing the network and configuring it with a focus on educational goals. While the staff has creatively used free software to reduce costs, they acknowledge a lack of experience in optimizing the performance of these systems. A lack of cross training has left the district with only one staff member capable of keeping the network up and running. As the district moves to implement online student assessments, the ability to manage network traffic in schools and classrooms is a necessity. Districts that have already implemented online testing using local assessments have been successful through proactive network planning and classroom testing of the systems. The current physical network and supporting staff do not follow practices that will enable the district to achieve even near-term goals.

Catastrophic Event or Security Breach

The district is ill-prepared for a disaster related to its network and information systems. No documented plan exists, nor has there been sufficient testing to ensure that the district could quickly restore critical data operations. The study team was advised of multiple instances where the district network went down over the prior six months. Recovery of network operations in these instances ranged from hours to days and on one occasion affected monthly payroll processing.

Should a disaster occur at the district office, all critical server data would likely be lost. While the data is backed up periodically, the backup data stays in the same physical location as the live data. This would allow for recovery from server equipment failure, but not from physical destruction of the data center. The district has the network capability to back up its data to an offsite location nightly, so automated nightly backups to network attached storage at the school site farthest away from the district office, or to a location outside the district would be appropriate.

The district must design, implement and regularly test its disaster recovery process, including built-in fault tolerances.

Information Technology Staffing, Service and Support

The Information Technology (IT) department lacks strategic direction from the Educational Services department regarding the needs of students and staff. A reorganization of the department is warranted to provide relevant and timely services to students, teachers, and administration. The district network is managed by a single staff member, with no backup contingency plan, creating enormous risk to district operations. The district should move immediately to create a network manager position, with other staff positions cross trained to mitigate this issue.

The technology support staff are minimally effective and generally do not have sufficient certification, training or customer service skills to provide a high standard of support. Job descriptions should be updated to meet current standards, and support staff should be placed at schools to improve communication and responsiveness. More technology support staff is needed to support the current technology utilization and the upcoming online student assessments related to the Common Core standards.

Technology department staff do not receive external professional development to help them stay current with evolving technologies. Each staff member needs a relevant professional development plan and related goals as part of their annual evaluation.

Information Technology Services

Staff reported that the Zangle student information system is proposed to be replaced, and the district is part of a five-member consortium that is reviewing a Request for Proposal for a new system.

Meaningful student assessment and evaluation data is not effectively delivered to sites. The data is often not provided, or is not provided in a timely manner. Data must first be extracted from the student information and assessment systems and manipulated to create needed reports. Sites are frustrated with the data provided by the assessment tools being used, and have not received professional development training on how to interpret the data to make substantive changes in programs or teaching methods. The correct analysis and reporting of data will be critical in the accountability associated with the newly required LCAP.

Findings and Recommendations

Technology Policies and Procedures

Based on the documents provided and interviews with district office and school site staff, board policies and the technology use plan do not accurately reflect current district goals. District staff provided the study team with Student Acceptable Use, Board Policy 6163.4 (May 2006), and accompanying administrative regulations with signature forms for parents and guardians of students. However, policies are lacking on student cyber bullying, use of social media, wireless network access or use of smartphones. Policies on employee use of technology (March 2008), management of inventories (2006) and staff development (2006) were also provided. The policy provided for staff development only had a brief reference to technology training for classified staff.

The study team also reviewed Board Policies 6141(a), Curriculum Development and Evaluation; 6161.11, Supplementary Instructional Materials; 6142.91, Reading-Language Arts Instruction; and 6142.92, Mathematics Instruction. The district lacks policies and corresponding administrative regulations to guide technology use in support of curriculum and instruction. Through interviews and documentation, the study team found consistent examples of how the technology department does not support the instructional goals or inadvertently creates obstacles. Many of these instances can be attributed to the lack of support staff, technical training, department resources and a technology use plan that is followed districtwide.

- At Nuview Elementary School, computers were purchased for instructional use in the After School Education and Safety Program (ASES). School staff stated it took approximately one year to get the computers operational. The comprehensive needs assessment of the School Site Plan identifies technology as a major issue.
- At Nuview Bridge Early College High School, where students take college courses as part of their academic program, the staff has been blocked from college websites during critical enrollment periods. Staff also cited examples of being locked out of their computers and the network during school hours while updates are remotely installed.
- Administrative, certificated and classified staff at school sites noted that the technology department does not provide consistent or meaningful technology professional development. Multiple causes were cited, some of which relate to the lack of technology department resources and adequate staffing.

Policies are not aligned to address the district's key technology-related issues. Although there is a staff use policy, no policy links technology to supporting curriculum or professional development. The study team observed a disconnect between the technology goals of the school board, administrative team, technology department and schools. Interviews with technology staff confirmed there is no connection between policy goals and day-to-day priorities, resulting in tactical rather than strategic actions.

One example is the interest at the policy level from the board of education and administration to support instruction through 1:1 computing. No board policies guide the standardization and purchase of hardware and software. The necessary policies and administrative regulations to support this type of initiative are not in place. While the technology department has completed

the Common Core Technology Readiness Test, findings confirm a lack of collaboration between the technology team and any other departments on broader issues of implementing the Common Core standards. The use of technology to support curricular goals is now a necessity. The policies and resulting practices of staff are not aligned to support curricular goals requiring staff collaboration and seamless integration of technology resources to support instruction.

Personal Electronic Devices

Interviews indicated staff and students are requesting the use of personal electronic devices to connect and gain access to the Internet using the district's network. However, the district lacks board policies on student use of technology.

With increasing frequency, school districts are allowing staff and/or students bringing devices on school campuses to connect to the district's wireless network, sometimes as part of a larger bring your own device instructional program. With the district's 1:1 student-to-computer initiative, this policy could provide some cost savings and needed flexibility for staff and students. Staff and students can use personal devices to collaborate online, develop independent learning skills, and increase communication and collaboration with teachers and peers.

Developing or prohibiting the use of these devices is an important local decision. Allowing such an environment to develop without guidance and forethought may put the district's resources and students at increased risk. Reviewing infrastructure, network administration and security, and district policies should be part of the implementation plan to create and support the use of personal electronic devices. Infrastructure concerns are discussed in the Network Infrastructure section of this report.

Following is sample acceptable use language for the use of personal electronic devices on the district's network:

- Staff and students are expected to use personal electronic devices for positive purposes: for learning and for legitimate communication.
- Personal electronic devices must not be used to harass or victimize other students or staff, or to abuse a person's right to privacy.
- Personal electronic devices must have all security patches for their respective operating systems installed and must run virus protection software with current virus definition files.
- Devices are not permitted to run Internet or web hosting services while on the district's network and are not permitted to have Internet connection sharing services turned on.
- During school hours, devices may access the Internet only through the district's wireless network, not through any other Internet access.
- Personal electronic devices are subject to inspection if there is suspicion that they have been or may be used inappropriately. Devices that have been used inappropriately may be subject to confiscation.

If the district's intent is to prohibit the use of personal electronic devices on its network, language in the board policies regarding employee and student use of technology will need to be developed to reflect this decision.

Technology Use Plan

The district technology use plan contains all of the necessary elements required for E-Rate funding and was approved by the California Department of Education (CDE). The objective of the plan is to assemble the district's goals based on a shared vision of educators, administrators and technology staff to support integrating technology into the classroom and curriculum.

The technology use plan outlines an evaluation and modification process that requires ongoing technology advisory council meetings to review the status of goals and benchmarks, evaluate implementation, and recommend budget and/or plan revisions. The plan states there should be diverse representation on the technology advisory council, including but not limited to district staff, school administrators, and teaching staff.

The technology supervisor and districtwide staff indicated that the technology advisory council is not meeting, monitoring, evaluating and revising the technology use plan. Instead, the Instructional Technology department staff performs this task in isolation. The technology plan is not only an instrument to meet grant and regulatory requirements, but should be followed, monitored, and updated to meet instructional needs. Successful school district technology programs regularly convene a diverse technology advisory committee to monitor and evaluate the technology plan. Regular meetings with key administrators and teachers provide a breadth of working knowledge to further evaluate and update the plan, ultimately strengthening curricula and supporting student learning.

The district's technology use plan encompasses the term from July 1, 2010 – June 30, 2015. The plan was developed on short notice and primarily as a requirement for the federal Schools and Libraries Commission E-Rate program. It is a cursory attempt to address the planning and support of a modern learning environment and does not serve as an effective blueprint or reflect the learning and seamless integration needed between educational services and technology for the district to implement the Common Core standards. Moreover, the plan is disregarded by district and school site staff, having no impact on the daily operations or planning for instructional learning.

The district's lack of a functioning technology committee to set standards, policies and procedures impacts all aspects of district operations. There is no discussion of aligning technology to the curriculum and no standards for grade-level purchases. Planning for the implementation of Smarter Balanced Assessment Consortium student testing is taking place at school sites rather than being gathered into a comprehensive districtwide plan.

Implementation of the Common Core standards, data collection requirements for the California Longitudinal Pupil Achievement Data System (CALPADS) and the Local Control Funding Formula make it imperative for the district to engage in meaningful technology planning.

During interviews, employees including certificated, classified and administrative staff recognized the need to improve the technology adoption process, and indicated a willingness to work toward that strategic objective.

Implementation of the Common Core standards, data collection requirements for the California Longitudinal Pupil Achievement Data System (CALPADS) and the Local Control Funding Formula make it imperative for the district to engage in meaningful technology planning. Staff interviewed described schools that conduct these activities independently due to the lack of an integrated plan. All the district's schools have independent groups that do not collaborate on

technology equipment purchases or other vital activities needed to improve academic learning districtwide. The result is an assortment of technology approaches, educational software purchases, computer models and technology strategies.

The technology plan states in goal 1, item 14, that beginning in fall 2011 and annually thereafter, the district will provide professional development on approved curriculum software and online resources. No sustained technology professional development program exists for teachers, administrators or classified staff. Staff members learn technology skills on their own or through occasional site-based offerings. Most professional development opportunities are provided by vendors, and only occur when a new system such as the student information system or software related to textbook adoptions are implemented.

New district teachers are not oriented in the software used to conduct classroom operations like grade books and attendance. The district culture of "just trying to figure technology out" permeates all schools, departments, and the district offices, severely limiting the ability to effectively implement or sustain technology related initiatives. The district technology staff stated they have not participated in any external professional development opportunities in the past few years and are essentially self-taught.

Access to the network and technology resources is limited across the district due to the lack of technology support staff and misalignment of support priorities. Technology staff estimated they spend up to 60% of their time repairing broken and old computers, while technology staff respond to desperate requests for training by staff by stating that training is not currently their responsibility. The result is a breakdown in communication between the technology department and staff with regard to the implementation of useful technology.

While the technology staff supports the deployment of Google Apps to save money on licensing, school site staff and administrators state that less than 20% of staff use these systems and would like to have basic tools such as Microsoft Office. Some schools have ubiquitous wireless access and others struggle to get basic wired connectivity. One school has an interactive projection system in every classroom and other schools have one or a few. Some schools choose Google Chromebooks for learning; others choose Apple iPads or ThinkPads. Schools with strong funding support have access to a wider variety of instructional materials, especially classroom technology, and provide additional on-site support.

A lack of policies or a relevant technology use plan creates significant challenges as the district moves to implement the Common Core State Standards and other priority initiatives. The district has not identified an instructional leader to guide the implementation of the technology plan to align with the academic goals. Compounding this problem is the district's inability to fill the vacant position of assistant superintendent of instruction due to budget constraints. This position is essential to provide leadership and collaboration to guide the district's planning efforts and implementation of Common Core.

