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ABSTRACT

Users of Telecommunication has become an area of fervent activity. Behind this technical evolution there is an economic background. As the cost of electronics, memory and logic decrease there has been a tremendous increase in processing and storage capacity. In many developed countries, a certain degree of saturation of the telephone density will occur. In order to diversify, the willingness to allocate economic resources to telecommunication and data communication is expected to increase.

So far, all signs indicate a trend towards distributed data processing, which means a greater usage of data communication services, and thus the convergence of the computer and telecommunication activities. This has led to the development of a wide variety of data communication services. Because of the trends in office automation, a single network interface is required through which all networks can be accessed, utilizing an existing computer system or workstation. However, of significance is that access should also be provided to already existing networks, such as telex, with its primitive features and incompatibilities, as opposed to modern data processing equipment.

This project entails the design of a communication gateway, in the form of a utility which will provide multi-

user access to the current telex network. The design was implemented in a combination of both hardware and software, and was based mainly on a switching mechanism, which allowed for the implementation of the store and forward approach. Users of the telex utility were therefore offered the advantage of accessing anyone of a number of telex trunks from a single terminal. An indepth study was performed on existing and newly developed data communication techniques, in order to determine the feasibility of implementation of those techniques applicable to this design. Some of the newly developed communication networks were also considered, with the view of tailoring the design, so that it can be easily modified and expanded to provide access to these networks.

The design of this gateway to the telex network was implemented on a VAX-11/750 minicomputer, from which any terminal attached to the VAX or any other computer on the installed ethernet local area network can be used to access the telex network. During the design, great emphasis was placed on the use of facilities that were readily available. One such utility that was extensively exploited was the phone utility which was supported by the VAX operating system. The use of such utility thus offered the telex user a visual display of both transmitted and received messages in separate windows created on the VDU. A hardcopy of the conversation can also be obtained online or at any time thereafter, since a record of such conversation is stored on the hard disk.