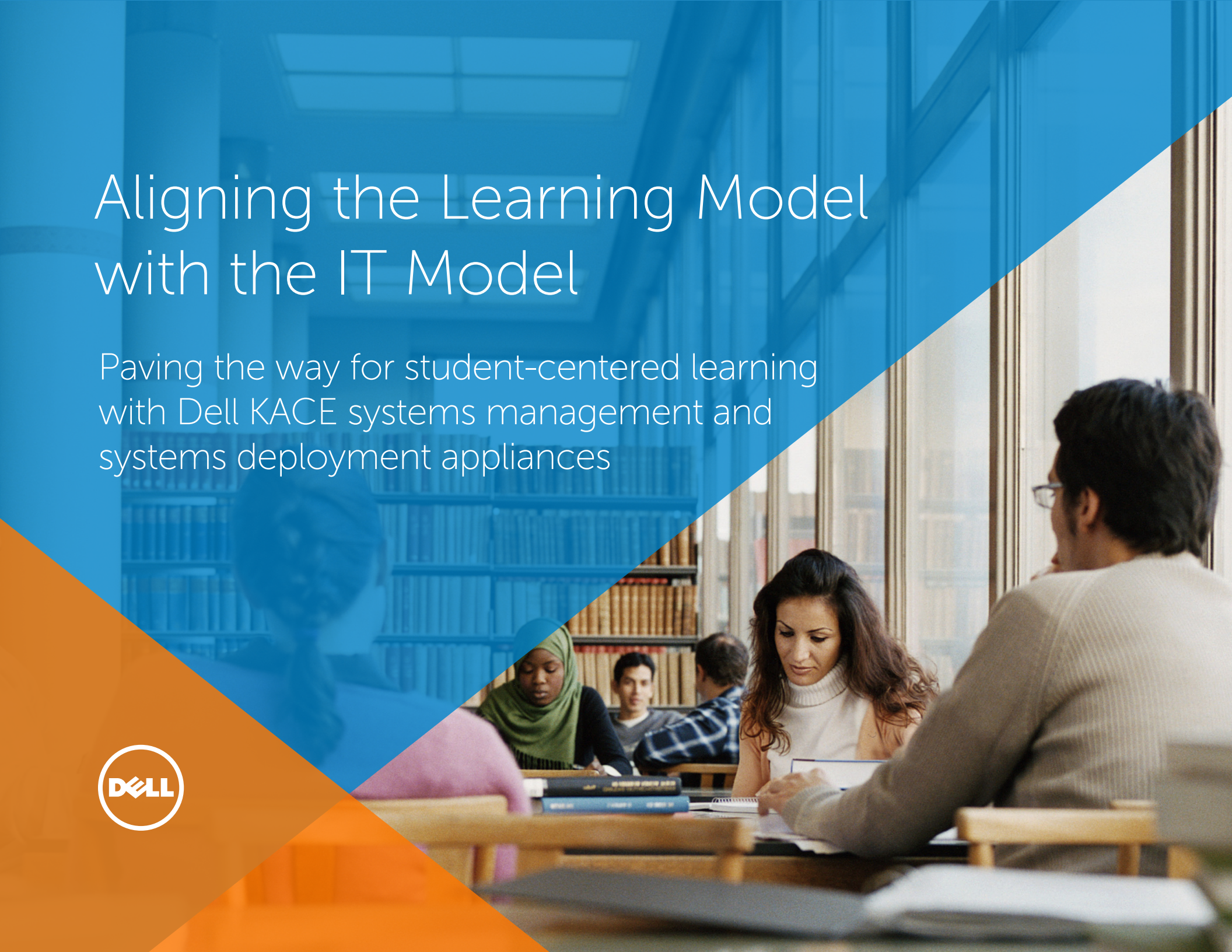
Aligning the Learning Model with the IT Model

Paving the way for student-centered learning with Dell KACE systems management and systems deployment appliances



How many different ways has your school tried to get the most out of the educational process while also getting the most out of technology?

Learning and technology almost always step on each other's toes in an ongoing, uneasy dance. IT knows more about what makes the bits flow quickly and securely, but teachers know more about what makes the classroom run smoothly and productively. IT pushes teachers to catch the technology wave, but teachers need time to learn how to apply the technology usefully.

And how do the students fit into this dance? They want a choice in how they learn and how they demonstrate what they've learned, and they do not want to be stuck using last year's technology.

This paper examines the problem of aligning learning with IT in both K-12 and higher education. Systems administrators and IT managers can use it to develop their role in student-centered learning through Dell KACE systems management and systems deployment appliances.

