Patricia Seybold's

UNIX IN THE OFFICE

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INSIDE

PRODUCTS • TRENDS • ISSUES • ANALYSIS

The Officesmith

The Keyword Is Structure

By Daniel L. Swearingen

SOME THINGS DEFY classification—is it fish or fowl? a bird or a plane? live or Memorex? Officesmith, from Officesmiths Incorporated of Ottawa, Canada, is one such product. Is it a word-processing system or a DBMS? The answer is: neither and both! The Officesmith integrates word processing into a database environment, and the result is greater than the sum of its parts.

The Officesmith perceives text in an entirely different way than traditional text processors do. The computer industry has long viewed word processing *(continued on page 3)*

•EDITORIAL•

Unix's New Look: The Three-Piece Suit

This year's UniForum marked a turning point for the viability of Unix in the commercial marketplace

Patricia B. Seybold

LAST MONTH, WE questioned whether Unix would make it as a commercial operating system. This month, we have an answer: a resounding "Yes!" The UniForum show in Washington, D.C., was charged with excitement. UniForum was a busy, vital event despite a snowstorm that crippled the city.

The conference attendees were both government and business users—definitely a crowd with a professional image. UniForum had a very low ponytail quotient. In fact, one casually-dressed techie complained, "You have to wear a three-piece suit to get anyone's attention here!" While the energy and excitement at this year's UniForum reminded us of the National Computer Conference in its heyday, the shift in the dress code of both vendors and showgoers reminded us of Comdex '84—the year PCs went professional.

STANDARDS BEARERS. As you will see from this month's second feature, standards were the rage at UniForum. Xenix and Unix are coming together. Posix is a well-supported vendor-independent standard for Unix. And the X-Windows graphics-interface standard has a lot of momentum (as well as a lot of big names) behind it. Business and government users chose the Unix environment for its cross-hardware portability. Now, in 1987, standardization among Unix hardware and software suppliers will deliver on the users' original vision.

This standardization within the Unix world is a critical element for its commercial success. Once applications are truly portable across systems, the Unix foundation becomes irresistible.

HEDGING BETS. Not content to rely on Unix standards to open the floodgates, applications developers have identified another tactic which makes this user's heart sing: cross-O/S implementation. Most of the applications software suppliers we interviewed at UniForum were implementing identical applications to run in the Unix/Xenix, MS-DOS, and VMS environments.

We like the notion that users can distribute common applications with common user interfaces and functionality across disparate architectures within their organizations. The major missing piece we detected in most software developers' implementations is the notion of bridges among the different O/S versions. We found that applications developers had thought of creating different versions of their products for different customers but had neglected to think about the scenario in which a single customer runs a multiple O/S environment and wants transparent file-access from the applications across operating systems. Oh, well, back to the drawing boards.

"NEW" SOFTWARE. To be honest, we didn't find much that was new and startling at UniForum. We did find a lot of incremental improvements, though. And we noticed considerable integration using many of the same building blocks. Quadratron's Q-Office modules cropped up over and over, for example, as did Informix's DBMS.

Integrated office systems were the most popular genre at UniForum. And the degree of integration these vendors achieve with their mix-and-match approach is comparable to that attainable on many of the longer-lived proprietary systems like DEC's All-In-1. Other popular categories of software that caught our eye and that bode well for office users were full-text search applications and applications generators that nonprogrammers could use. We'll bring you our reactions to some of these products in more detail next month.

Patricia Seybold's Office Computing Group

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148 State Street, Suite 612, Boston, Massachusetts 02109 Telephone: (617) 742-5200

•OFFICESMITHS•

(continued from page 1) as the management of *qualitative* information and data processing as the management of *quantitative* information. In other words, text, being inherently unstructured, cannot be counted, queried, compared, and selected in the same way that data structured in tightly defined fields can. The Officesmith can define text as structured data, making it available to management in the same way that data processing made accounting and sales information available to business forecasters and planners. The product was developed with information query and retrieval as its basic design concept. (In this article, "Officesmiths" refers to the company, and "the Officesmith" to the product. The product is actually trademarked as The Officesmith.)

Simply stated, the Officesmith is a database with word-processing capabilities. The product's strength is in text retrieval and large document management.

Conventional word processing products are starting to directly confront products like the Officesmith by adding text-location capabilities through keyword-indexing and document-library scanning. This confrontation is a result of users' demands that the data locked up in text files be made easily accessible in useful ways. According to Officesmiths, European users immediately grasp what the Officesmith is attempting to provide: a database for text combined with an applications development facility. U.S. users don't catch on as quickly; they consider word processing an application in and of itself, with concise, demonstrable functions. Data processing managers understand the database capabilities, but they are not familiar with the finer points of text input, editing, format, and document management. The Officesmith attempts to bridge this chasm and bring these two disparate capabilities, word processing and data processing, together. To help text-oriented users understand the concept of text as quantifiable data, the company has begun to demonstrate and ship the product with a variety of predefined, integrated document formats. From this base of ready-made applications, users can develop customized applications. Applications are customized in much the same way as custom screens and reports are created in a standard database product. The "designer" in the Officesmith fills in screen forms to create a document format or application. No programming is involved.

Simply stated, the Officesmith is a database with word processing capabilities. Though it can handle most word processing projects, the Officesmith is not designed for specialized applications such as legal, statistical, or scientific text. The product's strength is in text retrieval and large-document management.

When grouped with structured-text word processing products, the Officesmith faces several competitors. Products in the PC market such as Lotus' Manuscript, Framework, and Microsoft's Word and on larger systems—such as Applix's Alis and Interleaf's TPS—provide similar structural control over document segments such as chapters and sections. For example, in the Officesmith, when section references on a table of contents are moved, the document sequence is simultaneously reorganized. This same capability is found in Manuscript.

But as a database that has been designed to manage text, the Officesmith stands relatively alone in the marketplace. To fully understand what it has to offer, you may have to analyze and modify your perception of word processing and database management. So bear with us. There is no quick way to explain this product. It requires—and warrants—some study.

Company History

The Officesmith is the brainchild of two former IBM employees, Glenn McInnes and Mel Turner. The name of the company and the product was derived from "to smith," or to make or shape tools, as in blacksmith. Thus, "the Officesmith" stands for "office worker" or "office tool".

McInnes was an IBM marketing manager who oversaw an IBM service bureau (IBM was able to keep and operate service bureaus outside of the United States, though its 1969 consent decree agreement with the federal government forced it out of that business within the United States). He left IBM in 1969 to start Alphatext Limited, a computer service bureau specializing in providing online text editing, photocomposition, and information-retrieval services for IBM mainframes. Projects included massive corporate and personnel policy manuals and documents, such as General Motors service manuals. In 1981, McInnes sold Alphatext Limited to Shell Canada Limited, and, with Turner, founded Officesmiths to develop and market the Officesmith.

Turner worked with McInnes at Alphatext Limited, where he was manager of software planning and development. Prior to his association with Alphatext, he was employed by Statistics Canada, where he was responsible for the general design and development of the RAPID relational database management software used to process the Canadian Census. Currently, Officesmiths has 36 employees, over half of whom are in product development, customer assistance, and custom application development.

When Wang first developed its industry-changing word processing system, it wrote the documentation and then programmed the software to do what the manual said it would. Officesmiths has followed this strategy, believing that the fundamental capabilities of the product should be defined and provided for prior to coding. This is a marked departure from the usual "evaluate the competition, design, develop, release, enhance, rerelease" sequence followed by (continued on page 5)

The Officesmith in Action

IT ISN'T EASY to visualize just how the Officesmith works in a day-to-day application. So we asked Officesmiths to send us some information on actual implementations of the Officesmith in the field. The following examples and actual customer case studies should help illustrate the product's function.

SALES AND MARKETING DATABASE. This application is currently being used by Officesmiths' sales and marketing department. Sales managers and sales administrators are able to keep track of potential clients and follow through on leads from contact to contract. Client histories are maintained as well as up-to-the-minute records of account progress. This tracking system results in timely responses to the client base.

Sales personnel perform querying procedures to retrieve information at various levels in the database. Maintaining correspondence and supporting proposals are also important capabilities of this application, allowing all documents to be kept in one location. Furthermore, sales managers may provide more personalized service by including marginal notes about the client.

Officesmiths has developed a generic-manuals application that allows end users to create and maintain structured manuals.