Recommendations

The district should:

1. Create a district technology committee co-chaired by the department leaders of technology and curriculum and instruction, with a broad base of participation by representatives of each school, administrators, teachers, classified staff, parents and community members. The committee should immediately:
    a. Review and recommend changes to the technology use plan that will create a common vision and include the practical steps to support implementation of the district's goals.
    b. Draft an actionable plan to ready the district for Common Core technology implementation.
    c. Develop professional development plans for all staff.
    d. Develop and maintain policies and standards for purchasing hardware and software.
2. Update employee and student acceptable use policies to include the district's decision regarding the use of personal electronic devices.
3. Review and update all board policies related to technology for the required implementation of Common Core standards.
4. Create board policies for web-based access to student data for staff and parents, wireless access at school sites, access and privacy, student cyber bulling, use of social media and smartphones. Consult the sample policies provided by the California School Boards Association.
5. Once new board policies related to technology use and support for instruction are in place, train staff on those policies.
6. Review key changes in board policies and administrative regulations at cabinet, principal and faculty meetings to effectively communicate what is required of staff.
7. Update board policies on instruction (6100s) to reference the alignment of technology with core instructional goals. Include specific references to technology-based resources in board-adopted instructional policies.
8. Consider linking the adoption of strategic technology resources related to instructional programs to all other supplemental materials required for academic programs.
9. Develop a proactive communication plan for all technology initiatives that includes all stakeholders and covers short- and long-term goals, progress toward goals and regular, meaningful input from staff.
10. Consider using web-based communication, blogs, tweets and other modern communication tools to enable all staff to participate and become more invested in the technology plan.

11. Establish periodic updates for the administration and board on technology policies and administrative regulations to ensure alignment with district objectives for technology and instruction.

12. Place a teacher on special assignment or site administrator in the IT department as an educational technology coordinator to collaborate with IT to implement strategic goals identified by the technology advisory committee.

13. Develop districtwide training opportunities for all staff. Conduct a survey of teachers to identify area and levels of need. Develop and deliver training as a collaboration between the technology and the curriculum and instruction departments.

Hardware and Software Standards; Procurement, Replacement and Tracking

Standard student access to technology is lacking among various schools, classes and departments. Schools manage technology equipment purchases independently, often relying on categorical funding. This has created inequities between schools; those with more categorical funds purchase additional equipment and update existing equipment more frequently. The variance is significant, with some schools limited to a single stationary computer lab, and others with newer mobile laptop carts.

The study team found no substantive technology hardware or software procurement standards in the district. Qualified staff do not review the computer purchases made for staff or student use. No plan exists for equipment replacement. The district has not effectively managed the purchase of systems to meet the performance requirements of upcoming initiatives like the Common Core State Standards or the ability to confidently deploy 1:1 computing to students.

The district's technology hardware and software purchases are largely decentralized. Individual groups, schools, and users often purchase hardware and software without the technology department's prior knowledge. For example, the district purchased LobbyGuard security software without consulting the technology department regarding its specifications. The department was informed of the purchase when equipment was delivered for installation. Efforts to instill consistent practices and to route technology-related purchase requisitions through the technology department have not been sustained.

Districtwide consistency in students' technology skills with the implementation of Common Core will require equitable access to technology and the integration of technology skills into the curriculum. The lack of up-to-date technology resources at schools constrains the instructional program and teachers' ability to meet goals and objectives as stated in the technology use plan.

The study team was given a 22-page spreadsheet representing the district's computer hardware inventory. The spreadsheet listed hundreds of computers with at least six different operating systems. No evidence was provided of any standards or review process for hardware purchases. Hardware standards are essential to streamlining and improving initial hardware setup, maintenance and support.

Support for instructional technology is inconsistent among schools. For example, technicians maintain, image and configure computers differently, with little management oversight. Varying computer models and core configurations can cause support delays due to lack of detailed knowledge of the variety of hardware in use. Similarly, the post-warranty costs of troubleshooting and upgrading hardware are not tracked. It can cost as much to maintain an aging computer as to replace it. These practices have created unreliable computer performance and wide-ranging support needs among schools.

Software purchasing standards are not utilized. The result is an array of software that may or may not run, depending on the hardware in a classroom or department. In interviews, the study team was provided with a verbal list of educational software including Renaissance Learning, Accelerated Reader, Riverdeep, Blackboard Connect and EADMS assessments. No evidence was provided that software is deployed based on the hardware at schools or in the classroom. A review of the inventory report indicated that system software updates or communications regarding the instructional use of equipment do not occur and potentially pose a security threat. Examples of the impact on staff and students include:

- The implementation of a computer lab at the elementary schools has resulted in limited use by teachers of anything other than Internet-based resources because they are not familiar or comfortable with the Linux-based operating system on the lab computers.
- The purchase of a video surveillance system was made without consulting the technology department, resulting in the discovery that the network switches would not support the software.
- The decision to move to a Linux-based operating system was made because of the perceived necessity to implement a low cost system, not looking at the training and support issues that would negatively impact user acceptance.
- The purchase of web content management software to create school and district websites was an isolated decision. Most staff have too little experience and use the software too infrequently to become proficient.

The lack of clear standards for software purchasing has resulted in ongoing support and training issues that negatively impact the use of technology for staff productivity, and most importantly in the classroom for student learning.

The lack of procurement standards or a replacement plan for hardware and software have resulted in issues across the district. There is wide variation in how long it takes for new equipment to be set up, ranging from one day for a software update at a school, to three weeks for a district office printer, to a year for an after school computer lab. Some sites purchase Google Chromebooks with Google Apps, and others use netbooks with completely different curricular selections.

The ability of the district to scale technology support services to meet these needs will be severely limited without the adoption of clear, agreed-upon standards for hardware and software purchasing.

This makes support, professional development and measuring the success of a program very difficult. Absent hardware and software standards, each technology purchase potentially becomes a unique or custom setup, with each installation requiring more time to install and more complex service requirements.

Many districts standardize their hardware and software options, offering users limited but viable choices. Standardization provides a foundation for successfully run educational applications. In addition, creating and adhering to a replacement policy and schedule reduces the time and funding spent on troubleshooting and updating equipment.

Districts also utilize remote computer operating systems so that technology staff can connect new hardware to the network and the appropriate operating system and deploy software packages based on configurations set at the technology department.The ability to support 1:1 wireless device coverage in each classroom will be necessary as the district adopts the Common Core standards and Smarter Balanced assessments. This coverage will need to be completely reliable and robust enough to support demanding services like video and audio streaming. The ability of the district to scale technology support services to meet these needs will be severely limited without the adoption of clear, agreed-upon standards for hardware and software purchasing.

Recommendations

The district should:

1. Establish district policies for technology hardware and software procurement.
2. Establish a hardware and software purchasing process that includes review and approval by the technology department for the above policy.
3. Implement a baseline standard for all hardware purchases, including specific performance standards, virtualization, lease and refurbish options. Standardize the types of technology hardware purchased for elementary, middle and high school use.
4. Implement standards for office computers and peripheral devices to improve equipment reliability and enable more efficient implementation support by technology department staff.
5. Create a process and organizational procedures that connect the adoption of educational technology software to the curriculum approval process.
6. Link the adoption of new textbook materials and supplemental educational software to the curriculum standards.
7. Develop a minimum standard for all hardware, software and peripheral technology equipment for classrooms that includes wireless access points, computer desktop hardware, operating systems, educational software and equipment like digital projectors and smart boards.
8. Develop a technical support policy for maintaining and repairing equipment based on its age, model, security, and typical use that includes timely communications for updates.

Technology Asset Inventory

The district has board policy and administrative regulations that address asset management practices. The study team was given Board Policy 3440a.b.c., (February 2008) and Administrative Regulation 3440a.b. (November 2009). There is documentation regarding districtwide efforts to maintain and track computer hardware, but the process is not fully implemented. As a result, no comprehensive inventory tracking or annual report exists to reconcile fixed assets. Computer hardware is asset tagged, but the study team received no evidence that the process covers all equipment required by administrative regulations. Based on interviews conducted with site administration, equipment may have multiple paths for delivery and setup, and may not be tagged.

Of greater concern is the lack of communication between the technology staff and the maintenance, operations and transportation (MOT) staff regarding asset tagging and management. The technology department uses Spiceworks software to manage inventory while the MOT staff uses the Galaxy system supported by the county office for asset tagging and tracking. Currently the system is used to manage requests for support and the inventory module is not fully implemented. Spiceworks software is utilized to provide the district with an ongoing view of hardware and software on the network. The system is robust enough to meet the district's

needs for inventory analysis and planning and can track all computer hardware, peripherals, and software, including licensing, that reside on the network. Inventory that cannot be managed on the network should be retired. Asset tag identification should be maintained in the system. Asset tag data should also be maintained in the system, which can export files for reconciliation with the primary district asset management system.

In interviews with both departments, when asked about the asset management process, key staff stated that the process is not consistently and thoroughly completed. The lack of communication between the technology and MOT departments creates significant gaps in the asset management process.

The district does not maintain an inventory of its software licenses. A software inventory tracks all licensed software including operating systems and word processing, spreadsheet, database and educational applications. An accurate inventory increases licensing compliance, improves the accuracy of budget forecasting and reduces legal risks. In addition, the software inventory can be used to make decisions about future software use.

Software tracking, especially for educational software, is minimal. Board policy and administrative regulations require inventory that supports categorical programs to be clearly tagged as such. It is not clear that this process is being followed.

An equipment replacement plan for hardware and software is an essential part of providing staff and students with up-to-date, reliable tools that will enable them to succeed. The district has no structured plan to replace equipment. A replacement plan helps ensure that computer, telecommunication, network and classroom technology equipment meets acceptable standards, and that sufficient computing resources are available in computer labs, classrooms and offices. Failing to plan for aging technology leaves a district vulnerable to equipment failure and excessive maintenance costs.

Technology staff spends significant time fixing old computers that in many instances could be retired if standards and a retirement plan existed. The lack of a replacement plan also leads to greater variance in the types of hardware and software used by staff and students, creating challenges in providing professional development and creating further pressure on support structures.

Interviews and documentation provided indicate that the administrative process of school board approval to surplus computer equipment is in place. There is also evidence of computer equipment being recycled by an outside agency, but staff state it has been difficult to get the agency to pick up the equipment.

The district does not maintain a complete inventory of computers and peripheral hardware. This type of inventory typically tracks computers, iPads, iPods, printers, scanners, servers, document cameras, interactive whiteboards, digital cameras and other such equipment, and includes computer specifications such as processor speed, memory and disk space. These records allow a district to assess its operational capability, including classroom equipment capability to operate multimedia applications. An accurate hardware inventory also helps a district plan for technology replacement and installation.

The district does not track or inventory its networking equipment. This type of inventory includes all equipment required to provide network services such as wireless access points, switches, routers and firewalls. Similar to the hardware inventory, a network inventory is integral to equipment replacement planning. An effective networking equipment inventory will include information such as the manufacturer, model, vendor and location, and network configuration information such as the Internet Protocol (IP) address and applicable virtual local area network

information. It will also include the availability of spare equipment that can be used for emergency replacement in case of equipment failure.

The district also lacks a network diagram that documents the layout of the network and related equipment. A network diagram allows technology staff to identify at a glance which equipment to evaluate when a problem arises. A networking equipment inventory helps technicians determine and resolve network issues faster, increasing efficiency and decreasing downtime. A network diagram can also help non-technical staff and users understand the network design to aid in decisions and in planning for equipment replacement.

Recommendations

The district should:

1. Update board policy and administrative regulations related to asset management.
2. Train the technology and MOT departments on asset management policy and administrative regulations. Require the departments to develop a plan to tag and track 100% of the technology hardware and software covered under the updated policy.
3. Develop a plan whereby the required asset tagging and tracking is managed in one system.
4. Fully implement the Spiceworks inventory management system to track technology hardware and software.
5. Create and maintain separate inventories of licensed software and computer and peripheral hardware.
6. Develop and maintain a network equipment inventory and a separate network diagram.
7. Establish a cycle for replacement of desktops and laptop computers, preferably on a three- to four-year rotation.
8. Utilizing the Spiceworks inventory component, have technology staff analyze and present a hardware and software replacement and licensing plan for review by senior district staff.
9. Develop a set of criteria for hardware replacement that includes a process to collect information on desktops four-plus years old, including memory, operating systems and CPU speeds, along with requirements for educational and business software. Surplus all equipment that does not meet standards.

