Research Laboratories

UNITED AIRCRAFT CORPORATION

EAST HARTFORD, CONNECTICUT

A GENERAL-PURPOSE INFORMATION MANAGEMENT SYSTEM

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TALMS

Applications: Now being determined for system.
- Designers want to tune system + determine users.

USERS:

1. Library (books, reports, etc.)
   a. Circulation control
   b. Acquisition
   c. Cataloguing tasks
2. Personnel Info.
3. Legal (Patent) Info.
4. Sales Info.
5. Tech. Data
6. Advanced Planning (Requires special complex model to allow for projections + querying various branches -- flexibility.)
7. Prod. Info

Etc.

UAIMS

United Aircraft Information Management System

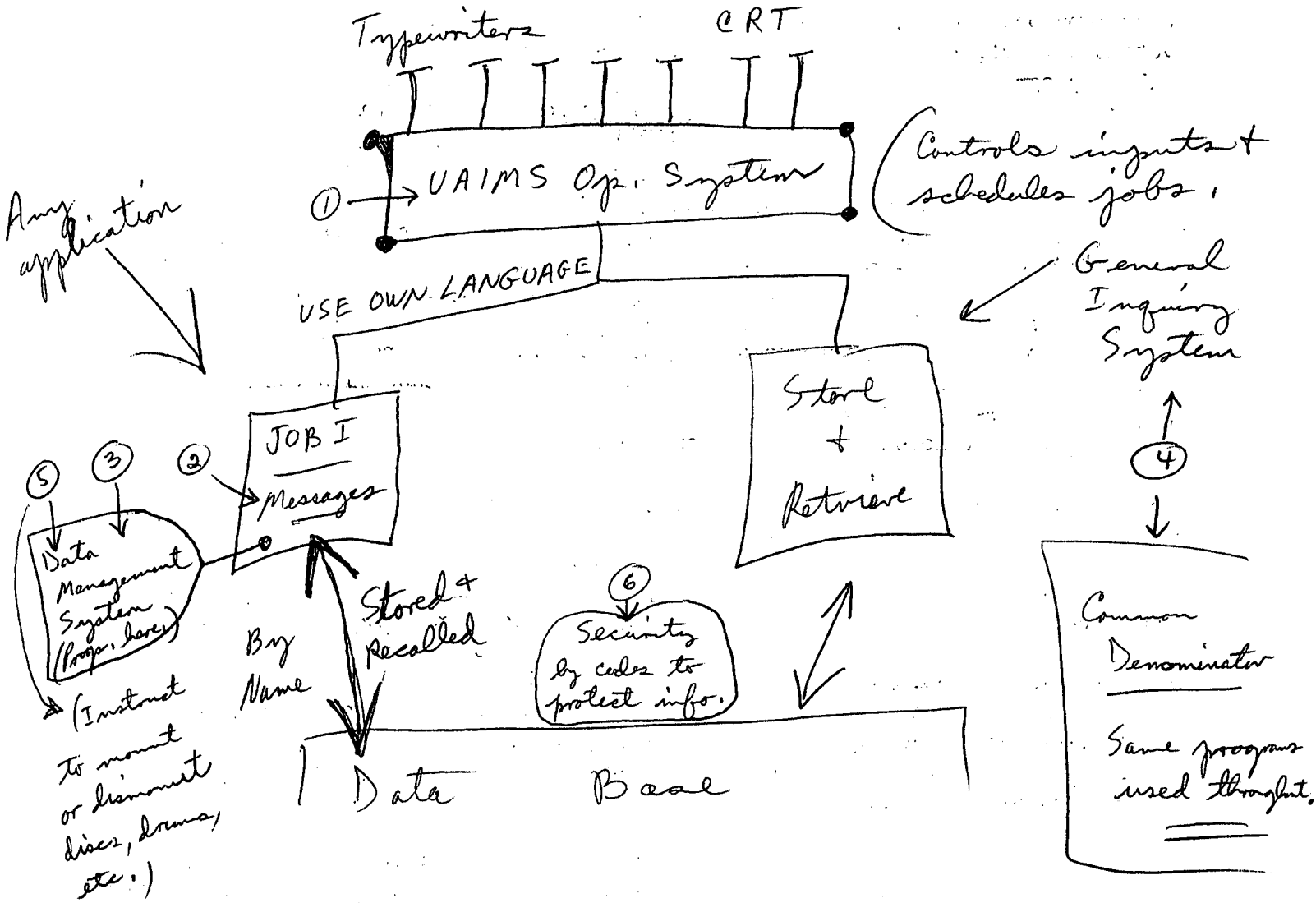
UAIMS is a computer-based, general-purpose, information management system. The system presently consists of five components that could have a profound impact on the future development of man-machine interactive information systems at UAC. The system components are the following: (1) a control program providing program scheduling and on-line communication control between computer programs and remote typewriter and/or CRT terminals, (2) message control utilities providing for the transmission of messages in and out of an application program, (3) file control utilities providing for the use of removable storage files, (4) data management utility programs providing for the dynamic storage and retrieval of data, and (5) a general-purpose information storage and retrieval system.

