

Bell's extraordinary performance at the 2010 Olympic Winter Games.



The customer

The Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games (VANOC) is responsible for the planning, organizing, financing and staging of the 2010 Olympic Winter Games.

The need

A reliable, scalable, secure and highly available network infrastructure and Web portal to successfully deliver the 2010 Olympic Winter Games to the world.

The solution

- Connectivity: voice, data, Internet over a Unified Internet Protocol (IP)
- Professional and Managed Network Solutions
- Vulnerability Assessment and Penetration Testing Service
- Managed Firewall Service
- Web Solutions

The results

- First all-IP converged network in Olympic Games history
- 285-km fibre optic cable network between Vancouver and Whistler provides a legacy of enhanced broadband connectivity for British Columbia
- Powerful, record-setting Web experience for millions of visitors to the vancouver2010.com portal
- Unprecedented broadcast coverage to billions of television viewers
- Secure and robust system with a content distribution network combining 30,000 servers worldwide
- Increased efficiencies, reduced human errors and ensured maximum uptime with centrally managed services from Bell



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Bell's robust and secure network infrastructure creates powerful customer experience for 2010 Olympic Winter Games

As a Premier National Partner and the exclusive Telecommunications Partner to the Vancouver 2010 Olympic and Paralympic Winter Games, Bell delivered both wireless and wireline connectivity to enable Vancouver 2010 and its thousands of employees and volunteers. Bell successfully executed all critical network and communications services including high-speed wireless data and fibre broadband networking, complete broadcast support, extensive Internet portal services, and full network security.

This case study delves into the Network Infrastructure, Security, and Web Solutions Bell created for the 2010 Olympic Winter Games as examples of how our clients can achieve similar business benefits.

“Bell has been a superb telecommunications partner, formulating a detailed and innovative plan, continually meeting its commitments, and successfully helping VANOC deliver the 2010 Olympic Winter Games to the world.”

- Ward Chapin, Chief Information Officer
Vancouver Organizing Committee for
the 2010 Olympic and Paralympic
Winter Games

In February 2010, the world turned its attention to the Canadian cities of Vancouver and Whistler for the 2010 Olympic Winter Games. VANOC was under tremendous pressure to present the Games to the world in a compelling and highly effective way.



Bell provided several thousand wireless telephony devices and broadcast support for VANOC staff, Games Officials and other VANOC customers.

As Canada's leading solutions provider to enterprises and governments, Bell spent several years working closely with the VANOC team to build a network infrastructure, security platform and Web presence that reflected VANOC's overall vision and strategy.

“In previous Games, telecommunications worked separately from the rest of the technical infrastructure team and didn't get involved in the end-to-end solution,” recalls Ward Chapin, who spent more than a decade leading technology operations for large financial institutions and banks in Canada, Britain and France before joining VANOC as Chief Information Officer. “But we felt from Day One that it was an important piece of the communications component. Bell integrated seamlessly into our team, that at times you couldn't distinguish Bell from VANOC employees. Bell functioned as an extension of our VANOC team and stepped right in with a very detailed and cost-effective plan, meeting our target dates and bringing their corporate experiences as key learnings for us. As CIO, having a One Team approach was truly my proudest Games moment and a model that I would take over to the corporate world.”



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A Sea to Sky fibre optic network

One of the initial challenges faced by VANOC was the limited communication network between Vancouver and the resort town of Whistler, a 120-km distance separated by the challenging Sea to Sky Highway, the major north-south route connecting the two municipalities. Whistler had always been considered a recreational centre, but the arrival of the Games turned it into a business centre requiring a robust network infrastructure to cater to thousands of journalists, athletes and spectators.

Early on, Bell stepped up to the challenge and built the fibre optic network that ran along the highway. The network spans 130 venues (akin to an enterprise with 130 branch offices) in both cities including competitive venues, VANOC headquarters, data centres, media centres and athlete villages. During the Games, every video signal between every venue and the International Broadcast Centre was carried over Bell's fibre optic network, as was every audio circuit that broadcasters used to add commentary to their footage.



Bell migrated all of VANOC's communications needs to Bell's 2010 Olympic Winter Games network a full 12 months ahead of the Games – marking the earliest telecommunications completion in Olympic and Paralympic Games history.

When the 2010 Olympic Winter Games were over, the fibre optic network became Bell's long-term legacy for the local community. It was the first time the entire transportation corridor between the Vancouver and Whistler venues had seamless coverage, providing local businesses with increased connectivity so they can move information and data quickly to customers, partners and suppliers.

First IP Network in Olympic Games history

Flawless, available, and reliable real-time network access was another important challenge for VANOC. Just like a large bank or hospital needs the right network in place to ensure zero glitches and downtime, the 2010 Olympic Winter Games needed similar infrastructure to ensure athletes' times were captured and media had continuous access to the network no matter where they were and despite hectic traffic patterns.

Previous Games were delivered with Digital Subscriber Line (DSL) service, Private Branch Exchange (PBX) and separate staff at each venue. One of Bell's first recommendations was to converge all voice and data over a single network to take the Games into the IP world. The flexible and scalable unified IP network meant less cabling, fewer switches, and reduced support, all of which considerably lowered overall costs. Staff integrated new employee communications quickly, easily and cost-effectively, which was crucial to supporting the growth of VANOC's headquarters from 500 to 30,000 staff and volunteers during the Games.



