CASE STUDY
Intel® Xeon® Processor
Intel® Core™ i5 Processor
Greenwood College School

Greenwood Gives Intel Straight As

Greenwood College School | 10 YEARS 02–12

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CHALLENGE

- **Greenwood College School*'s** enrolment has increased four-fold since it was founded a decade ago. To continue to deliver quality personalized learning, Greenwood needs to leverage IT innovation.

SOLUTION

- **Intel delivers A+ results:** A server infrastructure built on HP* Proliant* servers powered by Intel® Xeon® processors delivers dynamic lessons to every classroom, and Intel® Core™ i5 processor-based laptops let teachers and students keep pace with their assignments.

IMPACT

- **Greenwood College's video lesson modules** allow students, armed with Lenovo* ThinkPad* laptops featuring Intel® Core™ i5 processors, to learn at their own pace.
- **Growing from 72 to 422 students** meant upgrading to Intel® Xeon® 5600 series processors to rapidly and reliably deliver e-learning and rich collaboration solutions.
- **With Intel Core i5 processor-based laptops,** teachers have the power to create podcasts and deliver course curriculum in a dynamic learning environment.

Toronto's Greenwood College School* is a not-for-profit educational institution with a goal of preparing Grade 7 to 12 students for post-secondary education, the workplace and the technological demands of the modern age.

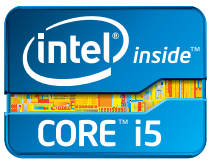
"Parents who send their kids here work at a very high level in the corporate world and know today's world is influenced by technology. They want their children to be ready for their future scholastically and be able to handle new technology," says Principal Allan Hardy. "Our mandate is to get them ready for first-year university, and to live and work in our changing world. Technology forces you to adapt and equips you to handle the pace of change that will be coming down the pike."

Hardy explains the school was founded in 2002 to get away from the "one-size fits all" education model. "We've embraced the idea that education can be delivered in an individual or customized way and technology plays a key role in this," he says.

Growing from 72 students and 20 staff to a capacity of more than 400 students and 80 staff, meant scaling up the school's infrastructure. And Director of Information and Learning Technology, Jonathan Tepper, says the network needs to be able adapt and scale to the increasing demands of teachers and students who are looking to leverage educational and collaboration tools, as well a range of software from mapping in geography class to art programs and social media. He estimates storage requirements have tripled and bandwidth requirements have increased five-fold in the last five years. HP Proliant* servers powered by Intel® Xeon® 5680 processors handle the increasing workload.

"We always choose a platform we know and trust, and we're not going to be shy about the power it takes," says Tepper.

Virtualization allowed Tepper to cut the number servers used to run the school by just over 1/2 from 26 to 12, while increasing the power available to teachers and students. "When I came here (in 2008), every system was running on its own box. Virtualization technology lets



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us run systems on fewer machines and greatly reduce our carbon footprint," he says, adding "our server room got colder by six degrees Celsius" with fewer machines generating heat.

Virtualization also provides fail-over capabilities to ensure uptime. "One of our servers shut down with power supply issue. By the time we realized it, the virtualized server had already taken over and we were able to operate seamlessly during repairs," he recalls.

Hardy says the investment in technology has been worthwhile in terms of school efficiency and student success.

"It's been a tremendous investment that has positively influenced what our students have been able to achieve. In today's world, one-size doesn't fit all and students have opportunities to excel here that they wouldn't have elsewhere," says Hardy, adding "administratively, we're a pretty lean, mean operation and it's because of technology. We don't waste a lot of time playing with paper and forms so we can keep administration numbers low."

Tools for Students

Every student is equipped with a Lenovo* laptop powered by Intel® Core™ i5 processors.

"We have a rich learning environment so we need to put technology in students' hands that let them use a variety of tools from slide shows, interactive videos and online research at the same time," says Tepper. "We invested heavily in a computer that lasts. If you buy an entry level machine, you could be limited if software or technology advances around you. We want our computers to support students for their four to six year learning career (at Greenwood College School)."

"With enterprise level hardware like Intel, it easily lasts three to four years. The next generation Core™ technology gives us longer battery life which is critical when students are moving from class to class with little time to plug in," Tepper adds.

Extending Educational Options

"Teachers were interested in wikis and in blogs and social media but the software we were using wasn't great for this," recalls Tepper, who moved the school to Moodle*, an Open Source e-learning platform.

"Moodle gives teachers more options for creating lessons and leveraging Web 2.0 tools and gives students more choices in their learning," says Tepper.

To ensure the platform performs flawlessly, it is supported by a new virtual server powered by Intel Xeon 5680 processors, which also runs the school's security and card access system.

"It is a work horse machine," says Tepper.

Podcasting Paces Lessons to Students

Teachers are now creating podcast videos as course modules. Since videos need to go beyond a talking head to keep students engaged, Tepper says teachers needed power which they get in the Intel® Core™ i5 processor based laptops. Tepper explains the videos let students set their own pace. "If they pick up on a lesson quickly, they can move on. If they need to go slower, they can repeat sections until it is clear. "

Tepper says there's one student who will be finished a whole course soon, completing the one year program in ½ a school year.

"I'd say we're ahead of the pack in many areas, including using animated videos," adds Hardy.

Teachers Leverage Social Media

Teachers are also integrating social media into course curriculum. For instance, Jessica Campbell-Rogers, a teacher at Greenwood has her students, who are investigating political geography, annotate virtual maps using social media so their peers can spatially zoom to different parts of the world to watch videos or read tweets and news items about the issues people are talking about.

"Geography has changed so much, it's not just about maps any more. It's exciting," Tepper says, adding with powerful next generation Intel® Core™ based-machines, teachers aren't limited by technology in terms of what they can deliver to students.

Private & Public Clouds Leveraged

With innovative e-learning tools running on the private Greenwood network, the school is also leveraging the public cloud for collaboration using Google Docs*.

"A teacher can have everyone online and students can watch in real time as someone takes class notes. It helps students see what good note taking looks like," says Tepper, noting they also use Google Docs for peer editing and class collaboration.

"We decided to use a hybrid of private and public cloud services. We have mission-critical operations and internal educational tools that are better suited to the internal cloud, but we also wanted flexibility for simple document processing which we can get from Google," adds Tepper.

Connecting with Parents

With a dynamic learning environment, Greenwood looked also to streamline and enhance communications with parents. Greenwood's information portal lets students pick classes and track deadlines while providing parents with access to information about their children's attendance, report cards, scheduling of interviews, calendar events, and school news items..

"There has been a growing demand for this kind of interactivity. Our parents are dominated by the presence of social media and instantaneous response so we need to be able to offer that same level communication," says Hardy. "Even though parents might not be in the building day to day, they can feel a part of the community."

In addition, parents are able to update information online and that information is saved electronically, eliminating the need for parents to fill in the health form, for example, for every team, trip and school record.

"We wanted to look at what post-secondary institutions were doing, take the best from their experience and bring it here," says Hardy. "We are very happy with what we've been able to achieve and I know we will continue to evolve how we use technology."

As a school dependent upon enrolment to finance operations, Hardy says investment in technology and keeping up with the latest trends is just one thing Greenwood does differently. "Every year parents make a decision whether or not to renew and we have to show them why it's worth sending your child here," he says. "Our use of technology, in all its forms, is a big part of our value-added for parents and helps our students to excel."

ABOUT GREENWOOD COLLEGE SCHOOL

Greenwood College School is a Toronto, Ontario, independent school for students in Grades 7 to 12, focused on preparing students for the 21st century, with a tailored, individualized curriculum designed to help students excel.

www.greenwoodcollege.com

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