

Telesat Canada was incorporated in 1969 to establish and operate a domestic satellite system to supplement the terrestrial microwave systems. In 1972 Telesat Canada launched Anik A1, the world's first commercial domestic communications satellite, into geostationary orbit around the earth. Anik A2 was launched in 1973 and Anik A3 in 1975, to ensure reliable service and to keep pace with potential additional requirements. Each of these satellites had 12 channels in the 6/4 Gigahertz (GHz) frequency range.

These satellites, locked in geostationary orbit about 35 900 km above the equator, were comparable to enormous microwave towers. Signals sent to them could be relayed anywhere in Canada, and especially to areas too remote for economical service by terrestrial networks.

Initial commercial service to Telesat customers began in January 1973 through a network of earth stations — facilities for picking up satellite signals and also sending signals to satellites — strategically located throughout Canada. There are now hundreds of earth stations. Under federal regulations they can be owned not only by Telesat Canada but also by educational-TV networks, other telecommunications carriers and cable systems.

Telesat Canada launched Anik B, the world's first commercial dual-band satellite in December 1978. Like the Anik A satellites, Anik B has 12 channels in the 6/4 Gigahertz (GHz) band to replace some of the Anik A capacity. The new satellite also operated six channels in the 14/12 GHz band, where a higher-power beam could be used because of the lack of terrestrial communications services using this frequency. DOC began using four of the higher-frequency channels in early 1979 to continue exploration and development of new satellite communications services using techniques developed with its Hermes satellite. The 14/12 GHz band was used commercially for the first time in bringing French-language TV programming to several communities in Quebec in September 1980.

When Anik A1 and Anik A2 reached the end of their seven-year design life, they were still capable of limited use. But demand for 6/4 GHz satellite channels to distribute radio and television services rose in 1981 at the same time as the number of channels decreased because these two Anik A satellites had exceeded their lifespan. In response to this shortage, Telesat Canada launched Anik C1 and Anik D1 in 1982. Three Anik C-series satellites were planned, each with 16 channels in the 14/12 GHz band, to provide heavy route message service, possible business services and other new services, including TV distribution. Two Anik D satellites, each with 24 channels in the 6/4 GHz band, were also intended to replace and supplement the Anik A capability.

Canadian telecommunications networks interconnect with United States networks to reach the rest of North America.

Teleglobe Canada provides interconnection with international submarine cable and communications satellite networks linking Canada with countries outside North America. These international gateways or switching centres are in Montréal, Toronto and Vancouver. In Nova Scotia, Teleglobe operates an earth station which ties Canada into the international satellite communications system.

Roughly 44% of Teleglobe's total circuits were for satellite communications in 1981, and 56% tied Canada into the international submarine cable network. It was expected that nine international communications satellites would be launched between 1980 and 1984. Meanwhile, Teleglobe has been party to international planning for use of fibre optics technology in submarine cables, and for the construction of new submarine cables to cross the Pacific and Atlantic oceans.

Teleglobe collaborates with telecommunications administrations in other countries and a variety of international bodies to maintain and operate this sophisticated globe-girdling international network.

14.3 Telecommunications services

Telegraph services have given way to newer record communications services such as telex and a teletypewriter exchange service (TWX). From 1974 to 1979, the number of telegrams handled by CNCP declined, although the telegraph still served people who did not use telex or TWX. Many local telegraph offices were closed in favour of toll-free telephone service to the nearest area telegraph office. Newer services included data communications, facsimile and various message services. Then videotex technology promised to add a new dimension to communications in homes and offices. The new information technologies have enabled Canadian carriers and federal agencies to provide an increasing range of telecommunications services to remote northern communities while linking domestic services with more countries around the world.

14.3.1 Voice communications — telephony

Meanwhile, Canadians have been using a growing number of telephones (Table 14.3). Despite the increase from 13.2 million to 16.8 million telephones, the number of telephone companies fell from 850 in 1975 to 120 in 1982. Each telephone company was responsible for integrating its facilities with those of all the others. Collectively, the nine largest Canadian telephone companies, which controlled about 95% of the telephones, operated the two TCTS microwave networks and all had access to Telesat Canada's satellite system for transmission of long-distance calls.

For a basic monthly charge, most telephone users can place as many calls as they wish in a defined area and talk as long as they like. With the expansion of major cities and the merging of small towns into