Acorn
The choice of experience
in networking

ECONET X25 GATEWAY

Local area networks (LANs) have revolutionised the serious use of personal computers by providing a highly cost-efficient way for computer users in close proximity to communicate and share information and hardware. The leading low-cost LAN in Europe is Acorn's Econet, with over 6,000 installations to date.

Of equal significance for users of minicomputers and mainframes has been the development of X25 wide area networks, providing reliable, fast networking and communications on a national and international scale.

Now Acorn have developed the ECONET X25 GATEWAY, which allows Econet users to communicate with X25-based packet networks. With this development, Econet offers you the best of both worlds: the convenience and cost-efficiency of a well-established LAN plus the power and versatility of truly international networking.

The X25 Gateway is just one of a wide range of enhancements to Econet which will be announced this year. If you would like to know more about Econet, refer to the Acorn Econet brochure or contact your supplier.

The Importance of X25

X25 is a major international networking standard. It has already been adopted by over 50 countries, including all of Europe, the USA, Canada, Japan, Australia and New Zealand. Each of these countries provides its own national 'public' X25 network, such as PSS in the UK, TELENET, TYMNET and COMPUSERVE in the USA and TRANSPAC in France.

In any of these countries, a system with X25 compatibility can simply 'plug in' to the public X25 network, giving instant access to all other users on that network. What is more, the different public networks can communicate with each other, so the system can communicate, in principle, with any user on any public X25 network in the world!

Major organisations may also choose to develop their own, quite separate, 'private' X25 networks. Private networks use separate equipment and lines owned or leased by the organisation, but appear much the same to the user as a public network.

X25 Users and and Services

Many major organisations are already using X25 networks:

Major banks like the Midland Bank have adopted X25 for all their national and international data communications. Major multinational corporations, like Austin-Rover, use X25 for both data processing and engineering data.

Several government departments in the UK use, or plan to use, X25. The UK Ministry of Defence plans to use X25 for much of its strategic and routine communications. The DHSS is using X25 as the basis for their nationwide financial control system.

Every university and many other higher education departments and research groups in the UK is linked to JANET, a major private X25 network using lines leased from British Telecom.
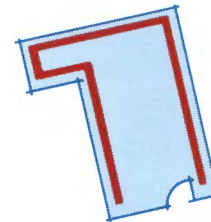
There are many general purpose and specialist computing services available to an X25 user, including databases of engineering and scientific abstracts, financial and legal information.
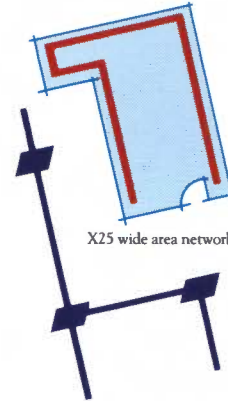
The X25 Gateway

The X25 Gateway is a highly cost-efficient route to X25 networking. Like other resources in Econet, it is not tied to a small group of users, but allocated on demand to those users on the Econet network who wish to use it. The Gateway can handle up to 16 different calls (users) simultaneously, over a single line.

The X25 Gateway has been fully approved for connection to the UK public X25 network (PSS) and will also connect directly to most private X25 networks in the UK and other countries.

