"read" the code represented by the arrangement of the punched holes. As the tape is read, signals are sent to the machine on the receiving end of the circuit.

Multicom is a wideband data service that allows the customer to pay only for transmission time used. It was introduced on a nation-wide basis in 1970. There are three classes of Multicom service and a subscriber can dial-up any other subscriber in Canada on the same class of service. With features designed specifically for data transmission, as opposed to voice transmission, Multicom provides reliability and low error rates.

Multicom I provides data and voice transmission between specified locations at speeds up to the capability of the public telephone network (2,000 bits a second). Users can connect with each other over the direct distance dial network.

Multicom II provides medium-speed data transmission up to 4,800 bits a second. It is functionally segregated from the direct distance dial network, but is integrated to the extent of using the same switching stations, microwave towers and other facilities. Provided the customer's business machines have the capability, data can be transmitted both ways simultaneously on Multicom II.

Multicom III provides transmission at speeds of 19.2, 40.8 and 50.0 kilobits a second over a network integrated with the regular telephone network but is, like Multicom II, functionally separate. Multicom III permits simultaneous voice and data transmission.

TCTS also provides wideband data channels that offer a special high-speed service to customers who need such transmission facilities on a full-time or dedicated basis. Unlike Multicom, wideband data channels are paid for on a 24-hour basis and operate outside the public telephone network.

Broadband exchange service. In 1967 CNCP Telecommunications introduced an automatic voice-data switching system known as broadband exchange service, a high-quality, rapid communications system. It is the first such system to operate in Canada and the second in the world. Broadband has more than tripled the transmission speeds for switched data services; furthermore, it has the capability, on customer demand, of transmitting computer data at 51,000 words a minute, or about 50 times faster than the top speed reached by conventional switched networks. The first organization to be tied into this modern network was the Royal Canadian Mounted Police, who use it for high-quality transmission of fingerprints, photographs and documents between headquarters at Ottawa and divisional headquarters at Montreal, Toronto, Winnipeg, Edmonton, Regina, Vancouver, Fredericton, Halifax and St. John's.

The name broadband exchange service is derived from the actual system since it is designed to permit various bandwidths, depending on the communications needs of subscribers. The system can switch four bandwidths: four and eight kilohertz for voice, facsimile and data (from 1,000 to 3,000 words a minute); 16 kHz for high fidelity radio program transmission and facsimile; and 48 kHz for high-speed computer-to-computer data exchange (51,000 words a minute) and high speed for facsimile. The four-kilohertz bandwidth is operational and the other bandwidths will become available upon customer demand. Transmission is carried by the CNCP microwave system using frequency diversity techniques to provide a high degree of reliability. In other words, the transmission is carried over different circuits at the same time, one being the back-up system for the other.

Each subscriber has in his office a voice-data subset which can be changed from voice to data communication. The subset features push-button "dialling" and the customer, to reach a distant point, simply keys a series of seven digits. The first three digits designate the distant exchange, the fourth digit indicates the desired bandwidth and the last three digits select the line of the desired party. A re-ring button is included so that the customer may signal the distant party to revert to voice communication during or after sending data. A feature of broadband is abbreviated keying, which allows customers to contact frequently called stations by pushing a two-digit code instead of the normal seven digits. Broadband will establish connections, including keying time, within five seconds, or two seconds on the special "hot-line" service. Actual connection time after keying or "dialling" is less than two seconds. Another feature of broadband is conference calling; a subscriber, by pushing a two-digit code, will automatically contact a pre-determined list of parties needed for the conference. Subscribers are charged on a "pay-as-you-use" basis.