Joint Network Team On-Line

In September last year, the Network Unit concluded its investigations into data communications requirements among universities and Research Councils and proposed the establishment of a team to supervise a coordinated programme of network development. This recommendation was accepted and it was decided to base the team at the Rutherford Laboratory. The Joint Network Team formally came into being in April and recruitment is currently in progress to fill the six posts assigned to the team.
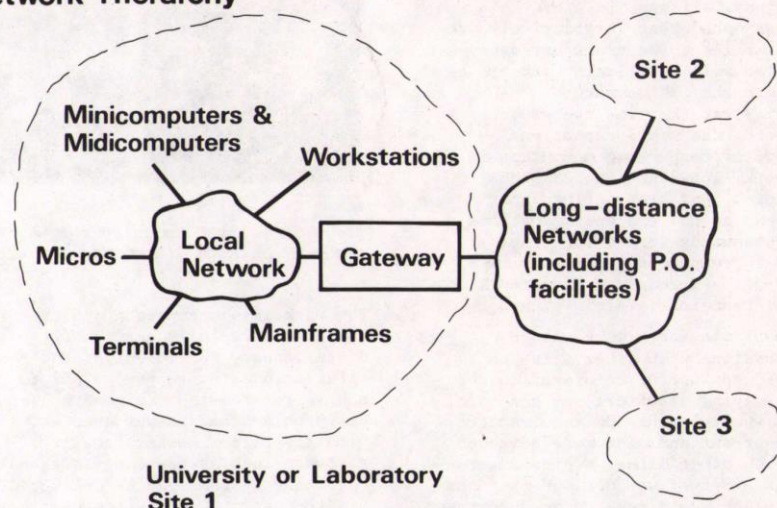
Funds for Computer Centres

The team's funds are derived principally from the Computer Board and the SRC and it is these bodies which are the main providers of computing resources in the university community. The Computer Board was formed in 1966 to dispense funds exclusively earmarked for university computer centres and most of its present expenditure is on the provision or enhancement of mainframes. At a given university, the majority of the user's requirements for mainframe computing are satisfied by the local centre. For more demanding computations, the Board established two national centres with powerful mainframes at London and Manchester, and university users access these remotely via their local centres.

The SRC funds pure research in the universities and provides the holders of research grants with access to its own large computing facilities including IBM machines at Rutherford and Daresbury, a newly installed CRAY 1 at Daresbury and DEC system 10 machines at UMIST and Edinburgh. There are also some quite powerful SRC-funded machines in various university departments for nuclear physics and as part of the Interactive Computing Facility. Most of these are connected to one or other of the major SRC centres.

Existing Networks

In some areas of the country, groups of universities have cooperated to share the resources of their computer centres by means of regional networks. These allow different sites to offer different ranges of facilities which are then put at the disposal of users throughout the region. They also serve to collect together all traffic destined for a major

Network Hierarchy

University or Laboratory
Site 1

national centre thereby eliminating the need for a leased line from each constituent university.

The SRC already operates two networks; one linking the IBM centres (so that a university user can choose to access either Daresbury or Rutherford from the same remote terminal or workstation), the other connecting the DEC system 10s.

Added to the complexity of the long distance communications arrangements is a growing need for local communications on university and laboratory sites. Local area networks are being proposed as a means of providing flexible data communications among equipment with a wide range of capabilities from simple microcomputers to powerful mainframes. These will serve a number of purposes including the sharing of expensive facilities and devices such as lineprinters and the provision of a single gateway for traffic entering or leaving the site.

Universal Access

The Joint Network Team's remit is to plan for the coordination and rationalisation of all these local and remote communications arrangements. The aim is to minimise the technical constraints so that users may conveniently access whatever facilities best meet their needs.

This means that all terminals and computers must be attached to a common hierarchy of networks as shown symbolically in the diagram. The communications components of the structure will include local area networks (based on a number of technologies) and, for long distance traffic, the use of Post Office facilities such as leased lines and a new service geared specifically to data transmission and switching known as PSS (Packet Switched Service).

However, the most difficult part of the task is the definition and implementation of conventions which allow the communicating devices to impose meaning on the data transferred. By analogy with human language, sets of rules (known as protocols) must be adhered to by both parties to a transmission so that each has the same view of the data exchanged. Individual manufacturers have already defined protocols among their own brands of machines. The problem is to obtain agreement on non-proprietary protocols so that devices of different pedigrees may interwork.