Installation and maintenance are straightforward and trouble-free. Useful applications (terminal emulation and file transfer) are supplied as standard.
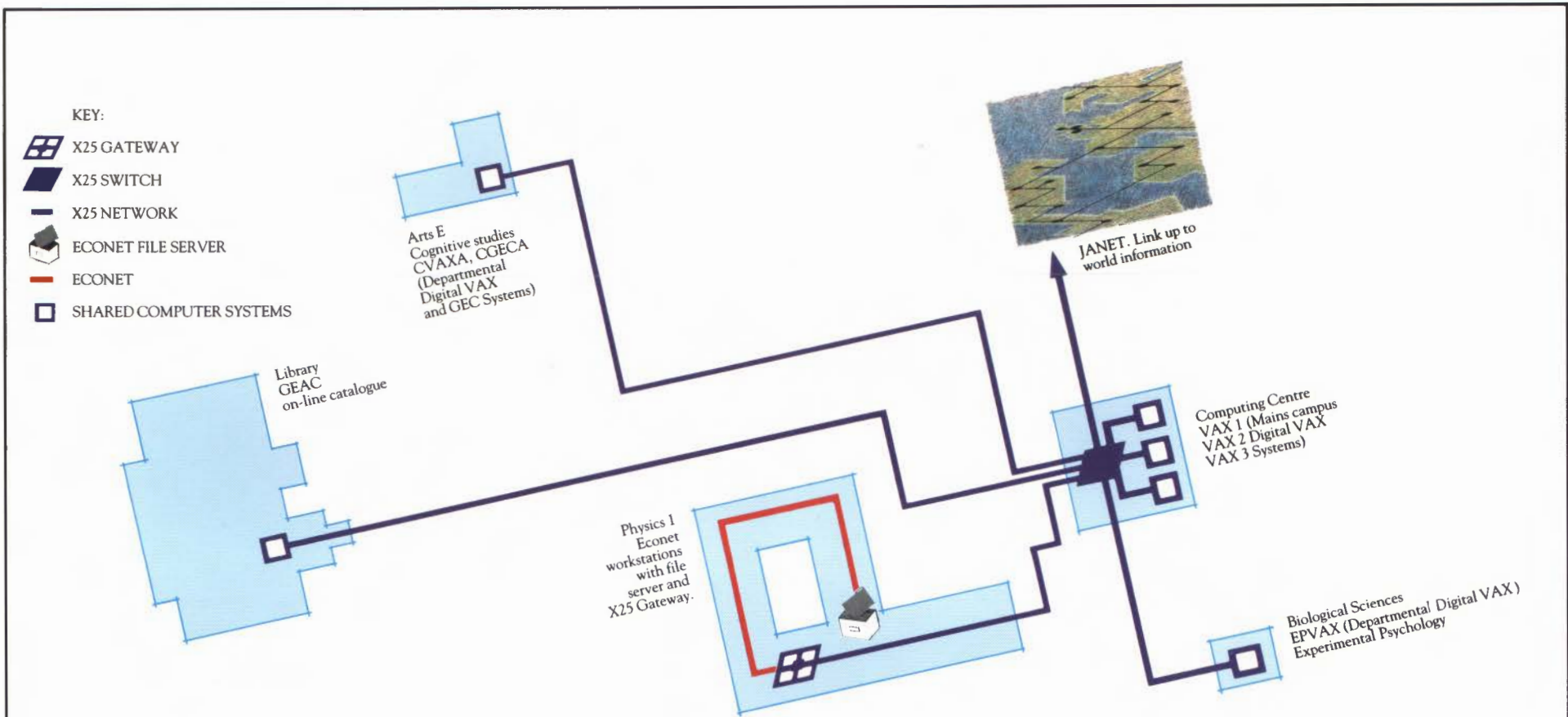

Econet local area network

X25 wide area network

Breaking out from local to wide area networking

KEY:

- ⊞ X25 GATEWAY
- ◢ X25 SWITCH
- ▬ X25 NETWORK
- ◥ ECONET FILE SERVER
- ▬ ECONET
- ☐ SHARED COMPUTER SYSTEMS

Arts E
Cognitive studies
CVAXA, CGECA
(Departmental
Digital VAX
and GEC Systems)

JANET. Link up to
world information

Library
GEAC
on-line catalogue

Computing Centre
VAX 1 (Mains campus
VAX 2 Digital VAX
VAX 3 Systems)

Physics 1
Econet
workstations
with file
server and
X25 Gateway.

Biological Sciences
EPVAX (Departmental Digital VAX)
Experimental Psychology

Dr Andrew Norris, of the School of Mathematical and Physical Sciences at Sussex University, England, has long been an enthusiastic user of Econet and a supporter of its use for teaching in his department.

Dr Norris was quick to see the advantage of adding an X25 Gateway to his Econet network and so agreed to be one of its first independent users. The main uses he anticipated were:
★ providing additional 'terminals' for access to the University's mainframe computers
★ exchanging files with other Universities via JANET (the UK academic X25 network)

★ gaining access to major research databases in the UK (such as the Rutherford Laboratory, Oxfordshire) and abroad (such as the Max Planck Institute, near Munich, West Germany), for his work in the Space and Plasma Physics Group.

