Esprit
Information Exchange System

ies news

Issue No 15, April 1988

As a further step in supporting European IT developments, it is intended to establish an "Electronic Bulletin Board" on EuroKom to announce new products and services in the IT field as soon as these are released by their developers. EuroKom, the Commission (DG XIII) supported electronic mail service operated by University College, Dublin, was originally intented to assist participants in the ESPRIT Community Program, but by now has attracted many users from other Community Programs and elsewhere. Details of new products in the IT fields related to the ESPRIT program would therefore be of considerable interest to this large and growing specialist user group.

IT Press Releases Online on EuroKom: A New IES Service

What we have in mind is to post daily IT Company announcements and press releases of such novelties, giving a short (say 3-10 lines) description together with a contact name and address from whom further, more detailed information can be obtained.

The present announcement is to inform you of this new service, which will involve participants in no expenses other than letting us have in good time any notices you would wish posted in this manner. We would take it for granted that no postings would be made in anticipation of your defined deadlines for releases, but in turn we would not wish to be late in announcing novelties either.

The subject areas we intend to cover are everything in the domain of information technology and telecommunications. This naturally includes hardware, software, application services and other related items.

As, however, EuroKom and the IES are supported by European Community programs committed to the advancement of European industry, we shall need to restrict ourselves appropriately. We will exclude announcements relating to products which are of overseas origin and released by your

LATE NEWS

OSI Activities in China.

Much effort is going on in China to catch up with network activities elsewhere in the World. These are directed along OSI lines and more will be reported in a future issue.

EUSIDIC Network Reliability Survey.

The annual network monitoring week organised by INTUG and EUSIDIC was in March. Preliminary results should be available for the next issue.

BRAIN: the Latest Computer Virus.

The latest of these dangerous "toys" is a variant, which sleeps for up to six months, with the unspecting "owner" being unaware that passing on copy disquettes or networking can infect other installations. The variant has been specially developed to infect medical records and is causing much concern in the US. We should be interested to hear of any European "infections".

IT Press Releases Online on EuroKom: A New IES Service

organisation in Europe, although we may consider ones with European value added nature.

We believe that even with this restriction there should be plenty to announce as we know a lot of good products in this field originate in Europe.

This initiative does not intend to convey any appraisal, positive or negative, of the materials posted, or an indication of their significance – in short, a factual statement based on your text.

This service will commence as soon as possible and will naturally be announced on EuroKom. Press releases and other relevant material should be sent as of receipt of this issue of IES News to:

Peter POPPER
Editor in Chief
European Institute for
Information Management
13, rue de Bragance
L-1255 LUXEMBOURG

The Multilateral File Transfer System Package

MFTS (the Multilateral File Transfer System), is a file transfer system, communicating through public packet switched networks, especially designed for using a single protocol between different makes of computers. The development was spearheaded by DG IX and XIII (under the INSIS program) who were faced with the problem of working in different locations with a wide variety of hardware, and the need for rapid and efficient information transfer.

MFTS conforms to the ISO 7-layer OSI model. It utilises public data transmission services conformant to CCITT X-25 recommendations for layers 1 to 3. It has adopted the ISO 8073/class 0 Transport Station for layer 4.

The upper layers (5 to 7) originally conformed to the British NIFTP standard (Network Independent File Transfer Protocol, from the Data Communication Protocols Unit, National Physical Laboratory, Teddington, UK) for file transfer. In the future however, it will use the ISO FTAM standard once FTAM conformant software products become available.

Interfaces allow the user to submit file transfer requests interactively or in batch mode. Most of the products also offer a programmed interface for application developments. The dialog interface is composed of standard sets of screen menus and commands.

MFTS has a character set conformant to ISO 6937 using ISO 2022 repertoire extension mechanism. This permits it to work in a multivendor environment using various character sets such as IA5C (International Alphabet No. 5 Complemented), which has been defined to cover TELETEX, VIDEOTEX and Greek sets in addition to the standard IA5 set to provide multilingual text transmission.

The applications of the MFTS package are numerous and include:

- document / file transfer
- document / file back-up and recovery from another computer
- database information interchange
- digital / binary or text transfer
- remote printing
- remote job entry
- job execution cascade from machine to machine

Each MFTS product has been developed by a different implementor, experienced on a specific operating system. The interworkability of all the MFTS software products has been achieved in two ways:

- the choice of options in the implemented protocols and the detailed specifications of additional functionalities have been set up by a special Committee for implementation, the decisions of which are applicable in all MFTS products. Divergences in understanding the protocols are also clarified and balloted by the Committee, to allow all the products to interwork.

- implementation of software products is evaluated for conformance to standards by a product acceptance team, it then goes through an intensive BETA-test phase before new versions of software are released, thus ensuring that MFTS products are stable when released.

The Multilateral File Transfer System Package

MFTS is currently operational on:
- IBM under MVS; the user interface is also available under VM/SP so that the MVS machine relays the VM transfers to other computers.
- IBM-PC under MS-DOS with SDLC/HDLC card interfacing directly to X-25, using the Q-X-25 software from SERITA, Neuilly s/Seine, France.
- ICL 2900 and 3900 computer series under VME operating system.
- NCR Tower under UNIX-V.
- Olivetti M24 under MS-DOS, with the X-25 hardware/software package from OLIVETTI.
- SIEMENS 7700 and 7500 computer series under BS2000 operating systems.

Hardware and Operating Systems

MFTS extensions outstanding include:

- BULL GCOS-8 files which will be relayed by the IBM-MVS implementation through BULL-IBM specific products.

In implementing their products, most of the implementors have planned for the possibility of future portages to the following similar machines:
- other UNIX-V Operating System computers. The "C" language implementation is easily portable to many UNIX-V computers since it has been developed in conformance with the X/OPEN Portability Guide recommendations.

- the IBM-MVS implementation of MFTS and its NIFTP protocol developed separately in a portable kernel written in FORTRAN-77: the SPCP (Salford Portable Combined Package).

The following machines could be easily provided with MFTS compatible software (using SPCP or a compatible version):
- IBM/VM/CMS (+ Series-1 front end)
- PRIME PRIMOS
- APOLLO DOMAIN
- SPERRY UNIVAC 1100
- NORSK DATA
- DEC VAX under VMS

Mode of Operation

The user must enter his transfer parameters, interactively or in batch mode, to a computer that will act as his Agent. The Agent computer then establishes a connection with the remote computer, the Server. At the end of the request execution, the Agent reports to the user the results of the transfer operation. The following main data have to be provided by the user to the Agent computer:

- identification of the Server computer,
- direction of the transfer (from Agent to Server or reverse),
- action to be undertaken (file copy, listing transferred to printer, job submission),
- identification and access password to the remote computer and files:
  - ● user names and passwords
  - ● file names and passwords
  - ● account numbers and passwords

