

Henrico County realizes improved test scores and saves \$1 million using Dell systems with Intel processor technology



- Desktop/Laptop Refresh
- Connected Classroom
- Services
- Storage
- Virtualization



“We are seeing more collaborative, student-centered work. Students are developing more 21st century skills—more problem solving, critical thinking and collaboration.”

*Eric Jones, Executive Director of Secondary Education,
Henrico County Public Schools*

Customer Profile

Company:	Henrico County Public Schools
Industry:	Education
Country:	United States
Faculty and staff:	6,700
Students:	28,000 (6-12)
Web:	www.henrico.k12.va.us

Institutional Need

Henrico County Public Schools near Richmond, Virginia sought greater student-centered learning environments while providing teachers and students the tools they need to thrive.

Solution

The school district distributed [Dell laptop computers](#) with Intel® processors to every student and teacher, grades 6-12. At the same time, the district engaged [Dell Professional Learning Services](#) to train teachers in new technologies, and to establish an environment for teachers to learn from each other, while keeping administrators proactively involved and engaged in the program.



Benefits

- Professional learning environment helps to improve instruction through information sharing among teachers
- 7% increase in student achievement measured by state accountability test
- \$1 million reduction in annual laptop repair costs

For schools, maximizing educational results with limited resources has always been a challenge. Teachers have continually looked to new and more advanced instructional tools to help engage and inspire students to achieve academic excellence. With the introduction of computers in the classroom, a world of knowledge is opened up for students at the click of a mouse, driving the learning process to new heights.

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Henrico County Public Schools near Richmond, Virginia, which was one of the first school districts in the U.S. to distribute laptop computers to students back in 2001, is now teaching the lesson of technology to schools around the country. With a commitment to professional learning and continual fine-tuning of its laptop program, Henrico is setting the standard on the best use of technology in the classroom.

An “A” for advantage

To improve educational opportunities in the district, Henrico County makes sure that all middle- and high-school students and teachers have laptops of their own. “All of our 26,000 secondary students, grade 6 through 12, have a Dell laptop and are involved in a one-to-one computing initiative,” says Eric Jones, executive director of secondary education at Henrico County Public Schools. “Our mission is to fully integrate technology to enhance and further the education of the students as well as the teachers within our district. Computers are in the hands of students and teachers 24x7.”

To best deploy and manage instructional applications, Henrico uses a virtualized server and storage environment via [VMware ESX and 4](#) with [Dell EqualLogic PS4000, PS5000 and PS5500 series iSCSI SAN arrays](#). Virtual machines are hosted on [Dell PowerEdge 2950 and R510 servers](#) with Intel Xeon processors for maximum uptime, number of virtual guests and available storage.

Partnering for shared goals

The one-to-one laptop initiative was a bold action by the district, and underscores its dedication to quality education. Henrico’s commitment to improving the education process through technology is evident: 12 Henrico schools have received the U.S. Department of Education Blue Ribbon School of Excellence Award, and eight schools received National Association of Counties awards for implementing groundbreaking programs.

Technology at Work

Services

[Dell™ CompleteCare™ Accidental Damage Service](#)

[Dell Professional Learning Services](#)

Hardware

[Dell EqualLogic™ PS4000, PS5000 and PS5500 series iSCSI SAN arrays](#)

[Dell Latitude™ E6400 and E5400 laptops](#) with Intel® processors

[Dell PowerEdge™ 2950 and R510 servers](#) with Intel Xeon® processors

Software

[Altiris™ Client Management Suite](#) from Symantec

[Microsoft® Windows®](#)

[Microsoft Windows Server®](#)

[VMware® ESX and ESXi 4](#)

Providing laptops to students is one step toward excellence; using the technology to its full potential is the next. Henrico's needs were unique, as with all school districts, and it looked to Dell and Dell Professional Learning Services for solutions to enable it to reach its educational goals through the adoption of technology in the instructional process. "A lot of vendors come in and say, 'We know what your situation is and this is what's going to work for you,'" says Jones. "Dell came in and said, 'We want to learn from you. We want to find out what your needs are.' Dell went through a strict project management cycle to assess our needs. It's been a collaborative process throughout, working hand-in-hand to make sure our needs are met."

Saving \$1 million a year on maintenance

Henrico's laptop program initially began with Apple, but the district migrated to Dell for cost and service reasons. As a taxpayer funded public school district, Henrico is held accountable for each expenditure. One advantage is the [Dell CompleteCare Accidental Damage Service](#). With the service, laptops that are accidentally broken are sent to Dell for repair at no charge to the district, a cost that reached almost \$1 million per year previously.

