

computer-controlled exchange permitting subscriber-to-subscriber dialing without operator assistance. Computerized switching integrates the Canadian domestic Telex and TWX networks with the overseas network, handling more than 4,000 messages an hour.

Data communications

16.1.1.3

Member companies of the TransCanada Telephone System and CNCP Telecommunications offer a wide selection of the data communications services necessary in a modern industrial country.

The telecommunications carriers provide a range of terminals for transmission and reception. There are printer terminals that can be used for computer access, cathode ray tube terminals that display information on a screen and a variety of more specialized machines. Customers may also use their own terminal equipment.

A number of different transmission systems may be used. Many customers have private-line networks linking scattered locations. Others employ pay-as-you-use data transmission services. Transmission speeds vary from less than 100 words a minute to the equivalent of 50,000.

Introduction of digital transmission networks in early 1973 provided the first nationwide commercial digital systems in the world. Digital transmission permits reduced costs by more efficient use of existing circuits and ensures improved accuracy, vital in high-speed data transfer. Introduction of packet switching and digital circuit switching systems in 1977 was another major development.

Provision of data communications in Canada is undertaken competitively by two major national carriers, CNCP Telecommunications and the TransCanada Telephone System. Data communication between Canada and points outside North America is provided through Teleglobe Canada. In co-operation with the British post office, Teleglobe inaugurated a Canada-UK data link in January 1976. Work is under way to expand the service to other countries with the aim of introducing a public data network in conjunction with domestic carriers and foreign telecommunications administrations.

The network

16.1.1.4

Three microwave routes and a satellite system form the backbone of Canada's telecommunications network. Two of the routes belong to the TransCanada Telephone System, the third to CNCP Telecommunications. Canada's first coast-to-coast microwave system, completed in 1958 by TCTS, and extending almost 6 400 kilometres carries the bulk of network traffic. Telesat Canada provides additional facilities throughout Canada over satellite communications, and Teleglobe Canada uses Intelsat satellites as well as undersea cables to provide the global connection.

Telesat Canada launched Anik I, the world's first domestic commercial communications satellite on November 9, 1972. A back-up, Anik II, was launched in April 1973, and another, Anik III, in May 1975.

Initial commercial service to Telesat customers began during January 1973 through a network of earth stations strategically located across Canada. Basically, satellite communication is a long microwave link; transmission is comparable to that of existing microwave systems with the added capability of transmitting to areas which had not been well served by more conventional means.

The Anik series provides television distribution to all parts of Canada and improved telephone communications to the North, and supplements existing microwave systems. The Anik generation of satellites has a projected seven-year life cycle.

Satellites used by Telesat and Teleglobe Canada are stationed about 35 900 kilometres above the earth. Although Anik is exclusively a Canadian domestic system, other satellites in the Intelsat international system and a vast network of undersea cables make it possible for Canadians to communicate with virtually all countries in the world.

Satellite transmission began with the launching of Telstar in 1962, 10 years after the first telephone and multi-purpose submarine cable in the world was laid across the Atlantic by Teleglobe Canada and three other carriers. This first cable, with 80 circuits and the most recent, with 1,840 circuits, still help meet growing demand for overseas telecommunications.