

ELECTRONIC MESSAGING

<<MESSAGE-HANDLING>> -

THE KEY TO WORLDWIDE ELECTRONIC COMMUNICATION

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The working performance of computers and of numerous online-services today are being decentralized and used in networks. The interpersonal exchange of messages and hence electronic mail flow from one computer to another is gaining an increasing significance with the growth of the numbers of PCs being used. At the same time, new low-cost forms of organization and communications are being created. <<Message Handling>>, as the term for the exchange of locally independent messages and news goes, is being introduced to the individual working place on a worldwide scale with the powerful PTT-Data Packet Switching Networks and the new communications protocols like the X.400 as well as the public electronic mail servers, which are available via telephone.

DECENTRALIZED COMMUNICATION WITH THE HELP OF THE COMPUTER

Today the PC has become the basis of a multi-functional workstation, which helps us to <<collaborate>> from our own desktop with other computers or mainframes, wherever on the world these are placed.

It has become possible to use a PC or portable to do a job at a customer's office, at your own office or at home. Data like entire documents or messages can be transmitted to the receiver without delay via so-called service computers, sending electronic copies by request to internal or international distributors and to different networks simultaneously and automatically. It does not matter if the receiver is to be reached via electronic mail (from computer to computer), via telefax, telex, teletex, or videotex. The same communication lines and gateways can be used to establish a x<realtimeconnection> to a computer on a different continent. This computer will enable the user to communicate with any local online-service he desires, whereas the user's hardware no longer needs to comply with the old rules of total compatibility of the systems.

MESSAGE HANDLING SYSTEMS (MHS)

Electronic Mail or Message-Handling-Systems, as they tend to be called, have taken over the central and worldwide task of mediating between the different systems and partners of communication. MHS characteristically are not set up for specialists exclusively any more, but directed at managers, officials secretaries, vendors, field-technicians and must be available to all those who are engaged in the communications process of a corporation. The largest part of PC-users are not computerspecialists and no able to be trained any more in the classical sense of the term. <<Message-Handling-Systems>> have been configured to be used by exactly this group of non-specialists who in their daily work use a terminal anyway (as a PC, an electronic typewriter, a micro, or a mainframe etc.). This terminal can be enlarged where an integrated and locally independent handling of documents is realized. The transfer of simple memos, for correspondence or for voluminous data exchange for production or ordering procedures can be supported as well as the direct access to a multitude of information services and databases.

TECHNOLOGIES OF THE FUTURE AVAILABLE TODAY

<<Message Handling>> and <<Electronic Mail>> - appreciated by millions of users in the USA - are technologies that are still underestimated in Europe by terms like <<electronic mail-box>>. Yet it has become achievable and available for everyone what up to now has been the privilege of multinational corporations only: to set up networks for production and vendor facilities. This way new applications are being found continuously and new users are attracted especially among middle and small companies as well as independent professionals to who communications media have been unavailable for many reasons so far.

ACCESS TO THE INTERNATIONAL DATA NETWORKS

Message-handling-systems

- allow worldwide transmission of news by each and any telephone;
- help to overcome the barriers of time-zones;
- are person-oriented and not hardware-oriented;
- are user-friendly in their operation;
- minimize costs of communications;
- facilitate worldwide sending and receiving of data and news;
- create new services and networks between different systems of communications without further implementation of hard- or software.

X.400-COMMUNICATIONS WILL CHANGE THE WORLD

X.400 was set up in 1984 by the norms committee CCITT of the international PTTs in order to facilitate the exchange of data between different products of Message Handling Systems. With X.400, a format for electronic messages was created for the first time, so that these may be exchanged between different E-Mail-Servers. The X.400 protocol realizes the electronic message-transmission as defined by the Open Systems Interconnection (OSI). All the leading telecommunications managements, producers of computers and software-houses already have realized X.400 and are establishing the infrastructures for a worldwide communications network. X.400 also realizes the gateway to the new world of open systems. Consequently, the sender of an electronic message does not have to know anymore what kind of equipment is used by the receiver, since the public services for electronic data-transmission automatically handle all the necessary conversions into different codes and formats as well as the way of addressing. The public X.400 services can be employed by individual users as well as by private Electronic-Mail-Systems.

Consider again the situation that exists with telephone systems. Public services are operated throughout the world by the regulated authorities in each country. These service providers offer a direct telephone service to subscribers who can make calls to, or receive calls from, anywhere in the world. However, larger organizations and business enterprises usually procure and operate their own private telephone systems internally, eg a PABX or multiple PABXs. These private systems can connect into the public service to call other telephone subscribers worldwide.