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With approximately 15,000 VoIP connections, VANOC employees and volunteers were completely mobile at all times, simply plugging in and working from anywhere with the same reliability and security as traditional telephone lines. Just as VoIP enables an enterprise to quickly bring on board a new branch office, VANOC's all-IP converged network on an Ethernet infrastructure meant that as new venues were completed and equipment installed, voice line intelligence (voice, data, and wireless) was readily available for quick connection to the network.

Success is reflected in the record-breaking numbers. The network delivered more than 24,000 hours of broadcast coverage to more than 3.5 billion viewers around the world – the most in Olympic history and a 50-per-cent increase over the previous Winter Games. A staggering one trillion packets of data flawlessly traversed Bell's Vancouver network during the Games, as did 90 million minutes of mobile voice traffic and 30 million megabytes of mobile data.

The entire IP network was centrally managed, meaning highly skilled managers could oversee the operation of the entire network rather than entry level people at each venue. This increased efficiencies, reduced human error and offered maximum uptime – the same results that enterprises with branch offices can achieve with centrally managed services.

"Because of Campus 2010's dispersed nature, IP allowed us to converge data, voice, video and broadcast over one network to improve reliability, reduce costs, and easily build in redundancy," says Mr. Chapin. "It was so much simpler due to less cabling, fewer switches, and no need for a PBX for voice. As our workforce grew leading up to the Games, moves/adds/changes were significantly reduced and less support was required. With an IP network, phone numbers were hardwired to all staff, enabling the phone IP address to follow them via



Screenshot of vancouver2010.com

their laptops, wherever they were. It would have been a nightmare to monitor and track this on a non-IP network."

All eyes on vancouver2010.com

Given the incredible amount of content needed to deliver an effective Games experience, VANOC also commissioned Bell to design, develop and manage an engaging, feature-rich and easy-to-navigate Web portal with capacity, secure delivery, and the ability to support a large breadth of applications from e-commerce to customer relationship management (CRM).

The Web Solutions team at Bell jumped at the challenge. They identified best practices in functional and presentation requirements, conducted extensive usability testing and wire framing exercises, developed creative and strategic templates, and provided ongoing consulting during construction of the information architecture. Bell's talented team of Web professionals created a compelling design for vancouver2010.com so visitors could track the athletes and their standings, check out the latest medal count, and recap the day's events. Bell also developed and managed the Web analytics component, allowing VANOC to monitor and analyze traffic and assess the site for improvements leading up to the Games.



The portal was incredibly successful. Some 300 million people visited the Bell-designed and architected vancouver2010.com portal, shattering the previous visitor record of 105 million set during the 2008 Olympic Games in Beijing.

Redundancy and security inherent

No doubt, one of the most crucial aspects of the infrastructure was ensuring the security and availability of the core network infrastructure and Web portal. The 2010 Olympic Winter Games was the most mobile of any previous Games, with 15,000 users able to access the network at one time. Bell's network design paid exceptional attention to building in redundancy, security, high availability and business continuity. As Mr. Chapin puts it: "We needed 24/7 network availability for 17 days straight."

Bell's Managed Firewall Security Solution included authentication for authorized users, securing the perimeter through firewalls to prevent outside attacks, and developing a business continuity plan for the network. As an added security precaution, VANOC commissioned Bell Professional Security Services to conduct vulnerability and penetration testing on all facilities, provided by third parties, to ensure the right measures were in place to secure the core infrastructure from a potential attack. As with any business with an external facing technical infrastructure, Bell imposed a best practice measure to assist VANOC with securing external interfaces through known attack profiles.

Given today's evolving threat landscape, a major area of concern was the vancouver2010.com portal. During the Games, the portal received 1.1 billion page views from a worldwide audience. To

guarantee uptime and ward off cyber attacks, Bell utilized a content distribution network combining 30,000 servers worldwide to ensure a fast user experience as well as a secure and robust system in the face of potential security breaches. This enabled VANOC to reduce its Web solutions costs to half that spent by organizing committees of prior Games. In addition, Bell's strong relationships with a number of critical third-party suppliers meant VANOC could secure preferred pricing to reduce operating costs even further.

"Bell delivered the most-watched Winter Games in Olympic history to Canada and the world," says Mr. Chapin. "Every image seen on TV, every story read around the world and every real-time score transmitted during the Games traversed Bell's communications solution. Bell truly lived up to our expectations and to its reputation as Canada's communications leader."

Bell

Bell is Canada's leading provider of information and communications technology solutions. Bell delivers innovative technology platforms, coupled with unparalleled connectivity to address the business communications needs of governments and commercial enterprises alike. With a business sophistication that is unmatched in the industry, Bell designs, builds and operates the critical infrastructures that power many of the largest networked organizations, in Canada and around the globe. Bell continues to be the leader in technology convergence and collaborates closely with clients to define solutions that help them unleash the full potential of the network.

For more information contact your Bell representative or visit bell.ca/enterprise.



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