DeHavilland Aircraft Company of Canada Limited uses the Officesmith as a sales document management system designed to maintain a prospective customer list, a sales contact report, and a competitor analysis document. Salespersons are able to create and update proposals, construct and maintain mail lists, and respond to requests for price and availability.

MANUALS AND SYSTEMS DOCUMENTS DATABASES. Officesmiths has developed a generic-manuals application that allows end users to create and maintain structured manuals such as policies and procedures, user's guides, systems specifications, and training programs. The most important benefit derived from this application is that corporate standards for manual formats can easily be established and maintained throughout any organization.

Such an application was specifically developed for the Department of Energy, Mines, and Resources (EMR), an agency of the Government of Canada responsible for matters relating to energy, minerals, and earth sciences. Part of the agency's mandate is to provide public services, and, therefore, it is imperative that personnel be able to locate information quickly and accurately. The comprehensive querying capabilities of the Officesmith are, therefore, of critical importance. Prompts and labels, available in both English and French, guide the authors through the application to ensure that policies and procedure descriptions conform with agency standards.

A similar application is available for systems documents with the added advantage of being able to cross-reference between documents. Therefore, instead of reading the documents sequentially, as one would skim through a book, the systems documents database allows the reader to follow the logical system-structure via cross references.

LEGAL DATABASE. A legal database was conceived for a prestigious Canadian law firm involved in general legal practice in the areas of corporate/commercial law, labor litigation, taxation, and industrial property law and research. The fundamental requirement of this application was that it allow law personnel to assemble legal documents from boilerplate paragraphs. The availability of marginal notes, which lawyers use on a regular basis, was also an asset. Of prime importance were the querying capabilities which provide litigation support.

PERSONNEL DATABASE. A personnel recruitment database is under development by Lawrence Lock Associates in the United Kingdom. This personnel database provides a central system where the qualifications of candidates can be matched with a company's vacancy requirements. Documents such as advertisements, standard letters, the applicant's history, and the company's history are maintained. The applicant's qualifications and the company's requirements are linked by a contact-history document.

RECORDS MANAGEMENT DATABASE. The Department of Energy, Mines, and Resources (EMR) is also the primary site for an Officesmith records management application. This application is the foundation of EMR's approach to information management. An extensive database is used to record, index, and track files throughout a variety of media options within the agency. This application includes a charge-in/charge-out facility and complete security-clearance capabilities to protect information from being released to unauthorized readers. Complete file- and history-maintenance, correspondence registration, paper indexes, and management reports are also provided.

(continued from page 3) most software vendors. And this careful thought is evident in the Officesmith's high-end capabilities. The Officesmith has been "fine-tuned" since its first field-test installation in 1983, but there have been no major rewrites of the software.

Officesmiths' first client was the Canadian Department of Energy, Mines, and Resources. This Canadian government agency needed to create and edit all data in both English and French. As a result, the Officesmith supports all prompts and text-editing functions in both of these languages. In fact, the product was designed to be easily adapted to any language written in the Roman alphabet.

Officesmiths works closely with its clients in government and private industry to develop solutions for unusual requirements. For example, the developer's version of the Officesmith allows programs written in C to gain access to data in the Officesmith files and to run within the Officesmith environment. Officesmiths' clients include a variety of Canadian government agencies, DeHavilland (a subsidiary of Boeing), Citicorp, EDS, and AT&T.

The Officesmith

PRODUCT DISTRIBUTION. Officesmiths markets its products primarily through value-added resellers (VARs) selling Unix-based minicomputers from such vendors as Pyramid, Sequent, and NCR. Officesmiths also markets directly to large end users and is beginning to work with original equipment manufacturers (OEMs) to expand its overall market presence.

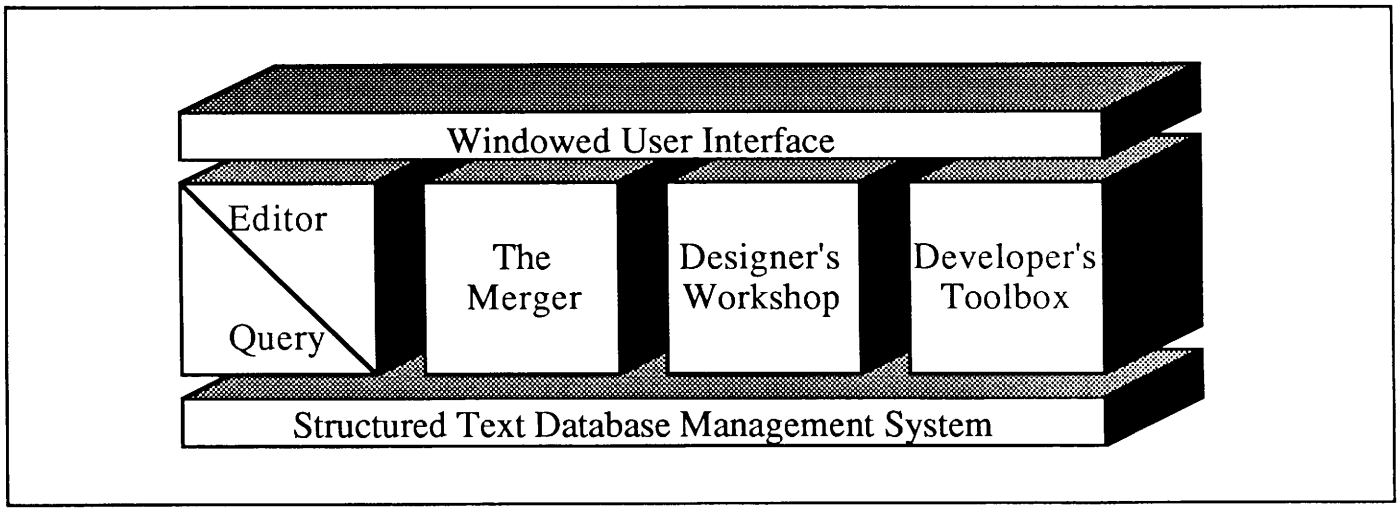
CONFIGURATION. The Officesmith comes in three versions: end-user, designer, and developer. The end-user version is compiled code containing predefined document formats that cannot be modified. The designer version contains predefined document formats and a designer's facility, called a workshop, that allows modification and development of applications and documents. The developer version contains file-level interfaces and system calls, allowing the developer to create programs written in C to run within the Officesmith environment.

PRICING. The price of the Officesmith is dependent upon the version licensed, the number of users, and the size of the host computer. The end-user version running on an NCR Tower with three users costs $2,500. A large-scale system on a Digital Equpment Corporation (DEC) VAX/8600 could cost as much as $50,000. The Officesmith is an AT&T-certified product and runs AT&T V.2, BSD 4.2, DEC's Ultrix, Pyramid's OSX 3.0, and Sequent's Dynix.

