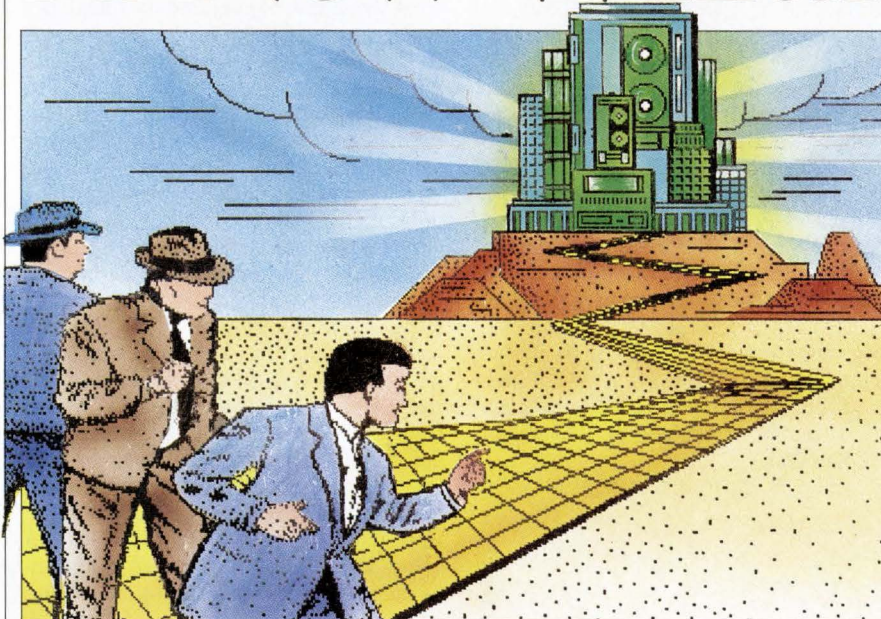


In an effort to cash in on its national computing resources, the Australian government is sharpening the commercial edge of a onetime sleepy research institute, CSIROnet. It has already set up a range of international database services, a bureau for the Australian scientific community, and marketing deals in Asia. By 1990, CSIROnet hopes to become a significant profit-making force in the Australian IS industry.

A New Wizard in Oz



BY NORMAN KEMP

The most powerful computer in Australia—a Control Data Cyber 205—is now helping scientists investigate the devastation of large portions of the country's famous oceanic asset, the Great Barrier Reef. The culprits are massive hordes of crown-of-thorns starfish that are devouring the live coral.

The supercomputer, which is fronted by a Cyber 845, is run by CSIROnet, a onetime sleepy research institute that now is being magically transformed by the Australian government into a hard-edged commercial wizard. In its new guise it has to fulfill an entrepreneurial role as a revenue-producing, value-added service provider and consultant. The starfish project is a prime example of how it is linking commerce and science in an unusual but vital national project.

Divers who work under the water for two thirds of the year provide visual reports for scientists at the Australian Institute of Marine Science in Townsville on the Northern Queensland coast. Using a range of personal computers, sensitive measuring devices, and a Digital Equipment Corp. VAX 11/785, those scientists monitor the life cycles of the starfish edging down the 1,000 miles of multicolored coral that is classified as one of the world's natural wonders.

The supercomputer allows the researchers to process information up to 100 times faster than their previous equipment had. Apart from analyses that may prevent unlimited wanton damage to an important part of Australia's natural heritage, the researchers also are making a substantial contribution to the preservation of one of Australia's most important commercial assets. The Reef attracts tourist business worth millions of dollars a year.

Scientific cooperation that also assists the nation's business interests is one of the major directions for CSIROnet. For 17 years, CSIROnet was a back-room enclave for computer research and development experts of the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Black Mountain, Canberra. Now, CSIROnet has been unleashed as a trading organization with the charter of an unlisted public company to sell computer services on bureau-type hardware ranging from mainframes to communications nodes. It is also developing worldwide packet switching networking facilities and links between databanks in Australia and overseas.

In its new role, CSIROnet has been looking for partners for overseas ventures and has appointed a national sales force to market its products and launch

its new image inside Australia. Early in 1987, David Glavonjic was named chief general manager of the organization. Glavonjic joined CSIRO in 1966 with an accounting diploma from a Canberra university. More recently, he was the second-in-command to CSIROnet's former chief executive, Peter Claringbold, who retired in 1986.

