



Wireless and Canada: The Future Is Here

Canadian wireless is more than a century old. Canada hosted Marconi's first trans-Atlantic radio transmission in 1901. And today Canada continues to be at the forefront of developing new and innovative wireless technologies and solutions. Whether it's WiFi, mesh networks, WiMAX, RFID, UWB or SDR, Canadian companies are among the world leaders in these rapidly evolving technologies.

Canadian companies such as **Nortel Networks**, **Research In Motion (RIM)** and **Redline Communications** lead the way with solutions that address dispersed populations, challenging geography and the need to maintain productivity while on the move.

The Canadian value proposition

The Government of Canada is encouraging wireless strength and innovation through policies that provide research and development (R&D) support for new solutions and technologies to ensure equal access for all Canadians.

That's why smart, forward-thinking and innovative Canadian companies are providing profitable wireless solutions to markets all around the globe.

Canada has also attracted R&D world product mandates from many multinational organizations such as **Alcatel**, **Ericsson**, **Motorola**, **Nokia**, **Nortel Networks** and **Siemens**.

Sandvine Incorporated is an excellent example of a Canadian innovator that has partnered with Motorola and Alcatel. Its award-winning intelligent broadband solutions monitor network traffic. This enables service providers to improve customer satisfaction, reduce operational costs and increase profitability.

> PORTRAIT OF A LEADER

- Canada has the highest percentage of individuals with college or university education among OECD countries.
- Canada has a world-class advanced research network, CANARIE – CA*net 4, linking university, government laboratories and hospitals.
- Canada leads the G7 group of industrialized countries in broadband penetration.

Canada's enabling regulatory environment not only fosters competition, it also spurs companies to develop new and innovative customer acquisition, care and retention programs. Canadian operators were quick to collaborate on SMS, short codes and MMS, and were also first in North America to ensure interoperability between the different Canadian network operators.

Wireless products and services — Canadian excellence

Wireless is a complex environment, with new and disruptive technologies constantly emerging. But whatever the wireless product or service, there's a very good chance that Canada can provide a solution — with excellence!

Mobile devices and modems

In the contemporary wireless world, it's been clearly shown that the best enablers of mobile communications are Canadian.

- **Research In Motion (RIM)** is the pre-eminent designer, manufacturer and marketer of innovative wireless solutions for the worldwide mobile communications market, including push email. RIM products include the BlackBerry® wireless platform, software development tools, and solutions for CDMA, GSM and 3G networks.

"Canada offers a positive business environment for high-tech companies, with exceptional research and education institutions and a very attractive quality of life."

— Mike Lazaridis, President and Co-Chief Executive Officer, **Research In Motion**

- **Sierra Wireless** is a known leader in developing innovative wireless data technology. The company offers the broadest and most versatile product line in the industry including the AirCard® line of wireless PC Cards, embedded modules for OEM wireless applications and the mobile product line of rugged vehicle-mounted connectivity solutions.
- **Wireless Edge** produces innovative solutions for enterprises and service providers wanting to use wireless and mobile data services for connectivity to their networks. The BeFast and BeSecure products help customers deal with performance, cost or security challenges with network-based technology that is easy to deploy and manage.

WiMAX and wireless mesh

WiMAX provides high-speed wireless connectivity for large geographic areas at relatively low costs. Wireless mesh is a solution of choice because of its flexibility and versatility. Canadian companies are showing leadership abilities — whatever the application.

> REDLINE COMMUNICATIONS

Redline Communications is the world's first company to have a complete suite of WiMAX equipment successfully certified. The company supplies standards-based broadband wireless access equipment to operators, service providers and enterprises worldwide.

- **BelAir Networks** provides secure and scalable wireless mesh network solutions that deliver voice and data services for operators, municipalities, enterprises and university campuses. With more than 150 deployments worldwide, BelAir Networks is the premier company delivering a complete and comprehensive wireless mesh product line.
- **Nortel Networks** offers mobile connectivity products and services, including cellular, WiMAX, mesh and wireless local area networks, to operators, enterprises, university campuses and governments around the globe. Nortel's Wireless Mesh Network won the Best of Show Award at Interop Tokyo 2006 for the Mobile Wireless Product Category.
- **SR Telecom** designs, manufactures and deploys a variety of broadband wireless access solutions, used in more than 130 countries — connecting nearly two million people.
- **Wavesat** is a fabless semiconductor developer of WiMAX broadband wireless network chips and development tools. As a market leader, Wavesat has released the first WiMAX chip in the world. It offers silicon solutions to allow system manufacturers and operators to deploy WiMAX fixed wireless networks and transition smoothly to WiMAX 802.16e mobility technology in the future.

