

## ELECTRONIC MESSAGING

V.G. Cerf

**Rapporteur:** Mr. M.J. Elphick

**Abstract:**

This lecture focuses on the technical aspects of electronic message system interconnection, but particularly deals with the problems of accounting and access control. These issues arise in various forms in considering the interconnection of private computer-based mail systems with public services and in the interlinking of public systems.

This seemingly mundane area of concern is absolutely vital to the commercialisation of such services. Other problems, such as the manipulation of multi-media messages containing text, graphics and perhaps digested voice, are of great technical depth and fascination, but the promise of such services is not likely to be fulfilled unless the more mundane business problems can be solved.

This talk will also discuss some of the practical problems MCI mail has had to deal with in serving as the "Gateway to the World" for a variety of private mail systems.

## DISCUSSION

Professor Tanenbaum questioned why the conversion of w/p documents to the internal 'Racal Normal Form' was necessary, as opposed to the transmission of the original document. In reply, Dr. Cerf pointed out that some translation was unavoidable between incompatible systems, and they preferred to do it once only in each direction. In answer to a query from Mr. Cowlshaw, the speaker confirmed that there was an equivalent of the 'transfer charge' (or 'call collect') mechanism, in the form of 'reverse charge mailboxes'.

Dr. Hitchcock asked whether the legal framework governing such Electronic Mail services in the U.S. was the same as for postal mail? Dr. Cerf said that they were certainly outside the Postal statutes, but probably subject to Communication statutes, and also to laws on unauthorised disclosure. However, MCI ensured that their liability for consequential damage (e.g. caused by delivery of mail to the wrong party) was limited to the message delivery charges alone! As yet, there was no specific legal framework for Electronic Mail, but the fraudulent use of time-sharing systems and the like could certainly be the subject of legal action under existing law.

Miss Barraclough pointed out that the maintenance of lists of personal data, beyond that needed to address messages, would certainly bring such a system under the U.K. Data Protection legislation. The speaker said that there was similar legislation in the U.S. regarding the safeguarding of personal information; for this reason, MCI will not release postal or telephone addresses to enquirers. 'Unlisted mailboxes' are provided for increased privacy, but these reveal the owner's name when sending messages.

Professor Tanenbaum remarked that such lack of differentiation (e.g. between several people with the same name in the same organisation) could cause problems. Dr. Cerf agreed - in many cases, the only resolution was by someone changing their mailbox name, as from 'Charles Brown' to 'Charles Brown Jnr.'!

Professor van der Poel noted that the speaker had commented adversely on the Telex system, but pointed out that this had been developed by telephone people several decades ago; there were many lessons to be learnt from their experience. Dr. Cerf said that he did not disagree - we were sometimes solving the same problems, but doing it differently.

Professor Randell asked whether the 'Racal Normal Form' referred to was in general use and/or publicly available? The speaker replied that it was not; he would be eager to see such formats for document transmission become established and standardised.

Finally, Dr. Pflieger asked about the reliability and fault-tolerance aspects of the system described by the speaker? Dr. Cerf described the 'cluster system' adopted for the Vax processors and paired disk-drives to increase reliability; although one processor could not yet act to back-up other processor's mailboxes, they had not yet lost data. In an area subject to frequent storms, they had achieved an average 'uptime' of 99.85% for the VAX system (with the essential help of an Uninterruptible Power Supply).