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SCIENCE AND ENGINEERING RESEARCH COUNCIL
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(see next page)

1. INTRODUCTION

The reason why I asked to go on the "Cambridge Ring Local Area Networks" Course at UKC in April, was that my list of jobs includes mounting the "Newcastle Connection". I thought it a good idea to have some understanding of the Cambridge Ring to help me to do this.

2. THE COURSE

The Lecture sessions started after lunch on Monday 2 April and went on until the Wednesday. (I did not stay to attend the Workshop on the Thursday). There was an initial hitch over lecture rooms, but this was soon corrected. The lectures were grouped into related sections.

2.1 Ring Hardware

Dr Spratt, the Head of the Computing Laboratory at UKC, gave a brief overview of the way networking is affecting the modern computing environment, especially with the view to shared resources.

G Tripp and M Stachnicki, UKC's two Ring Officers, then gave a description of how Rings are built up, what sort of components and how they work. They talked briefly on the Rings used at UKC. They explained a Ring as being a large shift register.

2.2 Cambridge Ring '82

S Binns elaborated on the protocols used on the Ring at the various levels. He explained briefly some of the "Rainbow book" protocols, namely Basic Block (BBP), Transport Service Byte Stream (TSBSP) and the Single Shot Protocol (SSP).

I Dallas talked about higher level protocols, such as TS29, FTP and JTMP. It was not really possible to take notes: more details may be found from the Rainbow Books.

R Hellier put forward some of the proposals for electronic mail. Users, machines, sites etc should be given some form of hierarchical naming system so that the system could work out the optimum path route, rather than the user specifying one.

2.3 Case Study of UKC Ring

The UKC network consists of several rings, joined together by 'bridges'. P Riley went into the advantages of a 'bridge' system. Each bridge acts as a local nameserver, updated from a main dedicated nameserver as changes are made. This means that a nameserver is the only device which must exist at a specific ring address. This makes addition or removal of hardware, or even total restructuring of the ring, relatively simple, since it only involves updating the central nameserver.

2.4 Planning a Ring

D Caul went into the planning of a Ring, the installation costs, how to organise power supplies and repeater stations etc.

M Stachnicki discussed how the Ring is maintained; how the Ring is structured to make such maintenance as easy as possible. A 'petal' system means that any faulty sections can be isolated, and a delay card at a central point means that the rest of the Ring can then function almost normally.

G Tripp talked on diagnostic aids for the Ring; an error logging centre, and a Ring traffic analyser which is still at the design stage.

S Binns showed some of the subtleties involved in protocol testing and validation. Most methods of overseeing what goes on, affect what goes on, expecially timing constraints. It seems that UKC deliberately corrupt a minipacket, usually every thousandth, and see how the system copes.

2.5 Ring Servers

I Utting (ex Logica) detailed the use of the Logica file server, as a UNIX-like file store to support common storage for some of the UKC applications. A proposed use is to store UNIX manual pages on it, rather than multiple copies around site, and for font storage for UKC text processing facilities.

M Stevens of Camtec gave us details of a Terminal Concentrator - the Camtec JNT Ring Pad. This was obviously a sales pitch, more details were available from glossies.

A Ibbetson regaled us with a 'throwaway' lecture on the Teletext server at Kent. It was started as a one off project as an undergraduate teaching vehicle, and is not officially supported (ie when the board fails that is the end as there are no spares!). It is a standalone service, offering interactive access to 'live' teletext from all four broadcast TV stations, and local UKC news. Due to its success (someone accessed it from Australia!) plans are afoot to develop a better, although still unsupported system.

I Utting returned to detail the document preparation and laser printing facilities now offered at UKC. Various levels of document preparation exist, such as previewing on a PERQ (he was scathing about the lack of PERQ-Ring interface) before the high quality laser printed documents are generated. The idea is that the central Laser Printing facility is used from all over the UKC network, for TEX, troff, a (quick and dirty) line printer style, and for GKS applications.

M Stachnicki outlined his ideas for an ops server, not yet built, which will provide enhanced error logging at a central, easily accessed location. This will mean that the operators should have the status of the network at a glance.

2.6 Gateways

I Dallas discussed how UKC hopes to implement and protect its Ring to X25 gateway. This arises from the need to limit unauthorised users from reaching the gateway and then making use of an 'expensive' facility, such as PSS, without needing to login to a UKC machine. Eventually, there will be several layers of access (and accounting) which will give authorisation to use various facilities such as JANET, PSS etc.

D Drury of Camtec gave a hardware oriented view of the Camtec X25 gateway. Again details from Camtec glossies.

2.7 Interfacing a Host to a Ring

The workings of the Acorn Mace interface were explained by M Lee of Acorn, who had previously been a UKC Ring Officer. The idea of the Mace (II) is to have a host independent, or at least easily upgradeable, device that fits between the host and the Ring, and provides data transfer between the two.

R Collinson of UKC (a UNIX guru!!) told of the experience of interfacing UNIX machines to the Ring. He gave arguments for and against putting the interface at various levels in the UNIX system. This lecture was obviously aimed at a non-UNIX audience, but even so he covered the ground far too quickly to take notes.

3. CONCLUSIONS

The course was obviously aimed at those people considering installing a local area network on their site. A great deal of emphasis was placed on the hardware side of Ring technology which had little interest for me. The explanations of the various level protocols were covered adequately enough to clarify Ring communication greatly. A lot of the detail was glossed over, and, not surprisingly, a great deal of references were made to the Rainbow books. The lectures relating to the network at UKC were interesting as pointers to how Ring technology may be utilised.