Three-year Plan

Over the next three years, then, the Joint Network Team will be deeply involved in a number of activities. It will participate with universities and SRC laboratories in the preparation of their networking
(continued on page 2)

GEC 4000s Networked

The Rosenbrock Report, which led to the setting up of the Science Research Council Interative Computer Facility (ICF) foresaw the installation of mini computers in universities, which would be connected to the large computer at the Rutherford Laboratory for batch facilities. Six multi user GEC 4000 series computers are now installed and this will rise to nine by the turn of the year.

The connection of the Minis to the Rutherford Laboratory has advance beyond mere access to the IBM machines, all the Minis are able to access each other interactively, to allow files to be transferred between them as well as allowing jobs to be sent to the IBM computers. Luckily, at the time the project started, the new international method of connecting computers in network, known as the X25 packet protocol, had been defined and agreed, as had the specifications and standards for moving files between computers in universities (FTP-B). Techniques of networking were, therefore, fairly clear.

Much of the early work was in discussions with other sites to see if any useful co-operation and thus saving of effort was possible. Unfortunately the ICF requirements were urgent and also more advanced than on other sites, so towards the end of 1978 it was decided that the whole job would have to be undertaken at the Rutherford Laboratory.

Liz Krauesslar connecting the GEC 4070 computer to the SRC network at the ceremony marking the completion of the communication code.

The work is now complete and the six GEC computers fully networked. Since January sufficient of the code existed to allow support staff to access the remote machines to sort out problems and answer queries. With the file transfer facility, software such as new compilers and operating systems can be delivered via the network, obviating physical transporting of discs.

We believe the GEC to be the first computer to use the FTP-B file transfer protocol between machines over an X25 network, and the network to be the first one fully operational in the UK university community.

We thank Paul Bryant, Andrew Dunn, Tony Saller, Dave Toll and Graham Robinson for this news from ICF.

INTERNAL Events

COMPUTING SEMINARS
COLLOQUIUM R27 - 1400 hrs

17 July: Dr B R Martin/Appleton "Infra Red Astronomy Satellite - Control Centre and the Preliminary Scientific Data Analysis."

SERIES OF FIVE LECTURES
LECTURE THEATRE - 1100 hrs

16-20 July Dennis Duke/RL "Pedagogic Introduction to QCD."

Joint Network *(continued)*

programmes to ensure that each part fits into the overall scheme. Negotiations will be conducted with the Post Office on technical, legal and economic aspects of their services. A set of projects will be initiated and funded to ensure the availability of the required protocols and their implementation on various machine ranges. There will also be a need for standard components to build local area networks and for the development of common devices such as terminal concentrators to be attached to networks. As the project progresses, attention will also have to be devoted to questions of network management and to the construction of friendly user interfaces. There is little point in building a complex hierarchy of networks if users are then faced with the need to type long and meaningless sequences of characters to select remote resources. For that is the way to ensure that there will be no users.

We thank Dr R A Rosner, Head of the Joint Network Team, for this article.

OVERSEAS Visits

W M Evans to CERN from 16-21 July to work on ISR Jet project.
P Seager to ILL from 16-20 July for discussions.
H Roskell to DESY from 17-20 July to make arrangements for R.L. Staff.
K Green to ILL from 18 July - 22 Aug to work on EDM experiment.
W S Howells to ILL from 19-31 July to work on UK 6/171 experiment on INIO.
J A Blissett and B T Payne to DESY from 22-28 July to work on TASSO experiment.
R J N Phillips to SLAC from 22 July - 28 August for consultations and Summer Institute.
J C Hart to DESY from 23 July - 5 Aug to work on the TASSO experiment.
C J S Damerell to CERN from 25 July - 7 August to work on NA11.
J S Hutton to CERN from 30 July - 25 August to work on WA 57.
A R Cash to CERN from 31 July - 29 Aug to work on RMS target NMR system.

Christian Fellowship

19 July: All are welcome to a Bible Study entitled "Forgiving Others." So often because of pride and a feeling of being hurt we find it difficult to forgive those who have wronged us. What is the Christian attitude to this? Frank Smith will lead this informal discussion in the R2 Conference Room at 12.30 pm.

26 July: This meeting will be led by a visiting speaker - identity unknown as yet! As usual everyone is very welcome, and the time and venue are as before.