RECEIVING A JOB SUBMISSION

USER

AGENT

X25 NETWORKS

MFTS

SERVER

JOB EXEC

CPU

CPU

Mode of access: GIVE JOB INPUT

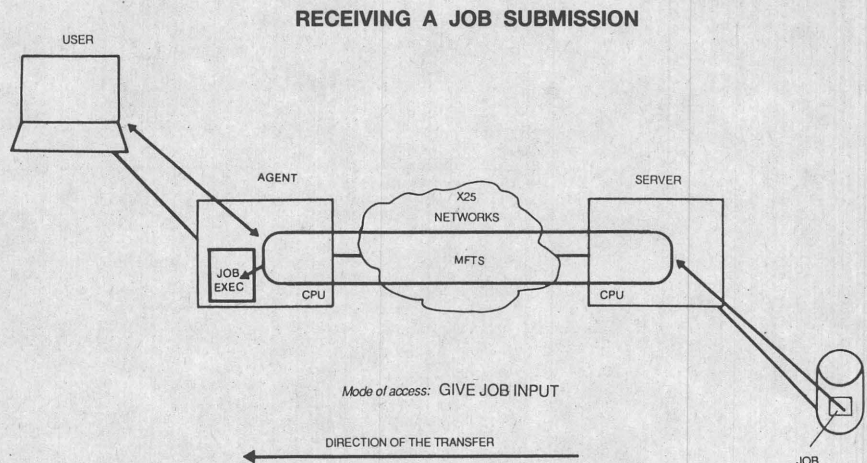DIRECTION OF THE TRANSFER

JOB

Figure 1

The Multilateral File Transfer System Package

- file type: text or binary,
- in case of a text file, specification of the character set to be used at both ends (this leads to character set conversion).

Other transfer parameters have default values which are automatically negotiated by both computers before the actual transfer takes place. However, for very special purposes, the user may define the value of certain transfer parameters, for example:

- the character set used during the transfer,
- the file format,
- the record size.

- Figure 1 illustrates one of the various types of transfer possible (file, listing or jobs, each sent of received). An example of action taken on the files (make, replace, append, replace or make, append or make, read, read and remove) and the successful or unsuccessful achievement are illustrated in Figure 2. MFTS automatically resubmits transfers which fail for a temporary reason (network problems) and makes mark points during transfer so that later resumption is from the point of interruption. This makes MFTS software products very flexible packages which cater for a variety of needs.

Demonstrations

Demonstrations of any of the MFTS software packages may be arranged, preferably in Brussels or Luxembourg, by contacting:

Commission
of the European Communities
Informatics Directorate

Jean Monnet Building
Plateau de Kirchberg
L-2920 LUXEMBOURG

Tel.: (+352)43 01-36 48
(Mr. M. COLIN)

Availability

It is the intention of the Commission, and the participants in the development, to appoint a single vendor to negotiate sale or licensing of the MFTS products for practical application. The package under UNIX is already marketed, the other versions are expected to be available by mid 1988.
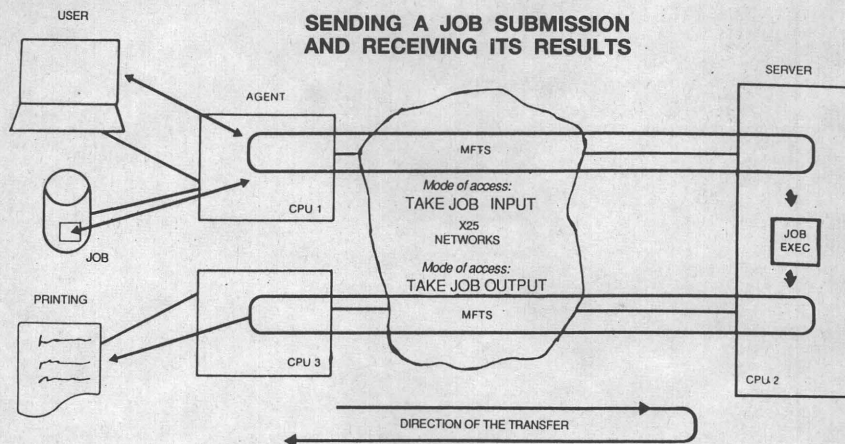
IES NEWS is your newsletter. We want your comments, views and contributions. Help us to fulfill this aim. All communication to

Peter Popper
c/o European Institute
for Information Management
13, rue de Bragance
L-1255 Luxembourg.

or via EuroKom.

If you are not yet receiving your free copy, please contact us.

SENDING A JOB SUBMISSION AND RECEIVING ITS RESULTS

Figure 2

Letters to the Editor

Towards an OSI Product Catalogue

Much has been made recently of the "market pull" which is bringing OSI products into being (see, for example, Mr. Carpentier's editorial in Issue 11 of IES News). Much of this pull is being exerted through procurement directives by government, for example by the Central Computing and Telecommunications Agency in the UK and by the European Commission itself. It is also said that Europe-wide R & D programs will add to this demand by creating a favourable environment for organisations to communicate with one another by the means of Open Systems. As recent issues of IES News have so prominently publicised, the Eureka COSINE project aims to create just such an environment.

However, OSI as a practical means of communicating between organisations is still in its infancy, and as a consequence there will inevitably be some "teething" troubles. To give credibility to OSI in the market place these problems must be overcome as quickly and as efficiently as possible, or else OSI risks falling into disrepute.

As part of the plans for the implementation of COSINE, and in line with the plans for the future of IES, the UK research community firmly believes that adequate provision must be made for supporting the emergent OSI infrastructure so

that this risk is minimised. Indeed, experience with the Alvey Program has shown that support is invaluable in setting up efficient communication between members of collaborative R & D projects.

One specific example of a service we would like to see made available to the R & D community is an **OSI Product Catalogue.** In this letter I would like to explore some ideas about how such a catalogue could be put into practice, and to solicit comment from the user community, R & D program administrators, product vendors and any who think themselves capable of supplying such a service on a commercial or part-funded basis.

Purpose and Scope of the Catalogue

The next generation of R & D programs such as Esprit 2 will be supported by an Open Systems-based infrastructure. In the early days OSI-based products will not be ubiquitous and it is anticipated that there will be initial problems in getting different implementations to interwork. Individual project managers cannot be expected to keep themselves abreast of the availability and status of suitable products; such a task should be undertaken centrally

and a suitable means of distributing such information set up.

As part of the COSINE project, the organisation RARE has been undertaking such an information collection exercise on a Europe-wide basis. It will be necessary, however, to relate this to national communities and to systematise the means of collection. For the time being we envisage that the scope of the catalogue will be confined to OSI application level facilities, based on functional profiles, and gateways between such OSI applications and existing proprietary systems. Only those facilities of interest to the R & D community will initially be considered; this means X-400, FTAM and ODA/ODIF, and not for example MAP or EDI, although these may be catered for in future if the scope of the exercise is widened.

The European Dimension of the Problem

It should be noted that availability and relevance of products may vary from country to country across Europe, so that the problem must be partitioned on a national basis – Europe is by no means yet a homogeneous market. This implies that there should be one group in each participating COSINE country maintaining product information, although the various national groups should obviously maintain close links.

The Kinds of Information Required

Not only is information about individual products required, but information about the inter-operability of pairs of similar products. Details of the following would be required:

- operating environment (hardware, software, etc)

- functional profiles conformant to (e.g. CEN/CENELEC, GOSIP, TOP) and any additional features implemented

- in the case of gateway products, which proprietary systems are interfaced to and what restrictions the gateway imposes

- what conformance tests have been applied and with what results

- details about availability and cost, including distributors, whether on limited release or generally available, and within what timescales.

Product inter-operability information should record what pairs of systems have been demonstrated to interwork, and with what degree of success. Of particular interest is interworking with publicly available systems such as public message-handling services.

