



Cisco Systems Canada Telerobotics Initiative Backgrounder

As the worldwide leader in networking for the Internet, Cisco Systems Internet Protocol-based (IP) networking solutions are the foundation of the Internet and most corporate, education, and government networks around the world.

Historic telerobotics assisted surgery

On February 28th, the first hospital-to-hospital telerobotics assisted surgery took place in Canada. Telerobotics involves having surgeons in medical centers of excellence perform surgery on remotely located patients using surgical robots. This allows the provision of specialized health care to remote communities where specialized surgeons are not available. Recent advances in technology make it possible for a surgeon to provide complete laparoscopic surgical intervention from a distance of thousands of kilometers away (non-emergency procedures). A three-armed robot seamlessly and directly translates the surgeon's natural hand, wrist and finger movements, and allows the surgeon to operate on a patient in a remote location while working from an urban hospital.

Cisco and Bell partner to deliver surgical grade network

The telerobotics assisted surgery between St. Joseph's Healthcare in Hamilton and the North Bay General Hospital was enabled by Bell Canada's state-of-the-art VPNe network, which is based on cutting-edge Multiprotocol Label Switching (MPLS) technology from Cisco Systems. MPLS is a label-based method for forwarding IP traffic that brings a new level of intelligence to IP networks. By combining the intelligence of routing with the performance of switching, it dramatically simplifies deployment, management, scalability and flexibility of virtual private networks (VPNs).

The operation took place over Bell Canada's commercial networking service known as VPNe, or Virtual Private Network Enterprise. Regarded as one of the most advanced networks of its kind, Bell VPNe uses Cisco Multiprotocol Label Switching (MPLS) technology to enable private IP networks (or VPNs) to be carved out of Bell's national IP backbone infrastructure. MPLS/VPN technology was chosen due to its reliability, scalability and security.

The Bell VPNe network provides the capacity and the service protection capabilities required to ensure the greatest level of reliability currently possible. The infrastructure dependability is achieved with physically diverse fibre routes, backup points of presence, redundant transport and switching equipment, as well as optical and electrical protection switching capabilities, all maintained by sophisticated operational support systems. The transport network has been designed to protect against both fibre cuts and laser failures. As a result, the VPNe network self-heals against failure within 50 milliseconds, rendering such failures transparent to even the most demanding enterprise application.

The Bell VPNe network is built over an installed base of Cisco Gigabit Switching Routers (GSR) 12000 series routers, Cisco 7500 Series routers and Cisco IOS[®] Software.



Cisco MPLS VPN Technology

Enterprises and service providers have long recognized the importance of Virtual Private Networks (VPNs). With the continued growth in managed corporate network services and the current competition and cost pressures among service providers, Cisco IOS® Multiprotocol Label Switching (MPLS) technology is viewed as a launching pad for compelling service offerings.

With the widespread availability of Cisco's MPLS technology, the deployment, management, scalability and flexibility of VPNs has been greatly simplified and improved. As a result, the use of MPLS to provide VPN services is rapidly increasing. Today over 150 service providers are using MPLS VPNs in production or in field trials, or have announced the offering of VPN service based on MPLS technology.

Cisco's MPLS technology in Cisco IOS Software makes VPNs easier to deploy by using a technology that combines the intelligence of routing with the performance of switching. MPLS VPNs network allow private communications over a shared (public) network infrastructure, provide increased scalability to meet the needs of hundreds of thousands of users, and are flexible enough to accommodate any-to-any traffic patterns to quickly accept new sites. In addition, they provide predictable and reliable performance over different classes of service, allow users to connect over different media, and meet transport and bandwidth requirements of new Intranet applications.

Cisco's MPLS technology allows service providers to optimize network bandwidth by selectively applying classes of service based on MPLS labels. MPLS VPNs easily scale as the number of routes and customers increase, and provide the same level of privacy as switching technologies. Customers can use private IP addresses without translation and privacy and security can be achieved without tunnels or encryption.

MPLS VPNs also enable VPN service providers to support very-large-scale VPN service offerings (thousands to millions of VPNs per service provider) and to support a diverse population of customers. This scenario enables connectivity to a large number of sites for enterprises, Inter-provider VPNs, and carrier of carriers.

In the past year, the number of leading service providers deploying Cisco's MPLS Solutions has tripled from 30 in 2001 to over 150 by the end of 2002. Customers include Bell Canada, Equant, France Telecom, BT Ignite, Infonet Services, KDDI, Japan Telecom and NTT Communications. Working with Cisco has enabled these service providers to evolve their carrier-class IP network and begin pioneering next-generation Internet capabilities.

Contact:

Willa Black
Cisco Canada
416-306-7732
wblack@cisco.com