New Policies and Guidelines for Connection to UQNET

This issue of The Prentice Bulletin describes the new policies and guidelines for connection to the University's computer communications network, UQNET. This is aimed to be an introduction to network planning, implementation and charges. A PCC Fact Sheet will shortly be released containing further details. Meanwhile, enquiries concerning the network may be directed to Mr Graham Rees, 377 3288.

About Networks

The ability for academics to communicate and search for information rapidly by computer networks is now a fundamental research tool. Therefore, it must be regarded as an essential part of the infrastructure of a technologically up-to-date University, and its use encouraged.

Networking is the key to the future. An effective campus network is an essential resource to keep the University competitive in its teaching, research and administration.

What is UQNET?

UQNET allows data communication within The University of Queensland campus, including those parts of the campus remote from St Lucia. It provides individual users with access to other departments, central services such as the Prentice Computer Centre, Library and Administration, as well as national and international communications services.

Restructured Funding

The University recognises that the communications network is an asset for the University in meeting its corporate goals. With this in mind, the University Senate approved restructuring of funding of UQNET. Operation of the network will be centrally funded—there will be no recurrent charges (such as line rentals or access fees) levied on users in 1990. University funding will also bring UQNET access to a Department's 'front door'. However, Departments are still responsible for the cost of their internal network cabling, equipment and the connection(s) to UQNET.

This method of funding has been adopted by most overseas educational and research networks and is the basis agreed by the AVCC for funding the Australian Academic Research Network (AARNet).

Read on to find out how the restructured funding affects you and your departmental network.

UQNET Planning

Each department is responsible for its own internal departmental network. Two important issues to consider when planning a departmental network to be connected to UQNET are the network software to be employed and the physical type of connection required. Staff from the PCC are available for consultation.

Software is required in each computer to transfer data from one computer to another. The person using the computer sees this software as an application providing some function such as electronic mail, file or document transfer, printing on a remote printer or remote access to another computer. On the surface, such applications can appear deceptively simple. The underlying software is very complex. If two computers are to communicate, the communications software in each must match. Because of the large resource required to support complex software, only two network software systems are supported by the University: DECnet and TCP/IP. The network software is usually determined by the type of computer and operating system chosen. Digital VAX/VMS computers use DECnet; while TCP/IP is mostly used in the Unix world and for connection to UQVM, the IBM mainframe.

The physical means of connection has been improved along with computer technology. Serial lines are giving way to Local Area Networks (LAN) which operate at much higher speeds for improved performance and lower response times. The most popular LAN on campus is commonly called the Ethernet.

Serial Lines

Serial lines using twisted copper cable or optical fibre, meeting almost any interface standard, can be provided on campus.

Telecom data services to remote parts of the St Lucia campus also fall within the new funding scheme. That is, the cost of installation must be met by the department, but the recurrent cost will be funded centrally (previously the recurrent cost was only subsidised). These services must be coordinated through the PCC; departments ordering Telecom or other public services independently will not have the recurrent cost centrally funded.

Ethernet

The Ethernet is the preferred Local Area Network supported on campus. Ethernet operates at a very fast raw speed of 10 million bits per second and can

connect to almost any type of computer from the smallest personal computer to the largest supercomputer.

The Ethernet LAN is the most effective method of providing data communications from your personal or departmental computers to other computers on campus (UQNET), in Queensland (QUESTnet), or nationally and overseas via the Australian Academic Research Network (AARNet).

Practical Implementation

Departmental Networks

Departments are responsible for the planning, installation and maintenance of their own internal networks. A distinct Departmental Boundary will be established, which will clearly define the Departmental and Prentice Computer Centre lines of responsibility. Generally, this boundary will be obvious and easily agreed.

The Prentice Computer Centre provides, within reason, free consulting to assist Departments in their network planning. Departments may wish to purchase products under agreements which the University has with a number of vendors for supply of hardware and software at discounted prices. The Prentice Computer Centre also contracts to provide installation of cabling, networks, and computer systems. If cabling work is let to outside contractors, the PCC should provide supervision, termination and/or testing of cabling or optical fibre to ensure standards are met.