Relevant OSI Applications

The OSI applications and gateways deemed to be relevant to the R & D community currently include:

- FTAM for file transfer

- X-400 for electronic mail

- ODA/ODIF for document interchange.

Virtual terminal implementations, directory products and network ma-nagement facilities are also of interest, but the current state of standardisation means that these will have to be included at a later date.

Information Collection and Maintenance

Knowing exactly what information to collect is the first step, but collecting it and maintaining it is a problem which will require a sustained and consistent approach. Who should undertake such a task – and if several groups are collecting such information – who should be responsible for coordinating the information?

Ultimately, the group supporting the COSINE infrastructure should collate the information; this will probably be RARE. However there are interested parties within the various national governments who will want such information, to say nothing of user groups (e.g. CECUA, OSITOP) or manufacturers' forums (e.g. EUROSINET, SPAG Services). To minimise effort, some kind of clearing service is required.

We suggest that each country's representative group in COSINE will need to seek the required information because product availability will vary from country to country. Such national information should be compared however, because although product availability will vary across national boundaries, there will certainly be interworking between countries in the R & D community and in other international organisations.

The sources of information in each country must be identified and persuaded to contribute new information as it becomes available, to a central contact point and on a non-confidential basis. In many cases these will be the product marketing organisations of computer compa-nies, independent software vendors and public network operators, but there will also be sources within the academic community and other user organisations who produce a certain amount of gatewaying software on a customised or one-off basis which may be applicable elsewhere. A central point of contact would probably make the task of vendors easier in that the amount of information they would need to distribute and the number of different user organisations they would need to liaise with could be minimised.

Inter-operability information will be harder to obtain. The multivendor experiences of users will be particularly valuable in establishing what the problems of interworking are likely to be. It is suggested that raising the visibility of such problems and their solutions (or of successes) would be enhanced by the use of computer conferencing in the user community. No doubt Euro-Kom could assume this role.

Access to and Distribution of the Catalogue

Who will want access to the catalogue? This will probably be the project manager or the infrastructure manager of the various projects concerned, or any informatics personnel required to support them.

How should this access be provided? Either paper copies could be distributed to subscribers of a centralised service on a regular basis, or access could be given to an online database, or both. For information which changes rapidly, online access is the most suitable, but for large amounts of information paper copies are easier to deal with and would be needed for those people who cannot yet participate in the infrastructure.

As has been mentioned above, a conferencing system providing rapid feedback for the resolution of problems should be considered as a highly useful ancilliary service.

Conclusion

Not only would an OSI product catalogue or database be a useful tool in supporting a distributed R & D program, it would probably be useful to other user organisations too. The quality of the information must be good for it to be really useful, however, and information supplied by vendors should be independently verifiable wherever possible (hence the importance of independent conformance tests); the temptation simply to copy information out of products brochures must be avoided.

Provision could be made for the inclusion of other standards relevant to the R & D community (and the products which conform to them) as they become available, and standards relevant to other communities should the scope of the entreprise become wider.

Robert WELBOURNE
Formely of: The Alvey Directorate
Kingsgate House
66-74 Victoria Street
UK-London SWIE 6SW

Letters to the Editor

Development of an "OSI User Manual" for the R & D Community

Rob Welbourne's piece on the need for an OSI Product Catalogue identifies one area where practical assistance can be given to potential users of OSI, thereby improving the potential "market pull" in the OSI product market place. However, in order for such a catalogue to be of real value, it is necessary for the reader to understand what the relationship is between the products listed in the catalogue and the particular problem the reader requires to solve; there is no point in buying a green-striped widget extractor unless you know that you have a requirement to extract green-striped widgets. It may well be that the reader has a clear idea of the functionality that is required in general terms, but with no knowledge of the precise terminology used in OSI that corresponds to that functionality.

In order to address this particular problem, the Information Engineering Directorate (formerly the Alvey Directorate of the Department of Trade and Industry in the UK) is currently developing an OSI User Manual which will provide potential users of OSI with sufficient information (and pointers to other sources of information) for them to be able to identify from a knowledge of their particular requirements the relevant standards, products and services that they require in order to establish the particular set of OSI services and facilities that they wish to use. This manual should not be seen as yet another tutorial guide to OSI, but rather as a primary reference work that will address the practical problem of selecting the right communications techniques to solve particular research or business requirements.

Although it may ultimately be desirable to broaden the scope of this document to accommodate all potential users of OSI, in the first instance it is envisaged that the target user community would be those involved in collaborative R & D projects both within the UK and Europe. In particular, we are planning to make this manual available as part of the UK contribution to the activities of COSINE.

The Target Audience

Generally speaking, prospective users of OSI facilities in the R & D community cannot be expected to have detailed knowledge of OSI or of how to make use of OSI products and services, and in the early stages of future R & D programs the level of knowledge of OSI, even among system suppliers, is likely to be low. In many cases, particularly in circumstances where central financial support for an R & D project is conditional upon use of OSI, the project manager or infrastructure support manager may well have no interest in OSI per se, being interested solely in providing the functionality required for the project according to the particular constraints that have been imposed.

The manual is therefore primarily aimed at providing the project or infrastructure support manager with the means whereby an appropriate set of procurement specifications can be drawn up that will meet the requirements of the project. By

means of pointers to other sources of information, such as a product catalogue, it will also be possible for the reader to locate sources of products that will fit the specification.

The Format of the Manual

In order to limit the size of the manual, much of the content will be in the form of pointers to other sources of information or support; however, the objective is that the manual should be a "complete" directory of relevant information, and can therefore be used as a starting point for any specific enquiry. As already mentioned, references to an OSI Product Catalogue will be particularly important. For the present, it will be assumed that the catalogue developed by the CCTA in collaboration with ITSU in the UK will be referenced by the manual, until such a time as a broader based, European-wide catalogue exists.

The Manual is envisaged to be a "living" document, that will be expanded and updated as the available information changes, or as the target audience is extended. It is therefore intended to base the manual on a loose-leaf format, and to provide a periodic update service to subscribers.

The Content of the Manual

The content of the manual will be as follows:

– **Introduction** giving an outline of the purpose of the manual and it's target audience;

– **Description of the OSI Environment** giving a brief description of the nature of and advantages of OSI, the relevance of OSI stand-

ards, CEN/CENELEC/CEPT functional profiles and Conformance Testing.

– **The Prime Functions** which will describe each of the major "end-user" functions of relevance to the R & D community, such as bulk data transfer and electronic mail. Sufficient detail will be given to allow a potential user to relate a given Prime Function to a particular "business need" or functional requirement. The Prime Functions will also identify relevant standards, Support Functions, procurement notes, conformance testing requirements, products are likely future developments.

– **The Support Functions** describe the additional functions that are required in order to support the identified Prime Functions. Support functions may be OSI functions in their own right such as OSI Management or "practical" support facilities such as conformance testing services.

– **Help Desk facilities** contains the details of any organisations or services that will provide OSI user support.

– **User Case Studies.** This section will contain information on practical experience of the use of particular products by users operating in the R & D community in or-

der to provide specific OSI facilities. It will expand as more and more users gain experience of the "real" problems involved in seting up an OSI environment using commercial products, and will provide an increasingly useful reference document. Initially, this section will concentrate upon information about relevant demonstration projects.