Network Infrastructure

Servers

The district has 10 physical servers that provide various services needed for proper network and school operations. These servers vary in age and are from a number of different manufacturers including Hewlett Packard, Gateway, IBM, and Dell. About half of the servers run versions of Windows; a little less than half run some version of Linux, which is free open source software. Staff can freely use, copy or change this software with the source code openly shared. This is in contrast to proprietary software where the software is under restrictive copyright and the source code is not available to the users. The remaining servers run the server virtualization operating system, VMware. The district is implementing a plan to update and consolidate the servers over time, which includes an increasing use of server virtualization and Linux operating systems. The drawback to this type of plan is that only one employee in the technology department is proficient in the implementation and operation of these server systems.

The district is in the process of moving its services to the Linux operating systems. Server virtualization technology is being implemented wherever possible. The server systems in use are adequate for the district's present needs, and the changes under way will put the district in a better position to serve large amounts of computing devices in the future.

Increased efficiency in server processes will allow for higher utilization of new server hardware and longer use of aging server hardware, as well as increased options for user device compatibility over time.

Investing in implementation services, ongoing support, and technology staff professional development will be essential for long-term success in implementing and using free open source software.

Many districts use virtualization technology to increase server system reliability, significantly reduce server management, and increase energy efficiency in their data center. Server virtualization allows many virtual servers to run on one physical server using specially designed software. In the traditional model of running one operating system on one physical server, the physical server's hardware resources are often underutilized; server virtualization allows these resources to be more fully utilized. However, when many services are running on one physical server, more services become unavailable if something goes wrong with the physical server. Therefore, it is best practice to employ multiple physical servers working in tandem that can take the entire load of services automatically, should one of the physical servers experience a problem.

Recommendations

The district should:

1. Contract with a company or companies that can plan, implement and support free open source software and server virtualization systems to decrease downtime and assist with server management as needed.
2. Provide training in server management to technology staff.
3. Purchase at least one extra server to be used as a virtual machine host.

Routers/Switches

The district uses switches made by Hewlett Packard on all segments of the network. No other brands of switches are in use. HP ProCurve class switches are used at the edges of the network, with more robust 5300 and 5400 series models placed in the center. The ages of active switches range from two to 10 years old. Among the oldest are the two 5300 series switches. There are 37 switches in use districtwide, and three switches have Power over Ethernet (PoE) capability. The switches in the center of the network handle routing on the district network, so no separate routing devices are present. At least one of each class of switch on the network is held in inventory as a spare in case a failure occurs.

The homogeneous nature of the district's switching infrastructure is helpful for network management, and the type of switches employed are appropriate overall for their designated purpose. The two 5300 series switches are at the end of their life span, and should be replaced within the next two years. The series 5300 and 5400 switches control routing between school sites and out to the Internet, which may necessitate a higher level of maintenance service than is currently done. The district uses power injectors to make up for a lack of PoE switches, and this is an acceptable way to cut costs, provided there is enough room in network storage cabinets to house them. Power injectors or switches with PoE are needed when attaching Voice over Internet Protocol telephone systems and wireless access points to switches to avoid having to plug telephones and access points into a standard power receptacle.

Most districts consider eight years to be toward the upper limit of the functional life of a network switch and plan to replace switches when they reach that age. Many districts purchase spares of every class of switch that they have in production, so they can avoid large, recurring maintenance costs on large numbers of switches and replace failed switches quickly. However, many districts do purchase maintenance agreements for the central switches that control more important aspects of their network, because these central switches tend to be much more expensive to purchase than the switches at the edge of the network.

Recommendations

The district should:

1. Consistently track the age of active switches on the network and replace them at eight years of age or when key management features change dramatically, whichever is sooner.
2. Replace the two 5300 series switches.
3. Raise the level of redundancy on the switches that also handle routing by either having a configured spare on hand that requires little or no expertise to start up or by purchasing support contracts from a third-party provider.

Firewall

The district uses free open source software called pfSense on a standalone server to protect its network from outside attacks and intruders.

The district's firewall solution is easily controlled by the IT staff of the district and is very reliable. PfSense is free of licensing costs, and has been in open source development since 2004. It is a

powerful, flexible and mature firewalling platform that is installed and used live in over 167,000 locations.

Districts use a range of solutions to protect their networks. Many solutions are adequate for this purpose as long as they are easily controlled by the IT staff at the district and have excellent uptime records.

Content Filter

The district uses OpenDNS to filter access to the Internet for all network users. Staff members may bypass the filter at any time based on their judgment, and all student access in grades K-12 is controlled by the same filter settings. The district's network authentication services are not connected to OpenDNS, so the filter cannot automatically distinguish between different types of network users. The district is working on a plan to enable authentication services that will eventually connect to the OpenDNS filtering services, but cites concerns about having the time and expertise to successfully implement using their own staff.

OpenDNS has become a standard filtering option for districts seeking to minimize the number of servers maintained on site. Approximately one third of U.S. school districts use it for this purpose. OpenDNS provides the required functionality at a reasonable price. It is helpful in determining individual activity on the Internet and to connect authentication services on the local network to filtering services, but implementing authentication services for the first time is time consuming and technically difficult.

Districts use a range of solutions to keep network users from accessing inappropriate content on the Internet. Many solutions are adequate for the purpose, provided they are easily controlled by the IT staff at the district, allow staff to access sites that are incorrectly blocked, and provide usage reports that are simple to access and analyze.

Recommendations

The district should:

1. Employ third-party consultants to implement a network authentication system, such as Lightweight Directory Access Protocol (LDAP), for the first time.
2. Connect the network authentication system to the OpenDNS filtering service.

Wireless Access

The district uses Aruba wireless access points and controllers. Five controller devices are live on the district's network: a master device, a backup for the master, and one each to control the access points at the elementary school, middle school, and high school levels. The district also has on hand one dormant spare controller for backup and recovery. The district purchases extra access points as the need arises to keep up with growing demand for bring your own device and 1:1 student initiatives. The access points in use can each handle approximately 15-20 devices concurrently.

Wireless access to the Internet is the fastest growing component of the district's network and server systems, yet there appears to be no master plan in place to direct that growth. The Aruba system may or may not be the most appropriate system for the district's goals, but it will be difficult to determine until a vision and priorities have been set to determine the desired classroom use of wireless. If it is desired that each student have access to the Internet via their own personal wireless device, access points that will only handle 15-20 concurrent device connections will not be robust enough to carry the load. The existing wireless controller structure is adequate, but it is likely that the controller system will need to be expanded quickly as the number of access points grows.

Districts use a variety of wireless systems with success. What matters the most is the quality of the features provided in the system's hardware and software and how well the system's features match the district's goals. Districts that have the most success with wireless system implementations begin with an instructional vision for what they would most like to see in their classrooms within three to five years, then translate that vision into a roadmap for implementation that includes building a feature list, searching for the system that best fits the list of features, budgeting for system rollout, and delivering professional development for technology staff and users.

Recognizing that wireless needs change and grow rapidly, districts often plan for three or four times the capacity they think they will need. Many districts that implement wireless systems for bring your own device or 1:1 student computing build capacity for three devices per user. Many districts that have built wireless infrastructures for just the amount of devices they need are now struggling to keep up with the demands of the devices that are actually on campus. Most wireless vendors now recommend overbuilding the wireless network, simply because more devices get purchased and brought from outside the district than anticipated when ubiquitous wireless access becomes available.

Recommendations

The district should:

1. Develop an instructional vision and master plan for the use of wireless devices in collaboration with the technology department and instructional staff.
2. Create a wireless implementation timeline, prioritizing the classrooms and schools that are most ready to properly use wireless systems.
3. Determine whether or not the existing wireless controllers and access points will be adequate to achieve the instructional vision at capacity, assuming three times more devices than the instructional vision requires.
4. Communicate the timelines for implementation with stakeholders, so teachers and principals can plan appropriately.

Data Backup Devices

The district uses external USB hard drives that are physically attached to the servers to periodically back up critical server data. A large tape drive system for data backup is located in the district data center, but it is not connected or operational.

Should a major disaster occur at the district office, all critical server data would likely be lost. While the data is backed up periodically, the backup data stays in the same physical location as the live data. This would allow for recovery if only server equipment fails, but would not allow for recovery if the data center was physically destroyed. The district has the network capability to back up its data to an offsite location each night, and it would be appropriate to set up automated nightly backups to network-attached storage at the school site farthest away from the district office, or to a location outside the district.

Data backup systems and methods should be designed to allow the district to recover quickly from worst-case scenarios. Properly designed systems back up data nightly, automatically, and to an offsite location. The recovery software involved in a backup system should make it simple and quick to restore data to a different location. While it has been common for districts to successfully use tape backup devices, districts that have sufficient network bandwidth between school sites or out to the Internet most often back up their data to network-attached storage at a school site, county office of education, or cloud-based storage provider. This eliminates the expense of manually transporting tapes off site and makes it easier and faster to restore data. Districts with a virtual machine host server often have another such server at the offsite backup location so basic services can be restored and run from that location if the primary data center is destroyed.

Recommendations

The district should:

1. Choose a location to back up server data nightly that is physically located away from the district office, has proper air conditioning, rack space, and security.
2. Set up the necessary hardware, software, and/or service contracts to execute a proper backup routine at the chosen location.
3. Implement a virtual machine host server for the backup location so that basic services can be restored and run from that location if necessary.

Physical Data Center Environment

The district's data center is located in a small, secure room in the technology department office. Critical components are mounted in a rack. While other items are stored in the room, the equipment in the rack is easily accessible. The room has air conditioning and stays cool at all times. The network switches and servers are connected to a battery backup device.

Most components of the district's physical data center are acceptable for their designated purpose. If a power outage occurs and the technology staff is on site, there is enough time to properly shut down servers. If a power outage occurs after hours or when technology staff are not present, servers will go down while accessing or writing data, causing an unacceptable risk for loss of data or equipment damage. Technology staff need to be notified when a power outage occurs and given enough time before the backup battery depletes to contact the servers and shut them down appropriately.

Ideal data center environments in school districts are secure, providing limited access to only the employees that require it. Equipment is mounted in racks at least six inches off the ground, and wires from the equipment that need to be connected to the wall or other racks are also run at

least six inches off the ground. All server and network equipment is protected from surges and power outages by battery backup devices that provide full data center up time of at least one hour without external power. Additionally, most districts use battery backup devices that can connect to the network and send messages to key contacts whenever a power interruption occurs or the temperature in the data center rises significantly.

Recommendation

The district should:

1. Implement a battery backup system that provides at least one hour of uptime for critical data center servers and network switches and notifies key contacts of power outages via a network connection.

Equipment Maintenance Costs

The district has no maintenance contracts for network or server equipment.

For most network switches and servers, the district has purchased spare equipment that is dormant, preconfigured, and ready to deploy if the live equipment fails. This practice is appropriate for most network or server equipment. Any equipment that is both critical for the network operations of the entire district and too expensive to reasonably purchase and keep as a dormant spare should be considered a candidate for a minimal maintenance contract. The central network switches that also handle network routing and the central virtual machine host server are examples of this kind of equipment.

Recommendation

The district should:

1. Add basic support maintenance for the four central switches that also handle network routing services and for the central virtual machine host server.

Information Technology Staffing and Structure

Organizational Structure

The purpose of an organizational structure is to help district management make key decisions to facilitate student learning while balancing financial resources. The organizational design should outline the management process and its specific links to the formal system of communication, authority, and responsibility necessary to achieve the district's goals and objectives.

The district's organizational structure should also establish the framework for leadership and the delegation of specific duties and responsibilities for all staff members. This structure should be managed to maximize resources and reach identified goals and adapt as the district's enrollment increases or declines. The district should be staffed according to basic, generally accepted theories of organizational structure and the standards used in other school agencies of similar size and type. The most common theories of organizational structure are span of control, chain of command, and line and staff authority.

The technology department is not organized and staffed to support efficient business management systems or critical educational technology initiatives. There are issues in the management and organization of the department, technical skills of the staff and alignment of department priorities. In small districts, the growth of technology initiatives can often exceed the department's technical expertise, staffing and available resources without ongoing strategic planning efforts districtwide.