"When we first started the initiative 10 years ago, if a laptop did break, the lag time between sending it out for repair and getting it back took days," says Jones. "With Dell CompleteCare Accidental Damage Service, downtime has been reduced tremendously. We now have a 24-hour turnaround. If it's going to be gone longer, we have loaner laptops in each of the schools, so there is no interruption in learning or teaching."

A Dell project manager and a Dell systems engineer provide onsite consulting at Henrico's main offices. "They have offices within our technology department and work collaboratively to solve issues and implement our laptop program,"

says Jones. "If they can't fix an issue, they'll bring in somebody from Dell the next day. They work for Dell, but they've become part of our team."

More learning software in less time

While some learning applications can work for multiple classroom subjects, others are highly specialized. Teaching methods also differ. Providing teachers with a full range of options improves the learning environment. "With Dell, teachers have access to a wide range of software to integrate into their curriculum," says Jones. "Teachers are looking for choices with applications, to use their creativity to provide an innovative instructional environment for their students."

According to Jones, teachers now have access to 90 different software applications. "That wouldn't have been possible without Dell's cooperation," says Jones, "pulling in some of their partners to make sure we have access to products from Adobe and Microsoft."

Henrico is able to quickly push out applications and patches to the Dell laptops using [Altiris Client Management Suite](#) from Symantec, which was recommended by and sourced through Dell. "We have a lot of flexibility in terms of providing applications teachers and students need, even down to the individual classroom level," says Jones. "Instead of having to collect all of the laptops for 150 students in a specific class and install the software by hand, we can push the software directly to their computers so the students have it the next day when they go into class."

The school district is also able to affect changes in machine policy and user software on a massive scale with little to no "touch." Software is distributed based on integration with the Student Information System enrollment data to provide hundreds or thousands of students and teachers software on their laptops, while safely throttling bandwidth consumption for package delivery across wireless access points.

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Teaching the teachers

To help teachers use the technology to its full potential while keeping them informed about new developments, Dell professional developers work with a designated technology resource teacher in each school. "Dell's professional development team works with our resource teachers to develop skills and implement new strategies," says Jones. "Dell's professional development models the kind of differentiated, learner centered focus we want happening in the classroom."

The trainers are then tasked with taking the knowledge they've acquired and instructing other teachers on best practices, thus "embedding" the knowledge throughout the district. "At the same time, we're using Dell Professional Learning Services to work with the leaders in the school—the principal and assistant principals—to make sure they know what a 21st century classroom should look like," says Jones. "Teacher buy-in is essential, but you also need principals leading the way in order for the program to continue to grow and excel."

For Henrico, it's more than just teaching best practices. "It's not about using technology for the sake of using technology," says Jones. "It's really about how we're using it to fundamentally change the way students learn, to enhance their learning in ways never before possible."

Heightened learning in student-centered classrooms

Since implementing the laptop program, Henrico found the nature of instruction changing in the classroom. "With Dell Professional Learning Services behind our laptop initiative, we are seeing more collaborative, student-centered work," says Jones. "Students are developing more 21st century skills—more problem solving, critical thinking and collaboration."

Students are becoming the center of the classroom at Henrico. "It's very exciting for us," says Jones, "because as the instructional model changes to become more collaborative and rigorous, we're going to see students achieving at higher levels—students going far beyond the baselines of state testing."

Acing the tests

The laptop initiative has been successful in the eyes of the community: 88 percent of parents polled were in favor of continuing the program. Another measure of the success of Henrico's technology and professional learning combination is in increased test scores.

"The school board wanted to measure the impact of the laptop initiative on student achievement, and Dell helped us fund a longitudinal three-year study," says Jones. "Once Dell provided the funding, they stepped back to ensure that a neutral, very rigorous research-based study was done."

Interactive, Inc. from Columbia University conducted a study revealing that the more students used their laptops in the classroom, the higher their achievement on the state accountability test. "This is the Holy Grail of technology research—being able to tie laptop use to student achievement," says Jones of the study.

According to the study, the all-topics, all-years average gain for Henrico students was 21 points on a Virginia Standards of Learning test scale with an approximate range of 300 points, a seven percent increase. The study also showed that Henrico high school graduates who used laptops were better prepared for college than students from high schools who had not studied with individual laptops.

Jones has attributed much of the district's student achievement to the assistance from Dell Professional Learning Services. "We've developed relationships with Dell Professional Learning Services team members. We know we can trust each other," says Jones. "Dell wants the initiative to work for the same reasons that we do: student achievement. We know that they're going to go the extra mile to make sure everything possible is done to ensure our students are successful."



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