Timescales

The initial version of the User Manual will cover electronic mail, bulk data transfer and office document architecture as Prime Functions, along with directory services and other appropriate Support Functions. The manual is scheduled for completion in the summer of 1988.

Comments and Further Information

Any comments on this developments, or requests for additional information are welcomed by the author, and should be directed to:

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Open Systems Support Team
Department of Trade & Industry
Kingsgate House, Room 337
66-74 Victoria Street
London SW1E 6SW
U.K.

Letters to the Editor

Dear Sir,

With reference to Rob Welbourne's piece on the need for a product directory for OSI products, I would like to inform your readership that Working Group 3 of RARE (Réseaux Associés pour la Recherche

Européenne) is also interested in this topic.

The RARE interest arises from the fact that the COSINE specification phase project, which RARE is performing for EUREKA, requires a list of products, both hardware and software, to be provided as part of the final report.

Working Group 3, which has responsibility for information and directory services in the context of RARE, has drawn up a specification for the database to contain the data collected in the COSINE project. The spec has been circulated to the other RARE working groups who have responsibility to collect the information.

Any of your readers who would like to have a copy of the draft version presently in circulation can have one by contacting me at: Euronet DIANE/ECHO, 177, Route d'Esch, L-1471 Luxembourg. Via E-Mail: on EuroKom and QZ Com as Barry Mahon, on Geomail as ILUX: B. Mahon, on Bix as Barrymahon, on the Source as AAN392. (By the way, Working Group 3 is also involved in trying to sort out naming. In the view of the above list of names and addresses we have some work to do!)

The Group would be interested to hear from anybody who has already collected or is in the process of collecting, OSI product data. The present proposal is that the data collected under COSINE will be stored on ECHO, the EEC database server. Access would therefore be available, free, to anybody who needed the info. One MAJOR question which arises, as always in these cases, is 'who is going to keep it up to date' – any views, comments or, better still, offers to do the updating (for free) are welcome.

Yours etc.,
Barry MAHON

Letters to the Editor

Tariff Policy

Dear Sir,

I was very surprised to read in IES News, February 1988, that "As a first step RARE recommends a (data communication) tariff policy which takes greater account of the volume of information transmitted than of the time needed to send it." This goes against most user thinking, and leads to an anti-progress situation that Europe certainly does not need. I would put the following factors to RARE:

1. Current user demand, fully supported by the European Commission in its admirable Green Paper on telecommunications, its for cost and competition to be the major factor in telecommunication pricing. We would like to see at end to the price distortions of the past, where pricing was designed to favour one group against another. It is not at all clear that the cost to a service provider of handling 10.000 characters at 300 baud is any greater than handling 30.000 characters at 2400 baud.

2. Modern communication equipment, with higher speeds, is designed to encourage users to maximise the benefits of new technology and to achieve lower costs and greater efficiency. With a charging mechanism based mainly on character charges, there is little incentive to invest in equipment of higher speed and efficiency and we may as well stay with the telex network.

Europe needs a communications structure that encourages efficiency.

3. Time charges penalise slow typists working on slow equipment, but the solution is in their hands in terms of off-line formulation, up-loading and investing in more efficient equipment. High character charges currently hold back the growth of a whole new industry based on the communication of large volumes of text data between workstations.

Changes are certainly needed in Europe's telecommunication infrastructure and in its tariffing, but RARE does all users a disservice in appearing to want one monopoly network based mainly on volume charges whilst most users, and the European Commission, are working towards competitive value added networks and cost-based pricing.

Yours faithfully,

Harry COLLIER
Executive Director, EUSIDIC

N.B. Views expressed in "Letters to the Editor" are not necessarily those of the Commission or of the Editor.

Postal Electronic Mail (PEM) in Europe

Threat or Opportunity?

The rapid development of electronic mail technology is creating new markets for new services in Europe. This can be seen as either a threat or an opportunity for established postal administrations. A threat because of the fact that customers may be attracted away from the established postal services by new operators providing E-mail services. An opportunity because of the scope for the postal administrations to offer new and improved services to their customers.

CEC Study

In view of the possible revolution in the postal services market, DGXIII of the CEC has just launched a 6-month study into 'postal electronic mail' (PEM) in order to be able to make recommendations to the national postal administrations of the member states on their future strategies. These recommendations will of course also be of relevance and interest to equipment suppliers and users.

Role of Postal Administrations

The distinguishing feature of postal, as opposed to other electronic mail, is the involvement of the postal administrations, who are now in a position to build on the strength that their established experience and infrastructure provides and move forward to incorporate developing technology into their existing services. There is a scope for the administrations to be involved with access to or delivery of electronic mail services, or indeed both.

Access:

For example, postal administrations may be able to provide access on a local or remote basis by means of:

> input by mini or microcomputer
>
> input via electronic mail terminal or local post office
>
> provision of public facilities for the use of fax, teletex, and telex

In physical terms such access may be provided by a variety of means from magnetic media to voice transcription.

Delivery:

The role of postal administrations in terms of delivery services could involve:

> provision of various forms of hardcopy
>
> printing, enveloping and physical delivery of the hardcopy to the addressee
>
> electronic delivery to addressees' terminals
>
> scanning of electronic messages

Coverage of Survey

The survey into postal electronic mail will look at the following issues projected over the next 5 year period:

I. Current situation and trends:

> A clear summary description of the relevant technology.
>
> The current mail market: existing trends in the market for business mail, social mail and bulk mail.

Postal electronic mail: current situation and trends in each country, subdivided into:

– those most advanced in PEM
– those with significant commitment or plans
– others

II. Analysis

Identification of the future role of postal administrations in E-mail and of a niche within the wide E-mail market.

Identification of legal, institutional and other barriers to the widespread introduction of E-mail services by postal administrations.

Estimation of the market potential for equipment and identification of European manufacturers capable of providing this equipment.

Examination of issues related to CEPT and EC-wide common availability of PEM services, in particular standardisation issues relating to:

– equipment
– networks
– services

III. Strategy:

On the basis of the foregoing analysis recommendations will be made for a common strategy to be adopted in the future by the administrations of the CEPT in the field of PEM, with the emphasis on:

(i) strategic implications for postal administrations

(ii) strategic implications for equipment suppliers

(iii) strategic implications for users

For further information on the CEC survey please contact:

CEC DGXIII
Division D3
200, Rue de la Loi
B-1049 Brussels

COSINE NEWS

Cooperation for Open systems Interconnection Networking in Europe.

COSINE News intends to cover viewpoints of all parties with interest in COSINE.

R&D Networking Infrastructures in Portugal Coordinated by COSINE and RARE Representatives

Portugal has several computer networking activities in progress, but as yet no organisation responsible for networking activities for the R&D community.

The creation of the existing network for the R&D community has been mainly user driven. These users have also received, to some extent, support from suppliers of computer equipment.

Network Topology

The Portuguese academic network nodes use four different network technologies. Some of these nodes simultaneously run two different types of networks. This situation is a problem for the technical user and a serious barrier for an efficient use of the network to the non-technical user, who must know how to operate different electronic mail systems. Furthermore, global network connectivity is not possible. There is also a disparity between the services offered by different networks: some are limited to electronic mail while others also offer more advanced services. Most emphasis is laid on development of electronic mail, because experience in other academic networks so far shows this is by far the most widely used facility.

