

Microsoft® Application Virtualization

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for Software Assurance

Case Study: Kent School District

Innovative school district supports growing IT environment with application virtualization



THE CHALLENGE:

Quickly deploy and efficiently manage applications in a growing computing environment, and provide teachers and students enhanced service, without adding IT staff.

THE SOLUTION:

Implement Microsoft Application Virtualization. The customer featured in this case study is using Microsoft Application Virtualization technology, formerly referred to as SoftGrid® Application Virtualization.

THE RESULTS:

- Ability to support growing infrastructure with same IT staff level
- Flexible, “as-needed” application provisioning
- Speeded new application deployments, reduced testing
- Simplified break/fix swaps
- Ease migration to Microsoft Office 2007
- Improved license metering

Challenges

Kent School District, in King County, Washington, is recognized throughout the region for using advanced technology to support classrooms and administrators, and enhance education. The fourth largest school district in Washington, it has 40 schools with 27,000 students and 3,400 staff, of which approximately half are teachers.

KSD prides itself on putting its users—students, teachers, and administrators—in the driver’s seat. “Our innovations are driven by what our users need. We have a very open attitude about using new technologies to improve education, resolve challenges and give teachers the tools needed to perform their jobs,” says Gregory Whiteman, Executive Director, Kent School District.

When the community passed a technology levy to fund education-related enhancements, KSD embarked on an ambitious program to provide all secondary school students with their own laptop computer, for use in school and at home, 24 hours a day, seven days a week. With 10,000 workstations already used throughout KSD facilities, this one-to-one initiative, which is being rolled out in phases, will add another 2,500 more computers per year for the next several years. Managing this large and growing computer base presented KSD’s IT staff with several challenges.

KSD supports close to 200 images for all of its schools. In the past IT staff limited application updates and refreshes to the summer months. “Every year, four IT staff spent about one month in April creating new images that we could deploy during the summer school break,” says Judy Peterson, Customer Support Manager, KSD. “If teachers requested a new application in October or November, for example, we typically wouldn’t be able to provide it to them until the new school year.”



Company overview:

Kent School District, the fourth largest school district in Washington, is an early adopter of technology, using it to enhance education for the 3,400 support staff, 40 schools with 27,000 students.

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Teachers and administrators couldn't get applications on an as-needed basis because of the complexities inherent in deploying and installing applications. "Application compatibility was a huge issue," says Thuan Nguyen, Director of IT, KSD. "We spent a tremendous amount of time regression testing the images to make sure applications didn't conflict with each other. Many education-specific applications are developed for use in classrooms or at a school level. For the most part, they're not enterprise-class. They're not usually designed to scale; they're not written in a way that makes them compatible with other applications."

"With our 'one-to-one' anytime, anywhere initiative, our ability to be flexible in providing applications to teachers is critical," Nguyen adds. "If teachers have to wait a year before applications can be deployed to their students' computers, then we can't deliver on the promise of providing the applications they need to help students learn, whenever and wherever they need them."

With fewer IT staff and double the number of computers it had eight years ago, KSD needed a more efficient solution for deploying and managing applications both in a free-seating environment--where people could log onto any computer and get their specific applications--and in the one-to-one environment where students had their own laptops. "We needed a way to support a growing, changing computer base while ensuring teachers and students could get the applications they need in a timely fashion. And we had to do this within a finite budget," Whiteman says.

The Solution: Microsoft Application Virtualization

KSD looked at application deployment systems, however it found that even products that integrated with Microsoft Active Directory and automatically installed software wouldn't solve the application compatibility problems that result in time-consuming deployments. "We began exploring Microsoft Application Virtualization because we heard it could enable us to provide new applications in a much faster, easy manner," Peterson says.

Nguyen concurs, noting, "We really liked the way Microsoft Application Virtualization isolates applications from one another to ensure compatibility. Applications won't interfere with each other when they're deployed."

Using Microsoft Application Virtualization--formerly known as Microsoft SoftGrid®--KSD transforms applications into centrally managed virtualized services, resulting in dynamic delivery of software that is never installed, never conflicts, and minimizes tedious application compatibility testing. Users and their application environments are no longer machine-specific, and the machines themselves are no longer user-specific. Applications are virtualized with the product's Sequencer, a wizard-based tool that packages applications for real-time streaming. The Sequencer uses a once-per-application process to protect the application's integrity and does not modify its source code. Rather than "pushing" down and installing entire applications, the first time an application is requested by end users, the Microsoft Application Virtualization client "pulls" only the code needed to start the program. When the session terminates, application settings and profiles are saved in a per-use, per-application cache, providing instant access for subsequent use.

Consultants from Getronics worked with KSD engineers to design a pilot program, in which Microsoft Application Virtualization was configured and applications were sequenced and deployed to a group of test users.

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EXECUTIVE DIRECTOR
KENT SCHOOL DISTRICT

“Getronics is very pleased to be involved in this project with KSD and Microsoft, not only because of its technological merits, but also because it is truly ground breaking,” says Jorge Pereira, Getronics Infrastructure Optimization Group Manager for North America. “The ability to provide students with access to the latest technology -- anytime, anywhere -- increasing their access to learning, is a necessity in the new world economy. It is a significant responsibility, and we work with all of the teams involved to ensure its success.”

