



## The University of Toronto

### Wireless Earns High Marks for Secure, On-Demand Access at a Low Cost

The University of Toronto is one of the largest universities in Canada, with 52,800 students and 9,588 faculty and staff. It ranks among the top major research universities in North America. Over the past two decades, the university's faculty has received almost a quarter of all national awards, although they represent only seven percent of Canada's university professors. The university receives nearly \$300 million in research grants and contract support. Several of the university's faculty members have won Nobel prizes for their work in the sciences, and many others have received international recognition as leaders in their fields.

**Industry:**

Education

**Number of Students, Faculty and Staff:**

52,800 students, 9,588 faculty and staff

**Challenge:**

Expanding connectivity while preserving budget and historic architecture

**Solution:**

RoamAbout™ wireless combines flexibility with security at an affordable price

**Benefits:**

- Expand connectivity to meet the network availability requirements of students, faculty and staff
- Increased bandwidth delivers faster data flow and enhanced performance
- High capacity to handle demanding and diverse network traffic—including bandwidth-intensive multimedia applications
- Increased network accessibility and flexibility ensures convenience and ease of use
- Wireless networking provides additional network connections at less cost—especially in historically significant buildings
- 128-bit encryption ensures the highest level of security available in the industry
- Scalability to accommodate constant change—with no forklift

The university has also graduated several renowned alumni in the humanities and social sciences, including author Margaret Atwood, actor Donald Sutherland, literary critic and author Northrop Frye, communications guru Marshall McLuhan, and numerous prime ministers and premiers.

Founded in 1827, the university has 48 buildings or sites that have been designated as historically or architecturally significant located on three major campuses that cover approximately one square mile. The St. George campus, located in downtown Toronto, is the main campus, with 22,600 students.

The downtown campus contributes almost \$1 billion in economic activity to the greater Toronto area and is the thirteenth largest employer in the region. Eighty-nine companies have been created from technologies developed by university researchers, employing more than 3,350 people and posting annual revenues in excess of \$419 million.

**The Challenge:  
Expanding Connectivity While Preserving Budget and Historic Architecture**

The university initially had several dozen computer labs, each featuring a number of “stand-up” sites. This system was effective in limiting individual session times and controlling overall bandwidth, as it required students to line up and wait for a free machine in order to access the school's network. But over the past five years, as more students began to bring their own computers to school, the school could no longer limit the number of users on the network. Availability surged to the top of the wish list, and the university responded by hard wiring most of the residence halls to increase connectivity.

But in time this solution was no longer enough to support the beefier, multimedia applications being used by students and faculty alike. Once again, more bandwidth was needed. The frequent use of the network and the Internet increased to the point where the university was forced to implement a 500 megabyte-per-week policy in order to control bandwidth usage.

Furthermore, with most of the university's students bringing their own notebook computers to campus, the administration wanted to make it more convenient for them to connect to the network with their own equipment. "Notebook computers are now more cost competitive and affordable for young people," explained Norman Housley, the university's manager of NDIS. "We wanted to increase network accessibility by creating an environment that makes it easier for students to access the

network with their own machines. We wanted to provide a flexible network, one that would allow students to do things more easily, more spontaneously.”

### **The Solution:**

#### **RoamAbout™ Wireless Combines Flexibility with Security at an Affordable Price**

The administration recognized several advantages to a wireless network, chief among them being user mobility. Cost and infrastructure were also factors. “We wanted to provide more network connections at less cost, and in areas where it might be difficult to provide wired access,” Housley said. In many popular campus locations, including historically significant buildings, installing wired access would have been expensive, time-consuming and potentially harmful to the older structures. Wireless technology was not only easier and more cost-effective to install, but also more convenient for users.

The university issued an RFP in November of 2000, then reviewed the design, capabilities, and pricing offered by the seven vendors bidding. After two months, the university selected Enterasys Networks’ RoamAbout™ wireless solution, proposed by Enterasys and its partner, Compugen Services Limited, Canada’s largest privately owned and operated systems integrator and service provider.

“Packaging, functionality, management, security, pricing and local support were all factors leading to our decision to work with Enterasys,” Housley said. “The university already has Cabletron products, including network management tools, within its infrastructure and these will mesh smoothly with the new wireless network.”

The administration was also impressed with the RoamAbout’s ease of installation and range. “Implementation was easy,” said Housley. “And we were surprised by how strong and complete the coverage was in the Architecture and Management Schools in downtown Toronto. When we measured signal strength around the Access Points, we discovered that we had wireless connectivity not only throughout the building, but even across the street.”

Having wireless cards in their laptops enables students to access the university network from locations that did not have traditional network connections, such as common areas, lounges and even the great outdoors. The network could also be used while doing research in the libraries, during meetings in conference rooms, or from classrooms.

The RoamAbout wireless network also provides the university with a safer level of security not typically found in other wireless products. The RoamAbout’s 128-bit encryption delivers the highest security available in the industry. Encryption is tied to both user and session; the university can authenticate all use of the network based on a specific computer or individual via the MAC address of each notebook and a pre-defined password.

### **The Future:**

#### **An Indoor/Outdoor, Campus-Wide Wireless Solution**

The university is commencing the final installation of the wireless project’s first phase, installation of Access Points at the Erindale location of UT Mississauga. With the completion of this site, the university will have 100 Access Points in production. The client capacity of the coverage will vary depending on the specific sites involved. For outdoor usage, the capacity will be light, but within buildings the capacity could well be in the several thousands. Those groups responsible for services provided within a building will specify the exact number of Access Points and wireless cards.

Generally, the introduction of wireless networking technology has been well-received, resulting in many requests to expand wireless connectivity to additional buildings. All new capital projects, whether they encompass a new or renovated building, have some component of wireless. Within the next few years, the university expects to install 400-500 RoamAbout Access Points in more than 300 campus buildings. Future plans also include the increasing use of Enterasys’ 802.11a wireless access platform, RoamAbout R2.

“We want to encourage the use of IT applications in all aspects of campus life,” said Housley. “As people become familiar with the wireless systems, new and innovative uses will arise. By providing complete and highly functional systems and technology, we hope to contribute to an extremely rewarding university experience.”

## **Contact Us**

For more information, call Enterasys Networks toll free at **1-877-801-7082**,  
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