The Operational Networks are as follows:

1. MHS Experimental Network. Within the scope of RARE and its Working Group 1 (WG-1), a network to support an experimental Message Handling System (MHS) for interchange of interpersonal mail has been in operation for two years. At present five institutional nodes exist, which provide access to local area networks. The exact number of users of the system is not known, but is estimated at around 150.

The system is operated using the EAN software from the University of British Columbia (Canada). This system conforms to ISO-OSI X-400 standards for electronic mail. The nodes in Portugal have full access to the RARE network, by means of access points to each of RARE member countries already connected to the international node located in Lisbon.

2. UUCP Network. This network has been running for one year. Delays in setting up were caused by the fact that in Portugal legal constraints make it impossible to get the necessary BSD UNIX licenses, making it difficult to obtain all the necessary networking software. However, one international node is operational now, running commercial software products. At present eight UNIX nodes exist and five other nodes are connected through a gateway to DECNET. The international node is connected to the various international nodes in other countries by means of the public X-25 packet switched data network. The number of users is around 100. It is expected that in the near future this network will grow very quickly, both in terms of users and nodes.

3. DECNET Network. This network has been running for three years and at present has ten nodes in operation. Most nodes are access points to a local area network (LAN). The total number of computers connected to the network is about 40 and the number of users is around 300. The different nodes are interconnected by means of the Portuguese public X-25 data communications network, Telepac. The users of the DECNET nodes can interchange electronic mail and perform file transfers. In addition, a distributed computer conference system is available, but this facility is used very little. One of the nodes supports a videotex database which can be accessed by any authorised terminal within the

network, and is suited to make public any kind of information for the academic community.

4. EARN Network. The international academic network EARN has been available to users in Portugal for about two years. There are two operational nodes: one of which is connected to the network by a leased line to a node in Spain. Statistics on the usage of the network are not available.

The existence of different network technologies prevents a user in one of the networks reaching a user in another. Therefore, in order to establish connectivity among the networks gateways are implemented, connecting the MHS Experimental Network and the UUCP Network, as well as the UUCP Network and DECNET. No other gateways are planned.

A proposal for the establishment of a global network for the R&D community is in the final stages of approval. The main objective of this proposal is to create a body responsible for coordinating the networking activities at a national level. The project will implement the X-400 and UUCP Network. Gateways will be provided for the major international networks not covered at the national level, using already existing international gateways. The proposal has been presented to the Junta Nacional de Investigacao Cientifica e Technologica (JNICT), a governmental agency responsible for sponsoring R&D activities. From a technical point of view, the project tries to establish a network which is as free as possible from manufacturer specific networking products. The proposal follows the recommendations and reports from COSINE and RARE. With this strategy, Portugal expects to be able to take advantage of the experience of other countries, where networking activities began several years ago. The network under consideration by JNICT will use the public X-25 packet switching network, which will initially only support electronic mail. For this network application, Portugal will adhere to the existing X-400 specifications.

Conclusions

Portugal has various computer networking infrastructures. The community of users has been responsible for the choice and initiation of the network. Installing and running a computer network for the R&D community is an activity that requires a degree of coordinating to ensure that the choice of technical options can be made in such a way that all users in the network can communicate with each other, using at least some basic services, but also using software and hardware products that allow a smooth transition of networks involved to the new networking standards. The network will be coordinated by the Portuguese representatives to COSINE and RARE, who will be responsible for coordination the various activities at national level and for taking decisions on integration of new OSI applications. Also, they will take responsibility as a naming authority within the academic networking community. It is to be expected that the results of studies being carried out during the COSINE Specification Phase can be taken as reference for the implementation of a harmonised network using OSI protocols.

Article based on country report gathered from the CPG meeting in Zoetermeer, November 5-6, 1987, updated in March 1988 by Prof. Pedro VEIGA, CPG Representative Portugal.

NORDUNET Projecting Transport Network for Various Services and Protocols
X-EARN: Cost Considerations and Interoperability

The Nordic countries have started a project to establish a common general transport network, available for a variety of services and protocols. Concern at heaving to pay for the EARN leased lines in 1988 started discussions in the Nordic countries on its relationship with EARN. The situation is that the international lines for EARN are used at no more than 10 to 20 percent of their capacity. There is however interest in using them for services other than EARN-traffic and this led to the initiation of the X-EARN project in August 1987 at a meeting hosted by the Nordic academic networking program NORDUNET. The X-EARN project is coordinated and supported by NORDUNET. NORDUNET'S intention is to establish an infrastructure on which most user communities can reply for operation of network services.

NORDUNET is a four year cooperative program of academic networking projects of the Nordic countries Denmark, Finland, Iceland, Norway and Sweden. The program was founded by the Nordic Council of Ministers and started in 1986, with a working budget of 10 million Nkr. Among other things, in 1986 it started, together with RARE and the Commission of the European Communities, a pilot project for message handling, using the X-400-based EARN software. NORDUNET is an international member of RARE and several working groups share their respective goals and resources. The chairman of NORDUNET is Mr. Peter Villemoes of Denmark, who is also the national representative for Denmark in COSINE.

NORDUNET has written to the national organisations FUNET (Finland), SURIS (Iceland), UNI-C (Denmark), UNINETT (Norway) and UHA (Sweden) on behalf of SUNET (Sweden), on this subject and hopes to reach a decision by April 30. The NORDUNET steering committee has proposed that it should act as the decision-making body for policy decisions regarding the usage of the network. The national organisations will have to decide on the long-term financing of the network's operational costs.

In concrete terms, the goal for the X-EARN project is to deliver a recommendation on how to implement more user services on the leased lines for EARN. The proposal is initially to set up a 64 kbit/s Inter-Nordic backbone with a 64 kbit/s link to the Netherlands, followed by a link to the US. For X-EARN, cost-sharing principles and decision-making arrangements regarding strategy, procurement and everyday running of the network are up for further discussion. The project does not entirely cover the implementation of the network.

X-EARN Committed to OSI Migration

The new general transport network service provides connectivity for the lower layers of the ISO/OSI Reference Model; higher level services (above level 3-4) will not be covered directly by this project. The common general transport network enables several separate networks to run in parallel DECnets, EUnet and EARN, for super-computing usage. This is because of both cost and interoperability. In order to ensure a later possibility for migration to OSI, NORDUNET undertook to provide a tool to introduce OSI services in parallel with interim or manufacturer dependent services. Given that there is a strong commitment to OSI in the national organisations, the infrastructure will be better prepared for migration work in technical and organisational terms, as a result of cooperation on this project. For X-EARN, COSINE is important, in particular with respect to the connections the Europe.

The NORDUNET steering committee has approved in principle the outline solutions of the proposed network and has voted the necessary initial budget. The name of the new network will be NORDUnet. The following protocols have been approved for use on the network:

- all ISO protocols
- RSCS
- Internet IP with TelnetFITP and MAIL
- X-400 over IP or X-25

- X-25 and XXX
- DECnet, if harmonisation of addressing according to SPAN/HEPnet plan is carried out.

In addition to the X-EARN project, NORDUNET will undertake steps to harmonise mail services, with special interest in naming and addressing issues. Likewise, the organisation will plan for the introduction of national X-400 MHS pilot services, with special interest in naming and registration organisation.

Peter VILLEMOES, UNI-C (Denmark) and Mats BRUNELL, Swedish Institute of Computer Sciences.