Span of Control

Span of control refers to the number of subordinates reporting directly to a supervisor. While there is no agreed-upon ideal number of subordinates for span of control, it is generally agreed that the span can be larger at lower levels compared to the higher levels of an organization because subordinates at the lower levels typically perform more routine duties, and therefore can be more effectively supervised. The district's technology supervisor only has oversight responsibilities for three technology assistant positions and does not participate in strategic planning or districtwide decision making.

Chain of Command

Chain of command refers to the flow of authority in an organization and is characterized by two significant principles. Unity of command suggests that a subordinate is only accountable to one supervisor, and the scalar principle suggests that authority and responsibility should flow in a direct vertical line from top management to the lowest level.

The chain of command has been problematic for the district due to the turnover of management positions in the last three years. For example, the technology supervisor has previously reported to three different positions. Due to the vacancy in the position of assistant superintendent of instruction, the supervisor has been reassigned to report directly to the chief personnel officer. Frequent changes in the organizational structure have made the flow of authority unclear.

Line and Staff Authority

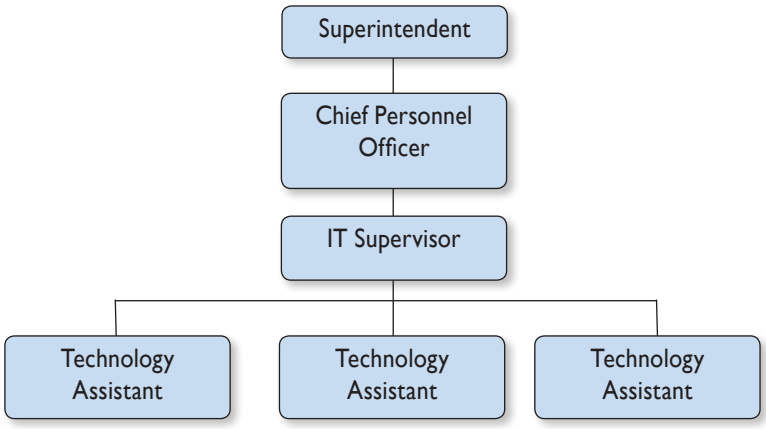
Line authority is the relationship between supervisors and subordinates. It refers to the direct line in the chain of command. Staff personnel do not have the authority to make and implement decisions, but act in support roles to line personnel. While the line and staff authority in the district is minimal due to its relatively small number of positions, one technology assistant position is located at a school site and is provided direction by both the principal and the IT

supervisor. This type of structure makes it difficult for the employee to prioritize their duties when receiving instructions from multiple supervisors.

The district has made significant investments in updating classroom technology districtwide, including providing projectors, computers, interactive whiteboards and other devices in most classrooms. However, the Information Technology Department does not have the resources or procedures to continue supporting and maintaining the increasing amount of technology at the district's schools.

The organizational structure of the technology department consists of the following positions:

Current Organizational Structure



The Information Technology Department supports all the schools, district office, and all other district operations. The department currently reports to the Human Resources department; however, the supervisor of technology services previously reported to the superintendent and subsequently to the associate superintendent of instruction. The continual change in technology department oversight has impeded the district's efforts to standardize technology and make cost effective decisions. The Information Technology Department consists of the supervisor of technology services and three technology assistant positions.

The IT supervisor reports directly to the chief personnel officer. One of the technicians reports directly to a school site, and the other two staff address all districtwide issues. The IT supervisor position functions as both a network supervisor and technology support at school sites and departments. Only one employee is trained to manage and support the network. This is a critical issue that must be addressed immediately.

Management of the department is top-down, directive-based, with all technology initiatives coming from the supervisor. As a result, minimal strategic planning has occurred in recent years to align the staffing and workflow of the technology department to the needs of school sites or departments. There is no evidence of strategic planning and cross-departmental communication necessary to create efficiencies districtwide.

The study team received documentation on support processes from sample support logs in Spiceworks. This information showed that the department focuses on fixing hardware and

network management, while planning for new systems or anticipating training and support needs are not addressed. While efforts have been made to implement operational efficiencies, such as the terminal server based lab at Nuview Elementary, the efforts have been offset by a lack of training, resources, and support for staff.

Technology department staff provided no evidence that they hold certifications commonly found with comparative staff in other districts. Examples may include, Microsoft Certified Solutions Associate (MCSA), MCSE Private Cloud, Private Management Professional (PMP), VMware Certified Professional (VCM) and Certified Information Systems Security Professional (CISSP). The staff do not participate in external training, with only ad hoc training provided by the IT supervisor. The lack of formal certifications and external training impede the ability of staff to provide effective support.

The technology department operates in a reactive mode, responding to network outages, computer failures and desperate requests from school sites for training and support. The technology supervisor does not attend district or school site meetings where planning takes place for critical business or educational initiatives. One of the most notable examples is the recent move to a new student information system.

In interviews, technology staff stated no one in the department had been involved in or knew anything about the countywide selection process. The involvement of senior technology staff in the adoption of essential systems is critical to successful implementation.

Staffing and duties are not aligned with the current or near term needs of the district. Technology staff is neither trained nor comfortable with providing support on educational hardware and software applications. Efforts by the department to provide training are ad hoc. This runs counter to site staff interviews and requests in the Spiceworks system that clearly identify training as a high priority. Teachers requesting training have been told it is not a priority or not part of the technology department job responsibilities.

New employee training is inconsistent depending on the individual department or site. The IT department does not have enough resources or application expertise to provide regular professional development for every software application installed in the district. However, relevant training resources can be made more easily available. Online resources, how-to documents, step-by-step guides and user groups can be developed to support continuous professional development districtwide. Application experts can assist with creating resources.

The district does not have an education technology position responsible for integrating technology into instruction. Sites rely on vendors and technology assistants for teacher technology training. School staff expressed frustration with the lack of support for implementing technology in their classrooms. Given the expanding use of technology with Common Core and SBAC online testing, many districts have added positions such as teacher technology coaches or technology integration specialists. These teachers on special assignment help teachers integrate technology into their daily lessons.

Little involvement or leadership is provided by the department or at the district office level when new instructional technology hardware or software is considered for purchase. The department has not taken the opportunity to implement basic efficiencies by standardizing equipment and software purchases. The failure to implement or adhere to a basic policy for submitting purchase requests for review or approval has led to a patchwork of equipment and software that the department cannot support, which impedes workflow. There is no policy or procedure for determining

if the network can support an application or if the local hardware is compatible, such as memory required, disk space, and operating system.

Job Descriptions

The job descriptions and position duties are not aligned to provide adequate support for the district's network and hardware. The lack of technology training and professional development will require a new approach to technology positions.

The position of IT supervisor is not well defined. Its duties are determined by the priorities of the person occupying the position. In most districts, the senior technology staff is responsible for coordinating technology planning, support and training for all departments and schools. This function is not in place in the district. In most districts, the position is responsible for supporting the hiring and ongoing training of technology staff. The district's IT supervisor provides in-house training and encourages staff to read. This position is the sole management and support for the network. Limited cross training has occurred with the technology assistant positions, primarily because those employees do not have the experience or certifications to assist with network responsibilities.

The technology assistant job descriptions need to be revised to ensure that school site and department staff receive much needed support and training. The district should consider elevating positions in the high school to computer technician II to serve a high level of technology use and needs by students and staff. The job descriptions and duties in documents provided to the study team lack requirements for certifications necessary to support the network, desktop and software.

Job descriptions and staff interviews confirm that training support is not part of the job description or the culture. The only references note that the computer technician I positions "attend and participate in staff meetings and in-service activities." Many districts include specific reference in these types of job descriptions to provide training to teachers and students in an effort to prioritize support of staff.

The study team noted there is no position or job description for network support staff or for technology training staff. All staff interviewed, without exception, noted concerns in both network downtime/speed and training as priority areas to improve.

User and Desktop Support

User and desktop support varies widely between school sites and departments. Staff is not allocated evenly across schools and departments. One school has a 3.5 hour technology position assigned to the school site while others rely on district dispatched computer technicians. Response time and issue resolution can vary widely from minutes to days. While some of this variance can be attributed to the seriousness of the problem, data gathered from staff at sites indicates regular failure in communications that negatively affects end users. Instances were noted where technology staff used remote desktop access unannounced, interrupting staff work. A critical concern is that technology support staff spend as much as 60% of their time working on old computers in the technology office while other school site issues go unresolved. As noted earlier, the lack of standards for equipment has directly affected the ability of staff to provide adequate support. Interviews revealed evidence that staff, not trained on how to support a type of equipment purchased by a school site or department, took excessive time to fix a problem.

The study team also found issues with hardware setup. Staff requesting basic printer setup waited for up to three weeks. Computer setup for schools and programs takes as little as a couple of days to almost a year in the case of the ASES program. The lack of clear process, procedures and prioritization of instructional support has resulted in the inability of staff to utilize technology effectively and with confidence.

The district's technology help desk process is not efficient and does not generate information needed to manage technology. The technology help desk utilizes Spiceworks software, but the process for requesting technical assistance using this system has not been consistently enforced. Teachers, staff and administrators continue to request support via phone calls, voice messages, emails, text messages and handwritten notes to technical staff. This makes it difficult to monitor, track, and report resolution trends and progress. Further, the lack of a standard help desk request process means managers cannot help technical staff to prioritize issues and identify practices that are inefficient or that do not align with the district's policies or procedures.

It is best practice to require all technical requests to go through the help desk system so a log of issues is automatically generated. System information can be used to help identify support trends and needs for additional staff development, equipment, or personnel. Staff and teachers need to be given an overview of the help desk system and understand the value of using it to streamline support and decrease time to resolution. It is more effective and efficient to use the help desk system to determine technician's workloads and assignments rather than allow personal choice to do this. Policies and practices regarding how help desk requests are tracked, assigned and monitored need to be agreed on in the department so practices are uniform from site to site. Teachers, staff and administrators should be able to log into the system to track the progress of their request at any time.

Website and Email Support

The email and website systems receive limited support and as a result create both risk and opportunity lost for the district. The email system is Google based and was selected by the technology staff for cost savings. Google Gmail is Internet cloud-based and because staff use email to share files, the district uses Google products including Drive (formerly known as Google Docs), an Internet cloud-based file storage and sharing solution.

Google Gmail and Google Drive allow access across all platforms using an Internet browser and proper authentication. Outsourcing email and/or file storage can reduce the need for equipment, licensing requirements and administration. Reliability and uptime (the time during which services are available and functioning) increase because of the enterprise network, system redundancies, and corporate system engineers available to support and maintain large-scale products such as Google's.

The email system is not backed up, exposing the district to risk associated with the inability to access archived email for personnel matters or legal action. In many districts, email is either managed internally or outsourced for backup.

The district uses Schoolwires, a Web-based content management system, to maintain its website. Board policy usually defines the expectations and requirements for schools' and teachers' web pages. However, the district lacks board policy in this area. The district and school websites have a consistent layout, simplifying navigation and creating a unified web presence. However, not all teachers have web pages and those that exist do not provide similar information. Effective

standards for website development encourage teachers to develop a classroom web page with a uniform appearance and include information such as a teacher biography, classroom information, syllabus, calendar of events, classroom documents and links to resources such as online textbook materials or websites for practice. School districts' websites that are effective and often visited include classroom information and may reduce printing costs.

The technology staff supports the Schoolwires web management system by adding users and adjusting access. In interviews, staff stated the system was purchased during the administration of a previous superintendent. While the web management system is designed for use by nontechnical staff so they can communicate via a school or department website, no internal training is provided. As a result, system use is limited. Many districts have moved to advanced web based communication tools. These systems enable staff to link email, Facebook and Twitter communication via the web content management tool. Parents, student and community members can select groups they want to join and get information ranging from newsletters to student homework sent to them automatically. Regardless of systems, ownership and support is necessary for successful implementation and ongoing usage.

Classroom Technology Support

There is no evidence of substantive support of classroom technology activities. One principal noted that a technology staff member was in the lab during a critical classroom activity, which went well. This was an isolated case, with both technology staff and school site staff confirming that meaningful support of instruction does not regularly occur.

