

# Nortel Networks SSL VPN solution breaks down network barriers and provides anywhere, anytime

# ACCESS

## Success Story

### University of Calgary Technical innovation for educational excellence

#### University of Calgary's benefits from SSL VPN:

- ▶ Remote access cost savings  
of over 80 percent
- ▶ Improved ROI from application  
investments
- ▶ Improved information access  
and learning
- ▶ New revenue opportunities for  
remote learning
- ▶ 30 percent increase in  
application usage

**T**he University of Calgary has a reputation for offering the highest quality of education to its 30,000 full- and part-time students. Employing almost 2,500 academic faculty, the University of Calgary also runs one of the country's top medical schools and is a national leader in health research with an international reputation for excellence and innovation. The Faculty of Medicine generates over \$120 million annually in research grants and contracts from both federal and provincial governments, charitable organizations, and industry. Understanding that a leading-edge technology foundation is critical for retaining knowledge and managing the learning process, the Faculty of Medicine established Med-IT—a department dedicated to delivering advanced information technology solutions for the advancement of medical education and research.

#### Faculty of Medicine's challenge:

Medical education and research presents unique challenges. Because doctors and associates have highly specialized skills and knowledge, a well-rounded program requires the services of many to effectively educate students and conduct research. This many-to-one approach drives a very high teacher-to-student ratio of almost 4:1 for the 400 doctoral and graduate medical students—over 50 times greater than other faculties! To better support this scenario, the Faculty of Medicine decided to build a learning management system that would serve to capture and share knowledge, integrate a range of applications, and foster collaboration among students, staff, and doctors.

For the Learning Management system to be effective, the Faculty of Medicine was faced with another challenge—making the system available to all users...anywhere, anytime. Students, interns, faculty, and doctors are highly mobile in their work life and often are subject to shift scheduling that covers 24 hours a day, 7 days a week. To further complicate the problem, users sometimes work on campus in the morning, at a regional hospital in the afternoon, and at a research lab in the evening. Providing anywhere, anytime access for all users to all applications proved to be a challenge.



“Providing secure remote access to the Sun ONE portal proved to be a challenge. Nortel Networks SSL VPN solution not only securely extended the reach of the platform to Web browsers everywhere, but also improved the application’s performance and availability. Having all of this capability on a single product also makes it easy to install and manage.”

—Hytham Khalil, Director, MedIT

## Med-IT’s solution

To meet the challenge, Med-IT developed a world-class Learning Management solution that includes three key elements:

*Curriculum Information System (CIS) applications*—Med-IT chose a number of off-the-shelf applications for core messaging and collaboration functions, and then developed their own knowledge management applications designed to facilitate the learning process for medical students.

*Sun ONE Portal*—a Web-centric environment that provides a single front-end for CIS and integrates multiple intranet applications and resources.

*Nortel Networks SSL VPN solution*—a clientless remote access security solution that provides anywhere, anytime access to the Sun ONE portal applications.

## Curriculum Information System (CIS) applications

After evaluating a number of off-the-shelf Learning Management applications, Med-IT decided that building their own system was the only way to meet all requirements. Over two years in development, the CIS is now an integral part of the learning process and is a knowledge management showcase that has grabbed international attention from the medical teaching community. Using a custom-developed knowledge management application, CIS adds structure to massive amounts of collected information and transforms raw data into knowledge that is mapped to the teaching curriculum to accelerate the learning process.

## Sun ONE portal

Med-IT chose the Sun ONE Portal Server solution for integrating all the components that make up the Learning Management system. The Sun ONE portal proved to be a cost-effective and feature-rich platform that would allow Med-IT to integrate several intranet applications and resources to provide easier access to information and improved content control. The Web portal provides browser-based access to a variety of applications:

- Sun ONE Calendar
- Curriculum Explorer
- SunONE Messaging (eMail)
- Jive Forum - News
- Learning Resources
- File Shares