KSD’s Microsoft Application Virtualization solution moved into production at the beginning of the 2007-08 school year. Since then, KSD IT staff have learned “the art of sequencing and fine-tuning of the system,” according to Peterson, and users have learned what to expect from using virtualized applications. KSD now has one IT staff member focused on sequencing applications and responding to requests for new applications. The next time the users log on, the authorized application appears in their suite of programs. When a user clicks on the icon, the application is brought to the computer’s cache. To date, KSD has deployed more than 500 virtualized applications to nearly 10,000 desktops and laptops.

KSD is also beginning to pilot Microsoft System Center Configuration Manager 2007, which it will use to deploy base images to machines, while using Microsoft Application Virtualization to deploy applications. “We’ve known all along that combining Microsoft Application Virtualization with System Center Configuration Manager is the way to go. It will dramatically change the support landscape for us,” Nguyen notes.

The Results

KSD created an agile application infrastructure that enables it to quickly deploy and efficiently manage applications in a growing computing environment, providing teachers and students enhanced service without adding IT staff.

1. Support Growing Infrastructure with Same IT Staff Levels: “By centralizing application management and eliminating application conflicts, Microsoft Application Virtualization helps us support more computers more efficiently, with the same staffing,” Whiteman says. “This is especially critical to the success of our one-to-one initiative.”

Nguyen adds, “We can be much more flexible in the way we support users and the way we assign staff. We can shift IT staffing resources to put the more technical people in our central office and put people with more specific skills in the field. This has significant implications on our budget and on our ability to efficiently handle a more dynamic IT environment.”

Using Microsoft Application Virtualization has also enabled KSD to free up IT staff to handle other infrastructure needs, such as managing the network and the servers in the data center.

2. Flexible, “As-needed” Application Provisioning: “Because with Microsoft Application Virtualization applications that are already sequenced can be deployed to any computer instantly, we can meet ad-hoc teacher requests much more easily,” Peterson says. For example, teachers may hear about an application that is being used elsewhere in the district, and want to try it with their own class. Or, they may need an application that they don’t typically use to help one of their students in a particular subject. “It’s great for aiding individualized teaching. All we do is add the application to the teacher’s Active Directory and, the moment she logs onto the computer, she gets it. The teachers think it’s magic,” says Peterson.

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3. Speeded New Application Deployments, Reduced Testing: In the past, it took several weeks or months to plan and deploy a new application to a whole school. Now it takes only about one and one-half days to sequence, test and deploy an application, regardless of whether it's going to a lab, a school, or the whole district. "We still do regression testing, but we only have to test one implementation as opposed to testing the whole image and testing in different environments," Nguyen says. "We were able to take a very large testing and deployment process and shorten it enormously. Now teachers can get applications in a few days instead of having to wait until the next school year to get applications."

This helps KSD be much more responsive to user needs. KSD has a core image for the district, but individual schools may want to add applications if, for instance, the Parent Teacher Association provides money for a particular project. KSD has an internal process for evaluating software prior to purchase to ensure it meets curriculum objectives and technology requirements. As part of this process, IT staff determine whether the application can be virtualized with Microsoft Application Virtualization. "By virtualizing new applications and deploying them with a push of a button, we're able to provide high-quality service to teachers and students with prompt turnaround," Whiteman says.

4. Simplified Break/Fix "Swaps:" For students with district laptops, KSD relies heavily on swapping if the machine breaks down and can't be resolved over the phone. Without Microsoft Application Virtualization, KSD IT staff would have to plan and prepare the image to put on the replacement computer. Now, IT gives the student a machine with a standard district image and, when he logs on, he gets his specific applications. "It's dramatically changed the way we service students in our one-to-one initiative. They use their laptops all day and can't afford to be without them for even 30 minutes. Now they don't have to," Peterson says.

5. Ease Migration to Office 2007: Migrating to Office 2007 is a significant undertaking for school districts, which need to retrain teachers, develop new curriculum, and buy new instructional materials. KSD, which will begin deploying Office 2007 in a few months, will use Microsoft Application Virtualization to ease the transition from Office 2003 by running both products on the same client machines. (Microsoft Application Virtualization enables multiple versions of the same application to run side-by-side without conflicting.) "By putting Office 2003 and Office 2007 on the same machine, we'll enable early adopters to jump in and begin using the newer version right away, and let other people wait for training before using it," Nguyen says.

KSD is also planning to leverage Microsoft Application Virtualization when it migrates to Microsoft Vista in the future. "We expect Microsoft's solution will enable us to accelerate and streamline the transition to Vista--similar to the way it will for the Office 2007 migration--making it a much easier process for both IT staff and end users alike," Nguyen adds.

6. Improved License Metering: KSD initially sequenced about 500 applications, but soon realized that not all of them were needed. It since reduced that number to 350 virtualized applications deployed and supported. "We have great visibility into how applications are being used. With Microsoft Application Virtualization's metering and reporting capabilities, we can optimize licenses and deploy applications more appropriately," Nguyen says. KSD makes applications available to authorized users and specifies the number of people who can use it concurrently. "It helps us provide a more flexible environment where people can use applications they need whenever they need them," Nguyen adds.

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Microsoft Application Virtualization is an integral tool in the Microsoft Desktop Optimization Pack, a solution that helps reduce application deployment costs, enables delivery of applications as services, and better manages and controls enterprise-wide desktop environments.

To learn how Microsoft Application Virtualization and the Microsoft Desktop Optimization Pack for Software Assurance can help you, please visit www.windowsvista.com/optimizeddesktop.