Sales to Employees

Sales of scrap metal/plastics as set out in RLN 12/73 will be made on 27 July at the scrap compound, rear of R40 from 1200 - 1230 hrs.

SRC Sports Day 1979

Once again the weather was kind for the annual Sportsday at Chiswick on 28 June, and 'lady luck' smiled on the Rutherford Teams. Without meaning to crow too loudly — we really did rather well!

Cricket

The Rutherford Laboratory fielded two teams in this event, the 'A' team having a very successful day winning four matches and the League.

In their first game against Appleton 'A' Rutherford replied to Appleton's score of 84 off 9 overs, with 113 of 9 overs, J Culley having a score of 74 not out.
The second game was won against Appleton 'B' who put Rutherford in to bat first, and could only score 43 in reply to Rutherford's 120 off 9 overs. R Blowfield 51 not out. R.G.O. was easily beaten in the third game, and the fourth game played against a weakened Rutherford 'B' team was achieved without loss of wicket.

Thanks go to all the players for such a good performance.

'A' Team:- T Morgan, R Blowfield, J Culley, A Butler, N Johnson and D Stanley. Reserve D Price

'B' Team:- E Thomas, R Brandwood, P Schofield, G Hallsley, R Sidlow and M Butler.

Hockey

Five teams entered the Mixed Hockey Tournament this year, two from Swindon Office and one each from Appleton, Royal Greenwich and Rutherford. On an all play all basis, the last three teams named above all finished on 5 points with Rutherford placed third having the smallest goal difference.

Rutherford started with two wins against the Swindon Office sides, although only by a 1-0 margin in each case. If the third game against RGO had been won, Rutherford would have won the Tournament irrespective of the result against Appleton, but this game produced a goalless draw. Meanwhile Appleton had gained a 6-0 victory against one of the dispirited Swindon Office sides. Nevertheless Rutherford had only to draw against Appleton to win the Tournament but this was not to be, for a heavy defeat of 4-1 was inflicted by a team playing a better tactical game.

Rutherford Team: Shelly Deegan, Janet Fraser, Paul Bates, Mike Claringbold Dave Craddock, Brian Wyborn.

Netball

Much to everyone's surprise and much to our own, the newly formed Rutherford Laboratory netball team managed to win the SRC Netball tournament at Chiswick. Never having played as a team before, everyone managed to excell themselves on the day and convincingly beat

The winning Rutherford 'A' team.

Swindon 16-5 and the 'much-feared' Daresbury team, 28-2.

Unfortunately, only playing two teams, due to the lack of response from the other SRC Establishments meant only one hour of 'action' - but all in all it was a very enjoyable day.

Well done and thanks team!

Tug-of-War

Officially there was no Rutherford Tug of War team entered for Sports Day, as no female staff at the Lab could be persuaded to join the many willing men. However on the day with the help of Peter Hicks from Appleton, who was the main organiser of the Tug of War, we managed to persuade some of the Netball girls to join a scratch team.
Three lovely blondes Jane Griffiths (Capt), Sue Underdown, Lyn Willis and a gorgeous redhead Claire Philpott combined with Bob Blowfield, Neil Johnson, Tudor Morgan and Steve Wheeler to form the team.

With John Rice calling the time and big Steve as 'Anchor' man Rutherford made short work of the Swindon 'B' Team 2-0 to reach the final.
In the final, Swindon 'A' were a tougher proposition but not tough enough to prevent Rutherford winning 2-0 thus carrying off the trophy for the first time.

This was an especially fine effort from a team who entered only as a bit of fun and to even up the numbers.

Angling

As last year, this was another close fought competition between Daresbury and Rutherford, and, as last year, Daresbury 'A' team again proved to be champions. The Competition was fished as a team event with 4 anglers per team.

On the day the fish were few and far between, with the angler who decided

to go for small fish making the right choice. The big ones were non-existent.

Final Team Positions:-

1st Daresbury 'A' (12 points)
2nd Rutherford 'B' (11 points)
3rd Rutherford 'A' (9 points)

Individual Event:-

1st Colin Watson (Dar 'A') 11b 8¾oz
2nd Peter Craske (Ruth 'A') 11b 1½oz
3rd Dennis Day (Ruth 'A') 14oz

Just to show how small the fish were Peter Craske caught 36 fish for his 11b 1½oz.

Tennis

Two mixed and one men's pair represented the Rutherford Laboratory.