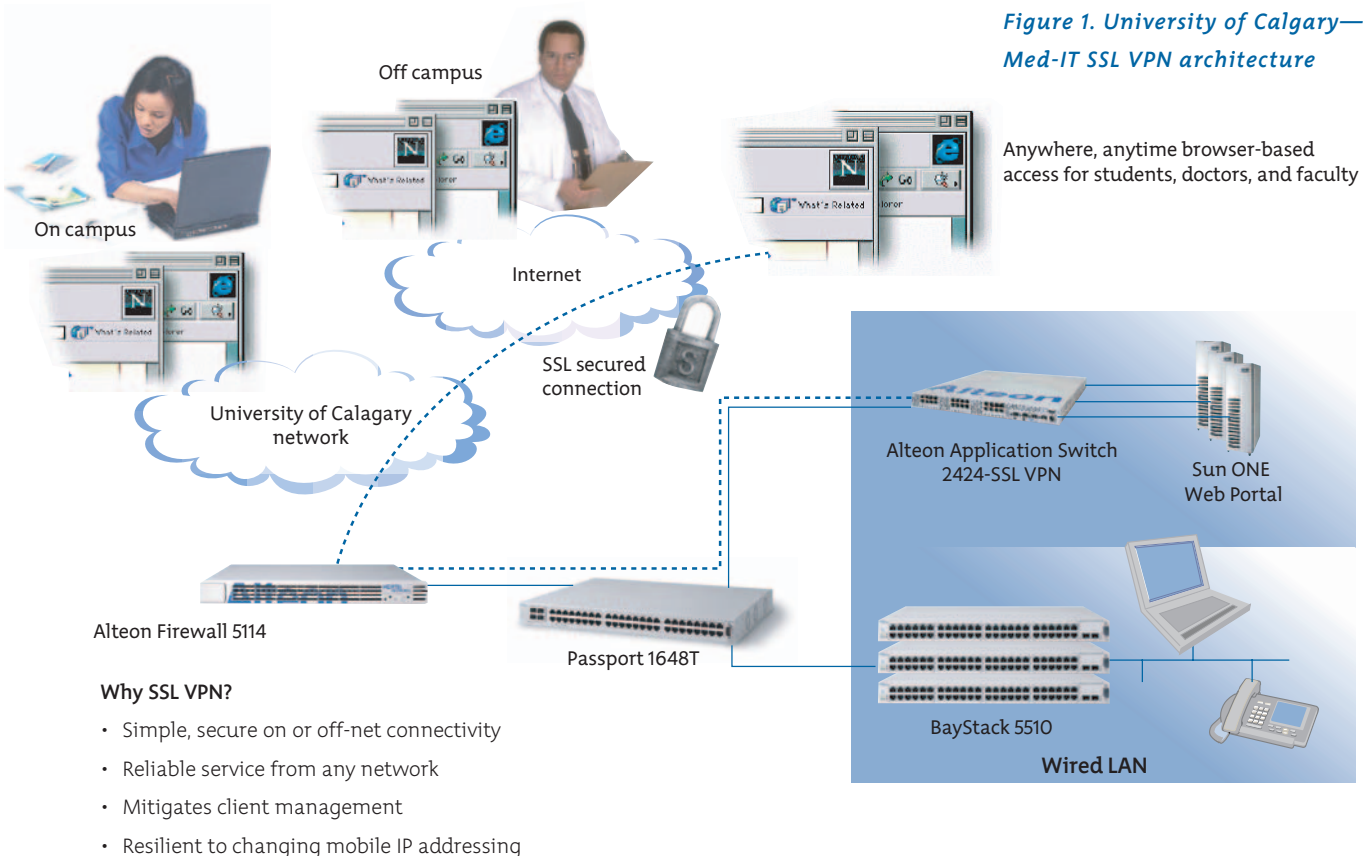
Med-IT installed the Sun ONE portal on its private domain which is only accessible from the university’s network. To provide maximum benefit, Med-IT wanted to extend the reach of the portal applications beyond the traditional network boundaries, but retain the existing configuration and single-sign-on authentication mechanism. Being a Web-centric application, the Sun ONE portal server provided a great extranet platform, but needed to be supported by a secure network solution that would give users the freedom to connect from any Web browser and integrate seamlessly with the existing architecture.

## Breaking down network boundaries: Nortel Networks SSL VPN

To meet the needs of remote users and provide anywhere, anytime access to the Sun ONE portal, the University of Calgary chose a Nortel Networks Alteon Application Switch 2424-SSL. The Application Switch provides multiple functions on a single platform including SSL VPN for remote access, traffic management of portal servers, and SSL offload and acceleration.