IT in education — Where the conversation must start

Consider these scenarios, in which curriculum, student needs and technology are mismatched:

- A district implementing a 1:1 (one student, one device) model purchases and issues Chromebooks for every high school student. After securing the school's network for the new endpoints, the administrator now has to manage these new devices the way he manages all other devices.
- Groups of teachers succeed in getting tablets for every student in their class. The standard image built into each device is not locked down and IT has no easy way to push secure images to all devices.
- IT leads an initiative to buy and install interactive whiteboards in every classroom. Because the boards do not support the student-centered learning model that the school has been trying to cultivate, teachers use them as glorified projectors.
- A school's parent-teacher group raises concerns about the privacy of student test data. The school's administration tells IT to tighten any security risks on endpoints and servers, yet not restrict students' and teachers' use of technology.
- Student learning preferences at a university result in a patchwork of connected devices running Windows, Mac OS, iOS and Android. With students running the devices day and night, the IT department struggles to keep all devices connected while maintaining a secure environment.

Those are examples of the awkward dance between IT managers and educators.

In 20 years of working with both parties and trying to give students a stake in their own learning, Dell has spent thousands of hours with systems administrators who understand technology better than they do education, and with teachers who understand education better than they do technology. We have developed the point of view that for technology to succeed in the classroom, the conversation must start around student-centered learning, then move to hardware and software.

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Changing roles for teachers, students and IT managers

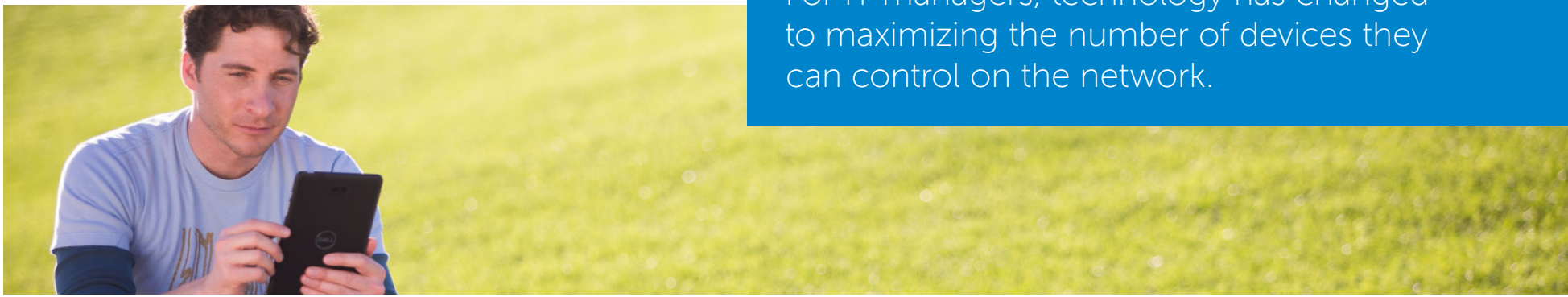
Education has long been in a foot race with the world outside the classroom, and the information age has intensified the race.

Student-centered learning reflects the real-world personalization that surrounds students outside the classroom in everything from social media apps to gaming environments. It is a perspective on learning that is teacher-designed, technology-enriched and student-invested.

The roles are changing for teachers, students and IT managers. The changes become more apparent when the conversation starts around student-centered learning and moves to technology:

- Teachers evolve from content experts to facilitators of learning. They are armed with knowledge of each student and access to an array of personalization tools. For them, technology has changed from nice-to-have to imperative.
- IT admins and managers are responsible for enhancing the personalized learning process by keeping resources, information and functions only a couple of secure clicks away. For them, technology has changed from maximizing the number of computing devices per student to maximizing the number of devices they can reasonably control on the network.
- Students control much of the time, place, path and pace (for example, in higher education), demonstrating what they have learned through an ongoing process of inquiry. For them, technology has changed from fast to faster, but never quite fast enough.

Although these roles will always be separate, they have begun to converge. More school districts and colleges understand that technology, student needs and the learning model must be at the table at the same time, all represented in the conversation about how learning should look. When discussions progress from there, with decisions based on the learning model and the right support, schools avoid the mismatched scenarios described earlier.