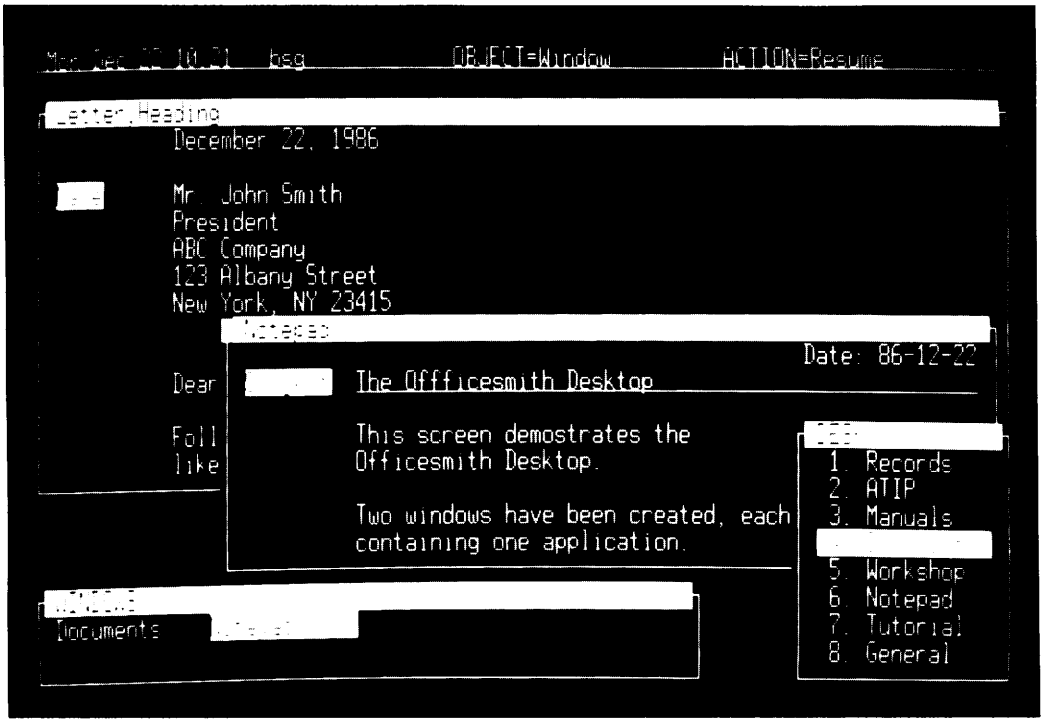
Design Concept

The Officesmith incorporates text processing within a hierarchical database environment. Documents are structured so that each separate heading and paragraph of a document is defined as a text field of unlimited length. That is, the layouts of the title page, table of contents, and sequence of headings, subheadings, and text are defined before any text is entered.

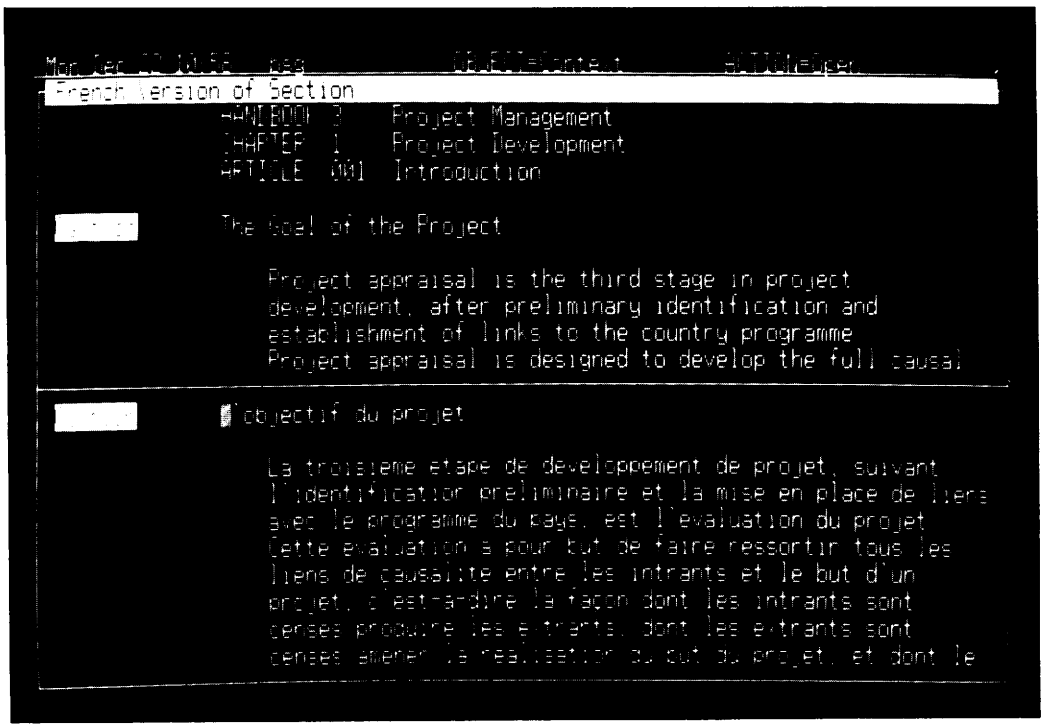
DOCUMENT FORMAT. Preplanning is essential to using the Officesmith. This is a primary design concept that sets it apart from traditional word processing products. Not even a simple memorandum can be created and printed until a document format has been created. (A set of ready-to-use document formats is shipped with the product.) However, once created, a well-designed document format can eliminate many of the repetitious decisions the user must make when setting up a letter or report, such as, "On what line are the date and inside address to start?" "What margins should be used?" "How is the closing to be phrased?" These decisions can be built into document formats so that they are totally transparent to the user. These decisions are not difficult to make, but they can slow down a busy user unaccustomed to document creation. Standardizing these decisions also ensures a uniform look to all documents created within an organization.



The Officesmith's internal components—editor with inherent query facility, text merge utilities, document and application design workshop, and software developer's toolbox—are sandwiched between the user interface and the hierarchical database.



Window environment. Two work windows are open with the names "Letter, Heading" and "Notepad." The box "Windows" lists all currently open windows. The box in the bottom right is the Desk menu. Information across the top of the screen includes the user's initials and the current Object and Action.



The view is one window split into two horizontal panes, each displaying a separate document. The context is the French version (based on where the cursor is positioned). The group is made up of various text fields, including the caption fields and paragraph fields.

How exactly does this work? Let's say you want to type a letter. You need not enter the recipient's address, the date, the closing, etc. All you have to do is enter and edit the body of the letter and specify the recipient's name or customer number through a "display view." This specification identifies the recipient's record within the database, and the address field is extracted and automatically linked to the letter. The letter appears in conventional format when printed or displayed through a "print view," where items such as date, inside address, subject line, closing, enclosures list, carbons, and blind carbons can be automatically attached. This comprehensive document environment with multiple text-views is called an application (see "Views").

Views. A fundamental difference between traditional word processing and the Officesmith is the views concept. A view is essentially the stored parameters (formatting codes, fields to include) that indicate how data or text is to be displayed or printed. A single document could have multiple views—one for text entry, another for editing with space in the margins for comments, and a third for printing the document. Still another view could display two separate documents side by side.

Word processing has been evolving towards a what-you-see-is-what-you-get (WYSIWYG) approach that extends word processing into desktop publishing. The Officesmith takes a much different approach. At first glance, the Officesmith

seems to be taking a step backwards; it uses a variation of the old formatter concept used by traditional mainframe editors. Mainframe editors require complex formatting codes to be embedded to define indents, underlining, paragraph endings, etc. The edited text is sent through a formatter to "activate" the formatting commands, and the resulting printed document has little relationship to the format of the text on screen.

But, unlike line editors with separate formatters, the Officesmith can display or print text through the various views of the document integrated into the editor.

Views are only one part of a document. Format also indicates the fields to be used and the way the document is to be indexed for retrieval. Formats are not restricted to what are traditionally regarded as documents. Officesmiths considers any defined grouping of records to be a document.

The Officesmith requires a systems administrator who usually designs all document formats and applications and who assigns to users various levels of authority.

The Officesmith requires a systems administrator who usually designs all document formats and applications and who assigns to users various levels of authority. This person is, in effect, a database administrator. Thus, concern over information access, duplication of information, information collection, and information integrity becomes vital.

Context. An important design concept in the Officesmith is context. Context is the active area of text as defined by its structure. Certain actions, such as "copy," can be taken on a context or on an object within the context (see "User Interface"). The context definition is also very important for contextual queries (see "Querying"). The Officesmith allows you to shrink and expand the context. For example, if the current context is "document," you could shrink it to a group or expand it to a folder, drawer, or cabinet.

You must always be aware of the current context. Actions such as "copy" and "delete" can yield pretty surprising results if you are in a different context than the one you anticipated. You might find yourself deleting an entire summary report when you meant to delete an individual record.

Groups. A selection of fields within a document format is defined as a group by the application developer. A group could consist of, for example, customer contact name and company or, in a report, section heading and text paragraph. This group could be contained within another, larger group that also includes customer correspondence. And the larger group could be contained within a folder containing all information on that customer. Thus, the group concept is based on a hierarchical data concept. Traditional word-processing users can contrast the familiar hierarchy of character, word, sentence, paragraph, page, and document with the Officesmith's group structure of character, paragraph/field, section, chapter, document, folder, drawer, and cabinet.

Windows. The Officesmith does windows. Up to 12 windows can be displayed simultaneously. Windows must be sized through the Desk menu. There are no zoom or sizing capabilities on the fly.

Windows are divided into panes. Panes are defined by the application design and open automatically when needed. If a window contains an application, a pane might contain a subtask or a different view of the application. Users cannot open or close panes, but they can move between them and manipulate the data within them.