Connecting to UQNET

The UQNET is a University resource which all departments may use, but there are strict guidelines about connections to preserve the integrity and reliability of the whole UQNET communications network.

There are several factors to consider when connecting to UQNET, including volume of traffic, protocol types and likely expansion. This decision must be made with advice from the Prentice Computer Centre since the Centre is responsible for the UQNET network. The PCC provides free consulting to advise on network requirements.

There is an installation charge for connecting to UQNET, which covers the costs of extending the departmental network to the interface point, Ethernet interface equipment and a share of common equipment. However, there are no recurrent charges for maintenance or usage of the UQNET network. All internal Departmental equipment including repeaters, gateways, cabling or other distribution equipment is the responsibility of the Department for both installation and maintenance. The PCC will provide contract installation, facilities management and maintenance of internal Departmental networks if required.

Operating Costs

The restructuring of funds affects the operating costs of the UQNET campus network.

Individual Departments and users are not charged access fees or for transport of information over UQNET. The Prentice Computer Centre operates and maintains the UQNET network. **Line rentals, Ethernet access fees and other annual charges no longer apply.**

Those parts of the campus remote from St Lucia will also have their recurrent costs of connecting to UQNET funded under this scheme. However, because of the high cost of Telecom services it will take some time to achieve improved services to all remote parts of the campus.

UQNET & Departmental Network Standards

The physical components of the network (ie, all cabling and plant) must be installed to the new Australian Telecommunications Authority (AUSTEL) standards. AUSTEL licenses contractors and technical staff to install telecommunications cabling. AUSTEL also produces a number of recommendations on cabling standards, which incorporate Telecom and Standards Association of Australia requirements. In particular, cabling installed within departments should be documented correctly and the documentation maintained.

Other Networks

QUESTnet and AARNet

The Australian Academic Research Network (AARNet) will interconnect all tertiary education institutes in Australia. The network is being installed by the AVCC and is due for completion about mid–1990. The network is being funded by subscription from all participating institutions and the Federal Government. QUESTnet is the Queensland region of the AARNet. Additional services to those provided by the AARNet are available within Queensland. No usage charges apply to these networks.

AARNet provides access to many networks in other countries. In general there are no traffic charges levied on end-users of educational and research networks. These networks also tend to be funded by subscription.

Public Networks

The public telecommunications providers, such as Telecom and OTC in Australia, provide a wide range of basic communications services and value added services which are accessible via UQNET. A variety of commercial value added services are also accessible via these networks.

Access to and use of public and commercial facilities is charged. Such costs will be passed onto the end user.

UQNET Connection Charges

Serial Lines

These charges apply to serial lines connecting departmental equipment to UQNET (or for special non-UQNET inter or intra departmental services between buildings).

- Twisted copper pair
  point to point, 4 wire.
  .....$400

- Serial Line
  asynchronous to 9600 bps, data only (no control signals).
  .....$650

- Serial Line
  asynchronous or synchronous up to 19,200 bps, data and control signals.
  ..$1,400

- Serial Line
  asynchronous to 9600 bps, connection to the Micom Circuit Switched network for terminal or PC.
  .....$750

- Serial Line
  asynchronous to 19,200 bps, connection to a network terminal server for a terminal, PC or printer. Not available in some locations on campus. Does not apply to department owned terminal servers.
  .....$750

- Serial Line
  synchronous to 2.048 Mbps.
  ......POA
  Range $1,500 to $6,000

- Optical Fibre service
  2 multi-mode fibres, terminated.
  .....$800

Ethernet Connection

- Basic Ethernet Connection
  Departments must provide their own Gateway equipment with this connection.
  ..$2,000

- Ethernet Connection
  via Bridge or Router.
  ......POA
  Range $4,000 to $10,000