Originally five mens pairs had entered the Tournament, but unfortunately only three pairs turned up. It was, therefore, decided that each couple would play two sets against every other couple - the pair winning the most sets to be the winners. Happily the Rutherford pair, Colin Walters and Barry Whittaker took all their four sets, winning the Tournament.

Eleven couples entered the Mixed Tournament (much more popular than the mens!) It was a fairly hectic but enjoyable day with all couples playing one set against all others. Richard Lawrence and Sarah Jarvis won four of their 10 sets finishing sixth. Tim Pett and Lorna Claringbold playing a couple from R.G.O. were narrowly defeated after the match had gone to a tie-break. The RGO pair won the tie-break, and eventually won the tournament by 50 points to Rutherfords 49 points.

Well done Tim and Lorna.

Football

This years six-a-side competition was hotly contested by 13 teams, including four from the Rutherford Laboratory.

All our teams survived the preliminary rounds. In the quarter finals 'Atlas' defeated 'R20' only on corners conceded after a tremendous fightback from early disaster. In another quarter-final 'C & A' defeated 'HEP'. The semi-finals were won by Swindon Office 'A' who beat Daresbury 'A' (last year's winners) and 'C & A' who defeated 'Atlas'.

The final started badly for the Rutherford 'C & A' team (Steve Farr, Peter Cutler, Malcolm Edwards, Gareth Williams, Jim Taylor, Dave Holdforth and Ron Lawes) who conceded a goal to Swindon within the first minute.

However the team soon settled down to solving the problem and, by playing intelligent football, plus a deal of determination, finally won easily, conceding only one goal throughout the competition.

Final result: Rutherford 'C & A' 5
                 Swindon 'A' 1

Bowls

A good day was had by all, though there were no wins for Rutherford this year, the first time ever that we haven't brought home one trophy from the tournament. Our triple of Mary Shepherd, Steve Hancock and Tony Damerell put up a great fight in the final, before losing to the experienced triple from Appleton skippered by Norman Ferguson.

Library Notice

The Library has copies of the transparencies from 'Neutrino '79' held at Bergen in June.

They are held at the enquiry desk for copying.

In the past two months nearly £100 worth of books have been stolen from the Main Library display. With one exception these have all been books on electronics and microprocessors. As a consequence no more books on these subjects will be put on display. A card giving author and title will be used instead and readers must ask for the books at the Inquiry Desk.

I do regret the inconvenience this will cause to other library users but as we have appealed for the return of the books without success, this appears to be the only answer.

E Marsh
Librarian

Arts & Crafts Exhibition 1979

Exhibitors and organisers alike, have reason to be proud of the first Rutherford Art and Craft exhibition. Extremely attractively presented, the show provided a very pleasurable diversion from the everyday life of the Laboratory.
Visitors were heard to express amazement at the quality of the work and the ingenuity, imagination and flair of the exhibitors.

The range of crafts was wide. Needlework of every type from dressmaking to petit point, paintings, pottery, toys, furniture, enameling, metalcraft, crochet, macrame, brass-rubbings, models and knitwear; all these crafts were represented. Also on display was a really basic do-it-yourself exhibit - wool taken from a pet sheep, combed, carded, spun and knitted up! So much of quality was on display that it would be invidious to single out any item for mention.

Thank you Jenny, Audrey, Pauline, Myra and Joan for giving us so much pleasure at the First Exhibition - we sincerely hope it is not the last.

'Road Runners' Triumph

Collaboration at CERN is not restricted to particle physics experiments - for here we are delighted to bring news of the success of a collaboration in this year's Round CERN Race. A team from the e-γ Collaboration (which normally 'runs' on the Omega spectrometer facility) has won the Senior "Opitz" Cup, completing the 3.9km relay course in 10mins 37secs. The winning team "Road Runners", with Roger Bailey, Martin Davenport, Peter Flynn, Richard McClatchey, Mick Storr and Jean-Pierre Wuthrick, arrived 2 seconds ahead of the Data Handling Division's team "Express Packets" with the Airport Security Service in third place.

Cricket

Swindon Office v Rutherford on Thursday 19 July at 2pm. Club members wishing to play please contact Mike Butler, Ext 6178. Please note: this is an afternoon fixture.

Missing

Bicycle RL 47 appears to have run away from home - R36.

Will anyone who finds it, please contract P Hawthorne Ext 6185.

Come home RL 47 - all is forgiven!