DESIGNING A DOCUMENT. The Officesmith system administrator must have a solid understanding of database concepts. It took us an hour, even with assistance from Officesmiths' staff, to develop a small application consisting of one screen form and one document format, and we are far from novices. It is important to remember that the Officesmith is a database for text and contains an applications development facility. Therefore, defining a document format is akin to defining both a data-entry screen and a report format on a traditional database system.

To design a document format, the Officesmith's "Workshop" application must be accessed. Four definition screens (called documents) must be filled out.

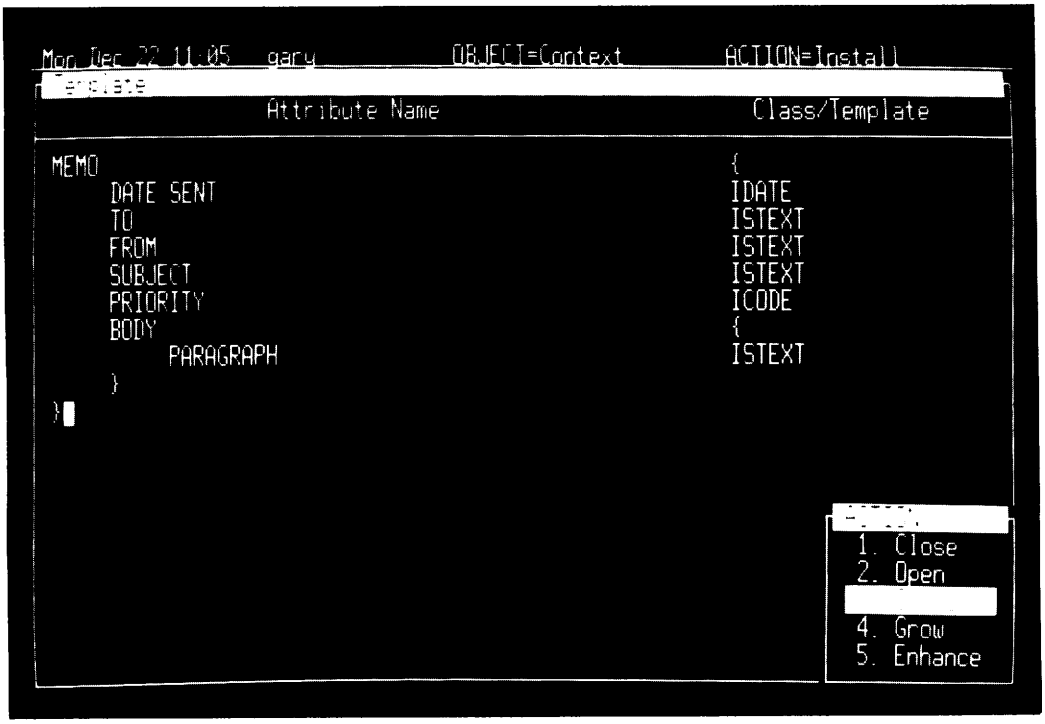
- Template identifies what information the document may contain and how it is structured in the database, that is, field definitions and their relationships.
- Class Definitions define how information in the document will be indexed for "query" functions.
- Word List facilities build lists that are associated with Class Definitions for "query" functions.
- Format Definitions describe the way a document looks on a screen or on a page. A single document may have several formats. Not all formats need contain all fields.

DESIGNING AN APPLICATION. Additional facilities allow documents to be linked together for advanced applications:

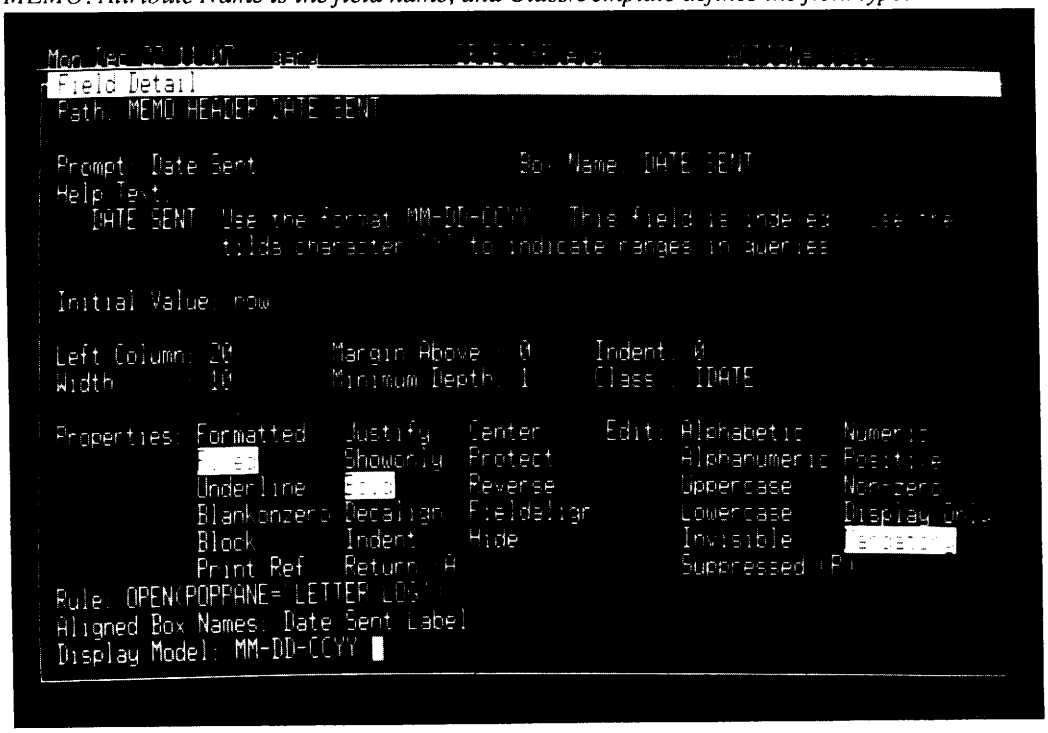
- "Menu" is actually a menu builder for designing Action and Object menus to use with an Officesmith application or with a third-party application linked to the Officesmith.
- "Messages" is used to design "help" and "error" prompts.
- "Desk" provides a menu of available applications. Users may have different Desk menus depending on the applications to which they have been given access.

Once a document has been designed, it must be installed. Each definition screen of the Workshop (i.e., Template, Class, etc.) must be installed separately. During installation, the system identifies and displays any errors. Thus, the user can easily correct and re-install the document.

To modify a document design after it has been installed, the user must de-install it; the document is unavailable until the user successfully re-installs it.



A Template screen is used to define all fields that will be contained in the document format MEMO. Attribute Name is the field name, and Class/Template defines the field type.



After the Template is designed, the user is guided through the Field Detail screen to define each field. In this case, the field DATE SENT is being defined. Note the provision for century in the Display Model format!

Predefined File Formats.

Officesmith provides a series of predefined document formats. The standard documents include:

- Standard business letter
- Customer-contacts database shell for addresses, phone numbers, etc.
- Customer-contact records for recording results of meetings, phone conversations, etc.
- Customer-contact letters which can be attached to customer-contact records
- Standard report format structured into chapters and sections with a title page and table of contents for creating manuals, etc.
- Library reference document which contains references to standard reports
- Standard memorandum format
- Notepad application, consisting of one or more records made up of a heading (subject line) followed by one or more blank paragraphs (fields) for collecting thoughts and reminder notes

DEVELOPER'S TOOLBOX. The Officesmith also provides a complete set of software development capabilities. Called the Developer's Toolbox, the facility allows application programmers writing in C to enhance almost any aspect of the Officesmith. For example, a screen data-entry form can be given data-processing capability. As data is entered, amounts could be calculated or an amount could be checked. If the amount is within a predefined range, an additional screen or program could automatically be triggered to run. The Developer's Toolbox is an extra-cost option.

The Officesmith uses an Object/Action user interface. However, although the basic implementation using cursor keys and pop-up menus works well, it lacks the level of intuitiveness required in the office environment.

User Interface

The Officesmith uses an Object/Action user interface. However, although the basic implementation using cursor keys and pop-up menus works well, it lacks the level of intuitiveness required in the office environment.

