OPTIONS FOR K-12 SCHOOLS & DISTRICTS
WITH AGING DATA CENTERS

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PREFACE

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As K-12 school districts move toward supporting blended learning, multimedia, cloud based applications and online standards testing, their network infrastructures and telecommunications must be able to support and accommodate those moves. Without upgrading and providing quality technology and network services, student learning in a 21st century environment will be limited.

No school district wants their students to be left behind when it comes to technology. But many are questioning where they should move next as their server technology and data centers reach end of life. Should they reinvest in new hardware and software or should they consider moving some or all of their workloads to the cloud?

MANY SCHOOL DISTRICTS ARE QUESTIONING WHERE THEY SHOULD MOVE NEXT AS THEIR SERVER TECHNOLOGY AND DATA CENTERS REACH END OF LIFE.

COMMON CHALLENGES FOR K-12

Many K-12 districts have done a good job of turning to virtualization to corral their data centers, making them more manageable, affordable and flexible. They recognized that their servers weren't operating efficiently – some at less than 15 percent of capacity – and that virtualization would allow them to expand their footprint affordably. But for many, that move to virtualization was made more than six years ago tapping VMware vSphere, and now they are facing end-of- life issues. Many are low on storage and compute. Others may be out of warranty. They have very limited visibility into their virtual infrastructure and compounding their problems, often they have very small IT budgets to work with.

Many school districts have very limited visibility into their virtual infrastructure and, they often have very small IT budgets to work with.

The IT staff, also small, grapples with a number of daily challenges such as keeping applications running or making sure the wireless network is running properly, that planning for the future is often put on indefinite hold. To make matters worse, so is disaster recovery since many schools lack the budget to create redundant systems off-site.

While the server infrastructure ages, districts also are dealing with skyrocketing data loads. Teachers want to use multimedia in the classroom, states are mandating online testing while students and parents are emailing teachers rather than calling them because it's easy, convenient, and efficient. With millions of emails to store, districts find it costly to maintain server and storage space for this purpose.

Rather than upgrading hardware, software and servers to deal with the ever growing storage needs for email, some districts have moved their email and some student information systems to the cloud, tapping Office 365 and Google Mail, and SIS systems from various vendors. Moving these workloads to the cloud has lessened the need for additional compute and storage needs in their primary data centers. Because they have become comfortable running these workloads in the cloud, they are also considering the cloud for other workloads as a measure that could also save the district money and reduce IT burdens.

OPTIONS: REFRESH, HYPERCONVERGED OR CLOUD?

K-12 districts facing end-of-life server infrastructure have a number of options to consider. Those districts looking for long-term solutions that provide flexibility and growth without requiring massive investments typically consider three options:

OPTION 1

Simplifying IT infrastructure by using a hyperconverged solution to save on cost and space

OPTION 2

Upgrading the existing data center.

OPTION 3

Moving some or all applications to the cloud, a move dependent for many on their level of risk when it comes to privacy, control and security concerns.

Before deciding which path to take, it is helpful to get a full picture of what your district's infrastructure looks like now. You need to understand what level of storage remains, what compute power you have available for applications, and what you have to build upon so that you are making the best long-term decisions based upon your current infrastructure. No one wants to rip out an entire system and begin again. It's best to build upon the investment you've already made.

How does a district get this full picture? K-12 school districts in New Jersey, Las Vegas, California and elsewhere have turned to DynTek, a nation-wide technology consulting firm, which provides a free assessment detailing what a district has on site, what's out of date, and what needs to be upgraded. Armed with that information, districts better understand what viable options they have and the best way to proceed.
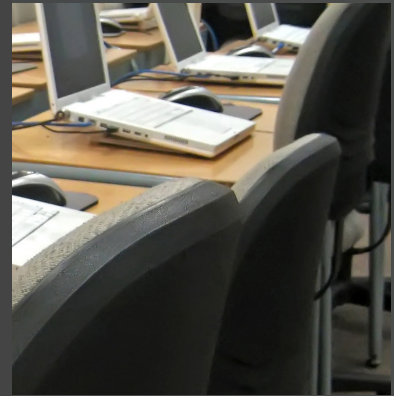
ASSESS: HOW WELL IS YOUR K-12 TECH PERFORMING?