Staffing Comparisons

School districts statewide are recognizing the instructional benefits of integrating technology into the curriculum, and the fiscal impact associated with streamlining processes and collecting student and fiscal information. Many districts combine technology support and other services such as curriculum or fiscal responsibilities under one district-level team. Districts also use a centralized IT staffing and support structure to increase efficiency.To evaluate trends in IT staffing, FCMAT gathered department staffing data from previous reviews and included school districts of similar size and structure and districts that far exceed Nuview's size and structure to provide sample staffing models. Larger districts were included to demonstrate the potential need for additional positions that may further support the full implementation of the Common Core standards, Smarter Balanced assessment and 1:1 computing at each school. This data is summarized in the following table.

District	Students	No. of Schools	Total FTE	Position Title	FTE
Monterey Peninsula Unified	10,956	22	11	Director II	1
	10,956			Administrative Assistant	1
	10,956			Systems Administrator	1
	10,956			Learning Community Technology Administrator	3

District	Students	No. of Schools	Total FTE	Position Title	FTE
	10,956			LAN Tech II	5
Campbell Union School District	7,683	13	6	Supervisor of Technology	1
	7,683			Network Coordinator	1
	7,683			Computer Technician	1
	7,683			Desktop Support Technician	1
	7,683			Student Technology Specialist	1
	7,683			Student Information Supervisor	1
Campbell Union High School District	7,408	7	6	Director	1
	7,408			Network Manager	1
	7,408			Lead Computer Support Technician	1
	7,408			Computer Support Technician	2
	7,408			Database Specialist	1
Greenfield Union School District	3,129	4	2	Director of Technology	1
	3,129			Technology Technician	1
King City Union School District	2,577	4	3	Director of Technology	1
	2,577			Technology Technician	1
	2,577			Data Manager - CALPADS, SIS	1
Auburn Union School District	2,135	4	3	IT Administrator	1
	2,135			Executive Assistant - Web Administrator	1
	2,135			Computer Support Technician	1
Chowchilla Elementary School District	2,088	5	3	Technology Coordinator	1
	2,088			Network Technician	1
	2,088			Technician	1
Earlimart School District	1,881	4	2	Director of Information Systems	1
	1,881			Computer Support Technician	1
Dixie Elementary School District	1,863	3	1	District Technology Specialist/ webmaster/computer tech	1

District	Students	No. of Schools	Total FTE	Position Title	FTE
Cottonwood Union Elementary School District	1,109	2	2	District Technology Director	1
	1,109			Technology Support Assistant	1
Cardiff School District	763	2	2	IT Coordinator	1
	763			Technology Support	1
Chatom Union School District	659	2	1	Technology Coordinator	1
Franklin Elementary School District	491	1	1	District Technology Coordinator	1
Montecito Union School District	471	1	1	Director of Technology and Information Services	1
Loma Prieta Union Elementary School District	453	2	2	District Network Administrator	1
	453			Technology Integration Specialist	1
Camptonville Union School District	425	1	0	Technology Coordinator/Staff Development trainer called on as needed	0

The analysis of comparative data such as this can be difficult because of the variances in the types of services offered by each local educational agency. Staffing levels may be adequate in some agencies and inadequate in others due to the type, age and complexity of technology being used. Many times available funding, academic progress or mandates and the district's emphasis on the use of technology can account for staffing differences. Staffing models and comparisons can assist in streamlining or expanding the district's strategic direction. These types of staffing comparisons are also particularly important in ensuring the right balance between specialist and generalist positions, and provide the district with a general guideline regarding what types of positions are used by other districts of similar size and structure.

As shown in the chart above, peer districts vary in the number and type of staff employed. While position responsibilities are not available for all of the comparative districts, a few key trends can be identified from the information that is available. Most of the districts have a centralized leadership position (director or supervisor); one or two network or systems administrator positions to provide technical support and system development, and one or two information technology specialists to support daily technology integration and activities.

Network administrators tend to provide more infrastructure and enterprise-level technical support, while specialists or site coordinators normally provide classroom-based support.

The district can perform further analysis of this data, if desired, by contacting each agency to discuss the types of technology being supported. However, with districts increasing technology

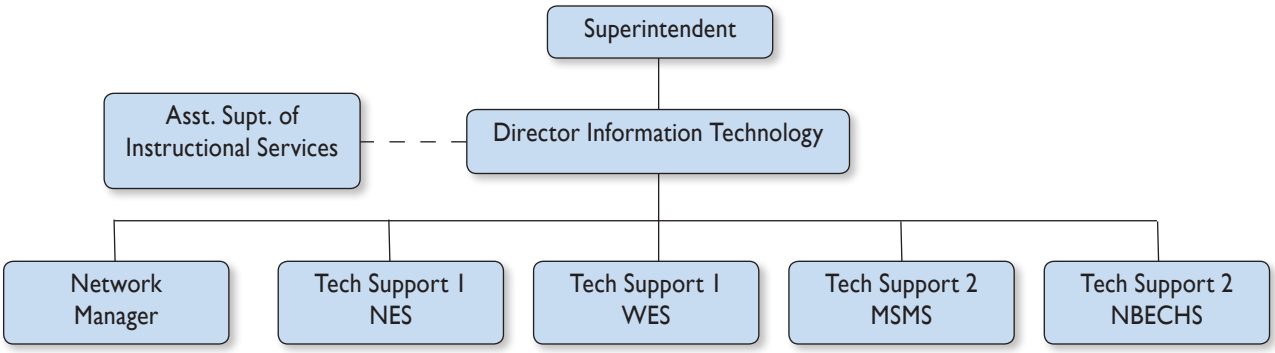
services and staffing to meet the Common Core standards, the organizational structure of most technology departments is changing rapidly.

If the district is to utilize technology to achieve successful implementation of Common Core standards and improve student achievement, significant changes will be required.

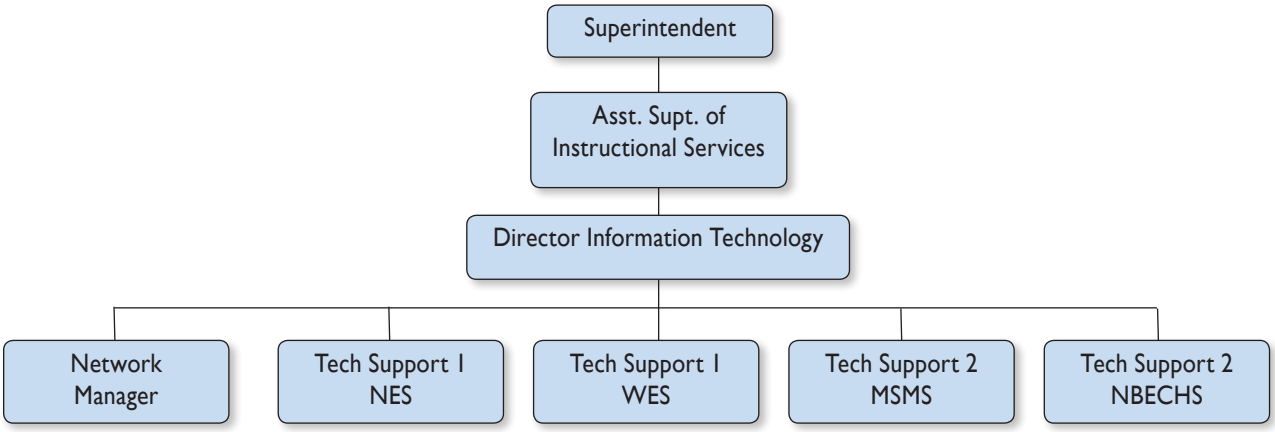
Technology Department Reorganization

The IT department should meet the technology needs of all district stakeholders, particularly with regard to instructional delivery, efficient school operations, and timely information. Department staffing levels should be commensurate with other districts of comparable size and funding allocations. Additional staffing may be required for implementing Common Core. Two options are provided below.

Organizational Structure - Option One



Organizational Structure - Option Two



The district should eliminate the technology supervisor position and establish a director of information services position reporting temporarily to the superintendent. Once the assistant superintendent of education services position is filled, the director position would report to educational services. This position would support all educational technology and information systems, plan and coordinate with all departments and school sites, and lead the development of a technology use plan. The position would also facilitate a client-centered support structure and professional development planning and delivery for all staff. Additional cost for this organizational change from supervisor to director position is estimated at $10,000 to $15,000 annually plus any differential in statutory benefits.

A new position of network manager would supervise all network and server based data. This position would develop, manage and maintain the network. Background and experience should include the ability to plan for network growth and manage increased traffic for educational programs such as the Common Core and SBAC.

The technology support I job description needs to be revised to include technical certifications and professional development training to support staff and students. Technology support II positions are needed for the middle school and high school because of the increased usage by staff and students at these schools to provide adequate service and training support. To focus on client service, staff should be assigned to each school site, with oversight and support from the technology director. For larger jobs, such as setting up laptop labs, support staff teams can make project installation more efficient.

Department staff should meet regularly to plan, problem solve and train. Districts using this approach often create better response and working relationships between staff at schools and the technology department. Every technology staff member should participate in ongoing professional development to improve skills, achieve technical certifications and gain exposure to new educational technology tools.

Teacher on special assignment positions are needed at each school for the next two years to work with the superintendent or assistant superintendent of educational services, the director of information services and principals to fully develop the technology use plan, implement Common Core standards and SBAC, and provide professional development.

Below are estimates of salary costs only associated with staffing recommendations contained in the report based on the district's salary schedule and costs from comparable positions.

Current Position	Annual Cost	Recommended Position	Annual Cost	Difference	Notes
Supervisor	$68,563	Director I.S.	$80,000	$11,437	
N/A	$0	Network Manager	$48,853	$48,853	Step 18 Column 3
Tech 1 (PT) (NES)	$11,121	Tech 1 (NES)	$27,037	$15,916	10 M, 7 Hrs/Day Step 10
Tech 1 (PT)	$24,523	Tech 1 (WES)	$27,037	$2,514	10 M, 7 Hrs/Day Step 10
Tech 1 (FT)	$24,523	Tech II (MSMS)	$29,809	$5,286	10 M, 7 Hrs/Day Step 12
N/A	$0	Tech II (NBECHS)	$29,809	$29,809	10 M, 7 Hrs/Day Step 12
Totals	**$128,730**		**$242,545**	**$113,815**	

Recommendations

The district should:

1. Eliminate the technology supervisor position and replace it with a director of information services position.
2. Create a network manager position to manage and support the network and server data.
3. Create technology support II positions for the middle and high schools.
4. Establish an education technology group to work with the proposed director of information services, assistant superintendent of educational services and teachers to integrate technology into instruction.
5. Revise all technology job descriptions to current standards and include training support for staff and students in all descriptions. See the attached sample job descriptions for guidance.
6. Develop job responsibilities for the technology support staff based on needs identified by teachers and administrators. Support each technology staff member with training to acquire the necessary skills and technical certifications.
7. Involve technology management in interdepartmental meetings such as cabinet to ensure coordination of services, adequate needs assessments and evaluation of services against identified requirements.
8. Establish service level metrics and quality of service benchmarks, response times for various requests, and priority process for urgent tasks.
9. Have all technology positions that are upgraded or added report to the newly created director position.
10. Develop board policies regarding the content and updates to the web site.
11. During the implementation period of the new common core standards and smarter balanced assessment, consider hiring teachers on special assignment for all schools to integrate technology requirements with curriculum and instruction.
12. Consider purchasing the Vault service from Google, or a similar service from the Google Marketplace, to archive email and allow retention settings, e-discovery, and audit reports.

Student Data Assessment and Accountability

Data management is essential to all aspects of school operations. All of the district's critical student data is managed by one employee, the data services and attendance position. The employee in this position has all the technical skills and experience required. The position is classified, reporting to the special programs staff and to the chief personnel officer. The district has serious exposure due to the lack of cross training for responsibilities performed by this position.

The district has not developed a cross training program for the collection, tracking and monitoring of student data for the California Longitudinal Pupil Achievement Data System (CALPADS). This system and the data entered by the district is the foundation of California's K-12 education data management that allows for tracking a student's academic performance over time. Additionally, the change to the Local Control Funding Formula (LCFF) and Common Core standards make the management of district data a critical job function because it drives revenue.