An "object"—document, folder, paragraph, etc.—is selected either from a pop-up menu or from the cursor location. The "action" to be applied is usually a function key command such as Mark, Copy, Delete; in some cases (for infrequent actions), the action is chosen from an Action Menu and confirmed by pressing the Do It key.

This procedure can be confusing for a new user, who must hunt through the keyboard and the menu looking for a specific command. The number of dedicated function keys—almost 30—makes the keyboard appear overwhelming, though you can get around the Officesmith using only about 10 of these commands. A novice will probably spend a lot of time pressing the Help key. The Officesmith provides context-sensitive help on any menu item, field, or group of fields. In the Officesmith, "help" information can be defined for each kind of document (report, letter, etc.) and can be modified by the systems administrator. Though the "help" facility is fairly thorough and always available, we question the design of a system that depends on "help" to guide the user in the normal course of work. A more intuitive user interface would make the sequence of steps more obvious.

NAVIGATION. Certain keys navigate you through the Officesmith:

- Desk acts as an Interrupt key and will always get you to the top level of the system (as if you have just logged on). Whatever you were doing when Desk is pressed is remembered and can be resumed later, even in another session.

- Object brings up a menu of currently available objects. The menu contents vary depending upon where you are.

- The Cursor keys, Return, and Home are used to navigate within a document.

- Action displays a menu of available actions that can be performed on the current object. The most common actions are mapped to dedicated function keys and do not appear on this menu.

Dedicated function keys for the most common actions include:

- Create, which makes a new instance of the current (or active) object. This may be a new window, a new document, or a new paragraph.

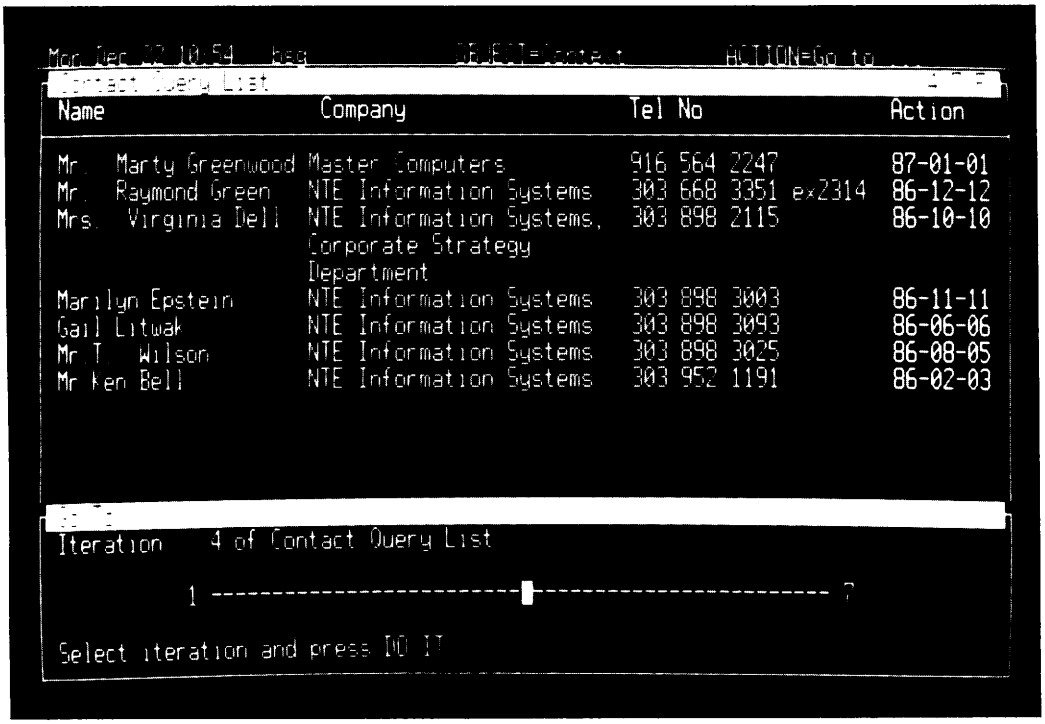
- Delete, which immediately deletes the active object. This can be dangerous. Even if the active object is the entire document, no verification step is available. Therefore, one keystroke can wipe out the whole thing. A safety catch does exist: All text removed with the Delete key is automatically saved on a clipboard and can be immediately restored with the Copy key, but only until something else is deleted, which replaces the data on the clipboard.

- Mark, which is used with the cursor keys to select a sentence or multiple fields (paragraphs) for subsequent action, such as deleting, copying, underlining, etc.

- Copy, which duplicates marked text to a clipboard. If no text is marked, it copies what is on the clipboard to the cursor position in the text. There is no Move key. The user must "delete" text into the clipboard and "copy" it into the document.

The user can interrupt the current window session by creating a new window (pressing Desk, identifying the object as Window, and pressing Create) in which to query information or start work on another document. By using Mark, Delete, and Copy, the user can move information between windows. Up to 12 windows can be active at one time. Pressing the Desk key and exiting the system will automatically preserve all windows. When the user logs on for another session, he or she can access each window at the point from which it was exited. To remove a window, the user sets the Object to "window" and presses Delete. This does not delete text but closes the window and automatically saves its contents.

The user can redefine all keys on the keyboard using Unix's Termcap facility. But Officesmiths suggests that the systems administrator standardize the key assignments by ter-



This is a query list resulting from a scan of cabinet documents. Highlighted in the top right of the screen is the reference "4/7 F," indicating that the cursor was positioned on the fourth document of seven located when the "Go To" function was accessed. The "F" indicates that the query has finished. (If the query were still in progress, the screen would display an "I.") The Go To window at the bottom of the screen allows the user to move the cursor through the range of located documents.

minal type (i.e., DEC VT220, HDS 200, AT&T 4425) wherever possible. The manual describes the keyboard layout that will be set up if none of the default terminals are specified through Unix's Termcap facility. Though we like this flexibility, the modification of key assignments could be a major concern in large installations for both training and relocating staff. In these cases, Officesmiths recommends that modification of key assignments be restricted to the systems administrator.

FILE MANAGEMENT. The Officesmith is organized into the familiar, and well conceived, cabinet, drawer, folder, and document hierarchy. Each user is provided with his or her own cabinet, but the systems administrator can override this default and provide an application-specific cabinet. It is important that the systems administrator plan the default cabinet for each user carefully because queries are limited to a single cabinet (see "Querying").

The Officesmith allows documents to be referenced (not physically duplicated) in multiple folders. This saves a lot of storage. Likewise, entire drawers, folders, and documents can be referenced within cabinets for ease in retrieval.

Querying

The "query" facility of the Officesmith is the key to the product's power. Queries can be performed on the context of the current window, or a new window can be opened.

The query statements themselves are very straightforward. There is no special syntax or language to learn. A query request simply lists the words that are to be searched for. Logical "and/or" statements can be supported.

The two approaches to querying are context and global. A context query searches for specific data within the framework of the active group or context, but across all documents of that type. While a query is being specified, the user can expand or shrink the context. In other words, you can specify that a query should search only documents with a format of memorandum or only within header fields and closing fields. A global query is a full-text search within the entire cabinet, or it can be restricted to a drawer.

Documents are not automatically indexed for global query, though they may be contextually queried. Each document must be identified as available for global query. However, the default may be changed to automatically index documents by type.

Query results can be presented in two ways. A Summary provides a list of all documents in which the keywords were found. The user can open individual documents from this list to be read, edited, or printed. Detail queries dis-play the contents of each document in the order in which it was identified based on the specified keywords. In either case, the Officesmith offers the unusual ability of allowing the user to begin reviewing documents as soon as the query is initiated, without having to wait for the entire query process to finish. As soon as the first document that matches the query specification is found, the user can review it while the system continues its search. The user is prompted when the query process has been

completed. This very valuable feature avoids the "dead time" that most systems incur when a search is requested.

Mail/Merge

As you might imagine, a system like the Officesmith provides an extensive merge facility. "Merge" provides the ability to rearrange information in documents, summarize and analyze information, and merge information from multiple documents or query lists to produce letters, labels, and reports. To prepare a letter from an address list, the user creates the following documents:

- Model Document, which contains the form letter and variables
- Merge Document, which contains the names, addresses, and other information to be merged (can also be a query list of a database)
- Merger Document, which contains merge instructions (i.e., if a field is blank, then substitute a specified phrase)

All features of the Officesmith, such as "query", are available within "merge." Merge commands include "Print" and "File," which allow merged documents to be queued for printing or saved as separate documents.

