

Central Station

Making the business case for a centralized network. *By Brad Sandt*

In many school districts, supporting specific educational objectives is the primary focus of the IT department. Yet, IT often sits idle waiting to react to the latest educational directive. Once a new initiative gets approved, the department scrambles to figure out how the program can be supported, if at all.

The problem with this approach is that it ultimately transforms the IT department into a bottleneck when it comes to introducing new initiatives. The true focus of IT should be to position itself to responsively support any new technological endeavor.

This raises two critical questions: What's the best way to handle this monumental task? Also, how can it be done affordably?

DEPARTMENTAL ANALYSIS

The process and decisions required to position an IT department to support education differ in every organization. However, one step common to all districts should be a detailed analysis of the strengths and, more importantly, the weaknesses of the department. When doing your analysis, there are three areas to focus on: technological capacity, staffing requirements and financial effectiveness.

1. Technological Capacity

Discerning the type of current and future applications that your network needs to support is one of the main goals of conducting a technology capacity analysis. While no one has a crystal ball, some obvious future applications could include Voice over Internet Protocol (VoIP), video on demand and video conferencing. Your technology capacity analysis should at



Rob Taggart of Blue Valley Schools says it's essential to take stock of existing servers and applications.

least answer the following questions:

■ What are future bandwidth requirements, both local and between facilities? Does the current bandwidth capacity limit IT's ability to implement new projects?

■ What are the network availability requirements?

■ Does the district need redundant network connectivity, battery backups, dry fire suppression for data integrity and environmental control systems (humidity and air conditioning) so that servers in custodial closets stop burning up?

■ The most important piece of the technological capacity analysis is to determine what applications are going to be run on the network over the next five years. Looking at future market trends and district growth rates will aid in forecasting application needs.

Taking stock of existing servers and

applications is critical, says Rob Taggart, manager of network services for Blue Valley Schools in Overland Park, Kan. His district recently completed the first phase of a multiyear project to centralize the district's network resources.

"You must evaluate each individual server, its role and its utilization," Taggart advises. "Not every application or server is a good candidate for a centralization project, so planning is critical."

2. Staffing Requirements

Perhaps more significant than technological capacity — and often overlooked — is an analysis of the use of the technology staff. Why is staff capacity so significant?

Software scheduling techniques allow computers to perform network activity at off-peak hours, and bandwidth caching helps to reduce network utilization during

the day. But technology staff members cannot work 24 hours a day, 7 days a week.

As part of your staff analysis, there are a few key questions to answer:

■ Can IT solve issues remotely through a central administration console? Having central administration and troubleshooting will speed resolution times and let technicians multitask.

■ How much time do technicians spend driving around the district? Staff members who are driving to and from support calls to remote servers may be able to stay current with the latest songs on the radio, but they will not be contributing to the support workload.

Geographically centralizing the IT office will help reduce drive times. Calculating the amount of staff downtime spent driving to different sites — if significant — can be a key plank in your business case for centralizing the network.

“Having our network centralized makes administration much easier, and we don’t have to make as many trips [to schools],” notes Taggart, who says travel time alone takes at least one hour for each service call.

■ Finally, what are the district’s remote access capabilities? Remote access allows all employees to work more comfortably at home after hours.

3. Financial Effectiveness

Financial effectiveness can be complicated to determine, but it is a critical piece of the overall department analysis. An effective way of using funds today might become less effective as technology solutions change.

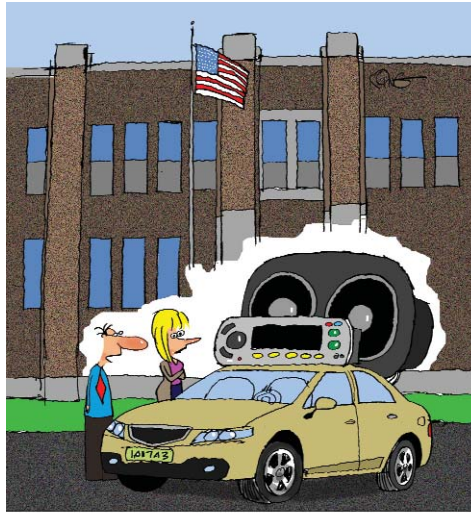
However, there are several questions that can help with your analysis:

■ When answering the questions in the technological capacity section, does the district meet all requirements without a centralized network? If the answer is yes, money can be saved.

■ Secondly, is the district caught in an annual wide area network upgrade path? High-speed connectivity is usually cheaper over multiple years and will provide a

static budget figure for WAN connectivity. (See “Measuring ROI” on page 21.)

■ Finally, imagine all of your district’s servers in one local area network (LAN). How many of them could you eliminate? Removing unnecessary servers can save power, switch ports, time and money.



“Since I waste so much time listening to music while driving to and from support calls to remote servers, I thought I’d invest in a better stereo.”

HELPFUL HINT

Calculating the amount of staff downtime spent driving to different sites — if significant — can be a key plank in your business case for centralizing the network.

JUSTIFICATIONS

Why centralize? The primary objective of centralizing your network is to create technology, staff and financial efficiencies. These efficiencies are related to the ones you used to create your IT department analysis. Your analysis of technological capacity, use of staff and financial effectiveness will help justify a centralized network.

To illustrate, take a look at the Park Hill School District in Kansas City, Mo. This district faced the challenge of increasing technological capacity without more staff or financial resources. Three years ago, Park Hill was maintaining 17 different

LANs across its 15 educational and two administrative facilities. The school district’s WAN connections weren’t capable of supporting additional growth.