Do you know how well or poorly your technology infrastructure is working? Unfortunately, many districts don't. They simply don't have the manpower to handle diagnostic checkups because they are too busy keeping the wireless working and desktops from crashing.

For those running VMware vSphere, a virtual server health assessment gives them insight into their environment. The assessment can help determine which parts may need upgrades or where they need to update licensing. The assessment includes recommendations on improving and stabilizing the environment, whether that pertains to a physical infrastructure, the software being outdated or the configuration not being correct.

If a district wants a full assessment of the entire data center, partners like DynTek can assess every component. If a district is running a virtual environment that includes storage and a basic health check. Then, depending on the workload that's running on top of a district's hardware and software, the partner can help determine what workloads can be moved to the cloud and which can't. For some districts, it might not be viable to move some workloads to the cloud.

Because of the myriad of existing technologies, data center structures, and frequent IT staff turnover, there often isn't a clear map of what districts' have, making it hard to create a viable path going forward. With limited time and budgets, many K-12 IT managers find it hard to research new technologies and best practices. That's where technology partners can help.

REFRESHING CURRENT TECH INFRASTRUCTURE

For some districts, refreshing their current technology infrastructure is the best course of action. Those with a vSphere foundation should consider upgrading to the latest version with Operations Manager, which provides visibility into what's happening in the environment and helps them make better decisions.

Many K-12 districts have small workloads with 20 virtual machines, and so they typically might have two to three servers, a small storage array and VMware, so an upgrade continues to allow them to operate a low-cost platform.

Operations Manager can also be the launching pad to extend virtualization to storage and network services with automated, policy-based provisioning and management. Those districts that need more data storage may want to consider virtualizing their storage arrays. Or they could take virtualization a step further and consider virtualizing their network layer with NSX, VMware's network virtualization platform. NXS allows schools to centrally manage virtualized or logical networks, and with VMware AirWatch, manage and control access all the way to the endpoint devices students and faculty use to connect to the school's wireless and Internet infrastructure, providing greater security and management.

HYPERCONVERGENCE CONSIDERATIONS

Hyperconverged solutions like VxRail enable schools to upgrade infrastructure using pre-configured, pre-validated compute and storage building blocks. Essentially, these systems are designed to simplify server virtualization but they also match computing, networking and storage hardware, and add a software layer that works with the hardware. Rather than individually purchasing and configuring hardware and software components, which may come from different vendors, IT can buy a plug-and-play single appliance.

VxRail is unique in that it is a joint development project between VMware and EMC Corp., but comes with a single point of support. It is simple, easy to deploy, scale and maintain. And it's affordable.

With hyperconverged solutions, a district has less hardware to buy and manage, which makes IT's job easier while also reducing a data center's electrical and cooling costs significantly.

School districts also gain simplified administration, improved utilization of existing assets, and IT reduces the time it spends supporting the existing infrastructure and learning about new hardware. All of these benefits reduce the IT budget, freeing the district to pursue other technology initiatives.

IMPROVED DISASTER RECOVERY

Let's face it: most school districts don't have the budget to build or maintain a redundant facility for disaster recovery. For some, disaster recovery is well down the priority list and keeping up with student and faculty data growth using traditional backup methods is getting harder and taking longer and longer. Moving this workload to the cloud saves money since a district doesn't have to maintain a redundant facility and it frees up IT's time to spend on improving student learning.

Additionally, cloud-based services come fortified with the latest in computer security, alleviating some of the headaches schools face trying to protect their infrastructure on their own. Having data automatically backed up to the cloud and protected by industry giants gives many districts peace of mind.

ELIMINATE HARDWARE: ADOPT CLOUD SERVICES

Another popular option K-12 districts consider when their data center reaches end of life is moving critical applications and disaster recovery to the cloud with some adopting VMware vCloud Air. Many schools already have moved email to Google Apps or Outlook 365, and have reaped the benefits of not having to bother with Microsoft Exchange, new servers and the email headaches Exchange caused while also saving money with reduced hardware, software and licensing costs.