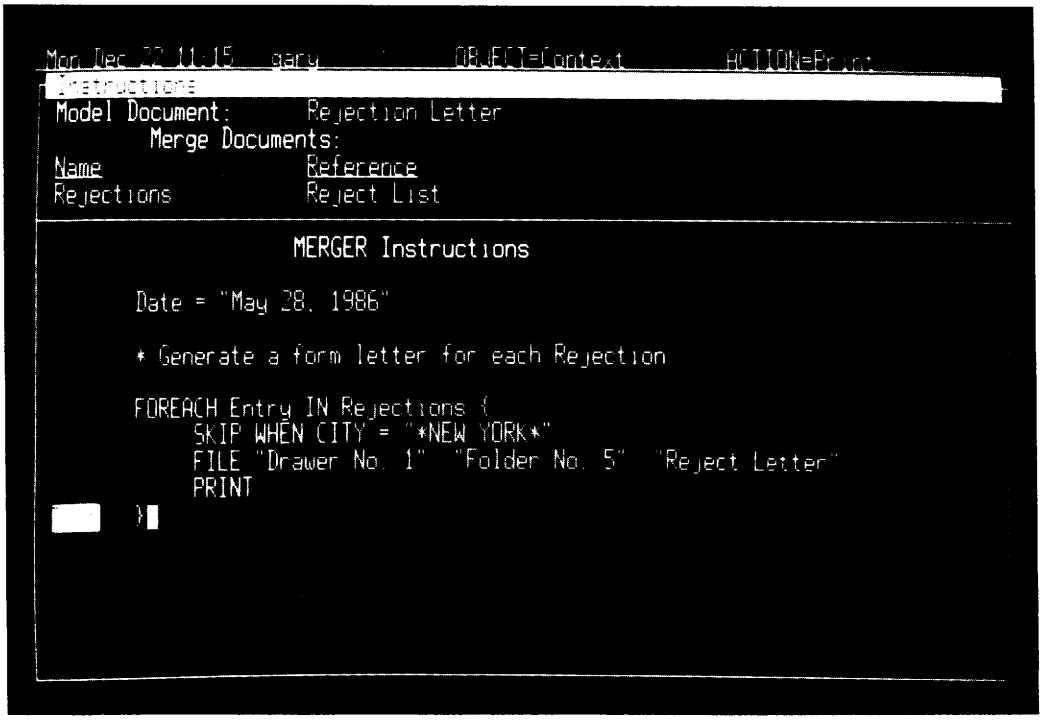
Word Processing Capabilities

The Officesmith is not designed as a high-performance word-processing package. It is a database with word processing capabilities. Therefore, it could be unfair to compare its word processing capabilities with other Unix-based or proprietary word processors. However, at the moment, the Officesmith only provides for ASCII file import and export (though Release 3.3, planned for the third quarter of 1987, will contain a Revisable Format Text interchange facility following DCA standards). Documents are imported through ASCII transfer in one of three fashions: Single-field transfer inserts the entire document in a single Officesmith text field; line collection makes each line of the document a separate field; and paragraph transfer puts each paragraph in a separate field. The fields can then be moved and renamed.

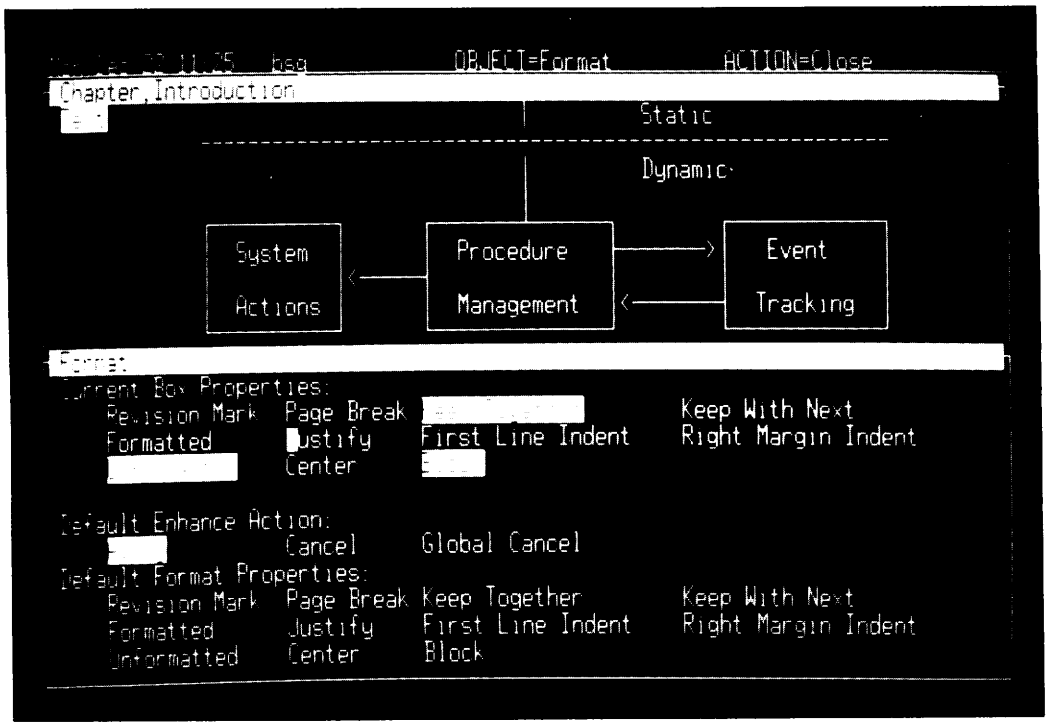
But this is a very awkward solution, one which severely limits the effectiveness of using a different word-processing system and importing the documents into the Officesmith environment. Officesmiths could lose some potential clients because of its word-processing deficiencies. Organizations with a primary need for full-text searching and querying might still give the Officesmith a tumble. But those customers who have a greater need for word processing and to whom the text database and application development facilities are attractive "extras" will most likely go with another Unix-based system which offers full-text searching along with state-of-the-art word processors.

The Officesmith has left out or modified some common word processing features for the sake of preserving and controlling the document structure. For example, the Return key doesn't move you to the next line or insert a line ending. Instead, it brings you to the beginning of the following field, be it a paragraph or a heading. A special New Line key operates the way a standard Return key does.

Many features just aren't up to snuff by current word processing standards. For example, there is no "insert" mode, where all text entered is automatically inserted at the cursor point and moves existing text over. To insert a single character, you must press the Insert Character key to open space for the insertion. The Expand key breaks the line at the cursor points and drops the remaining characters to the following line. Unlimited text may be inserted. The Adjust key ends the expansion.



The "merge" instructions on the Merger Document provide for filing a copy of each document in Drawer 1, Folder 5, as well as printing a copy to be mailed.



The Format window is open at the bottom of the screen, showing the current-box properties, default-enhance action, and default-format properties. The top window shows the new line-draw facility slated for release with Version 3.2 in early 1987.

As we mentioned before, there is no "move" command. You must delete text and then copy it from the clipboard into the new location.

Text may be enhanced with boldface, underlining, or lineout (printed with a line drawn through each character). But the procedure is very keystroke-intensive, requiring a minimum of 10 keystrokes.

We are concerned about the lack of flexibility in setting tabs, fonts, pitch, and line spacing. Tabs can only be set in a regular grid (i.e., every five spaces, every eight spaces, etc.), and there is no decimal tab feature. Pitch and font cannot be changed within a document. The worst offender, however, is line spacing. It cannot be varied within a document; an entire document must be printed either single-, double-, or triple-spaced. These limitations are not acceptable in today's market.

The Officesmith does have some nice word processing features. "Search and replace" supports changing multiple strings in the same pass, and the "glossary" feature allows keystrokes to be saved as they are entered. Both text and commands can be stored in a glossary.

The "format" feature allows the user to set attributes for blocks of text, such as paragraphs, groups, or documents, through a format window.

Productivity Tools. Officesmiths has clearly set out to create a text-management system that focuses on meeting an organization's information needs. The Officesmith is designed to run on a multiuser system; PCs are attached to the host as dumb terminals (usually via VT220 emulation). The Officesmith does not provide any user tools such as calendaring, autodial phone lists, electronic mail, spreadsheets, or even a user-defined mailing list. In fact, only system administrators can define and modify document and application formats.

