BC Cancer Agency Implements **IP Telephony** to Improve Service, Drive Efficiency

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Don Henkelman, Chief Information Officer, BC Cancer Agency

**Background**
The BC Cancer Agency (BCCA) provides cancer care and control for the people of British Columbia. It is comprised of four regional cancer centres across the province and its mandate includes such essential services as prevention, screening and early detection, diagnosis and treatment services, support programs, community programs, research and education.

The Agency also co-ordinates a wide variety of programs including a network of 16 chemotherapy clinics in partnership with regional hospitals, a network of 70 pharmacies that dispense cancer treatment and physicians who service smaller towns across the province - all designed to bring cancer care closer to home.

In the spring of 2000, the BCCA received funding to build the new BC Cancer Agency - Vancouver Island Centre in Victoria. The new centre, which was completed in June of 2001, has some of the most sophisticated medical equipment in Canada.

**Challenge**
The BCCA has always been on the cutting-edge of technology - for both cancer treatment and information systems. Chief Information Officer Don Henkelman was an early champion of the benefits of network convergence, building a secure virtual private network (VPN) to enable consultation via videoconference.

With the inception of the new facility, Henkelman and his team had the opportunity to design the network of their dreams - a robust infrastructure based on best-of-breed technology that could handle data, voice and video applications.

Henkelman had several goals for the new infrastructure: a telephone system with a high degree of reliability; improved communication efficiency between centres; a more cost-effective solution in terms of network maintenance and long-distance toll reduction; and future-proof technology that would allow the BCCA to keep pace with the pace of innovation in the years ahead.

"As a healthcare institution with limited budget resources and growing patient demand, we have to be extremely diligent about our technology investments," added Henkelman.

**Solution**
After reviewing a variety of options, Henkelman and his team decided on an IP (Internet protocol) telephony solution powered by Cisco’s Architecture for Voice, Video and Integrated Data (Cisco AVVID).

IP telephony is a technology that sends a telephone call over the same networks that carry data throughout your company, whether it be a local-area network (LAN), a corporate Internet, a wide-area network (WAN), or even the public Internet. To accomplish this, the technology breaks voice traffic into tiny digital units called
called packets, then send those packets over the network and reassembles them in the correct order on the receiving end.

Converged data and voice networks can deliver a host of benefits to businesses, ranging from reduced costs and simplified network maintenance, to improved company-wide communications. For instance, IP telephony can lower a business’ total cost of ownership by eliminating redundant infrastructure, simplifying administration and maintenance, and consolidating IT staffs. The inherently flexible nature of IP also delivers simplified network maintenance and improved employee mobility. For example, moving a person with an IP phone to a different location is as simple as unplugging the phone and plugging it back into the network at the new location. Because the phone’s unique IP address for the network is encoded in the phone, all of the user’s IP information and preferences travel with the phone. This feature is especially useful for offices that have flexible schedules, overlapping workforces, or employees who often switch desks.

“We’ve always been very reluctant to invest in any technology we think is on its way out. We didn’t want to acquire further traditional telephone equipment because we felt it had a finite life span—measured in terms of years,” said Henkelman. “It just didn’t make sense to put old technology in our new building if there were better options available.”

The implementation at the BC Cancer Agency - Vancouver Island was completed by The RAM Group Inc., while the building was being completed, in the summer of 2001. The installation went extremely smoothly and there were very few problems installing the converged network.

The BCCA implementation uses a Cisco Catalyst 6509 multilayer core switch with Cisco Catalyst 3524-PWR-XL Layer 2 edge switches. The 3524 switches are attached via Gigabit Ethernet to the core 6509 switch, which provides routing between the various Virtual LANs (VLANs) at the site. Also in use are two MCS-7835 CallManager servers, one as the primary and one as a redundant backup. These CallManager servers handle the call processing functions for the organization.

**Results**

The BCCA is reaping a host of benefits from IP telephony ranging from simplified network administration and cost savings, to improved functionality and increased reliability.

In just one year since the implementation, Henkelman estimates the BCCA has experienced savings greater than $100,000 in long distance, cabling and outsourcing support. The new infrastructure has also simplified network management. “By operating a single, converged network, our IT staff maintenance requirements have been significantly reduced,” Henkelman explains. In the past, whenever we wanted to relocate an office, a service call and pre-cabling was required, costing us time and money. With AVVID, telephone adds, moves and changes are as simple as the click of a mouse.

But the benefits are not just limited to cost savings. “The reliability of the IP telephony solution has been as high or higher, than what we would expect from a traditional phone system,” said Henkelman. “The features on the IP phones are much richer than on traditional telephones. Also, the ongoing releases that come out from Cisco always have little enhancements that everyone likes. This lets the staff see a continual improvement in the system and helps them understand why we invested in the new technology.”

The secure nature of the AVVID infrastructure has allowed for an expanded telecommuting program utilizing a Cisco virtual private network (VPN). By creating a secure tunnel between two locations, usually over the public Internet, VPNs provide a cost-effective, convenient, and secure way for companies to grant authorized users remote access to corporate networks. The technology allows remote workers to securely transmit information—including data, voice, and video—across a shared network.

Consulting physicians and personnel who work remotely can now have calls securely and seamlessly transferred to their remote IP phones. The call transfer is completely transparent to the caller and the remote worker has access to the same functions and resources as they would in the office.

“With facilities and consulting personnel located throughout the province, our new infrastructure has really improved internal communications. In addition to significant long distance cost-savings, IP telephony has created a better experience for the user by enabling efficiencies like four-digit dialing for internal calls, call display and secure call-routing,” said Henkelman.

Henkelman and his team are also excited by the possibility of easily incorporating data applications, such as customer care, with telephony. "The potential to improve client satisfaction and drive organizational efficiencies is enormous," he claims.

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**Next Steps**

Based on the initial success of IP telephony project at the BC Cancer Agency - Vancouver Island, the BCCA converted two additional centres to an AVVID infrastructure over the past year. It plans to continue the expansion of its network and integrate its email and voice mail into a unified messaging solution with Cisco Unity.
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