TALK

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COMPUTING IN THE 1980:IES

A few remarks on the future situation of computing, with some emphasis on the Swedish environment.

- The general availability of "raw" computer power will increase substancially.
- Due to increasing user competence the demand for compatibility/possibility for cooperation between computer systems (from different manufacturers and of different sizes and types) will push the interface standardization efforts. In the middle of the 1980:ies, computers will principally be able to communicate with each other, exchange physical data and programs quite efficiently. This communication will be formally oriented, soft applications will work more stand-alone, but make use of the fairly integrated network facilities.
- For several reasons(economical, social, security etc), decentralised system structures will mark applications of the 1980:ies.
- Public data networks will be available in most countries. It is probable that the price distribution for use of these networks will be of primary importance for the overall rate of expansion in computing.
- The monopolies that are frequent in Europe´s Telecommunication Administration environments, will probably begin to be questioned, as a result of an appetite for responsability expansion from these administrations. The desire to also sell application services are tempting for many of these administrations. (Computerised mail services is one of these areas, where expansion responsability will be most directly discussed).
- The cost for computer hardware(solid state memories and processors) will continue to fall quite rapidly, but since hardware occupies adecreasing part of total system cost, the overall cost for computing will remain much the same as in the 1970-ies.
- The cost for programming will dominate the development of new applications.

- Basic research in computing will be more and more resource dependant. A polarization will follow here, where small countries will become dependant on the research results from the larger countries(also in the area of computing.....).
- Applications oriented research will expand quite rapidly, as the awareness of computing systems applications expands. Small countries have good possibilities here, since computing is such a manyfacetted activity, where centralization as such seldom solves the problem (problems that are characterized by several parameters are less likely to be solved in centralized environments).
- Methods for construction of computer applications need to be bettered, since "rules of thumb" are used today in several environments. The development of new methods, however, will go slowly, because of theoretical difficulties as well as resistance from sunk resources.
- Sweden's high telephone density(highest or second highest in the world, dependant of method of comparison) will push decentralized applications using the public data network that is due quite soon(the data network uses the same copper cables as the telephones do).
- The personal computer(computer in the home) will occur in large quantities in the late 1980:ies. This device will be connected to the telephone as well as the TV-set, thus defining a cheap and accessible home terminal. Naturally it will also be available as a stand-alone unit, accesing local data of many different types. The applications for this device will stress data availability rather than computing tricks. Local storage of data about outdoor persons will diffuse the work of personal integrity defender organizations. The misuses of this type will, however, surely be of limited quantities.
- The personal computer or home terminal will be an efficient instrument for communication about and insight in the activities of authorities. Thus it will become a device of democratic importance.

- The responsability in the computing systems will probably be moved from the computer centres out to the terminals. The local up-dating of information will be given emphasis, as access to relevant data comes into focus. The person who updates, puts in the fresh data, (or the one he/she represents) is often closer to the responsable data source than people in the computer maintenance surroundings.
- Local cryptation(with the help of microprocessors) will greatly help in the development of secure data systems. Local data responsability connects nicely to this organization.
- The data base will mark the center of the applications, rather than the computer processors. Reference to stored data will dominate many applications, rather than advanced calculations.
- Secrecy and flexibility stand against each other in data bases, to some extent. Flexibility asks for open ends, which secrecy works against. Future systems will have to balance between these two.
- The future data file (register) will be decentralized, and usually reside on several memory media, of different types. Back up will use slow tape, while fresh data will rely on the speed of i.e. solid state memories. The methodology for handling these memory levels will be bettered, but only slowly.
- Computer terminals will be available in largely increased quantities. Memory functions will be included in these terminals, for buffering purposes, and at later stages also intelligence of microprocessor type. Thus, really local data processing will be made possible.
- An increased number of memory types will appear on the market. Costs are falling, while effeciency is increasing.
- Microfilm will be put to expanded use, especially after the market appearance of input possibilites (CIM, computer input microfilm).
- Facsimile terminals will become used in very large quantities, as their market price falls.
- Optical character reading (OCR) will expand, but slower than ordinary facsimile. This is because of the need for fairly complex processing in connection with OCR.

- Videotape and speech recognition will be used to some extent, but will show slower expansion than microfilm and facsimile.
- The general spread of equipment that makes increased access to computer power possible, will be dramatic. The control of the use of these types of equipment will naturally be organizationally difficult, and as a consequence lead to strongly decentralized file responsabilities.