Exactly the same arrangements are foreseen for X.400 electronic messaging systems. Public services in country like ComNet offer direct connection for subscribers, an a worldwide X.400 interconnection platform. These systems are called <<Administration Management Domains>> or ADMDs.

Organizations who choose to procure, install and manage their own internal electronic messaging equipment, operate what is called a <<Private Management Domain>> or PRMD. A PRMD can connect to an ADMD using the protocols defined in the X.400 recommendations, to achieve worldwide message interchange. The regulatory conditions which govern the permissible connections between domains vary from country to country, but X.400 provides the full technical specification for interconnection of Administration Management Domains to enable worldwide interworking

The participants of the GeoMail-Association with the 25 hosts, among which ComNet may serve as an example, do not have to wait for the introduction of further x.400-compatible systems. They can already now work in a worldwide network. For instance it may suffice to give one command: SEND GE04:INTERCORP in order to set off a message to the participant Intercorp on the American host Geo in San Francisco. The conventions for the international addressing are executed by the individual system which at the same time sends an automatic message of successful transmission to the sender as soon as the <<foreign>> message has been placed into the receiver's storage space. This kind of answerback is also provided with the telex and telefax transmissions. The user therefore does not have to watch over the transmission of his news and thus can save connect-time and taxes.

X.400 provides a worldwide platform for transferring electronic messages. It opens up the path to continuing evolution, offering new, fully compatible solutions for the communications requirements of tomorrow. This also includes the development of new communications features using equipment already available today:

Office Document Architecture (ODA): a standardised architecture concept for office documents which enables the addressee to process, adapt and revise the document received. Even when communicating between dissimilar word processing or desktop-publishing systems.

Electronic Data Interchange (EDI) for transferring data in standard tradeformats even across national borders.

New features include: Physical delivery of a hard copy of electronic messages.

A message storage facility for the mobile user and Online directory service for international electronic messaging directory enquiries.

Those fundamental improvements of possibilities of communications in and between corporations will increase their efficiency and productivity enormously, because the working-time sequence can be abbreviated and the process of decision-making can be speeded up. X.400 thus prepares the way into the future of electronic communications.

COMNET - THE ONE-STOP ELECTRONIC INFORMATION INTERCHANGE

ComNet is the first <<Message Handling System>> of this kind in Switzerland and may serve as an example for a domain of management which allows a comfortable and low-cost connection of places of employment with the worldwide data network by directly linking individual terminals with the international association of networks. The conditions of access to an electronic mail server are easy and cost little: as soon as the hardware is available (PC, microcomputer, word-processing machine or electronic typewriter with communications port), it is enough to have a correspondent communications-software and a modem or a set of acoustic cups in order to use any telephone available to send and receive messages and data to or from other users via TeleCall. The taxes on the PTT data-net are taken over by ComNet and thus the user does not need to possess his own PTT-user-identification.

USER-FRIENDLY MESSAGE EXCHANGE

Online-Services serve as a message exchange place or turntable for integrated and organized communications, which may be characterized by extensive user-friendliness supported by various languages. User-friendliness becomes apparent especially in the simple and clear dialogue set up between the operating system and its user, but also in the system's <<forgiving>> typing errors of the most frequent occurrence and the consequent offering of help and alternatives in automated correction or by setting up intelligent user lists. Thus the user can send and receive messages on a worldwide scale in fully phrased sentences without having to use a special command language.

News, documents, and received data can be printed out locally and immediately, they can be stored, worked on, or forwarded to other users. To store data, users can avail themselves of so-called electronic mail-boxes installed on the Message Handling System. These allow a high number of messages per user to be stored. This principle may be compared with the Post Office Boxes of what some now call the <<Snail Mail>>. The message is sent off, stored and collected by the receiver. The entire management of stored data is executed automatically by the electronic mail system.

DIRECT ACCESS TO THE TELEX AND TELEFAX WITHOUT FURTHER HARDWARE.

Similar to "Electronic Mail" a direct access to the international nets of telex and telefax is possible. All ComNet users can send their messages without telex- or telefax-hardware directly from their computer/terminal to telex- or telefax-machines all over the world. They can receive telexes directly on their terminal (reception of fax-messages is being planned). Since the MES uses the PTT-communications-net (TELEPAC) and the comparable nets in other countries (like TELENET in the USA), the transmission of data remains fast and inexpensive.