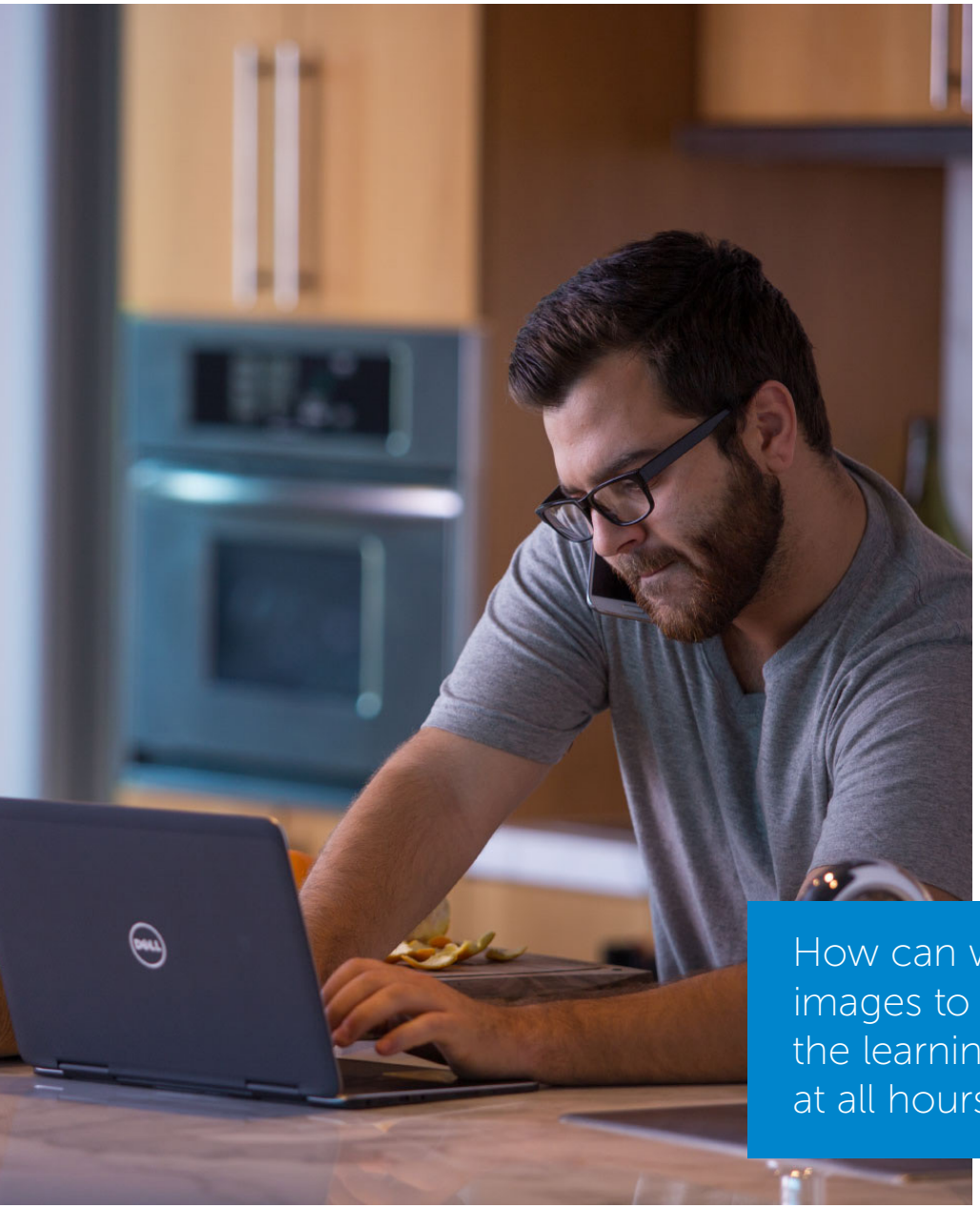


For IT managers, technology has changed to maximizing the number of devices they can control on the network.

Top of mind for IT: Managing endpoints in student-centered learning

What does student-centered learning mean for IT? Among other things, it means managing endpoints: desktops, laptops, tablets, smartphones, printers, interactive whiteboards, televisions and the other devices that teachers and students rely on to connect them to learning resources.

Whether school-owned or student-owned, devices in the classroom are increasing in number. Research from Harris Poll conducted on behalf of Pearson showed that 19 percent of students in grades 4-12 were learning in a 1:1 environment in 2015, up from 16 percent in 2014. At the college level, Harris/Pearson showed that 40 percent of students polled in 2015 would like to use even more mobile technologies in class, up from 36 percent in 2014.



The increase explains why IT managers and systems administrators are asking a series of thorny questions:

- How can we find all of the devices, both physical and virtual, in an inventory that spans multiple campuses?
- Once we've found them, how can we control them, keep them secure and protect the data on them?
- How do we manage all of those devices across multiple operating systems from a single appliance, instead of having to manage each platform's devices from a different appliance?
- How can we smoothly push updates and entire system images to hundreds or thousands of endpoints to support the learning model, when students are using the devices at all hours?