In reviewing this position, the team found no evidence of adequate supervision or cross-departmental communication. In most districts, this position works actively with the business office, school site administration and certificated staff to gather data and to provide critical reporting on the progress of students. Staff at school sites stated that absent student data, there is no practical way for the district to develop formative assessment processes. The data services position is physically located in the IT department, but the IT department is not engaged in providing data support and does not provide the data necessary to make effective program changes for students or teachers. This is a concern for many school site personnel. With the new requirement of SBAC testing, many staff expressed concerns about having the resources necessary for its implementation. Plans to address the curriculum and technology requirements for Common Core are not yet evident.

The study team found no evidence that the district offers professional development regarding how data can be used to make substantive changes in programs or teaching methods. Teachers, unfamiliar with how formative assessment data can assist in instructional delivery, struggle to improve teaching practices. The Common Core implementation will challenge the district as it attempts to meet benchmarks without critical assessment information. The lack of staff development on classroom technology exacerbates these problems.

Recommendations

The district should:

1. Identify district office or school site personnel to immediately begin cross training for CALPADS. Clearly document all processes for CALPADS reporting, with review and adjustment, if necessary. Have senior administrative staff review and approve all processes and data.

2. Consider reviewing and revising the job description associated with the data services position.

3. Create a clear and active connection between the data services position and the Educational Services department that includes collaboration to develop formative assessment processes, pulling data from all relevant data sources that provide teachers and administration with the information they need to improve instruction.

4. Develop assessment strategies and support structures that will address the needs of Common Core and SBAC testing. Consider a classroom centered data model where teachers, site administrators and educational support services staff identify the data necessary to inform instruction.

SBAC Testing

As part of the Common Core State Standards implementation, California has joined the Smarter Balanced Assessment Consortium (SBAC) and is piloting online computer adaptive assessments for all students in 3rd-8th grade and 11th grade in English language arts and mathematics. SBAC testing requirements are a significant technology challenge for districts. SBAC released its Technology Readiness Tool and a Technology Readiness Calculator to help districts calculate the number of computers and system requirements needed to successfully administer the tests in a given testing window.

The IT department has not engaged with the curriculum department in meaningful conversations around requirements and planning for SBAC online assessments. The district's assistant superintendent of educational services position has been vacant for several years and the district lacks an integrated planned approach. Effective leadership in the role of assistant superintendent of educational services is essential as the district faces the adoption of Common Core standards and SBAC. Principals are very aware of the challenges ahead, but are working in isolation and expressed serious concerns over the ability of the technology staff to support implementation.

The IT department has utilized the SBAC Technology Readiness Tool (http://www.cde.ca.gov/ta/tg/sa/sbac-itr-index.asp), which provides the district with needed insight into the readiness of each school to administer the online assessments.

The district has no hardware or software standards in its schools to support easy installation of software applications, so deployment of the secure test browser will be a challenge. While the district's Internet connection appears to meet standards, the structure and management of the district's internal network may not support the numbers of students being tested simultaneously, depending on test schedules and number of students testing per site. The district should use the tools provided by the SBAC to assess its readiness for online testing. Additionally, the technology staff has little to no experience in running districtwide assessments. In some districts, local assessments to track the progress in English and math have been administered to students on computers districtwide for a number of years. Without this experience, it will be necessary for the technology and educational services teams to work together for detailed planning, simulations and problem solving.

In a Technology Strategy Framework document released in February 2013, SBAC states, "... all districts interviewed operated with an 8:1 to 11:1 student-to-computer ratio and were able to manage processing all students in a three-to-four-week assessment window." This student to computer ratio should be considered a minimum goal to support administering SBAC online assessments in the future. The following are recommended minimum requirements for SBAC assessments:

- Plan to migrate from Windows XP to a newer operating system within two years of Microsoft's support end date of April 2014.
- Upgrade computers to at least 1 GB of internal memory.

- Ensure that devices have a visual display of no less than 9.5-inch screen dimension supporting at least 1024x768 resolution.
- Be prepared to operate student testing on secure browsers.
- Estimates show that once the assessment is running, it draws approximately 5-10 Kbps per student. Ensure that the district has adequate network performance and bandwidth to support these needs.

The link for CDE resources for SBAC implementation is provided below: http://www.cde.ca.gov/ta/tg/sa/smarterbalanced.asp

In addition to preparing for SBAC assessments, the district needs to integrate technology into instruction in support of Common Core. The district does not have staff dedicated to regularly assisting teachers with integrating technology into their instructional practice. Many districts have realized the necessity of this function and have professional development coordinators and technology integration specialist teachers on special assignment to support their Common Core implementation strategies.

Recommendations

The district should:

1. Appoint the superintendent or his designee temporarily until the assistant superintendent of educational services position is filled to lead efforts toward adopting Common Core and SBAC and the effective use of technology as a tool in these education initiatives.
2. Create an interdepartmental team of technology, educational services, school site, data services and senior administration to develop a districtwide testing implementation plan and track progress of the plan. Place highest priority on ensuring that the IT and curriculum and instruction departments engage in discussions regarding SBAC readiness and technology to support learning and assessment for Common Core.
3. Assess bandwidth and computer readiness for each school site by completing the SBAC Technology Readiness Tool and review all data.
4. Upgrade or replace existing computer systems that will be used for testing administration that do not meet the SBAC guidelines with systems that support the recommended minimums.
5. Develop a plan to deploy and update the SBAC secure browser districtwide.
6. Develop a plan, budget and resources to increase student-to-computer ratios to support administering SBAC online assessments in the allotted window.
7. Begin building education technology capacity to assist teachers in integrating technology into Common Core by creating and staffing an education technology support team in the IT department, with a dedicated teacher on special assignment at each school site.

Appendices

Appendix A - Study Agreement

Appendix B - FCMAT Document Review

Appendix C - Sample Job Descriptions

Appendix A

FCMAT
FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
CSIS California School Information Services

FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
STUDY AGREEMENT
June 26, 2013

The Fiscal Crisis and Management Assistance Team (FCMAT), hereinafter referred to as the team, and the Nuview Union 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 assign professionals to study specific aspects of the Nuview Union School District's 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.

In keeping with the provisions of Assembly Bill 1200, the county superintendent will be notified of this agreement between the district and FCMAT and will receive a copy of the final report. The final report will also be published on the FCMAT website.

2. SCOPE OF THE WORK

A. Scope and Objectives of the Study

The scope and objectives of this study are as follows:

Policies and Plans

1. Review the district's board policies, administrative regulations, equipment replacement plans and technology master plans to ensure that technology is effectively integrated into the schools. The evaluation will include the district's plan for using technology to support education reform by acquiring new hardware.

Hardware and Software Standards, Procurement, Replacement, and Tracking

2. Review innovative or emerging technologies and make recommendations to standardize the purchase of technology hardware. Evaluate the district's procurement practices to determine whether performance and reliability are maximized to help increase student learning.

3. Review hardware standards and specifications to minimize the risks associated with the type of technology purchased.

4. Evaluate the district's method of establishing hardware and software standards for computers and the process used to communicate this information throughout the district.

5. Review the district's technology asset inventory process including receiving, tagging, logging, assignment, and disposal. Review the district's board policies and administrative regulations related to mandated inventory and reporting of such assets. Make recommendations for improvements to the process, policies, and regulations to increase efficiencies and the accuracy of the data.

6. Review the district's plans and policies for ongoing replacement of critical systems such as servers, network infrastructure, and desktop computers, and make recommendations for any needed improvements.

Network Infrastructure

7. Evaluate the network infrastructure, focusing on the suitability of the installed equipment for its purpose. Perform an analysis of the infrastructure maintenance and support costs and make recommendations for any needed changes.

Staffing, Organization, Service and Support

8. Evaluate the organizational structure, staffing, workflow, efficiency and duties of the technology department personnel. This component of the study will include a review of technology-related board policies, administrative procedures, and operational practices. The team will evaluate the workflow and distribution of technology-related duties and make any needed recommendations for improved efficiency.

9. Review all technology-related job descriptions, interview staff, and make recommendations for improvements. All recommendations will include the estimated cost or savings of any proposed reductions or increases in position to improve the organizational structure. In addition, the team may interview other staff including, but not limited, to site principals, department directors, and certificated and classified personnel to determine the efficiency and effectiveness of services to school sites or other departments.

10. Analyze staffing and organizational support for the following:
    a) User and desktop support
    b) Network administration
    c) Website development and support
    d) E-mail support for district and site staff
    e) Hardware installation and setup
    f) Support of technology in the classrooms

11. Review the delivery of technology support to district classrooms, focusing on response times, help desk processes, and prioritization. Evaluation will be based on staff interviews and documents the district provides. The team will provide recommendations for improved quality and efficiency.

12. Evaluate the technology department's readiness for online student assessments for the new Common Core State Standards. This will include examination of data bandwidth to school sites, network infrastructure to support testing, and the district's plans regarding testing devices. The team will provide recommendations to improve implementation and support.

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 team's procedures and 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. Exit Report - 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 – Approximately 10 days after the exit meeting, the team will issue an exit letter briefly summarizing significant findings and recommendations to date and memorializing the topics discussed in the exit meeting.
5. Draft Reports - Electronic copies of a preliminary draft report will be delivered to the district's administration for review and comment.

6. Final Report - Electronic copies of the final report will be delivered to the district's administration and to the county superintendent following completion of the review. Printed copies are available from FCMAT upon request.
7. Follow-Up Support – If requested, FCMAT will return to the district at no cost six months after completion of the study to assess the district's progress in implementing the recommendations included in the report. Progress in implementing the recommendations will be documented to the district in a FCMAT management letter.

3. PROJECT PERSONNEL

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

A.	Scott Sexsmith	FCMAT Management Analyst, Project Lead
B.	Andrea Alvarado	FCMAT Management Analyst, Project Lead
C.	To be determined	FCMAT Consultant
D.	To be determined	FCMAT Consultant

Other equally qualified staff or consultants will be substituted in the event one of the above 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 as follows:

A. $500 per day for each team member while on site, conducting fieldwork at other locations, preparing and presenting reports, or participating in meetings. The cost of independent consultants will be billed at the actual daily rate based on the provisions of Education Code section 84041.

B. All out-of-pocket expenses, including travel, meals and lodging.

C. The district will be invoiced at actual costs, with 50% of the estimated cost due following the completion of the on-site review and the remaining amount due upon the district's acceptance of the final report.

Based on the elements noted in section 2 A, the total estimated cost of the study will be $11,500.

D. Any change to the scope will affect the estimate of total cost.

Payments for FCMAT's 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 during on-site reviews.

B. The district will provide the following if requested:

1. A map of the local area.
2. Existing policies, regulations and prior reports that address the study scope.
3. Current or proposed organizational charts.
4. Current and two prior years' audit reports.
5. Any documents requested on a supplemental list. Documents requested on the supplemental list should be provided to FCMAT only in electronic format; if only hard copies are available, they should be scanned by the district and sent to FCMAT in electronic format.
6. Documents should be provided in advance of field work; any delay in the receipt of the requested documents may affect the start date of the project. Upon approval of the signed study agreement, access will be provided to FCMAT's online SharePoint document repository, where the district will upload all requested documents.

C. The district's administration will review a preliminary draft copy of the report resulting from 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 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 different phases of the study:

Orientation:	September, 2013
Staff Interviews:	to be determined
Exit Meeting:	to be determined
Preliminary Report Submitted:	to be determined
Final Report Submitted:	to be determined
Board Presentation:	to be determined, if requested
Follow-Up Support:	if requested

7. CONTACT PERSON

Name: Erin Lillibridge
Telephone: (951) 928-0066
Fax:
E-mail: elillibridge@nuview.k12.ca.us

8/20/13
David Pyle, Superintendent — Date
Nuview Union School District

June 26, 2013
Anthony L. Bridges, CFE — Date
Deputy Executive Officer
Fiscal Crisis and Management Assistance Team

Appendix B

FCMAT Document Review

1011 Salary Schedules ALL

2013 network diagram

AR3440_Inventories

Bond Measure

BP 6163.4a, Student Use of Technology – PDF

BPAR3400_Management of District Assets-Accounts

BPAR4040_Employee Use of Technology

BPAR4231_Staff Development

Computer Technician I

Copy of Technology-Budget Info

Enrollment

Equipment

e-rate consultant

e-rate overview

Network outage 22 Aug 13

Inst Aide – Computer-Based instruction

Maintenance Agreements

Nuview tech plan

Official CSEA 2010-2013 Final

Org Chart Draft

Position Job Duties – Nuview – Debra Norton

Position Job Duties – Nuview – Matt Hall

Schedule

Support Processes

Tech Calendar

Technology purchase orders for Nuview

Technology Questionnaire-Nuview

Unaudited_Actuals_-_Sept_12

Appendix C

Job Description

The Simi Valley Unified School District does not guarantee that any listed is the latest or most recent version, that every job description used by the district is represented hereon, or that every listed job description is actively used by the district.