"By July," predicts Glavonjic, "CSIROnet will be self-financing with a strong sales force selling value-added professional services, and it will be a provider of facilities for networks. We have now established a healthy customer base, developed strategies for further market penetration, rationalized our cost structure, and developed a commercial focus for our development activities. CSIROnet is poised on the threshold of an exciting future—one that will see the organization emerge as a significant Australian force in the information technology services industry."

CSIROnet's First Joint Venture

During March, CSIROnet geared up for its first joint venture—a major international marketing deal targeted at Asia and China and involving a Hong Kong distributor, Four Seas Telecom. The product at the heart of the deal is the Ultranode, a Unix-based multiprocessor workstation for file management, data processing, and scientific computation. It also allows organizations to link various computer networks that have differ-

ent communications protocols.

Ultranode was a brainchild of CSIROnet. It was developed and built in conjunction with a Canberra manufacturing company, Network Research, formerly known as Office Automation Proprietary Ltd., which was acquired last year by Techway, a Sydney-based firm.

The new trading alliance, in which CSIROnet has a 40% interest, has been named Network Automation. According to Techway managing director, Jess Barker, CSIROnet will be the technical supplier and advisor, providing the main hardware, peripherals, and software that it has developed for the Unix System V operating system. Techway will provide the marketing facilities and commercial thrust that he hopes will raise the capital of the new company to \$A30 million (\$22 million) over five years.

Hopes for the Ultranode product hinge on two recent purchasing deals with the South Australian Department of Justice and the New South Wales State Rail authority.

The Department of Justice contract, in late 1986, marked the first attempt by CSIROnet to compete in a commercial deal. It won business worth \$A2 million (\$1.5 million) for the data communications component of the South Australian Justice Information System (JIS). Fujitsu Australia won the contract for the mainframe hardware, valued at \$A3 million (\$2.2 million).

The JIS, the first system of its kind in

Australia, will link the Attorney General's Department, Police, Correctional Services, Community Welfare and Labor Departments, and the Industrial Registry through a single computerized information network. It will cost about \$A20 million (\$15 million) to operate in its first six years of operation, but offsetting this will be estimated gains of \$A24 million (\$17.5 million) over the same period in the rationalization of data and the elimination of unnecessary duplication of information among departments.

The deal with the State Rail authority, worth \$A3.4 million (\$2.5 million), is for 84 Ultranodes from Network Automation. These will form the basis of a fully integrated communications network providing high-speed data links between three different computer systems and the many data management systems in use by the authority. Eventually, the State Rail network will also interface to the neighboring Queensland and Victorian State Rail data networks. Over the next five years, it will provide support for more than 3,000 terminals.

These commercial deals apart, CSIROnet is also building up its commercial profile as a bureau company. Before it became an autonomous unit, CSIROnet had established an extensive computing network offering wide facilities on Control Data and Facom (Fujitsu) mainframes. These included a Facom M180 and M190 with OSIV/F4 operating systems, and a Facom M159 with VM/CMS. In a joint venture with Fujitsu, these were used to develop operating system enhancements for the Fujitsu range including a programmer's tool kit for the Facom OSIV/F4 series and a system for file transfer and batch input and output.

Although CSIROnet has this substantial base of computers to fulfill its medium-term requirements, Glavonjic believes that there is an urgent need for a national supercomputer facility. CSIROnet has prepared a draft proposal for a national supercomputer strategy that he says would rank Australia with the U.S., Japan, West Germany, Italy, the Netherlands, and the United Kingdom. "Similar measures are required in Australia," he feels, "if we are to gain a foothold in high-tech areas so that local manufacturers can compete in the international market."

"The supercomputer project should not be regarded as a profit-making center but should be for a national tool," Glavonjic says. CSIROnet's own contribution toward a national supercomputer facility is the Control Data Cyber 205 with 16MB capacity. Initially,

The CSIROnet History

CSIROnet was established in 1963 as the computing research section of the Commonwealth Scientific and Industrial Research Organization (CSIRO), a government-financed technical organization based in Canberra. The CSIROnet network was set up in 1971 to link processors in five cities, and a number of distributed I/O peripherals, through one of the world's first packet switched networks.