Installing, configuring and preliminary testing of the Gateway took approximately two days. All were carried out by Dr Norris himself, using preliminary documentation and occasional assistance from the developers.

The X25 Gateway was connected to the campus X25 packet switch on a temporary basis, by using an existing modem link to the Computer Centre.

(A permanent link is planned, but must wait for further expansion of the packet switch.)

Connecting to the existing Econet network was even simpler, only requiring cabling from the Gateway to the most convenient socket box.

After connecting the Econet, the Gateway was installed by carrying out the procedures described in the X25 Gateway Manager's Guide to copy files to the file server and configure the Gateway for the users and X25 link.

For testing, Dr Norris chose to connect the Gateway to a JANET PAD in the same room as the Gateway. Again, configuring the JANET PAD

posed no problem and took approximately two hours. This allowed him to test the system to a high traffic level without interfering with other users and gain confidence and familiarity in it before connecting to the campus X25 packet switch.

While it is still early days, Dr Norris found installing the X25 Gateway quite straightforward and is quite impressed with its potential: 'the underlying product is very good . . .'.

USER EXPERIENCE

SPECIFICATIONS

Gateway hardware

The X25 Gateway is a self-contained, mains-powered, turnkey unit. It can be used free-standing or rack-mounted (using the brackets and fittings supplied).

It connects to the X25 network via a packet port, using a single HDLC line over a V24 interface, operating at speeds up to 19.2 kbit/s. It is connected to Econet as a workstation, using standard Econet cable.

The clocking and station number can be set by changing internal links.

X25 Facilities

* up to 16 simultaneous calls
* window sizes negotiable to 7
* maximum data packet size fixed at 128
* Closed User Group requests passed transparently
* Reverse Charge requests passed transparently
* Extended formats supported
* Fast Select supported
* Call statistics from the network passed transparently

The X25 specification conforms to CCITT 'Blue Book' (1980), with the option of using the extended Yellow book protocols which provide additional addressing for internetworking. This specification forms part of the UK DTI Intercept Recommendations.

Management Facilities

Off-line management facilities allow you to:
* test the Gateway
* configure Gateway parameters (physical, link, network and logical)
* define titles for use as X25 addresses in outgoing calls

* define titles for use as Econet addresses in incoming calls

On-line management facilities allow you to:
* enable the X25 link
* give information on calls, buffers or traffic
* change the configuration (titles, X25 parameters, call limit)
* disconnect calls

X25 Workstations

Econet workstations are converted to use the Gateway by fitting a single X25 Terminal ROM (and DNFS ROM, if not already fitted). These are supplied in Software Packs, consisting of five sets of ROMs, copies of the X25 Gateway User Guide and function key reminder cards.

The Software Pack can be used to convert Acorn Master series, BBC model B, BBC model B+ and Acorn Cambridge Workstation computers.

A converted workstation can still be used as a normal Econet workstation.

User Facilities

TERMINAL EMULATION: the X25 Terminal ROM provides a number of terminal emulations, including ANSI-compatible, BBC transparent mode and 'glass teletype'

This ROM also provides PAD commands, which include the ability to define terminal characteristics to the remote system. (This mechanism is based on the CCITT (1980) definition and compatible with the CEN/CENELEC proposals being considered by the European Commission for adoption in Europe.)

FILE TRANSFER: a file transfer

program (FTP) is supplied on disc which can be used to exchange files with remote systems that support the same 'Blue Book' file transfer protocol. This is fully supported in the UK by IBM, ICL, DEC, PRIME and GEC and available for an even wider range of machines in the academic community. This specification is also part of the UK DTI Intercept Recommendations.

FTP negotiates any character translation required by the remote system and arranges any directory changes required.

This utility can also be used to provide a file transfer service for remote users to exchange files with the Econet network.

Fact Sheets

Further fact sheets on the following are available from Acorn Computers:
* Econet
* Econet Bridges
* Econet Software

Ordering

Acorn order codes:
* Acorn Econet X25 Gateway: AEH25
* Software Pack: AES30

DEALER

In this brochure, the initials BBC refer to the British Broadcasting Corporation.

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The choice of experience in networking.
1984