Traditional, one-size-fits-all instruction is evolving into flexible, on-demand learning both inside and outside the classroom. For IT managers and systems administrators, Dell KACE appliances — the Dell KACE K1000 Systems Management Appliance for managing endpoints and the Dell KACE K2000 Systems Deployment Appliance for automating systems provisioning and distributing software — are first-line tools for addressing the main technology issues in student-centered learning.

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Issue: Managing all endpoints from a single appliance

Systems administrators have long sought to concentrate endpoint management in a single appliance. Now that they have to accommodate the range of learning and application preferences on a single campus, endpoint management has become even more important.

Many school districts and colleges are mixed environments:

- Windows desktops and laptops
- Chromebooks and tablets running different versions of Android
- iPads running iOS
- MacBooks and iMacs running Mac OS
- Servers running Unix and Linux

Futuresource Consulting estimates the current breakdown in U.S. K-12 schools at 51 percent Chromebooks, 32 percent Apple products and 23 percent Windows-based devices, which means that IT managers can ill afford to exclude any single platform.

But even if they're willing to live with multiple platforms on a single network, they don't want to use multiple systems management tools to address them, especially not in higher education, where they use a greater diversity of systems. The KACE K1000 scans the entire network to identify all connected devices and returns a detailed hardware and software inventory of endpoints running Windows, Mac OS, Linux, Unix, iOS and Android, plus OS and hardware inventory for Chromebooks.

The K1000 also automates patch management, software updates and platform migrations. The KACE K2000 provisions Windows and Mac OS images simultaneously to multiple devices while consuming little network bandwidth.

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Issue: Supporting assessments and testing

Online assessment and testing have pushed more districts to the 1:1 model of providing an in-classroom device for every student, and educators have turned to IT to support this component of the learning model. Besides providing network access and updated software, IT has a role to play in ensuring that students cannot misuse devices to cheat on assessments.

"Lock and block" is not a permanent strategy for student-centered learning, but it is useful for securing classroom devices to keep students in the applications and windows where they belong during testing. Once teachers and sysadmins have agreed on the appropriate configuration (including restrictions) for devices, the K2000 makes it easy to provision the images over the network. KACE appliances are suited to ensure that desktops, laptops, tablets, Chromebooks and servers meets configuration requirements for assessment programs.

Issue: Fostering interoperability

It takes a lot of technology to build a learning environment, especially in higher education. A comprehensive portal for a large school can include a student information system, a learning management system (LMS), a data warehouse, single sign-on for digital content, and other components required to connect students, teachers and administration to educational resources.

With that diversity comes the need for interoperability. When different pieces of the learning environment are made without standards in mind, they become harder to manage and control. The K1000 streamlines management of software and hardware regardless of platform, including systems running Windows, Mac OS, Linux and Unix.

The following case studies demonstrate how IT managers and systems administrators have used KACE to address technology issues in the learning model of two K-12 schools and one university.

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Case study

School district enables digital curriculum while saving $180,000

Seminole County Public Schools advances education, efficiently managing 30,000 desktops and laptops.

With 66,000 students, Seminole County hosts one of the largest school districts in the U.S. Tom Condo and his IT staff manage, inventory and patch a districtwide population of 20,000 desktops and 10,000 laptops.

But the IT team had an incomplete picture of assets, and couldn't keep systems updated, while inconsistent OS and software configurations led to even more vulnerability.

Condo's team purchased the Dell KACE K1000 Systems Management Appliance and the Dell KACE K2000 Systems Deployment Appliance. They were impressed and surprised by how much systems management capability came in the K1000. And the ease of creating and provisioning disk images to school PCs with the K2000 has meant that the team can maintain a standard platform across all campuses.

Read the Full Case Study

"The K1000 and K2000 replaced three systems and eliminated the need to purchase a more expensive solution, saving us at least $100,000 in the last three years."

— Tom Condo, Supervisor of IS Operations, Seminole County Public Schools

Customer profile

Company	Seminole County Public Schools
Industry	Education
Country	United States
Users	66,000 students, 8,000 employees
Website	www.scps.k12.fl.us

School district efficiently manages **30,000 desktops and laptops** while minding the budget.

Implementing a **single appliance** instead of multiple servers and components has reduced systems management complexity.

Information Services uses the K2000 appliance to provision **standard images to all PCs** in the district.