Over the next eight years, the network was enhanced with Australia's first 48,000bps lines between Canberra, Melbourne, and Sydney. In 1979, the CSIRO/FACOM Joint Development Program began with a Facom (Fujitsu) M190. CSIROnet also began its first overseas services through the Overseas Telecommunications Commission Midas system. In 1980, joint development with Office Automation Proprietary Ltd. on the Micronode gateway terminal, which has since become the Ultranode, got under way. The first production model was delivered in 1983.

On Jan. 1, 1985, CSIROnet became an autonomous agency within CSIRO. A Facom M190 was upgraded to an M380, and a Cyber 840 was added. In 1986, several public databases, including the statistical Ausstats database, were added. By then, CSIRO had two LANs in use, each with a speed of 50Mbps. It also had more than 150 basic PDP-11 and Ultranode points of connection for interactive terminals, auxiliary computers and batch input or output devices, and 30 communications and host-connecting modes with 17 CSIROnet-owned and 36 non-CSIROnet-owned host computers and gateways accessible to users.

CSIROnet now has more than 3,000 registered users, including private firms, government departments, universities, libraries linked to the bibliography of the National Library of Australia, and overseas databanks including Dialog and Orbit.

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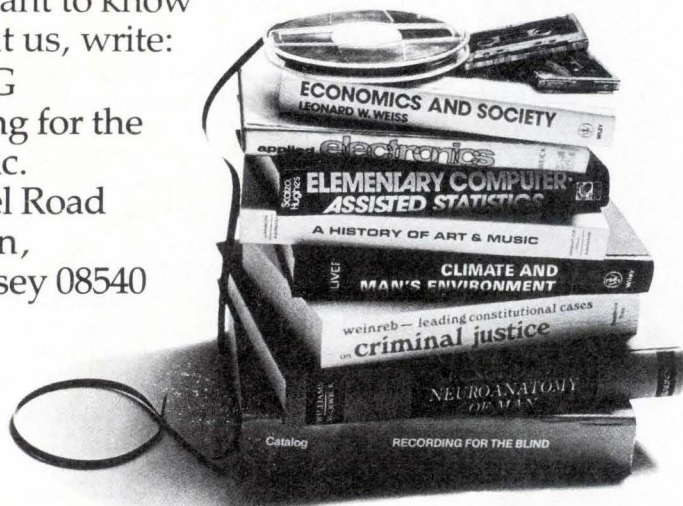
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this was leased for two years, but it was bought outright in January 1987 for \$A3.7 million (\$2.7 million).

Yet CSIROnet has had some problems making the best use of the system. High operating charges led to an indifferent response from corporate and government users, for whom the power of the machine was beyond requirements and the software too expensive. It won a few recruits when CSIROnet acquired Control Data's Cybernet computer bureau business, which had more than 200 customers. The main usage is now the result of a \$A5 million (\$3.6 million) deal with Telecom Australia for engineering development and future planning.

As commercialism rings the changes for CSIROnet, international moves toward recognized standards in communications for mixed networks are increasingly being supported. Common protocols and interfaces would facilitate the marketing of scores of CSIROnet software packages developed over the years. CSIROnet is also among the world leaders in the development of software supporting the Open Systems Interconnection networking protocols.

National databanks are another area of commercial interest for the organization. Australia has attracted consistently high levels of foreign investment, and it is apposite that CSIROnet service is heavily patronized for its trade and financial figures.

In the research field, CSIROnet provides access to databases on agricultural crop growth and harvesting, mining and exploration, and industrial planning and manufacturing expansion.

No Shortage of Plans

CSIROnet expects to consolidate its operations over the next couple of years, and it is not anticipating a profit on its activities until about 1990. With networks interlinking with overseas databanks and allowing quick communications between major centers in different countries, it hopes to quicken the growth of interest in Australia. Similarly, it is working with the government-owned trade and commerce organization Austrade to give wider promotion to Australian-developed ideas and products that are suitable for world markets.

Essentially, CSIROnet will focus its operations on being an organization for exchanging practical information with the world and placing not only the electronic services but the entire nation into a world of social and economic development until the end of the century. ■