



## Case Study

Intel® Centrino®

mobile technology

Education

e-Learning

# Schools Down Under Go Wireless

## Victoria Department of Education & Training improves teaching and learning with Intel® platforms

Combining Intel® Centrino® mobile technology-based notebooks and nearly 10,000 Cisco wireless access points, the Victoria Department of Education and Training (Victoria DE&T) in Australia has rolled out the Wireless Networks for Schools (WiNS) program to enhance K-12 teaching and learning and prepare students for success in the information age.

### Challenge

- **Increase IT uptake in classrooms.** Computer and communications skills are increasingly important to individual success and national progress. Victoria's K-12 teachers already used Intel® processor-based notebook computers to bring technology into the classroom. But the notebooks were aging, and the lack of easy access to the Internet and online digital learning content limited teachers' ability to exploit the value of mobile computing.
- **Improve teachers' confidence and skills.** Victoria DE&T knew teacher training would be critical to successful technology adoption. The department wanted to build teachers' confidence and skills at incorporating technology into their classroom and curriculum.

### Solution

- **Deploy wireless-enabled notebooks.** Victoria DE&T upgraded its existing notebook fleet with wireless-enabled IBM ThinkPad\* notebooks based on Intel® Centrino® mobile technology.
- **Unwire schools.** To provide convenient, cost-effective access to school resources and the Internet, Victoria DE&T deployed wireless infrastructure in all K-12 government schools.
- **Educate teachers.** Victoria DE&T established a 40-hour professional development programs that included Intel Teach to the Future, Intel's worldwide program to help teachers integrate technology into the curriculum.


### Assessing the Situation

Victoria may be Australia's smallest mainland state, but it is big on education. School is compulsory for all children aged six through fifteen, and 39 percent of graduating students go on to tertiary studies.

Victoria's Department of Education and Training seeks to be on the vanguard of technology, and is indeed a leader at using mobile computing to integrate technology into the fabric of education. As the result of a recent initiative with Intel and Cisco, all of Victoria's 1,630 elementary and

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Jacinta Allan  
Minister for Education Services  
State of Victoria



# Wireless connectivity to school resources and the Internet increases the value of mobile computing and enhances learning.

secondary schools have wireless access to digital learning materials and the Internet, and all 42,000 teachers have wireless-ready notebooks powered by Intel Centrino mobile technology. Department representatives say the WiNS initiative is one the largest secure wireless networks of its type in the southern hemisphere and is enhancing education and learning throughout the state.

"The introduction of this technology in Victorian schools represents a major shift in the way computer and information technology can be used in and out of the classroom," says Jacinta Allan, Victoria's Minister for Education Services. "It will improve the ability of schools to use information and computer technologies, providing a more flexible, mobile and creative approach to learning on and about computers."

## Everyone Benefits

With wireless networks and notebooks based on Intel Centrino mobile technology, Victoria has

### Spotlight: Victoria Department of Education and Training

- Victoria is located in the southeastern corner of Australia and covers roughly 227,600 square kilometers. It is Australia's second-most populous state, and approximately 70 percent of its five million residents live in Victoria's capital city of Melbourne.
- Victoria DE&T manages Australia's second largest educational system, with approximately 540,000 students in more than 1,600 government schools.
- The department has a two-fold mission of providing primary and secondary education for children as well as delivering training and other education services for adults to support the state's social and economic development.

provided a major enhancement to using information technology in the classrooms: the ability to extend the learning environment to virtually anywhere on its schools' grounds. No matter where they are at school, teachers and students can access learning materials instantly and securely.

Wireless access enables teachers to be more effective and creative in the teaching and learning process, according to Jeni Taplin, principal of Mill Park Heights Primary School. "Teachers can work and teach effectively in the most suitable environment across the school," she says. "The freedom and flexibility of wireless connectivity with Intel Centrino mobile technology provides us with an increased ability to be creative in the teaching and learning process."

Having ubiquitous access to networked resources helps teachers integrate online learning materials into everyday curricula and deliver personalized lessons that meet each student's learning requirements. At Glen Waverley Secondary College, teacher Peter Gray encourages his students to research on the Internet in the classrooms, and has other students work from traditional reports and worksheets. He says this flexibility allows his students to move between different activities, and helps them succeed in their learning. "Having a wireless network just extends our capabilities much more," Gray comments. "We're able to do a lot of team teaching, whether in a small group or one to one. We can have students anywhere within the school."

Wireless computing also enhances the collaboration that is so important to effective team teaching and student learning. With the flexibility to work anywhere at school - or at wireless hot spots in the community - teachers save time with online grading and other administrative tools. In addition, they can work together more effectively to plan lessons and assemble the best learning materials from around the world. Similarly, students use online resources to create their own portfolio of e-Learning projects,



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Peter Gray  
Teacher  
Glen Waverley  
Secondary College

ranging from wikis and web pages to animated presentations containing electronic charts, graphs and databases.

### **Delivering the Solution**

Victoria DE&T’s decision to enhance its K-12 learning environment with Intel® Centrino® mobile technology-based notebooks and wireless networks was the culmination of years of leadership in bringing technology into the classroom.