Ultra-wideband and radio frequency identification

Ultra-wideband (UWB) is a wireless technology transmitting large amounts of digital data over a wide spectrum of frequency bands with very low power over short distances. Radio frequency identification (RFID) technology refers to wireless systems that allow a device to read information contained in a wireless device or tag for quick and automatic identification of goods, animals and people. Both UWB and RFID technologies have ushered in a new era of applications and advantages — and Canadian companies are at the forefront.

- **Icron** leads the way in UWB with the development of wireless USB solutions, and its ExtremeUSB® was recognized as one of the top 75 technologies at the 2006 Consumer Electronics Show held in Las Vegas.
- **Sirit Inc.** designs, develops, manufactures and sells RFID technology for applications including: electronic toll collection, access control, cashless payment systems, product identification and supply chain management systems.
- **Psion Teklogix** is a global provider of solutions for mobile computing and wireless data collection, with more than 25 000 system deployments. Psion Teklogix delivers customized RFID that can be integrated with existing mobile networks, bar-code readers, SAP and other types of infrastructure.

Software-defined radio and satellite communications

Software-defined radio (SDR) allows a device to distinguish and use different frequencies and platforms based on what is available and user preference. Satellite communications are a significant component of domestic and global communications infrastructure. Canadian expertise in satellite communications and SDR contributes to the nation's innovative capacity, resulting in advanced product development.

- **Advantech AMT** is a world-leading designer and manufacturer of microwave communication products for satellite ground stations, wireless base stations, wireless backhaul and wireless access. With offices in Canada, Europe and the U.S.A., Advantech AMT provides global product support expertise.

- **ISR Technologies** uses SDR to offer solutions to the private and military sectors. Its software-defined modem platforms and communication subsystems are unparalleled in flexibility, scalability and performance.
- **Ultra Electronics, Tactical Communication Systems (TCS)** is a leading global supplier of UHF radio relay and area communications systems. TCS provides advanced radio products that serve as the backbone of modern tactical line-of-sight radio networks. These radio networks provide secure, battlefield trunk telephone and high-capacity data telecommunication services to link battlefield theatre commanders and their combat forces.

> COMMUNICATIONS RESEARCH CENTRE CANADA (CRC)

CRC has developed an SDR system that can provide reliable, uninterrupted communications between radio and other devices, and offers a complete suite of SDR software development tools under license.

Cutting-edge Canadian research

Canadian wireless continues to set global standards of excellence. World-renowned Canadian research results in innovative solutions for broadband wireless access, smart antennas, MEMS, cognitive and software radio, last-mile solutions, wideband OFDM and UWB radio. This innovative research is taking place at facilities across Canada, including:

- Major global companies such as **Alcatel, Ericsson, Motorola, Nortel Networks** and **Siemens**.
- **The Communications Research Centre Canada** (www.crc.ca) — the Government of Canada's primary research laboratory for advanced communications technologies. CRC conducts R&D and testing of new wireless concepts, prototypes and products, and collaborates with partners around the world in mobile systems, broadcasting and coding, advanced antenna systems, broadband and network protocols.
- **The Canada Network of Wireless Centres (CWCnet)** (www.cwcnet.ca) — a nationwide network of public wireless centres of excellence. CWCnet leverages strength in wireless communications R&D, and enhances the productivity, commercialization and innovation capacities of small and medium-sized enterprises.

More Canadian wireless research organizations

- **International Institute of Telecommunications – Research** (www.iitelecom.com)
- **Network for Emerging Wireless Technologies** (www.newt.trilabs.ca)
- **NRC Institute for Information Technology** (www.iit-iti.nrc-cnrc.gc.ca)
- **Telecom Applications Research Alliance** (www.tara.ca)
- **TRLabs** (www.trilabs.ca)

Get on the Canadian wireless beam

Take advantage of Canada's great wireless environment!

For further information, visit our website:

www.strategis.gc.ca/ICT