

procedures are in place, and that operations personnel have been trained when equipment is readied for service.

A severe test of the support systems in the national network can occur when an unexpected condition interrupts service. This may be a natural phenomenon such as a flood or landslide, a man-made hazard such as a fire or someone accidentally digging through a major cable, or an event, such as a snow storm, which triggers an excessive number of calls either in one location or across the network.

Experience has shown that interdependence of network elements can cause additional problems far greater than the original one if rapid and effective action is not taken. The converse is that effective action can minimize the problems.

The job of the traffic network managers is to apply controls on the network to allow it to perform at its maximum capability in any adverse condition. From the NNOC they have the ability to modify routing in switching machines to avoid trouble spots.

They can block calls which for some reason cannot complete so those calls are not tying up network resources which could be available for other traffic. These managers rely on automated systems for their information and for sending their control messages, as well as for some pre-processing of the input information. But much of the decision making depends on their training and skills.

In the end, it is this investment in training and skills—in all areas of network management—that contributes the most to the smooth operation of Telecom Canada's \$24 billion network. Without this investment, there would be no network, and no service.



DATA COMMUNICATIONS

IN RESPONSE TO THE NEED for high-speed and dependable data and computer communications, the TransCanada Telephone System (now Telecom Canada) introduced Dataroute in early 1973—the world's first public digital data network on a countrywide customer-to-customer basis. This was closely followed by CNCP's nationwide and competing Infodat network. By 1977 the Datapac network of TransCanada Telephone System and the Infoswitch network of CNCP were established across the country to provide fully switchable digital data networks using the new packet switching techniques. Telecom Canada led the way in developing an internationally recognized packet switching standard called X.25, which has been ratified by the International Telegraph and Telephone Consultative Committee (CCITT). Both Infoswitch and Datapac can be extended to other countries through Teleglobe Canada's Globedat, an international data gateway, which routes both packet and circuit switched traffic and provide low-to-medium speed data transmission.

As the market develops, more and more service offerings are appearing to suit the needs of special interest users. Electronic mail is handled through Telepost, a joint CNCP and Canada Post Corporation service that combines electronic messaging with the established postal network. Both Telecom Canada and CNCP have services that allow word processors made by different manufacturers to communicate with each other. Infotex is the main CNCP service while Telecom Canada offers a similar service under the generic name teletex. For access to databases Telecom Canada has a service called iNET 2000 that acts as a guide and gateway to a wide range of computer-based information services.

Terminals are changing rapidly as demand grows for the integration of office functions and as the industry moves towards an integrated services digital network (ISDN). ISDN is the industry specification for an all-digital, end-to-end telecommunications network. Bell Canada plans to trial market ISDN among customers beginning in mid-1987 to assess impact on its network, services and customers.

Some of the firms described in this brochure offer ISDN-related equipment and services and a few describe their local area networking (LAN) capability. However, the reader can find more information in the nearest Canadian Embassy, High Commission or trade office by asking for other brochures such as "Computing Products for World Markets".