Officesmiths believes that it is not practical to include personal productivity products, and it has consciously avoided providing them. Instead, the company has focused on information-management capabilities for the organization, not the individual user. However, this decision seems to fly in the face of the current market. Leading office systems vendors are continually enhancing their systems with personal productivity tools. The multi-application, multi-window environment of the Officesmith would lend itself to such products very well. But the staff of Officesmiths indicated that integrating the Officesmith with productivity applications from another vendor would require the developer's version of the product. If customers have to go elsewhere for applications such as electronic mail, they may well choose a different vendor entirely.

Housekeeping

ARCHIVE/DE-ARCHIVE. Documents can be archived and de-archived to and from the backup media attached to the host system. Even when documents are archived, the document references are retained in the Officesmith. When an archived document is requested, a message in- *(continued on page 14)*

Using The Officesmith

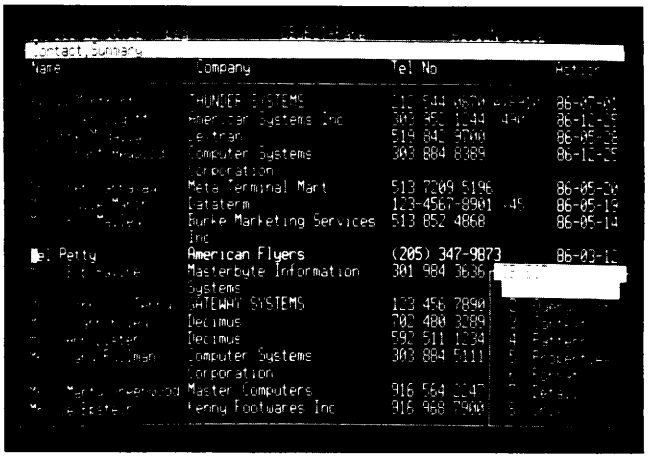
TO GET A FEEL for how the product works, we walked through the customer-contact application that comes predefined with the product. The application consists of four views of customer information:

- Customer-contact summary
- Customer detail
- Customer letters
- Report of customer-contact detail listed by customers

Customer information is entered into the customer detail view. Selected fields are included in the summary view. The contact summary (context) displays one customer record per line. Each record includes the following fields (group): customer name, telephone number, and next action date. To get detailed information on a specific record, you change the context to contact detail. A window divided into two panes is displayed. The top pane contains a traditional screen form with the following fields: name, title, company, street, city, postal code, salutation, client number, telephone numbers, and other pertinent information. The bottom pane includes a group of three fields: date of action, narrative notes on the action, and references to documents created in response to the action. A client's entire history is available within that windowpane. By positioning the cursor on the document reference for a particular record (object), you can open the document for viewing or editing (action).

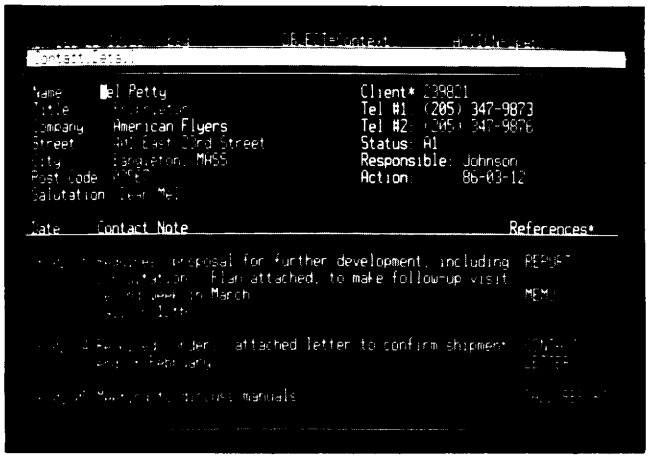
Filling in the client number on the new letter automatically links the letter back to the contact record. The letter is made up of text fields—section headings, subheadings, and paragraphs. Boilerplate paragraphs can be included in the letter. So can paragraphs located through a query (one of the advantages of text fields is the ability to search by paragraph for keywords). The inside address, salutation, date, closing, etc. will automatically be included in the print view of the document.

Reports can be generated from contact records and/or letters. These reports can be the results of queries by specific field or relationship of fields (i.e., salesperson within a date range) or through keyword searches. For example, a report could list all sales contacts who requested information on the B42 Widget. The query result could be a summary report or a detailed report displaying each document that matches the search criteria.



The summary screen of the customer-contact application.

The view defines how the summary is displayed (i.e., column format, each record on a separate line), the context is the entire summary, and the field name, company, telephone numbers, and action define the group structure.



Detail screen of the customer-contact application.

The top pane contains basic customer information. The bottom pane contains the date and a brief summary of each customer meeting or phone call. The Reference column contains the names of documents supporting each customer contact. Reference documents can be opened and edited at any time.

(continued from page 12) forms the user that the document is no longer online, and the request is automatically sent to the system administrator. Only the system administrator has the authority to access the archives. All requested documents are retrieved and restored online when the system administrator schedules a dearchive option.

AUTHORITIES. The Officesmith provides for security at several levels, from the cabinet down to individual fields. Users can assign security (don't read, read only, or read and update) to their own drawers, folders, and documents.

Conclusion

Officesmiths has done some innovative work in text database management. We are particularly impressed with the ability to review documents located in a query before the query has been completed. Field manipulation and mail merging are also very well conceived.

We do have reservations about the user interface. It isn't easy to master either the concept or the execution of the Officesmith. And the absence of a state-of-the-art word processor concerns us. Too many organizations with text-database and full-text retrieval needs also require excellent word processing capabilities. It is just plain too difficult to import documents from other word processors. If Officesmiths wants to sell the Officesmith to any but a niche market, it will have to beef up its word processing and put in hooks for office tools such as electronic mail, calendars, and spreadsheets. ◐

Daniel L. Swearingen is a consultant and free-lance writer residing in Albuquerque. He has over 12 years experience in the office-automation industry.

Standardize or Bow Out

A Meeting of the Minds

By Judith S. Hurwitz, Michael D. Millikin, and Patricia B. Seybold

IT'S REALLY IRONIC. In an industry where each vendor is struggling to differentiate itself—to gain an edge on its competitors—an awful lot of attention is being focused on standards. This is exemplified in the Unix community. "Standardize!" seemed to be the battle cry at the recent UniForum in Washington, D.C. Some vendors were jumping on the Posix bandwagon. Others were teaming up to develop a standard version of Xenix, prompted, for the most part, by the introduction of the 80386. Everywhere you turned, vendors were embracing X-Windows as the windowing standard and NSF as the standard file-sharing protocol.

This doesn't imply that individuality will go away. On the contrary, it means that interesting and innovative applications will sit on top of a standard base.

Posix Gets Its Legs

The movement toward a standardized Unix is gaining momentum, and the victor may not be AT&T. A cheek-puffing acronym, Posix, seems to be gaining an advantage.

Based on a combination of AT&T's System V and Berkeley 4.2, Posix—Portable Operating System (the "ix" is cosmetic)—is the result of five years of hard work by the IEEE to come up with a common, open operating environment decoupled from any one particular vendor. Currently, the published Posix definition covers only the operating system interface. Groups in the 1003 committee are working on defining a shell and tools specification as well as exploring verification. The Posix designers are more worried about the portability of Unix applications than about the portability of implementations of Unix.

During the last few months, Posix has begun racking up victories in its battle for recognition. In October, the National Bureau of Standards proposed to adopt Posix as a Federal Information Processing Standard. And at UniForum, the X/Open group endorsed Posix as a formal international industry standard.

Although often thought of as a European group, X/Open actually is a joint initiative by 11 international vendors: DEC, HP, Unisys, Bull, Ericcson, ICL, Olivetti, Nixdorf, Philips, and Siemens. AT&T recently joined their ranks. X/Open is also looking for a common applications environment supporting full software portability. Unlike the IEEE, X/Open is not an official standards body but is closer in concept to the Corporation for Open Systems (COS).

Currently, both the Posix and the X/Open definitions are very close to AT&T's System V Interface Definition (SVID). It is significant, though, that AT&T doesn't control the licensing strings on Posix. For many large customers, including the federal government, such vendor independence is a priority (especially after AT&T revised some of its licensing language

much in its favor with the release of V.3).