Many have also adopted student management systems hosted in the cloud and accessed through a browser, and success with these applications has made districts more comfortable with workloads in the cloud. Without these large workloads to handle, some have shrunk their data center needs, saving money. And they realize that even more savings – and headaches – could be had if they move disaster recovery and other applications to the cloud.
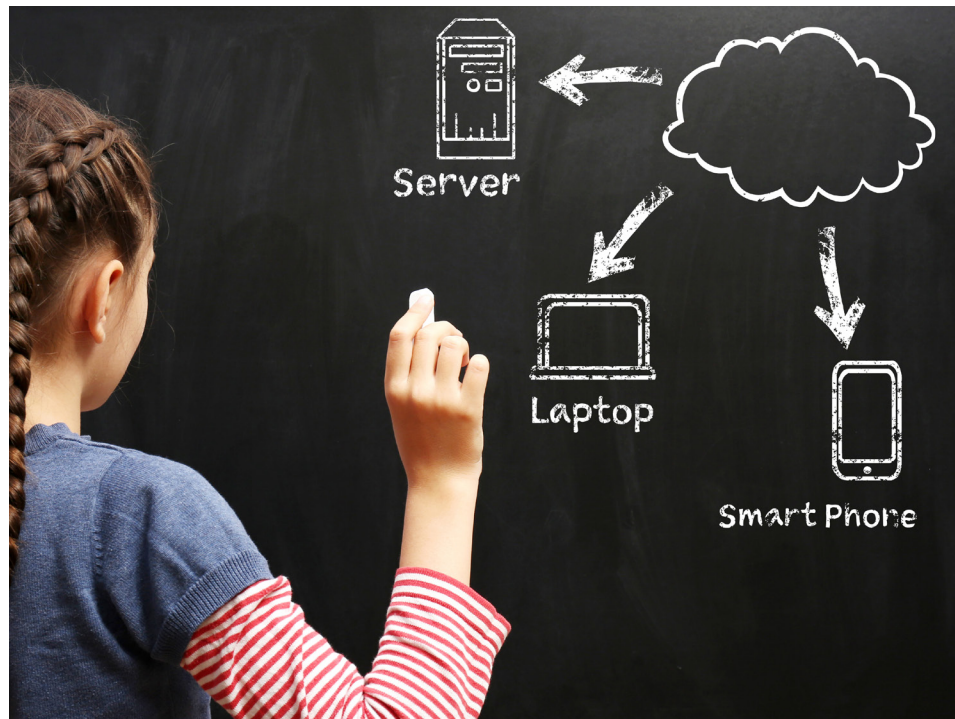
vCloud Air is infrastructure-as-a-service (IaaS) operated by VMware. It lets you extend your data center to the cloud using the VMware tools and processes you already have, allowing you to run a hybrid environment with a common, unified model for management, networking and security. Although in the past, IT had to convert its VMware environment when adopting cloud services from Amazon or Microsoft Azure, VMware has partnered with Amazon, giving corporations and school districts a smooth option to move workloads to the cloud. With vSphere 6.5, schools don't have to deal with migrations or conversions.

CONCLUSION

Faced with limited funding and increased demands from students, the faculty, parents and state governments, K-12 administrators cannot afford to waste time or money looking at multiple solutions to their IT challenges. As their data centers reach end-of-life, they need to understand what is and what isn't working within their current environment and how best to move forward in a way that is cost-effective, supports student learning and takes a long-term approach.

NEED HELP DETERMINING HOW TO MODERNIZE YOUR K-12 DATA CENTER?
CALL DYNTEK FOR A FREE ASSESSMENT TODAY.

ABOUT DYNTEK

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Today's world of high-speed access to information means that young people expect to be connected. If a school is unable to provide the level of technology its students expect, it can hinder the education of the students. Moreover, school districts need ways to protect student information and store and share data. DynTek helps K-12 school districts meet the technology demands of today's evolving classroom and education environment through a variety of storage, security, data management and network infrastructure solutions.

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