The Message Handling System can deal with a number of callers simultaneously and supports a 24hour-service. This is a necessary prerequisite for a professional use, which excludes a blockage of entrance into the system because of overuse by simultaneous callers. Consequently the receiver can be reached 24 hours a day, even if he is not <<available>>. Furthermore he can decide himself about the time when a message has to be worked on and there is no absolute need to coordinate any time with the sender.

COMPATIBILITY BETWEEN INCOMPATIBLE SYSTEMS

Message Handling Systems do not only support the requirements of the US-market, but also the particularities of the multiform European and Overseas markets. The orientation towards very different terminals (seven different classes of terminals are supported, from videotex-machines to powerful micros and PCs) allows compatibility and inclusion of conversion processes between the different types of equipment.

INTERNAL AND EXTERNAL NETWORK CAPACITY

The operational concept behind the Message Handling System allows the installation of internal and external connections in small, inexpensive and profitable steps, which provide for an extension towards any size of centralized, but especially decentralized networks. Thus, minimized costs for linking in-house systems and public systems can be realized, and the vulnerability which is known among users of centralized systems can be reduced. Therefore, communications can also be realized without high investments in hardware.

INTERSWITCH - SYSTEM ACCESS ALSO FROM ABROAD

As a new service in the range of international telecommunications the Message Handling Systems like ComNet offer the access to the <<personal mail-box>> also through Interswitch via the international data networks in countries abroad. According to contracts between ComNet and the American Telenet Communication Corporation it is possible for instance to establish a direct connection from the USA to the Geo-computers without having to go through special procedures or to acquire an American user-identification. The call from an American phone is automatically uploaded onto the Packet Switching Network-which establishes the connection with the "home compute" or the computer back at home so to speak. "Home" is also where the connection taxes are calculated and billed to the home address. Home is home, after all. In the same way the visitor abroad, the journalist or international business partner is allowed to set up local connections through Interswitch with practically all of the

GeoHosts in all European countries. This makes it possible to communicate in a swift and simple way with a corporation's main branch even from abroad.

SWITCHBOARDS OF INFORMATIONS

The Online-Service also serves the <<Non-Stop Information Shopping>>. The user is given access to public and private data-storage owned by corporations and protected by passwords, enriched by editorial offers, services or messages to external branches, up-dated information on products etc. It is important for commercial users to be aware of the possibility to form closed user-groups: corporations can open up their own bulletin-boards which are protected by password, for example for internationally accessible company-news, for the coordination of external branches or for the logistic operation.

Message Handling Systems can also be considered as Switchboards of Informations for the direct access to numerous international databases and information services in the fields of economics, commerce and technology. By the simple means of a so-called database-command an automatic Logon (dialing and identification) to all the enlisted hosts and databases are allowed. By suppressing all the welcoming formalities the user is switched through directly to the desired database and an "Intelligent Interface-Facility" automatically takes over the research strived at. By means of various help functions database searches can be pre-formatted online and saved as E-Mail documents. For the user the billing procedure is simplified since he will be given the sum of all his various database accesses in one single sum - independent of different currencies used in different countries. A remarkable advantage lies in the fact that a user does not have to go through the procedures of signing contracts with the various operators of database-services. His only contract with ComNet gives him all the passwords to the databases he wants to use.

For many enterprises, who achieve advantages in competition through faster communications, Message Handling has become an important marketing instrument. Being a low-cost window to the world of service-systems (team-computer and gateway-server), MHS facilitates internal and external communications and will before long inseparably belong to the place of <<employment of the Presence>> in a world which will have become all the <<smaller>> because of it.

SUPPLYING OF SERVICES

Informations-Service-Systems like ComNet open up new perspectives also with the supplying of online-services like:

- ∑ *Tele-Typesetting: the online type-set-production of ready set text documents.*
- ∑ *Tele-Translating: international translation services;*
- ∑ *Remote CAD and CIM*
- ∑ *Publishing-Gateways to LaserPrinters and Plotters*
- ∑ *Distribution of Tele-Software: downloading of listings or source-files;*
- ∑ *Telestaffing: distribution of writing jobs for work done at home in structurally weak regions;*
- ∑ *Tele-Publishing: electronic publishing;*
- ∑ *Tele-Shopping: the possibility to do shopping at home;*
- ∑ *online downloading of news-services for which there is no further need to be mailed as printed matter.*
- ∑ *organized exchange of ordering data and billing informations between commerce and industry, whereas the ComNet-Software surveys the observance of the conventions;*
- ∑ *furthermore a reading is possible of the representation of all the user-lists with selective access according to arbitrary criteria (for instance the list of telex-users).*

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