

A number of different transmission systems may be used. Many customers have private-line networks linking scattered or remote 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 words a minute.

Computers and their terminals "talk" in digital language. In 1973 Canada became the first country to have its own nationwide commercial digital data networks. Digital transmission permits reduced costs by more efficient use of existing circuits and ensures improved accuracy, vital in high-speed data transfer.

Another major development was the introduction of digital circuit-switching and packet-switching systems in 1977. In packet switching, data are broken into small packets which are immediately shuttled through the available network facilities. One does not have to wait until there is transmission time available to send all the data at once.

In co-operation with the British Post Office, Teleglobe Canada inaugurated a Canada-United Kingdom data link in January 1976. In 1979-80, the Crown corporation anticipated the completion of a packet-switching link between the Canadian data networks and the packet-switched networks in England, France and Japan. In the same year, a circuit-switching link will tie the Canadian networks into the German and Scandinavian networks which use circuit-switching technology.

The data communications business is growing rapidly in Canada. For example, in 1978 Bell Canada's Dataroute recorded an annual increase of 33% in the number of customer circuits added to the network.

In 1978, CNCP Telecommunications asked the CRTC to require that Bell Canada permit CNCP to interconnect with the telephone company's local switched network. Bell Canada and the other TCTS members argued against this request. In May 1979, the CRTC decided in favour of CNCP, arguing that interconnection would enable CNCP to compete more equally with the telephone companies in the provision of data-communications services and that such competition would benefit Canadian users. Bell Canada appealed this decision to the Governor-in-Council in June 1979. In July, the Governor-in-Council decided to uphold the CRTC decision.

Videotex. Such new information technologies as two-way TV may bring the power of the computer into every Canadian home. They will also add another dimension to the intense competition for a share of the data communications market. The federal communications department has developed a two-way TV system called Telidon. Bell Canada has also developed its own two-way TV system — Vista. In co-operation with Southam Inc. and Torstar Corp., Bell Canada was testing this system in 1979. Users of the system are able to interact directly with computer-based information sources from their home or office, using a regular television set, which serves as the display for text and simple graphic information.

16.2.4 Telecommunication networks

Canadian telecommunication networks form a vast grid stretching across land and water from the East to West coasts, with branches north and south and extending into virtually every community. The networks consist of open wires, cables, microwave systems, the domestic communications satellite system and a vast array of different types of switching facilities. Their function is to link terminal devices, everything from telephones to computers, with a compatible terminal at the other end.

The backbone of this system is formed by Canada's three nation-spanning microwave networks. These networks consist of microwave stations about 50 km apart which relay radio signals, amplifying them along the way. In general, each microwave channel can carry more than 1,200 telegraph, data or telephone messages or, alternatively, one TV circuit. The TransCanada Telephone System (TCTS) owns and operates two of these networks. CNCP Telecommunications operates the third.

Terrestrial microwave systems are supplemented by the Anik satellite system of Telesat Canada, a TCTS member owned jointly by the federal government and the industry.

In November 1972 Telesat Canada launched Anik I, the first domestic commercial communications satellite in the world. A back-up, Anik II, was launched in April 1973