### Results

Nortel Networks SSL VPN solution has allowed the University of Calgary and the Faculty of Medicine to get the most from their investments in the CIS application and Sun ONE portal projects. Without a secure remote access complement, the portal environment was only accessible to those users who are logged on to the network. Using Nortel Networks SSL VPN technology, Med-IT was able to instantly transform the Sun ONE portal into a flexible extranet service without any major network reconfigurations or application changes. Students, doctors, and faculty can now access all the portal applications including CIS, e-mail, calendaring, news, and file shares without having to find a private network connection. The system supports over 1,000 regular users and usage has increased over 30 percent once the SSL VPN remote access capability was added. The ability to access the service from anywhere, anytime has created a new revenue-generating opportunity by allowing the Faculty of Medicine to offer CIS as a service to other medical schools. With the addition of CIS, the Faculty of Medicine is able to increase its capacity to accommodate more students without increasing resources. Additionally, the popularity of the system with students for facilitating the learning process has created another reason for students to choose the University of Calgary Faculty of Medicine.



## Unleashing Sun ONE portals with Nortel Networks SSL VPN

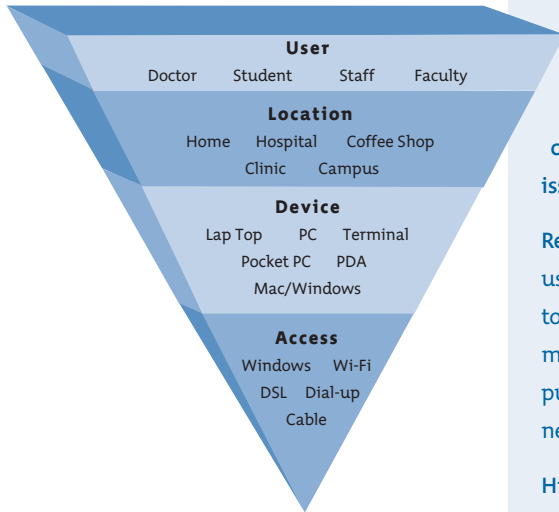
After evaluating options, Med-IT found Nortel Networks SSL VPN to be an ideal complement to Sun ONE's Web portal server. Nortel Networks SSL VPN provides critical network and application services on cost-effective gateways to solve several issues common with portal installations:

**Remote access**—Most portal implementations are designed to address the needs of employees/users on private networks and are installed behind a firewall with private addressing and links to other private applications and databases. Nortel Networks SSL VPN allows these environments to be instantly and securely “externalized” by pre-pending private addressing with a publicly resolvable IP address structure. The SSL VPN gateway proxies all remote browser connections to provide a flexible remote access alternative for users that are not “on the network”.

**High-availability**—Med-IT's architecture includes several Sun Fire V100 servers that are required to handle the anticipated user load. Nortel Networks SSL VPN provides content-based load balancing to effectively share incoming requests across the available servers. This feature allows administrators to efficiently utilize the available server capacity and provide a reliable fail-over mechanism and simple scalability when more servers need to be added.

**Performance**—Secure Sockets Layer (SSL) is the standard security protocol for Web applications. The public key operations used by SSL places heavy processing demands on server CPUs that can slow portal response times significantly—users see this as unresponsive applications. Nortel Networks SSL VPN Gateways act as a connection intermediary to offload SSL processing and accelerate SSL session set-up. This function protects portal servers from performance-robbing SSL tasks and delivers peak application performance.

**Security/privacy**—Nortel Networks SSL VPN authenticates users, supports single-sign-on, and enforces access policies down to the URL path, application, or file level. It also maintains an encrypted HTTPS session with the remote user from login to logout without adding the SSL overhead to the portal servers themselves. The Nortel Networks SSL VPN also handles the server authentication portion of the SSL session set-up and mitigates the need to install redundant digital certificates on all servers in the cluster.



### Nortel Networks SSL VPN solutions remove boundaries.

Med-IT had developed a world-class application portal environment. Now with an SSL VPN solution, Med-IT has achieved seemingly competing goals by making these high-value applications secure and easily accessible at the same time!

- Any legitimate user
- From any location
- On any device
- With any access method

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