



School of IP

Seneca College's ongoing commitment to providing Internet-based services for its staff, faculty and students is the primary reason it selected Toronto Hydro Telecom to install its new Gigabit Ethernet network

by Paul Grossinger

Capsule comment: Decreasing costs of fiber enables school to take advantage of faster network speeds

Similar to other institutions of higher learning in Canada, technology is a driving force behind the success of Seneca College.

As the largest community college in the country, Seneca College's reputation as a leading and progressive post-secondary educator is partly based on its ongoing commitment to providing extensive Internet-based services and resources to its staff, faculty and the more than 100,000 full and part-time students enrolled at its 10 campuses across the Greater Toronto Area.

To meet all of its IP needs — including offering faster and more reliable admission and registration services for its online classes and distance learning programs — Seneca College recently turned to Toronto Hydro Telecom (THT) to install a new Wide Area Network based on Gigabit Ethernet circuits. Established

in 2000 as a subsidiary of Toronto Hydro Corporation, THT provides telecom services to businesses in Toronto and is the sole owner of its vast fiber optic network, which spans 450 kilometers and connects 400 commercial buildings in Toronto,

“[THT was] the only one that come through on Gigabit circuits and its prices were very, very competitive,” explains Terrence Verity, Seneca’s chief information officer. “The utilities have a lot of fiber, the cost of the termination equipment at the end has come down and they can provide services that are very good.”



Another component of THT’s plan for Seneca was the use of VLANs (Virtual Local Area Networks) to offer focused network capabilities for specified areas at no additional cost. Through an arrangement with then Markham Hydro, (now PowerStream) THT was able to secure high bandwidth service for Seneca’s new

Markham Campus.

“It’s a WAN based on Gigabit Ethernet circuits using the latest generation of Gigabit Ethernet equipment and that is linking three of their key campuses together,” says Ian Miles, president of Toronto Hydro Telecom, adding the circuits deliver a combination of e-learning applications, Internet services and administrative service connectivity between the campuses. “We presented Seneca with a seamless solution where Toronto Hydro Telecom manages the connections with other suppliers. Through our Gigabit Ethernet service we addressed their bandwidth needs today and provided built-in flexibility to handle demand for greater capacity down the road.”

Installed this past summer, the network was put through extensive testing before going live as numerous tests were performed to examine reliability and to measure packet loss.

Seneca began the search for a more powerful network solution that offers affordable bandwidth and reliability when it moved its data centre to York University from its Newnham Campus. This move was the reason the school required increased bandwidth between college locations, and previously, according to Verity, the school employed too many different suppliers, which meant too many potential points of failure, which in turn created a risk to reliable service.

“We are a multi-campus institution which causes us a few issues,” explains Verity. “Obviously, we have to provide services to all of our campuses, but we can’t have major data centres at every campus.”

Before moving its main data centre to its York University campus, Seneca had a limited bandwidth and a 17 Mb circuit, before moving to a 100 Mb circuit from a wireless supplier, which Verity says caused the school several problems.



Terrance Verity (left) and Ian Miles collaborated on improving Seneca College’s IP network.

“In the city, it didn’t seem to be very reliable — it was bouncing off buildings, there was a lot of packet loss and the network was going down,” he laments. “We had a lot of potential points of failure and so what we decided to do is go back to the market and look for a high bandwidth solution that was in the ground.”

With one eye on the present and the other on the future, Seneca — with its new network in place — is now well-prepared to provide additional IP-based services

applications, such as Voice over IP (VoIP) or Internet telephony, sometime down the line.

According to Miles, Seneca can easily install additional Gigabit circuits if required, and if even more bandwidth is required, DWDM (Dense Wavelength Division Multiplexing) technology can be used, which essentially takes a fiber and shoots multiple wavelengths of light through it. This expands the capacity of the fiber by 16x its normal capacity.

For Verity, Seneca's sophisticated and reliable network is working like a dream, which for him is an extremely comforting thought. And because he has to run his department like a business, having a network that is scalable and able to provide future functionalities, like video and voice capabilities, is essential in ensuring the school's continued viability and success.

"Everything we do at Seneca is supported by technology so it's absolutely vital to the college's operation," he says. "Without network service, people simply cannot access the college. Information and communication technologies are part of the fundamental utilities we have to offer as a college just to be in existence — if you don't have it, you are out of business.

"My job is to provide the infrastructure that allows us to learn, teach, work, communicate and the issue is that as soon as you implement a network, it seems like its full. You reach capacity so fast these days. With the new WLAN, we are trying to anticipate the scale issue and so we are able to do that in this case because price performance is so good."