Using the K1000 and K2000 has amounted to at least **$100,000 in savings** over three years.

Case study

Getting full IT inventory and saving time on imaging and support

San Bernardino County Superintendent of Schools (SBCSS) supports more than 2,000 employees in 500 schools, handling inventory, asset management and compliance in a PC/Mac environment.

Dave Evans is responsible for systems management of 2,000 school desktops and laptops in the largest county in the continental U.S. Keeping technology aligned with changes in district learning models meant keeping those systems updated and secure.

But the lack of suitable inventory software made it impossible for Dave's team to know where anything was, what was running on their computers or how many licenses they had. Worse yet, they had to image each machine manually.

To better support educational goals in their 55 school districts, Evans' team replaced its seven point solutions with the K1000 for inventory and remote systems management, and the K2000 for provisioning. Now, with just one solution, SBCSS knows which computers are in its environment, how recently they have been updated and which programs they are running.

Read the Full Case Study

"We were using about seven different products to perform the inventory, imaging and remote system management that we now perform with just the KACE K1000 and K2000."

— Michael Carter, Network Administrator, San Bernardino County Superintendent of Schools

Customer profile

Company	San Bernardino County Superintendent of Schools
Industry	Education
Country	United States
Users	412,000 students, 2,000 employees
Website	www.sbcss.k12.ca.us

SBCSS supports learning in **33 school districts** educating **412,000 students** across **22,000 square miles.**

IT now pushes disk images over the network in about **30 minutes** without touching the machine.

IT has cut the time to upgrade each Windows machine from over 24 hours to **30-60 minutes**, including user profile data.

KACE appliances **secure** the learning environment by identifying and removing unauthorized software.

Case study

IT team shows full compliance with university's security initiative

Westphal College of Media Arts and Design at Drexel University simplifies patching and application distribution to 800 desktops, saving one full-time salary annually with Dell KACE.

Jason Rappaport's IT team of five manages 800 Windows, Mac OS and Linux desktops for 2,200 users. With students using the computers almost continuously, the team had to scramble during the quarter break to install updates manually to the operating system, browser, plug-ins and applications.

But Rappaport was never certain which machines were running which versions or which updates had been successful. A university-wide directive to secure the learning environment prompted Rappaport to turn to the Dell KACE K1000 Systems Management Appliance.

The K1000 let him easily and reliably install encryption software on all 800 computers to comply with Westphal's directive. Rappaport's team also saved significant time by reusing their work once they loaded a patch or a managed installation into the K1000. Over time, the team replaced all of its manual processes with the K1000.

Read the Full Case Study

"We've eliminated — not reduced, but eliminated — overtime spend during break week. We went from 100 extra hours to finishing a day and a half early with the KACE appliance."

— Jason Rappaport, Director of IT, Antoinette Westphal College, Drexel University

Customer profile

Company	Westphal College of Media Arts and Design, Drexel University
Industry	Education
Country	United States
Users	2,000 students, 200 employees
Website	drexel.edu/westphal/

Shortening user downtime from **days to hours** for system updates has improved the learning environment.

The team assisted in complying with a security initiative by implementing encryption and reporting on **800 desktops** with the KACE K1000..

Overtime for quarterly digital asset updates dropped from **100 hours to zero.**

The benefits from automating systems management amount to the equivalent of **one full-time IT headcount saved** per year.

Conclusion

Getting the most out of technology and cultivating the student-centered learning model often seem like mutually exclusive activities, but they need not be.

The technology landscape is filled with Windows, iOS, Android, Chromebooks and tablets. The learning landscape is characterized by active learning spaces, formative assessments and learning platforms. The technology world is flashier and has a higher profile, but the learning model is more important.

Dell's point of view is that the best way for students to have a voice and choice in their education is to begin the conversation around learning: goals, process and materials. As the discussion moves to issues like interoperability, support for assessments and managing all endpoints from a single solution, the value of the Dell KACE K1000 Systems Management Appliance and the Dell KACE K2000 Systems Deployment Appliance becomes increasingly clear.

For more information about Dell's approach to both K-12 and higher education, visit Dell.com/en-us/work/learn/education

For more information about KACE products for education, visit Dell.com/k12

About Dell Software

Dell Software helps customers unlock greater potential through the power of technology — delivering scalable, affordable and simple-to-use solutions that simplify IT and mitigate risk. The Dell Software portfolio addresses five key areas of customer needs: data center and cloud management, information management, mobile workforce management, security and data protection. This software, when combined with Dell hardware and services, drives unmatched efficiency and productivity to accelerate business results.

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