Job Class Title Director of Information Technology

Job Detail

PERSONNEL COMMISSION March 2002, February 1998, October 1996, September 1993

DIRECTOR OF INFORMATION TECHNOLOGY

DEFINITION

Coordinates, supervises and directs data processing operations and activities, including instructional and business applications, office automation telecommunication services, network installation and operations, personnel computer repair and installation, audio visual repair and installation and hardware and software selection and development.

EXAMPLES OF DUTIES

Supervises the development of application programs for use by instructional and administrative personnel; determines appropriateness of new applications for automation.

Coordinates, directs and participates in the development, implementation and application of information technology policies and objectives.

Devises forms and procedures for systems and technology and instructs in their use.

Determines operating work schedule for regular work loads and assignments; reviews, evaluates and improves existing operating procedures to utilize machine and personnel time more effectively.

Acts as an official representative of the District and offers consultation, analysis, development and implementation of information technology in accordance with Administrative Regulations.

Responsible for scheduling and processing special reports, surveys and statistical studies as required by the District, County, State, Federal and other approved agencies.

Responsible for the selection of Information Technology personnel.

Acts as coordinator between District personnel and the Information Technology department.

Responsible for evaluation and procurement of computer, network, communications and audio visual hardware, software and services.

Co-chair the District Technology committee.

Determines standards for computer, network, communications and audio visual equipment, programs and services.

Performs related duties as assigned

DISTINGUISHING CHARACTERISTICS

A Director of Information Technology coordinates, supervises and directs department operations and activities including instructional and business applications, network, communications, audio visual, office automation and hardware and software selection.

An Assistant Superintendent, Business Services, is the administrative head of the division which is assigned the day-to-day business and fiscal services functions of the District and serves as principal advisor to the Superintendent in long-range planning and policy development on District-wide matters related to business operations.

SUPERVISION

General supervision is received from the Assistant Superintendent, Business Services.

General supervision is exercised over Information Technology personnel.

REQUIRED QUALIFICATIONS

Knowledge of:

Types, operations, capacities and capabilities of standard information processing, teleprocessing and networks;

Time-sharing computer systems;

Research, statistical and accounting techniques, methods and procedures;

Efficient management techniques and practices and management information systems;

Network design, installation and operations;

Personnel computer hardware and software required for District use;

Modern office procedures and practices.

Ability to:

Provide leadership in advancing District's technological capabilities;

Analyze, develop and implement information technology systems;

Devise and update procedures for technology systems and instruct in their uses;

Work effectively with school personnel and the public.

Experience:

Five years of progressively responsible experience in the operation and programming of medium to large scale computer information systems, network design, operations and telecommunications systems, including three years of supervisory and management experience.

Education:

A Bachelors Degree from an accredited college or university, with a major in computer sciences or equivalent experience on a year-to-year basis in addition to the experience required above.

NATOMAS UNIFIED SCHOOL DISTRICT POSITION DESCRIPTION

Position: Director of Information Technology	FLSA: Exempt
Department: Technology	Salary Grade: Classified Management - Range C
Reports to: Chief Business Official or Designee	

OVERALL OBJECTIVE AND SUMMARY

Class specifications are intended to present a descriptive list of the range of duties performed by employees in the class. Specifications are not intended to reflect all duties performed within the job.

Under the direction of the chief business official or designee, plans, recommends, organizes, and directs district-wide educational and information systems, data/telecommunication networks, and supporting service functions. Manages specific strategic projects for the district. Has general oversight responsibility for district technology and networks, coordinating closely with the Education Services Department and site administrators. Oversees operation of the Education and Information Technology Department and Support Services Department to meet administrative and instructional needs; oversees budgets; coordinates contract services; and performs other related tasks and responsibilities as necessary.

ESSENTIAL DUTIES AND RESPONSIBILITIES:

Essential responsibilities and duties may include, but are not limited to, the following:

- Leads an effort to enhance and improve data management systems, including relational database, data warehouse, and data reporting technologies.
- Uses all available data and research tools, performs research, appropriate analyses, and program evaluations focused on improving all district functions and especially student achievement.
- Creates regular reports updating and improving all management information necessary to support decision making including initiating new programs, and maintaining, modifying or eliminating existing programs.
- Develops new network expansions; researches plan, reviews, recommends, and implements expansions for all Local and Wide Area Networks including inter/intra-campus communications systems for data, video, and voice communications.
- Investigates and coordinates system enhancements.
- Plans, organizes and directs the District's technology including the network and cabling, computers and servers, software and work stations for administrative, business and instructional purposes.
- Develops and maintains the District capital replacement plan related to technology.
- Ensures the continuous function and optimization of the student information system.
- Coordinates and monitors computer system support services provided by outside vendors.
- Coordinates the acceptance and hook-up of all donated computer.
- Evaluates, recommends and coordinates the purchase and implementation of necessary computer hardware and/or software.

- Oversees and evaluates work assignments and performance of the Technology Services Department personnel including but not limited to System Engineer(s), Database & Student Information personnel, Information Technology Specialist(s), and clerical personnel.
- Develops and maintains the District's Five Year Technology Plan. Maintains all computers, peripherals and software to the standards adopted by the Five Year Technology Plan.
- Provides leadership and strategic direction in technology planning, wide area and local network planning, acquisition of equipment and software, and computer system operations.
- Exercises responsibility for leading change and improvements for information systems, including database management, student information, assessment, data warehousing, reporting, human resources, business, and financial applications to improve the productivity, administration, operations, data management, and instructional delivery.
- Prepares and implements goals and objectives for technology that will serve the broad based needs of district operations, employees, students, school sites, and the public.
- Supervises technology and network planning and specifications for computer related technology uses in new and temporary buildings.
- Supervises development of standards for district networking, computer hardware, and software and maintains documentation of current standards.
- Acts as Chairperson and Facilitator of the District Technology Committee.
- Establishes and maintains system support service levels for the following systems: wide area network, site local area network, equipment availability and refresh, and helpdesk support.
- Monitors data security to ensure the integrity and reliability of computerized information systems and protects student and staff data in conformance with state and federal laws and district policy. Supervises periodic reviews of security related issues and needs and documents findings.
- Directs the continuous improvement of the information system staff, equipment, and procedures to address district needs and technological opportunities. Brings best practices for IT project management, customer support, and usage of specific technologies into practice within the district.
- Oversees annual information system budgets and establishes budgetary controls. Reviews district wide technology spending patterns and maintains understanding of how technology spending relates to the district technology plans and strategies. Evaluates use of contractors and service contracts for technology purposes.
- Trains and evaluates performance of assigned staff. Provides for continual staff training programs. Works with Educational Services to provide continual staff development to aid in the integration of technology into the curriculum.
- Provides professional and technical advice and training to administrative, instructional, and technology services staff.
- Recommends policy and management decisions relating to computers, work stations, curriculum integration, software, security, and related technology.
- Performs related duties and responsibilities as required.

Natomas Unified School District 3 Director of Information Technology

- Perform related duties and responsibilities as required to fulfill the mission and objectives of this position and the department.

QUALIFICATIONS:

Knowledge of:

- Principles, practices, techniques and terminology of project management as applied to computer systems projects.
- Budget preparation and administration.
- Computer operations/data management and computer-based systems with accompanying applications and peripheral equipment.
- Computer based software programs that support this level of work, including but not limited to, word processing, spreadsheet, presentation graphics, and data entry onto custom data bases.
- Departmental procedures and standing instructions related to work performed.
- District operations, relevant policies, goals and objectives.
- Interpersonal skills using tact, patience, and courtesy.
- Management skills to analyze programs, policies, and operational needs.
- Methods and techniques applicable to long-range and strategic technology planning.
- Network Architectures, theory and principles of local and wide area enterprise network design and integration, including topologies and protocols; principles and practice of network administration.
- Oral and written communication skills.
- Office practices, procedures, etiquette and equipment use, including record keeping, filing systems, letter and report writing and telephone.
- Pertinent Federal, State, and local laws, codes and regulations.
- Principles, practices and techniques of information systems management, including both network and applications design, hardware and software options for business and school administration applications and systems alternatives.
- Principles and practices of database design and administration.
- Systems analysis methods and techniques.
- Principles and methods of systems analysis and computer programming.
- Principles and methods of information processing, storage retrieval, and networking.
- Principles and practices of public administration, including budgeting, purchasing, and maintenance of public records.
- Research methods and statistical analysis techniques.

- of budgeting, accounting and financial record keeping, preferable as they apply to California school districts.
- Principles and procedures of accounting, preferably including California school district budgeting and accounting.
- Principles and practices of budget preparation and administration.
- Principles and practices of program development and administration.
- Principles of supervision, training and performance evaluation.
- Procedures, methods and techniques of personnel interaction, discipline & instruction.
- Proper English usage: grammar, spelling, punctuation, proofreading/editing; basic mathematical skills.
- Research, data collection and financial analysis, and preparation of reports and financial documentation.
- Record keeping, office organization and clerical skills.
- Report writing and record keeping.

- Supervisory guidelines, strategies and staff management skills.
- Terminology, policies, principals and procedures of the area to which assigned.

Ability to:
- Plan, organize, integrate and manage systems development, administration and computer operations programs and service.
- Manage, direct, train, coordinate and evaluate the work of lower level staff.
- Initiate, conceptualize, formulate, analyze and prepare new programs and systems.
- Direct the development and installation of effective techniques for improving data processing systems.
- Evaluate and coordinate the collaboration and implementation of technology integration into student instructional programs.
- Oversee and direct the operations, services and activities of the Technology Department.
- Prepare and administer large and complex budgets.
- Analyze problems, identify alternative solutions, project consequences of proposed actions and implement recommendation in support of goals.
- Identify information management issues and opportunities, analyze problems and alternatives, and develop sound conclusions and recommendations.
- Collaborate with educators in developing and implementing data gathering and analysis methods and procedures for enhancing student test performance and meeting district goals.
- Evaluate departmental programs and make recommendations for improvement.
- Understand, interpret, explain and apply District, state and federal policy, law, regulation and court decisions applicable to areas of responsibility.
- Evaluate complex technology and strategies and make sound, prudent recommendations that maximize return on investment.
- Conscientiously preserve the confidentiality of all proprietary and confidential data and information residing in the district, in accordance with District policy, and state and federal law.
- Establish and maintain effective working relationships with individuals contacted in the performance of required duties.
- Meet schedules and timelines.
- Plan and organize work.
- Communicate effectively both orally and in writing.
- Travel locally as required.

ENVIRONMENTAL CONDITIONS:

Work may be performed in both an internal and external environment with occasional exposure to inclement weather and varying temperatures.

PHYSICAL ABILITIES

This position requires:
- Sufficient hand-eye coordination to use a keyboard for routine typing, 10-key, and data entry, plus arm/hand movements to retrieve work materials and operate a variety of general office equipment.
- Visual acuity to recognize alphanumeric data.
- Some walking, standing, stooping, occasional carrying and lifting of materials.
- Speaking and hearing ability sufficient to hear over a phone and carry on conversations.