The operation of UAIMS enables application programs to be scheduled from remote terminals connected to the computer system. A system's operating language is available for scheduling of programs. As requests for program scheduling are received by the control program, the requests are "posted" and subsequently scheduled by the control program at the earliest possible time. As many programs can be scheduled for service from the computer as can coexist in the computer's memory. This operation is known as multitasking and enables maximum allocation of computer resources. UAIMS allows for the scheduling of any program retained in the computer system's library.

Once a program is scheduled by the control program, all subsequent transactions with the computer are in the language of the particular application program. The control program is still responsible, however, for the actual transmission of messages between the application program and the remote terminal. The message control utility programs provide the necessary link between the control program and the application for coordinating the handling of messages. The utility programs give the capability to the application program for managing message buffers and notifying the control program when to output or input a terminal message.

From the preceding description it can be seen that, through availability of just the UAIMS control system and message utility programs, on-line data processing services can be provided to remote terminal users. Applications can be written in a high level programming language (e.g., Fortran or COBOL) and designed to provide an on-going interchange of information between the man and the program.

Architecture: (See chart.)



①, ②, etc.: Utilities

2) Discuss substance or data of system

⑦ User uses own vocabulary + language, w/o need for programmer. Create own network.

⑧ Hierarchy of data depending on frequency of use.

Utility = good; Security = very good.

The other UAIMS components (data and file management utilities and the general-purpose storage and retrieval system) are provided for use by application systems that require management of a data base. The purpose of the data management utility program is to provide the capability to application programs for managing information. This capability relieves the application programmer from designing his own data management scheme, which in large information systems can be a difficult and time-consuming task. The data management utility programs are capable of providing management to very complex and dynamic data organizations. In general, the information management concept used involves a technique where elements of information are dynamically processed in a list-oriented structure. The utility programs provide for defining elements of the data base, defining the desired data structure, storing elements in the data base, and searching the data base. The generality of the utility programs enables processing of either the very simplest or very complex hierarchical data structures. As is the case with the message utility programs, the data management utility programs can be accessed by programs written in a high level programming language.

The general-purpose storage and retrieval system is an application program that provides general on-line information services. The system uses the data management and message control utility programs and is available to any remote terminal user desiring only to store or retrieve information of a data base. The system does not provide for any special-purpose processing such as mathematical analysis of data. When special processing is required, an application program would be written using the data management utilities. It is important to note that the data management utility programs provide a standard way of managing a data base to all programs using the utilities. Therefore, the general-purpose storage and retrieval system can be used to query or update any data base generated by any other application program using the data management utility programs.