CPG Adopts Preparatory Work Plan for Implementation Phase

During its meeting in Pisa (Italy) held from 8-10 March the COSINE Policy Group (CPG) organised the preparatory work for the COSINE Implementation Phase which is to be started on January 1, 1989. The three year Implementation Phase is to be carried out under a renewed contract arrangement between the partners in the COSINE project. The CPG identified three actions to be taken during 1988:

1. RARE will deliver a set of reports containing the results of the Specification Phase. The final report on the Specification Phase will be available on 1 September, and will describe the plans for the Implementation Phase. Meanwhile, manuals will be developed as implementation tools for managers of computing centres.

2. A review process, in which specialists from PTTs and suppliers will participate, will be carried out to evaluate the results of the RARE reports. The first round of talks on this subject was held in February, the next is scheduled for September.

3. The CPG will meet to discuss the results of the RARE reports and new

contract arrangement for COSINE in October.

Pending the results of the Implementation Phase, COSINE is aiming at a stepwise approach to a coordinated networking infrastructure. For this purpose it envisages as many operational elements as possible at an early stage. Crucial elements are:

- an adequate X-25 infrastructure, with the 1984 version of the protocol to allow end-to-end communications;

- a transatlantic gateway service connecting the main American and European networks on the basis of OSI;

- a common naming scheme;

- migration plans for existing networks in the framework of national plans.

EUROCONTACT

During the 3rd ESPRIT Conference in September 1986 a new IES Service, the EUROCONTACT database, was demonstrated for the first time (see IES News, No. 6). EUROCONTACT was officially launched in April 1987 and since that time the size of the database has grown steadily so that it now incorporates over 1800 records.

EUROCONTACT is an online database the purpose of which is to stimulate contact between organisations within the Community who wish to collaborate on research in the areas of Information Technology and Telecommunications (IT & T). The database contains information about European organisations, together with their profiles and details of their research interests.

EUROCONTACT is an IES service supported under the ESPRIT program and its primary function is to assist organisations seeking partners for Community sponsored IT & T programs such as ESPRIT and RACE. However, it can also provide a means for those interested in non-CEC initiatives, such as EUREKA, to identify and collaborate with one another.

Whatever the motivation of an organisation for using EUROCONTACT, such a facility, which promotes contact between European organisations, is valuable in that it furthers the wider objective of creating a cooperative European research environment. Since its launch EUROCONTACT has become potentially an even more important service with the introduction of the Framework Program and the launch of new cooperative R &

D initiatives, and demand for it continues to increase.

Those who have not yet received a form and would like to access EUROCONTACT can at present obtain one either from the IES Helpline (+352 453030) or the EuroKom office (+353 1 697890) or

EUROCONTACT: RECORDS BY COUNTRY

29/3/88

TOTAL: 1875
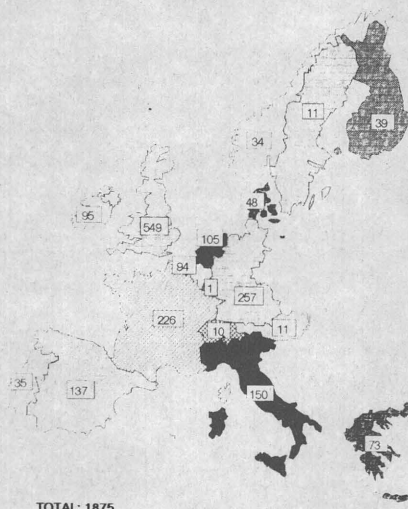
by writing to the Commission (EUROCONTACT, Commission of the European Communities, DGXIII, A/2, B-1049 Brussels). The forms should be returned initially to DGXIII, where they are pre-processed and sent on to Dublin. This is a necessary procedure which inevitably causes slight delays, but recent improvements in the procedure for processing the forms have reduced considerably the time taken for a user to become registered. Postal problems are still the biggest delaying factor, but ways of further reducing the time

taken to register are being evaluated currently.

For instance, plans are underway to set up, with the assistance of willing organisations, specific points throughout the member states from which potential users will be able to get forms locally and without the danger of postal delays. As well as distributing forms these points will be able of offer local assistance with all aspects of the service from general enquiries to form filling and actual use of the database. The points will all have their own access to EUROCONTACT and may be able to demonstrate the service and occasionally help users who may require urgent access to it, for instance to find partners at short notice. Local organisations will therefore be able to get help in their own language from the points, which will also have the advantage of direct links with the CEC. The organisations in question will already be providing an information or advisory service of some kind and will be able to use this expertise in relation to EURO-CONTACT. The services provided will vary from one point to another, and you should contact your local point to find out exactly what is available in your area.

Six organisations, in Bonn, The Hague, Lisbon, Barcelona and two in the UK are already operating and these will shortly be followed by another in Portugal, and two more in Germany. Discussions are now taking place on the setting up of points in the remaining member states. The addresses of the first points are given in the table and the IES Helpline will in due course have details of further points as they become available.

EUROCONTACT passwords are only issued to those who have submitted an application form and whose organisation details and research interests are therefore on the database. These forms are distribu-

EUROCONTACT

ted regularly at ESPRIT events such as the annual ESPRIT Conferences and Proposers' Days as well as at national events scheduled throughout the member states.

EUROCONTACT is implemented on the EuroKom site at University College, Dublin (UCD). One of the reasons for this is that the EuroKom electronic mail service is considered a useful additional facility which enables organisations to communicate once they have identified each other using EUROCONTACT. As the IES evolves the present services will become increasingly integrated. EUROCONTACT will be interfaced within EuroKom with electronic mail to allow greater ease of communications between interested parties. The services may also be expanded to included subject areas beyond IT & T.

The EUROCONTACT facility and its evolution currently are being reviewed as its strengths and weaknesses become evident. It is intended to assess the service against its original specification and make any alterations and improvements considered necessary. User feedback will be appreciated greatly in association with this review and would be welcomed. All comments and suggestions should be addressed to:

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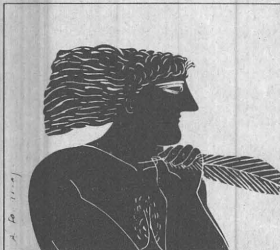
EURINFO '88

**First European Conference on Information Technology
for Organisational Systems
Athens 16-20 May 1988**
Organised for: **The Commission of the European Communities**
Sponsored by: **IFIP ● CECUA**
"Concepts for Increased Competitiveness"

The program for this meeting, which is cosponsored by ADI ● AFCET ● AICA ● API ● ASAB ● BCS ● CIGREF ● COMGE ● DANFIP ● GCS ● GI ● ICS ● IFCU ● INFOREP ● NCUF ● NGI ● VDI/EKV ● VEBI ● ZVEI has now been published. Over 170 papers are to be presented. Full information and booking forms are available from the Conference Office, c/o Ginis Vacances, Ermon Street, Athens 10563 (Tel. GR-1-324126; Fax GR-1-3237703).

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COMPAT '88
Computer-Aided Trade

This year's meeting, the third, took place at The Hague, on March 1-2. The growing interest in this activity, which is based on electronic data interchange, EDI, was evidenced by the more than 400 delegates who packed the lecture halls, and the importance attached to this fast growing activity, with nearly 1.000 European practitioners and close to 5.000 in the U.S., was demonstrated by the presence of the Dutch Minister of Economic Affairs and high ranking executives from all branches of industry.