Victoria’s move to deploy notebook computers dates back to 1997, when the department conducted a study of its teachers’ professional development needs and skills in the area of learning technologies. The study showed that 75 percent of primary teachers and 85 percent of secondary teachers lacked access to computers, which restricted their use of learning technologies. The department also reviewed overseas research showing that teachers’ access to notebook computers had a positive effect on their confidence and skills development. These findings led Victoria DE&T to initiate a Notebooks for Teachers program. Between 1998 and 2001, Intel® processor-based IBM ThinkPad notebook computers were leased to Victoria’s 40,000 primary and secondary school teachers.

The notebook computers were a critical first step, but the department recognized that equipment alone was just a start. To enhance IT uptake, the department also asked principals and teachers to undergo 40 hours of training

designed to support and encourage them in integrating learning technologies into the classroom. “We believe the key to e-Learning effectiveness in schools is to make teachers routine, competent and discriminating users of IT,” says Katrina Reynen, assistant general manager of Victoria DE&T’s information technology division. “Once they achieve that status, they can then enable their students to become routine users as well.”

A key element of the training was the Intel Teach to the Future program, which helps teachers use technology to develop students’ higher-order thinking skills and enhance learning. Intel launched the program in 2000 and has since trained more than three million teachers in over 35 countries. Participating teachers receive extensive instruction and resources to promote effective technology use in the classroom.

### **The Next Step in Mobile Flexibility**

In late 2004, as the inaugural fleet of notebook PCs approached their normal replacement schedule, Victoria DE&T decided to undertake the WiNS program, bringing the advantages of wireless communications and the latest notebook technologies to the state’s public K-12 schools. Victoria chose wireless technologies powered by Intel and Cisco, and – because of the scale and complexity of its wireless deployment – worked with the two companies on a six-school pilot before moving toward full deployment.

#### **Key Technologies**

- IBM ThinkPad R Series\* notebooks powered by Intel® Centrino® mobile technology.
- Secure wireless networks conforming to the 802.11g wireless standard and implemented via nearly 10,000 Cisco Aironet 1300 Series\* wireless access points.

#### **Integral Answers**

- Victoria DE&T worked with Intel and Cisco in the largest rollout of WLAN technology in any Australian educational department.
- Victoria DE&T implemented a wireless environment that enhanced the usability of notebook computers, made school applications and online resources more accessible, and improved curriculum and administration.

Collaborating with Intel and Cisco, Victoria created a secure, cost-effective wireless solution that enhances student learning and teacher productivity. An 802.11g wireless local area network (WLAN) at each school, based on Cisco Aironet wireless access points, provides seamless access to the Internet and online resources from virtually anywhere at school.

Complementing the WLAN, IBM ThinkPad notebooks based on Intel Centrino mobile technology include integrated wireless capability supporting the 802.11a/b/g wireless standards. These reliable, wireless-ready notebooks simplify configuration, deployment, maintenance, and support—important considerations when support staff may be hours away.

Intel Centrino mobile technology also delivers high performance for media-rich, interactive e-Learning applications, as well as features designed to improve battery life and enable thinner, lighter designs. All these capabilities make the notebooks a great fit for Victoria's busy school environments. Security features on the notebooks and access points—developed and tested through close collaboration between Intel and Cisco—help ensure that only authorized users can access the network.

Now, with wireless networks and Intel Centrino mobile technology-based notebooks in place, students and teachers enjoy the freedom and flexibility enabled by robust wireless communications. Not only is technology integrated into the classroom, but Victoria has gained a solid foundation for future e-Learning initiatives such as the possibility of Voice over IP (VoIP) telephony.

"Providing wireless devices for schools builds on Victoria's position as a leader in the use of ICT to enhance learning," says Reynen. "In education we touch the future. You add technology to that, and it's a very potent and engaging mixture."

**Find a solution that is right for your program. Contact your Intel representative, visit the Intel® Business/Education Web site at: [intel.com](http://intel.com) or visit the industry solutions-specific sites at: [intel.com/go/education](http://intel.com/go/education).**

## Return on Investment

- Intel® Centrino® mobile technology provides high performance and built-in wireless capability, empowering Victoria's teachers to make the most of the Internet and digital learning content. Learning can take place anywhere at school, and both teachers and students can be more active and interactive in the learning environment.
- With its energy-efficient architecture, Intel Centrino mobile technology enhances productivity and gives teachers and students the freedom to work without wires and power cords.
- By combining Cisco wireless networks with Intel Centrino mobile technology-based notebooks, the Victoria Department of Education and Training benefits from the work Intel and Cisco have done to ensure seamless, secure connections between the two vendors' products. As a result, the department reduces total cost of ownership and frees teachers to concentrate on learning without worrying security and compatibility issues.
- Wireless networking based on Cisco technologies enables Victoria to provide convenient, secure access to digital resources far more economically than via wired networks.



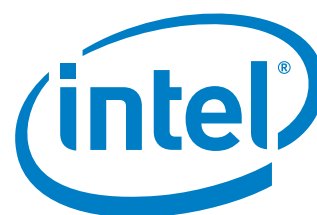
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