Natomas Unified School District 5 Director of Information Technology

- Use hands to operate a computer keyboard, handle, or feel objects, tools, or controls.
- Possess speaking and hearing ability sufficient to hear over a phone and carry on conversations.
- Sufficient hand/eye coordination and manual dexterity to keyboard at an appropriate rate.
- Sufficient visual acuity to recognize words, letters, and numbers and sufficient speaking and auditory ability to carry on conversations in person and over the phone.
- Ability to sit or stand for extended periods of time, and walk and band.
- Ability to reach with hands and arms, lift, carry, push and/or pull, stoop, kneel, crouch or crawl.
- Able to lift and or move up to 50 pounds.
- Possess specific vision abilities required by the job include close vision, distance vision, color vision, peripheral vision, depth perception, and the ability to adjust focus.

EDUCATION AND EXPERIENCE

Graduation from a four-year accredited college or university with a degree in computer science, business or public administration or equivalent is desired. Minimum five (5) years increasingly responsible management information systems experience, including responsibility for developing procedures and applications, major system upgrades and new software implementations, budgeting, performing systems analysis, and supervising operations and personnel. Experience should demonstrate innovative leadership and vision.

LICENSES AND CERTIFICATES

- Valid California Driver's License
- Technology Industry Certifications Desirable

Job Description

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Job Class Title Network Technical Specialist II

Job Detail

Simi Valley Unified School District

Classification: NETWORK TECHNICAL SPECIALIST II
Revisions:
Department/Site: Information Services or Adult Education
FLSA: Non-Exempt
Approved by: Personnel Commission, October 2007
Salary Range: 120 (Classified)

Summary

Installs, configures and administers servers for an assigned network function enabling a network service and function governing data communications and formulation among personal computers. Will oversee and troubleshoot server performance, backup schedules and hardware and software compatibility issues. Participates in advanced technical support and help functions that related to assigned network, and provides technical support to other technology staff.

Distinguishing Career Features

The Network Technical Specialist II is the second level in a broad-based career ladder encompassing network administration and data communications. Advancement along this ladder can occur through mastery of server and network administration. The Network Technical Specialist I is capable of basic network operations, account setup and security, conducting training in specialized software, and providing setup, connection, and configuration of workstations to an existing server. At level II, the job would require the ability to independently maintain a dedicated server, know routers, switches and TCP/IP addressing; this includes the ability to install servers. Certified Network Administrator (CNA) or Microsoft Certified Systems Engineers (MCSE) certification, or equivalent knowledge, is required. The Network Analyst requires the ability to develop applications in the software occupying servers on several platforms, the knowledge of and ability to configure servers, and the ability to perform network programming. The Network Analyst requires the equivalent knowledge to one of the following certificates: Certified Network Administrator, Microsoft Certified Professional, or Cisco Certified Network Associate.

Essential Duties and Responsibilities

• Installs, configures, tests, and implements servers supporting a district network functioning. Monitors system and database(s) performance, analyzing performance statistics, and modifying systems and/or database operating parameters.

• Formulates and implements system (including database) tuning strategies. Monitors disk space availability. Examines files on disks having insufficient space. Removes obsolete or other nonessential files, as necessary;

• Collects system workload and/or disk utilization statistics and projects future systems usage. Recommends system hardware and software purchases to meet growth, security, and customer needs.

• Sets up new servers to enhance capacity of network function for communication on the network.

• Configures, installs, and maintains directory structure, security, and applications software. May survey users to determine the common applications and variety of software as well as software needs.

• Develops and maintains up-to-date documentation for network infrastructure, servers, and procedures. Conveys information to co-workers as appropriate regarding network and server interface protocols.

• Participates in developing strategies for network server data backup, including recovery and disaster recovery plans.

• Schedules system downtime with end users and technical staff members to facilitate hardware and software upgrades, changeovers, and backups.

• Coordinates with other networking staff regarding installation of computers, printers, modems, cabling, peripheral communications equipment, servers, routers, and hubs.

• Develop and maintain network interface of host computers (servers) with LAN/WAN.

• For assigned servers, such as email, web and library resources, implements protocols for systems and accounts if applicable. Installs software and configures systems to support services. Troubleshoots user access problems. Analyzes user needs for future software purchase or upgrades.

• Monitors memory usage of the network, network printing, and network technical resources. Maximizes performance and recommends upgrades as appropriate.

• Researches, determines, defines, and recommends network changes to ensure continuous operations, desired performance and service.

• Participates in troubleshooting to resolve network hardware and operations problems, including but not limited to connectivity, internet access, electronic mail and file servers. Works with fellow staff, equipment users, vendors, and independent contractors to identify and resolve problems.

• Ensures proper installation and configures the full range of network, telephony, and midrange devices.

• May participate with applications developers, vendors and programmers to design custom programs and access.

• May analyze, modify, test, and debug existing database structures, systems and programs. Analyzes problems and makes modifications to systems and individual programs as required.

• Recommends modifications or enhancements to existing database structures and programs to meet user needs or system design changes. Assists in developing and modifying internal data processing standards and procedures.

• Participates with various staff to determine computer database needs and requirements. Assists with user implementation of database and data processing systems.

• Provides services outside regularly scheduled working hours.

• Develops and maintains up-to-date documentation supporting assigned and related areas of responsibility.

• Performs other duties as assigned that support the overall objective of the position.

Qualifications

• Knowledge and Skills
The position requires: Specialized knowledge of personal computer based local area networks; network operations over a district server platform and network; principles and practices of data processing and system administration; and database structures and design. In-depth knowledge of Microsoft operating systems. Knowledge of the physical elements of the network including: fiber optic, twisted pair, and coaxial Ethernet cabling and connections; and routing, switching, and repeating equipment. A thorough understanding of district protocols. Well-developed communication

skills to convey highly technical concepts with a wide range of internal contacts and deal effectively with external contractors. Skill at conducting training and facilitating small group processes. Sufficient math skills to set up numeric sequences. Sufficient writing skills to document user transactions and to outline steps for solving problems.

• Abilities
Requires the ability to: Plan, organize, and implement a network and perform the full range of complex and technical duties described above including server administration. Analyze and evaluate the needs of users and develop the most effective program or solution to meet those needs. Install, configure, integrate, maintain and troubleshoot equipment, systems and programs used by the district. Prioritize and delegate work. Read, interpret and apply complex technical information.

• Physical Abilities
Requires: ambulatory ability to move to various office and classroom-type locations and to bend, stoop, crawl and reach to install cables and equipment; sufficient hand eye coordination and dexterity to make small component connections; sufficient visual acuity to read technical documents and instructions and align small components;
sufficient auditory ability to carry on routine conversations; ability to lift, push, and pull objects of medium weight; and the ability to work in confined areas with noise variations, dust, and limited ventilation.

• Education and Experience
Requires an Associates degree in computer science or related technical field and two years experience in network operations, network administration, database design and administration, and personal computer support. Requires specific experience in the design, implementation, and on-going support of integrated local area networks, and server administration. Additional related experience may substitute for some higher education based on two years of experience for one year of college.

• Licenses and Certificates
Requires Certified Network Administrator (CNA) or Microsoft Certified Systems Engineers (MCSE) certification with emphasis in Microsoft server administration, or equivalent knowledge. Requires a valid California driver's license.

• Working Conditions
Work is performed indoors where some safety considerations exist from physical labor, positioning in cramped areas, and handling of medium weight, yet, awkward materials.

Job Description

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Job Class Title Technical Support Specialist I

Job Detail

Position: TECHNICAL SUPPORT SPECIALIST I
Revisions:
Department/Site: Information Services
FLSA: Non-Exempt
Approved by: Personnel Commission, October 2004
Salary Range: 95 (Classified)

Summary

Installs, configures, troubleshoots, and services networked microcomputer workstations, video and multimedia, and related equipment and software used in administrative and instructional environments. Participates in installations and configurations, and assists with maintenance of server hardware and software for local networks. Provides technical support and help functions that relate to computer hardware and software, data communications, and connectivity.

Distinguishing Career Features

The Technical Support Specialist I is the first level in a job family encompassing computer workstation and network support. The Technical Support Specialist I supports networked and standalone workstations and common administrative and instructional software. Advancement potential exists to the Technical Support Specialist II. The Technical Support Specialist II requires expanded capability to perform basic network operations, account setup, application of existing computer security and user access rules, conducting training, and server hardware diagnostics.

Essential Duties and Responsibilities

. Provides technical assistance to users on computers and software programs including remote access and on the proper use of peripheral equipment use to enhance presentations and viewing.
. Troubleshoots and performs various technical computer and peripheral repair duties that include but are not limited to identification, testing, diagnosis, and replacement of components.
. Builds personal computers. Receives specifications, locates components, and assembles central processing units.
. Assists in installation and configuration of networked computer users, e.g., computers, printers, modems, peripheral communications equipment, and software.
. Assists in installing and configuring upgrades to existing networks that enhance continuous operations, desired performance, and service.
. Assists in troubleshooting to resolve network hardware and operations problems, including but not limited to connectivity, internet access, electronic mail and file servers.
. Updates existing security software on networks and workstations. Tests existing operating systems and personal computers for potential viruses and security problems.
. Implements protocols and procedural controls for operation of the network systems.
. Installs and configures workstations to laboratory networks. May install instructional laboratory or library networks. Connects workstations to servers and participates with others to connect with wide-area networks.
. Installs, configures software for workstations. Tests software to ensure compatibility with the current operating environment and to equipment capability. Configures software to communicate with peripherals such as printers, modems, scanners, and screens.
. Receives and resolves user ‘help desk’ calls. Documents calls, forwarding work order requests to the appropriate

technology staff.
. Provides basic troubleshooting of user problems with common desktop software, accessing databases, network and networked equipment, and e-mail.
. Monitors status of e-mail and other messaging systems, file servers, and network equipment to ensure constant availability. Takes corrective actions and notifies other staff of unresolved problems.
. May assist in monitoring local and wide area network usage and performance. Confers with networking specialists regarding problems.
. Assists and advises customers of the appropriate equipment to facilitate their needs. Schedules audio-visual equipment for use in classrooms, meetings, and events. Assures that audio-visual and sound system equipment functions properly.
. May set up and picks up media equipment at a variety of locations. Transports equipment and sets-up and operates public address systems and multimedia presentations.
. Instructs staff in the use of multimedia presentation systems, television production router, studio equipment, and computer controls for meeting rooms and labs.
. Performs other duties as assigned that support the overall objective of the position.

Qualifications

. Knowledge and Skills
The position requires: Working technical knowledge of personal computer operations, including the relationship and usage of various input and output components, business and education support software, and terminology. Working knowledge of computer, video, and multimedia equipment diagnostics and repair. Basic knowledge of operating systems. Must understand the protocols and procedures for setting up new equipment, troubleshooting and performing routine maintenance. Basic understanding of local area networks for personal computers. Basic understanding of protocols such as TCP/IP, Serial, Ethernet, and Access Lists. Communication skills to provide individual instruction and technical assistance on the use of PC-based software for business, education, internet, utility, and connectivity. Writing skill to document technical procedures.

. Abilities
Requires the ability to: Install, configure, and troubleshoot networked computer workstations, systems, and programs used in both instruction and administrative areas. Set up, configure, and tune video and multimedia equipment used for classroom, public meetings, and conferencing. Install and configure microcomputer components such as, but not limited to, cards and drives. Connect interface cables and connections between computers. Prioritize and organize work to meet deadlines and timetables. Read, interpret and apply technical information including equipment blueprints and schematics. Give one-on-one training in the use of microcomputers and business and instructional software.

. Physical Abilities
Requires: ambulatory ability to move to various office and classroom-type locations and to bend, stoop, crawl and reach to install cables and equipment; hand eye coordination and dexterity to make small component connections; visual acuity to read technical documents and instructions and align small components; auditory ability to carry on routine conversations; ability to lift, push, and pull objects of medium weight (less than 75 lbs.) on an occasional basis; ability to work in confined areas with noise variations, dust, and limited ventilation; ability to complete District-sponsored training in occupational safety and health and hazardous materials awareness within a reasonable amount of time.

. Education and Experience
Requires college-level coursework in computer electronics or related technical field and two years of experience in the setup of networked microcomputer workstations and computer technical support. Additional higher education may substitute for some experience.

. Licenses and Certificates
Requires a valid California driver's license.

. Working Conditions
Work is performed indoors where some safety considerations exist from physical labor, positioning in cramped areas, and handling of medium weight and materials.