It is only appropriate to record the extensive help given by the Commission to this novel form of conducting commerce by the TEDIS (Trade EDI System) program which was described in its aims and achievements. The advantages are almost self-evident: improved customer service with faster processing and chasing of orders, and improved information flow between supplier and customer; substantial reduction in delivery periods and improved stock management (reduced stocks); acceleration of the order-sales-invoice-payment cycle resulting in improved cash flow for the supplier; availability of EDI 24 hours a day, seven days a week, regardless of time zones. These all combine to being substantial savings due to reduction in paper work, reduced stock and faster cash flow. The Commission's activities have concentrated on seeking to ensure avoidance of duplicate systems and incompatibilities, with a special eye on such factors as security and confidentiality of data and legal aspects. This all involves much coordinating action including cooperation with equipment suppliers and interaction between such diverse aspects as standardisation, multilinguistic factors, pricing, telecommunications, etc.

There had been fears that standardisation events might well overtake European efforts: the Americans had pressed ahead with their own standards, inspite of the availability of the EDIFACT rules. (The EDIFACT standard is part of the Trade Data Interchange Directory (TDID), issued and maintained, in English, French, Russian and Spanish, by the UN/ECE. (United Nations Economic Commission for Europe) with headquarters in Geneva.

The TDID contains several hundred standard trade transaction data-elements, and 135 document names with descriptions and definitions. It also includes agreed codes/terms for such variables as countries and currencies. The Directory has been adopted as an ISO standard).

However, the heartening news of the moment was that the American Customs Authorities have now opted for EDIFACT, so there should be only one standard in worldwide use. What is even more encouraging is that the approval time for this was a mere 18 months – almost a record for such an important specification which will have far-reaching impacts.

Whilst some sectors are only now beginning to test the EDI waters, there are some outstanding mass-usages to note: airline bookings by this technique now exceed 15.000 million a year, i.e. 30.000 per minute (this figure includes passenger and freight transactions).

Some 1 million million dollars are transferred daily between banks – figures for stock exchange transactions were not available since data are given in shares traded per stock exchange. Other surprising figures were the use made of the COMPASS system for controlling port traffic in Bremen, where peak figures of 12.000 data calls per hour have been recorded, with 50.000 calls on the central computer installation being a daily occurrence. Again, the encouraging signs are that whilst COMPASS was developed for Bremen with a similar system, DAKOSY, for Hamburg, efforts are now in hand to interlink these. There were reports of similar developments in Rotterdam and Antwerp: no doubt before the introduction of the real common market in 1992, these and other port systems will be interlinked and standardised. Much progress in a related area was also reported by Lloyd's of London who keep track of over 5.000 daily ship movements with all that entails: cargo manifests, insurances, customs declarations, fuel supply for ships, etc.

It was also exciting to hear that the electronics industry itself has embraced EDI effectively. Some 18 months ago, competing corporations in this sector decided to cooperate in an effort to stop insular EDI developments and set up EDIFICE, the Electronic Data Interchange Forum for companies with Interests in Computing and Electronics. This is not a project or a standard, but is represented on the

COMPAT '88
Computer-Aided Trade

relevant UN committees, the EDI-FACT board and other related bodies. The greatest barrier to rapid further progress, in EDIFICE view, is the absence of an agreed and effective file transfer protocol. Currently, there are several "working" file transfer protocols, those used by ODETTE, X-400, FTAM, etc., with FTAM, the standard to be, not really expected to be available before 1992. The EDIFICE group also sympathises with the many separate efforts made to establish EDI for a given sector or multinational, but realises and actively works for general migration to EDIFACT, since only a single standard will allow real interconnectivity throughout Europe and the world at large.

The COST306 program also deserves mention for its promoting effort: this is a project specifically directed to researching and analysing information flows in international transport. The aim is a data exchange concept which would eliminate traditional paperwork problems and facilitate the uninterrupted movement of vehicles and freight. One of the related efforts here is DOCIMEL, a project designed to link, by computer networks, railways, their customers and customs. Much progress along these lines can also be reported for the Dutch railways, who hope to introduce next year an online system for optimising route and train selection given the start and end of a journey and combine this with an "expert" system for freight charges etc. – even timetable construction is planned for the future. The European Article Numbering system (EAN) is also slowly coming into its own: there are now

some 75.000 participating companies in the national bodies which form EAN. The activities however extend beyond a mere numbering system for goods, and work is in hand on standard communication systems including telecommunication facilities for automatic transmission of relevant trade data. The U.K. organisation in this area has already developed its highly regarded TRADANET retail and distribution system on the basis of TRADACOM ETDI standards, and expects to have some 4.000 UK companies participating by 1990. Since TRADACOM standards are simple, but rigid, migration to EDIFACT many prove a problem, and the most promising approach is seen to be a suitable TRADACOM/EDIFACT translation facility.

IES News has already reported in detail on CEFIC (see no. 12, pg 16) where further progress is most encouraging. The oldest European venture, now in its fifth year, is ODETTE (Organisation for Data Exchange and Teletransmission in Europe), a joint effort by major car manufacturers and parts suppliers in 8 European countries to overcome paper-based procedural problems and speed the flow of cars and parts. Although the oldest project, there is agreement to migrate to the EDIFACT standard over a number of years and to abandon their well-tried Trada Data Interchange protocol.

One of the aims of TEDIS is to coordinate European sectoral projects and in this context it is already ensuring coordination between ODETTE, CEFIC, EDIFICE and COST 306.

In general, EDI is regarded as an enabling technique which cannot exist in a vacuum, i.e. is not and end in itself. It is because of this that its progress and adoption have been so rapid although, undoubtedly, the cost savings, estimated at between 7 and 15% (depending on whether stock reduction is included or not) are no small incentive.

Small companies (and some large ones) will be asking themselves: Can I do without EDI? The short answer is no, but it requires careful management rethinking and preparation, and not just a desperate plunge into the paperless society. No EDI is still considered better than bad EDI. There is a growing number of experts and organisations now available to offer sound advice on how to join the EDI family efficiently and smoothly. Naturally there are dangers and pitfalls. Some safeguards must also be built into the trade system in general to avoid the minnows falling victim to the big fish. Some major companies using many small suppliers will have to be careful not to force "their" system on an unprepared supplier who then may not be able to cope. An outstanding example of careful and well-supported EDI introduction is provided by the U.K. booktrade, where over 70% of orders are now handled smoothly and efficiently by EDI.

One other aspect that deserves note is the rapid progress made in the legal and security aspects of EDI. Here, the banks with their electronic fund transfer have been the pioneers: if money can flow freely and safely along electronic chan-

nels, then orders for other goods can also follow the same route. The crucial role here is that of the various customs authorities who are showing a readiness to accept "paperless" documentation (it is naturally not known whether the paperless documents will be printed out at various stages in the transaction chain, but one can surely hazard a guess that paper manufacturers will not suffer). It is however the speed of transmission which will bring the benefits, together with the avoidance of repetitive keyboarding in producing new forms for each stage. The acid test will certainly come one day when an EDI-based deal is subject of court proceedings, but with goodwill allround there should be no problems. Electronic messages may get misdirected or read by unauthorised parties, true, but then letters have been misdelivered and opened by others than the addressee.