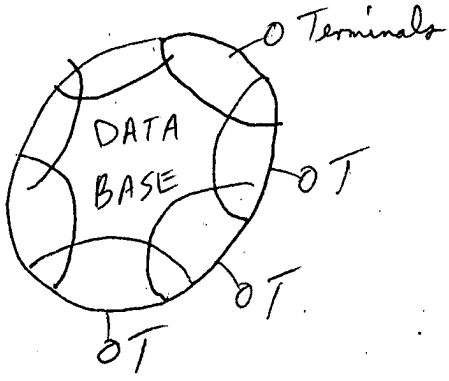
The general-purpose storage and retrieval system consists of a control program, a language processor, a data base build processor, and a query processor. In addition to the referenced processors, a rich user's language has been designed for use by the storage and retrieval system. The language is English-like, easy to use, and makes available all the capabilities of the system to remote terminal users.

Figure 1 illustrates the UAIMS system components. The system is nearly operational on an IBM S/360 Model 50 computer shown in Fig. 2. The 360 computer has been installed at UARL primarily for development of man-machine interactive systems. All application programs operating within the UAIMS system will reside in a library of programs located on a storage disk. Requested programs will be loaded into main memory by the 360 computer's operating system on command from the UAIMS control program. Data stored by application programs will be retained on either storage disks or drums and can be retrieved as needed.

STAT

Design Principles: Put user in control system (e.g., like he would browse in library.) or strictly limited.
Highly flexible (i.e., not dedicated.)
[Remote terminals.]
2.) Can projections or future estimates be made?
(In addition to historical info.)
[Employs automated graphics.]

General Purpose for Organization (Admin, Prod, etc.)



Logical progression through many branches with user deciding + directing.
(Opposed to dedicated systems.)

Concept: To design system w/o specific user in mind. Develop tools for a dynamic system which can be used for many purposes, cut lead time (design, etc.) + costs for special systems, and as an input into dedicated system. Requires fewer experts in on-line systems.
(Programs can be written to derive projections?)

