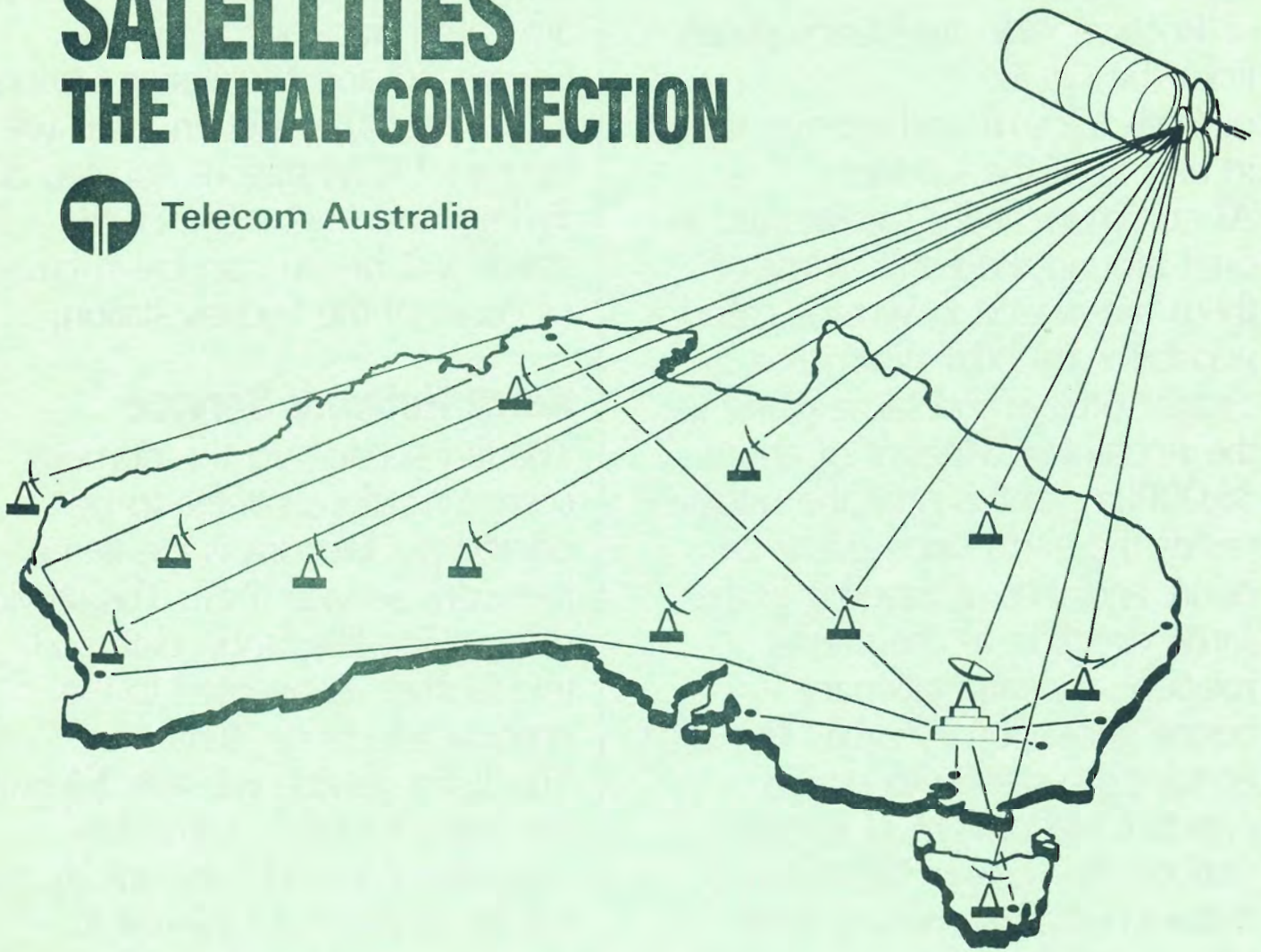


SATELLITES THE VITAL CONNECTION



Telecom Australia



Satellite technology is nothing new to Telecom — our use of satellite circuits back in 1969, was the first time in the free world that a satellite had been used for national communications.

In the latter half of 1985, Australia will join an increasing international trend towards the use of satellites with the launch in July and October by the US Space Shuttle of the first two satellites in Australia's domestic satellite system. The Australian system will be

owned and operated by AUSSAT as a separate company.

Telecom has taken up 25% ownership of AUSSAT and will be leasing satellite capacity to offer its customers a wide range of telecommunications services.

What is a satellite communication system?

The basic elements are:

A satellite in orbit which acts as a space relay station, receiving radio signals, translating frequencies, amplifying the signals and then retransmitting them, and Earth stations which either — send signals into space in the

form of radio waves directed at the satellite

or Receive radio frequency signals from the satellite

or Both transmit and receive signals to and from the satellite.

All communications satellites are in orbit around the earth. Most of them are placed in what is called a geostationary orbit which is a circular orbit in the same plane as the equator at a height of about 36,000km. In this orbit the satellite circles the earth once every 24 hours and thus, if travelling in the same direction as the earth's rotation, appears stationary — hence geostationary orbit. The orbit enables the satellite to stay in constant line of sight of the earth stations. Because of the distance between the transmitting earth station and the receiving earth station of at least 72,000km there is a signal delay of about 0.27 seconds. On a two-way satellite telephone link, for example, there would therefore be a minimum time lag of more than 1/2-a-second between the end of one sentence and the reception of the ensuing reply. In practice, users do notice this delay but quickly adapt to it. All commercial satellites currently use solar cells as their main energy source.

Earth stations usually consist of a dish-shaped antenna and associated microwave receivers and/or transmitters. Specially equipped earth stations are required to

provide ground control for the satellite system. These earth stations are called Tracking, Telemetry, Command and Monitoring Stations. In the Australian system there will be two TTCM stations, located at Sydney and Perth. The Perth station will be on standby in case of failure of the Sydney station.

Iterra Network Service

The first service via the domestic communications satellite to be offered by Telecom is the Iterra Network Service (INS). This service will provide telephony, data and text facilities, connected to the national telephone network.

The Iterra service will give Telecom the ability to satisfy immediate customer demand very quickly and will be of particular interest to organisations operating in the more remote areas of Australia.

Major industry groups which have expressed interest in the service are: mineral and exploration companies, oil and gas production companies, major pastoral stations and tourist developments in the more remote areas.



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