Overall, this was a well-organised meeting, with a small, but useful, exhibition and demonstrations. There are always some regrets – not enough time for discussions and for a meeting in furtherance of electronic media, an enormous pile of paper to read and carry. Perhaps one should also repeat the warning of one of the two lunchtime speakers: EDI will help European trade, both within the common open market and with exports, but it will be an equal help to those who wish to sell to Europe, so there is no room for complacency.

First Meeting of ISO/IEC JTC1/SC6 – OSI Lower Layers

ISO/IEC JTC1/SC6 (formerly ISO/TC97/SC6) met in Guernsey during the two weeks from 25 January.

It was recently announced that the International Organisation for Standardisation (ISO) and the International Electrotechnical Commission (IEC) have reached an agreement to collaborate on the production of International Standards for Information Technology.

The joint agreement embraces the work of all the ISO committees on Open Systems Interconnection (OSI) which is the key to open interworking between information processing systems. All the committees have been grouped under a new Joint Technical Committee, JTC1.

ISO/IEC JTC1/SC6 was the first of the main OSI committees to meet under the new JTC1 banner. SC6 deals with all the standards for the lower four layers of the OSI model. In other words, the fundamental interconnection standards for both Local Aera Networks (LANs) and Wide Area Networks (WANs).

SC6 covers a vast spectrum of subjects ranging from the physical requirements for connections through LANs and WANs to overall network control, management and routeing standards for switched (including ISDN) and packet networks and LANs. Overlaid on these functions, it produces all the standards for the Transport Layer, which creates a single service for higher layer standards supporting communication between applications. It is also responsible for producing the all important conformance testing standards which will be used for in-

dependent certification by test-houses, world-wide.

Conformance testing is a key area of standardisation within OSI and is being treated with great urgency. With the base standards in place and key profiles established, common standards for world-wide conformance testing are imperative. A "pass" in one test-house must mean that the system will pass, for the same function, in other test-houses. SC6 made a bold decision that the conformance "Test Suites" for all the lower four layers must be in a single style, known as "Tree and Tabular Combined Notation" (TTCN).

The committee work on the detailed Test Suites is very advanced. With this decision in place, we can expect the formal International test suites for X-25 computer system terminal equipment (ISO 8882-2 and 8882-3) to be circulated for ballot during the next 12 months.

A new, improved, procedure has been introduced to speed up the correction of detailed deficiencies which are detected during the practical implementation of networking standards. The procedure was adapted from one currently being used with great success for correcting detailed deficiencies in the Transport Layer and will be extended across all the lower four layers. This is known as "defect reporting". Problems are logged as defect reports by members, analysed by the committee and either rejected, as not valid defects, or corrected using an accelerated procedure that avoids long balloting cycles.

First Meeting of ISO/IEC JTC1/SC6 – OSI Lower Layers

In Local Area Networks, the UK proposed Slotted Ring (ISO 8802-7) progressed to full International Standard. Physical Layer addenda to CSMA/CD (ISO 8802-3) were reviewed and the enhancement for 10Mbit/s over 50 Ohm co-ax (ISO 8802-3/ADI), often referred to as Cheapernet, and the CSMA Repeater (ISO 8802-3/AD2) were progressed to International Standard. The addendum for 10Mbit/s Broadband CSMA/CD progressed and will be circulated for ballot as a Draft Addendum (ISO 8802-3/DAD3).

Another milestone of note in the Physical Layer is that the ISDN Primary Rate Connector has now been selected and work starts on producing the draft proposed standard.

The linking of LANs at the Data Link Layer (referred to technically as the LAN Media Access Control – MAC) was accepted and a standard is in production for "MAC Bridging".

Another innovation in the Data Link Layer is the enhancement of the HDLC standard to embrace asynchronous PCs. It will be possible to implement a new asynchronous HDLC framing structure using common communications chips which are used in most existing PCs. The procedure is carefully designed to avoid sensitive, commonly used, asynchronous control sequences.

Much effort was put into finalising the work on "connection-mode" and "connectionless" operation in the Network Layer. Final text was produced defining the protocol combinations which are to be used to support the two types of operation (ISO 8880). The operation of Class 4 Transport Protocol over ISO Connectionless Network Service (ISO 8073/AD2) also progressed to International Standard.

Considerable progress was made on documenting the provision of connection-mode network service over ISDN (using X-31 access), connectionless operation over point-to-point circuits and the architecture of "intermediate systems". Work was started on support of X-25 in these intermediate systems.

New work was also begun on the use of X-25 over switched data networks (over X-21) and the method to be used for interworking between connection-mode and connectionless environments.

The Network Layer Group also finalised the texts for the standards on Routeing and the Negotiation of Priority and Protection Parameters. These are elements which are a key to OSI Network Connection control.

The finalisation of the standard for X-25 Operation over Local Area Networks was brought one step nearer. A clear choice of LLC2 for Link Level has now been made. LLC1 will still be permitted but the LLC2 profile will become the conformance requirement. This is one of the profiles which is specified by UK GOSIP.

The SC6 Committee took major steps forward in the area of Network Management. The framework was established for collecting management information from the four lower layers, passing this to the higher layer Systems Management Function for analysis and carrying out the returned actions. This work was done in collaboration with the management group of the committee responsible for OSI upper layers and architecture, JTC1/SC21/WG4. Work is in progress to refine the key operational elements within the layer which need to be measured, logged or set to maintain optimum operational control over the underlying OSI network. Practical network management experience is being tapped.

BASED ON INFORMATION FROM BSI, U.K.

Please help us to ensure that your copy of IES NEWS reaches you. Let us have details of any address changes. Should you require details of any other IES services available, please contact the IES Helpline (Tel. +352-45 30 30).

Your response to our call in the last issue for contributions to the proposed ESPRIT Forum pages has been excellent and our thanks are due to all who have volunteered to write about their research activities. The first articles will be appearing in our next issue, but we would ask you to continue with your suggestions and proposals. It is our hope to use our pages to keep your informed of all the latest activities in the IT field particularly those of interest to IES, although it is not our wish to compete with the established technical press.

The growing impact IES services are making on Europe's IT researchers and those connected with IT is also shown by the increased in the current IES services. Our own mailing list is showing dramatic expansion – some 1000 new names will

Editor's Corner

have been added for this issue, but much more telling is the marked growth in the Data Collection files and their utilisation. Thus the file on Projects (SDC 1) has jumped from 530 records in March 1987 to nearly 2000 at present, with some further 1000 records to be added shortly. Virtually all major European research programs are now included and National efforts too are well represented. The use mady by you of this file, available free on ECHO, has multiplied by a factor of four from 111 logons in January 1987 to 434 in January 1988, with the connect time showing an even greater increase in the same period from just under 7 hours to nearly 80 hours a year later. The other files show similar trends. SDC 2 (Facilities) now gives details of nearly 1000 installations, and SDC 3 (Persons on Electronic Mail) has some 5000 addresses.

Elsewhere in this issue there are figures relating to Eurocontact. We are also launching a new service as announced on pg 1 which is aimed at meeting the need for keeping abreast with what is new in our field. Any suggestions for further aids and services, or improvements in existing ones will be gratefully received and considered. And do not forget the Helpline (+ 352 45 30 30) for your individual enquiries.

Much movements has come into Europe's IT industry of late, but here is no room for complaceny if progress and momentum are to be maintained.