Design + Co

UAIMS SYSTEM COMPONENTS

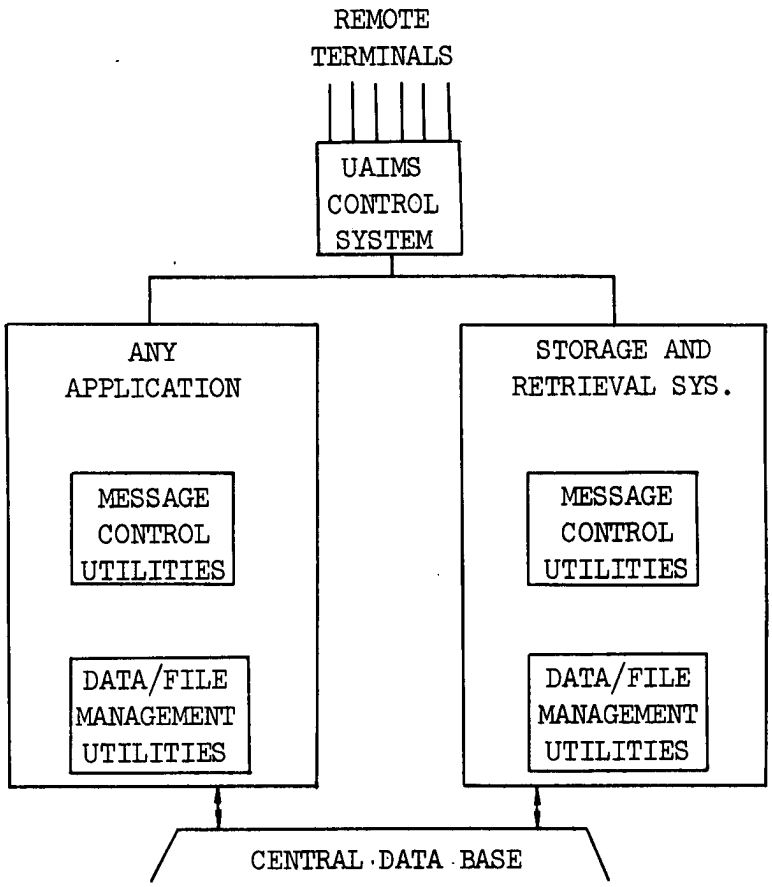


FIG. 1

UNITED AIRCRAFT RESEARCH LABORATORIES IBM SYSTEM/360 MODEL 50

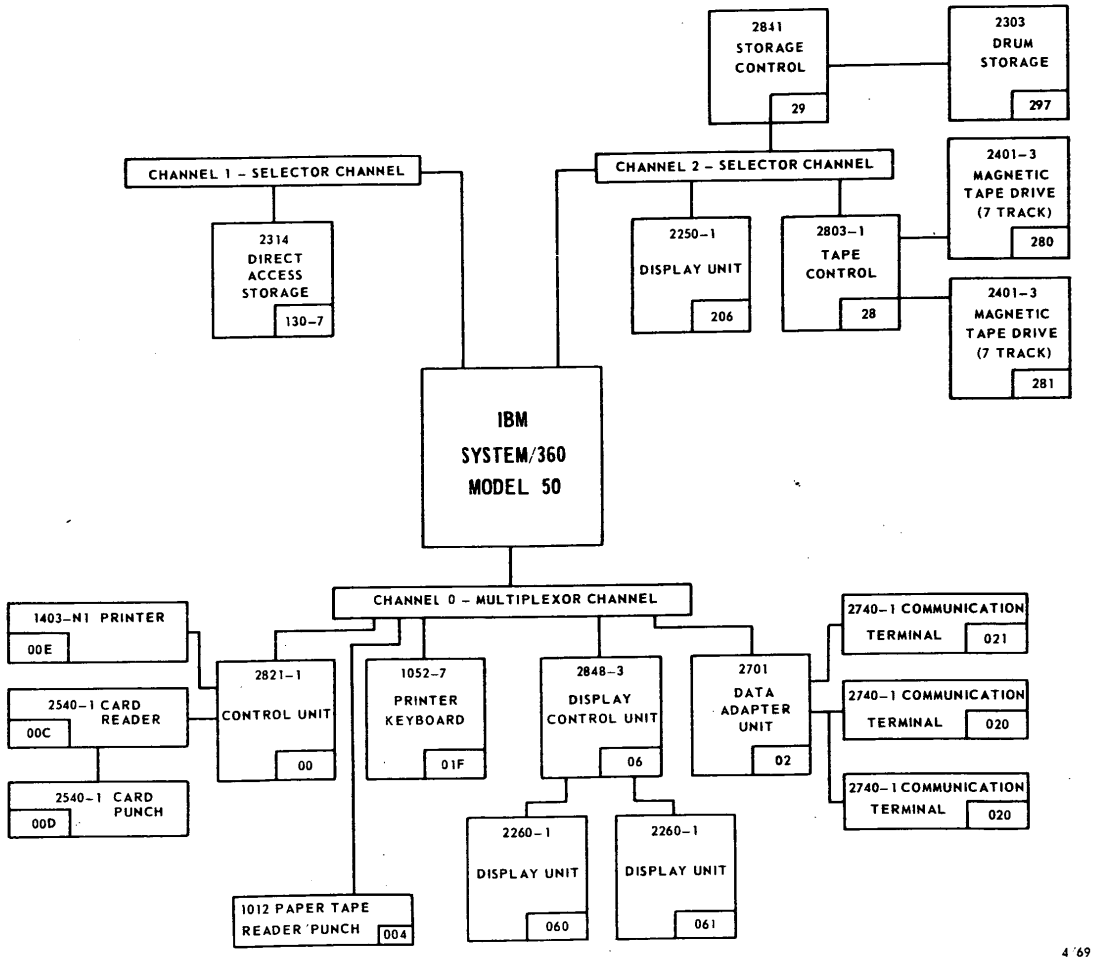


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FIG. 2