An analysis of the existing technology infrastructure made it apparent that minimally required WAN speeds and the support requirements of 17 “islands of technology” were obstructing growth. And the school district’s technology support office was located on the edge of district boundaries, causing technician time to be wasted on the road. The answer was a centralized network requiring less management and providing the capability for fast growth.

Park Hill School District’s situation is not unique. Liberty Public Schools in Liberty, Mo., also faced bandwidth challenges. The schools installed a high-speed fiber ring network during the 2002 school year, and it became operational after the 2002 holiday break in December, according to Trey Katzer, Liberty Public Schools’ director of technology. The goal was to accommodate future applications, including VoIP, which was implemented districtwide in 15 buildings during the summer of 2004.

There are numerous advantages to centralizing your network and staff resources. However, to make the sell to your district’s financial officer and Board of Education, you will need to put a detailed cost and implementation plan together.

Your centralized network plan should include detailed numbers assigned to each of the questions you answered as part of your departmental analysis. For example, for most districts, fire suppression systems should be a requirement to preserve data in the event of a fire. For Park Hill School District, the decentralized network would require 17 fire suppression systems at \$8,000 each (\$136,000 total) or one centralized system at \$13,000. The 17 individual systems were cost-prohibitive.

Possibly the greatest financial gains

MEASURING ROI

Implementing a centralized network consisting of a fiber-optic network and data center is not an inexpensive endeavor, and the costs will vary among districts based on size and geographic layout. In the case of Park Hill School District in Kansas City, Mo., the technology department's ROI analysis showed substantial savings over an extended period of time.

Since a high-speed network is critical to implementing a centralized data center, Park Hill initially prepared a preliminary cost justification for high-speed leased wide area network circuits. By forecasting the rate of required minimum WAN increases over a 10-year period, the district estimates that it will save approximately \$870,600 by migrating to a fiber-optic network.

Park Hill expects to start seeing savings on WAN connections after a two-and-a-half-year period. After incorporating the cost of constructing a data center (\$200,000), the district was able to forecast a savings of approximately \$670,600 over 10 years.

YEAR	EXISTING WAN SOLUTION	FIBER WAN SOLUTION	WAN SAVINGS	SAVINGS WITH DATA CENTER
2004	\$92,316	\$92,316	\$0.00	
2005	\$242,316	\$272,316	(\$30,000)	(\$230,000)
2006	\$444,816	\$527,316	(\$82,500)	(\$282,500)
2007	\$818,953	\$782,316	\$36,637	(\$163,363)
2008	\$1,193,090	\$1,037,316	\$155,774	(\$44,226)
2009	\$1,567,227	\$1,292,316	\$274,911	\$74,911
2010	\$1,941,364	\$1,547,316	\$394,048	\$194,048
2011	\$2,315,501	\$1,802,316	\$513,185	\$313,185
2012	\$2,689,638	\$2,057,316	\$632,322	\$432,322
2013	\$3,063,775	\$2,312,316	\$751,459	\$551,459
2014	\$3,437,912	\$2,567,316	\$870,596	\$670,596

All other things being equal, Park Hill's centralized network would pay for itself by the fifth year of operation. However, in reality, all things have not remained equal. Park Hill's consolidated network design has allowed for a 35 percent reduction in existing servers, generating a saving of \$25,000 annually. Once a new Voice over Internet Protocol system is completely implemented, Park Hill is expected to save up to \$30,000 annually on telecom charges. In addition, the district converted more than 500 desktops to Microsoft Terminal Server clients, reducing annual desktop replacement costs by approximately \$60,000.

The technology department performed all cost justifications before incorporating E-Rate reimbursements and demonstrated that the district could migrate to a new design without an increase in the existing technology budget. By implementing a centralized network, the district has freed technology dollars for new initiatives and has increased the efficiency of technology management.

"With virtualization, we can run several different applications and operating systems on the same machine."

One critically important piece of any centralized network plan involves staff efficiencies. Maintaining computers remotely from a centralized console and managing 50 servers instead of 100 will require less time per incident for staff.

The time saved will allow a district to increase support satisfaction and take on additional growth without increasing staff. Your analysis of the technological, staff and financial efficiencies, along with your plan for a centralized network, should easily justify the implementation.

THE REWARDS

Since its inception, the Park Hill School District's centralized network has allowed the IT department to increase reliability of the network, as well as responsiveness in technology operations. For example, video on demand is being delivered to 17 facilities through the use of one new server. Previously, this initiative would have required a partial upgrade to WAN connectivity and 17 new servers, something that would have made the entire initiative cost-prohibitive.

In addition, the students and staff can now access district applications remotely through the use of a high-speed connection at home or at a public library, thereby allowing the district to maximize its investment in software applications.

Implementing a centralized network is challenging and demanding. It requires a great investment of time in analysis, planning and collaboration with the administrative staff. However, once the centralized network is in place, IT will be positioned to take on new initiatives with relative ease. Technology will no longer be a bottleneck to delivering first-class education. ☒

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will result from network efficiencies. Centralization allows consolidation, and consolidation typically equals savings.

Blue Valley Schools' Taggart uses EMC's VMware to consolidate servers by as much as 8 to 1 in some cases. When the 20,000-student district began its consolidation project, it started with 130 servers at its 17

elementary schools, eight middle schools and four high schools. The district reduced its server farm by nearly 60 percent to 80 servers, and Taggart hopes to whittle that down to 20 servers in the next two years.

"Typically, you purchase a server for one use, but the hardware usually is not utilized to its full potential," he says.