Vendors, too, would rather not be in the position of having a competitor judge the "purity" of a particular implementation of system software.

Posix supporters were beating the drums loud and long at UniForum. X/Open had a booth on the show floor and joined with NBS to sponsor an evening presentation on the movement toward Posix which packed several hundred listeners into a seminar room.

Much remains to be done in the Posix area: transaction processing, security, and the ultimate head-cracker, networking. And any standards process seems to be slower than molasses, so the end is not yet in sight.

The week before UniForum, a host of vendors jumped on the X-Windows graphics interface bandwagon. As buyers become more aware of such efforts as Posix—with the savings, increased flexibility, and protection of software investment that such systems promise—the demand for Unix-style solutions is bound to grow.

Xenix Vendors Unite

The situation is beginning to seem like an international soap opera with the central characters played by the Intel 80386 chip and the Xenix operating system. Like any soap opera worth its soap, just when the alliances are becoming clear, another partner enters stage left—or is it stage right?

Several manufacturers banded together in an effort to create a standard version of Xenix. Out of their efforts came new alliances. In a joint announcement, Santa Cruz Operations (SCO), Microsoft, and Interactive Systems announced that they would present one version of Xenix to the world—a single binary standard.

Why such a growing commitment to Xenix? With more than 100 independent software vendors supporting Xenix (Microsoft's version) and with an installed base of more than 200,000 Xenix-based systems, this low-end version of Unix cannot be dismissed. And this operating system is gaining a new lustre with the introduction of the powerful 386 chip. Vendors are beginning to realize that their success will depend on the volume of transportable software that will take advantage of that power. As a result, system vendors swallowed their corporate pride and banded together—an unusual event in this fiercely competitive market. This teamwork is made even more significant by the participation of Interactive Systems. That company has already written a version of System V Unix for the 386, so Interactive's participation in this group effort might mean that Xenix will begin to look an awful lot like AT&T's Unix System V.

To try to bring the agreements into focus, we'll begin with Microsoft. Microsoft has entered into a licensing agreement with AT&T in order to upgrade its version of Xenix to include the latest developments incorporated into Unix V.3.

Simple enough. Next, enter SCO with its own proprietary version of Xenix, which it has agreed to merge with Microsoft's Xenix. Therefore, both vendors will be selling the same operating system. To avoid tripping over each other, these two vendors have agreed that SCO will sell Xenix directly to dealers, while Microsoft will distribute Xenix through OEM channels.

There is yet another agreement afoot—one between SCO and Compaq, whereby SCO will market and support the operating system for Compaq's Deskpro 386. SCO will add Compaq-specific drivers in the operating system, including those for fixed disk drives, tape backup, color graphics boards, and international configurations. Compaq promises to swap its current proprietary operating system for the SCO version without charge to its current customers.

Interactive Systems sure keeps busy. Interactive has agreed to cooperate with Microsoft to incorporate Unix V.3 functionality, defining future extensions to Xenix. Another twist to the Interactive Systems/Microsoft relationship is the VP/ix product story. This MS-DOS emulation software, jointly developed by Interactive and Phoenix Technologies, will allow MS-DOS to run without modification as a concurrent task under Xenix System V/386 via a serial port connection.

And, in the supporting role, enter the software vendors. A slew of software vendors also announced their intentions to port their software to Xenix V/386. In fact, SCO and Microsoft jointly published a 353-page directory of third-party products. Here are some notable examples:

- Informix will port its DBMS.
- Language Processors, Incorporated (LPI) will develop Fortran, Cobol, C, PL/1, Basic, and Pascal compilers.
- Ryan-McFarland Corporation will port its Fortran and Cobol compilers.

Unix and MS-DOS: A Happy Coexistence?

WILL WE BEGIN to see a PC universe based on two standards: MS-DOS and Xenix? The question then becomes, "Can two operating systems developed by the same manufacturer live together in harmony?" Microsoft believes that its commitment to Xenix does not conflict with its popular MS-DOS operating system. The company is quick to point out that MS-DOS is "primarily to support personal productivity applications on desktop personal computers. These include small database applications, spreadsheets, and word processing." On the other hand, it views Xenix as an operating system intended for "multiuser small-business systems where the main requirement is for multiterminal access to a shared database."

- Applix will port the Alis integrated OA software.
- Information Builders will develop a version of its 4GL/DBMS by the second half of 1987.
- Corollary will port its multiprocessor subsystem that makes it possible for an IBM PC AT running Xenix to support 32 terminals.
- Ungermann-Bass will combine its TCP/IP networking protocol with SCO's Xenix-Net file-sharing system.
- SoftQuad Incorporated's Softqual publishing software will be ported.
- JSB Computer Systems will sell its MultiView windowing software, which was designed to act as a common user interface for SCO's offerings.
- Franz Incorporated will port its LISP language for artificial intelligence applications.

X-Windows: A De Facto Standard

Some standardization efforts, like Posix, require tremendous up-front work to create momentum. Other movements seem to have a life of their own. Such is the case with X-Windows.

Massachusetts Institute of Technology (MIT) was faced with the problem that many end-user organizations have begun to face—a variety of PCs and workstations must now all interact. While this problem has left many frustrated users scratching their heads, it caused MIT to develop X-Windows. In 1984, the Argus system at MIT's Laboratory for Computer Science needed a debugging environment that could accommodate multiple processes spread over a variety of high-end, bit-mapped display workstations. As a result, Project Athena was chartered with finding a solution to networking different types of computers and workstations together. Those working on the project concluded that a windowing environment was the only viable alternative. Eventually, MIT latched onto another windowing scheme developed at Stanford University called W and added to it.

From these efforts, the X-Windows protocol was born. Why all the excitement? First, this protocol provides a well-tested tool which allows developers to use a single standard for developing window-based applications and user-interface tools intended for a distributed graphical environment. Because vendors are eagerly buying into the X-Windows concept, it is becoming a de facto standard. As a result, vendors who add the X-Windows protocol to their system will be able to implement new applications on a variety of workstations with minimal effort. Programmers are very enthusiastic because a full X-Windows port can be completed in considerably less time than it takes to develop a windowing system as part of an operating system.

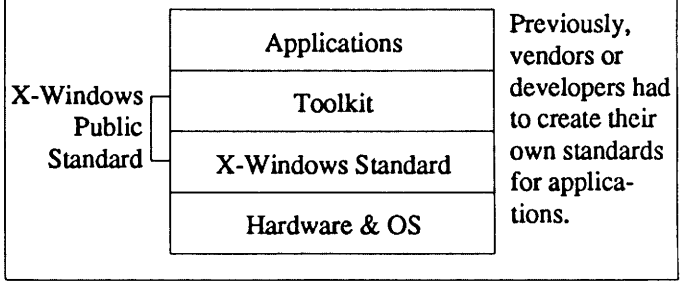
As we stated, X-Windows is quickly becoming a de facto standard. This is because MIT has placed the protocol in the public domain. MIT is charging only the cost of media and documentation (compared with the $25,000 licensing fee Sun charges for the basic NeWS system). In addition, MIT plans to turn over regulation of the X-Windows standard to a vendor-independent standards organization.

A GOOD PAYOFF. MIT's initial efforts to create a windowing standard appear to be paying off. So far, 11 vendors have announced their intention to support X-Windows. The initial group includes Adobe Systems, Apollo Computer, Applix, Dana Computers, Data General, Digital Equipment Corporation (DEC), Hewlett-Packard, Masscomp, Siemens AG, Sony, and Stellar Computer. While Sun Microsystems will continue to sell its proprietary NeWS windowing scheme (a superset of X-Windows), it will also sell "vanilla" X-Windows. All these vendors have agreed to both extend X-Windows to include high-level user tools and to incorporate X-Windows into new products.

Apollo's implementation of X-Windows support left us somewhat confused. While Apollo has committed to X-Windows, it still has its own windowing interface. We could not get a commitment from Apollo that it would redo its own user interface to make it X-Windows-compatible. Instead, Apollo spokespersons implied that Apollo users would have two options: They could access and run X-Windows-compliant applications on their Apollo workstations, or they could run applications written to take advantage of Apollo's proprietary windowing. We hope that Apollo reconsiders and makes its own windowing interface X-Windows-compatible.

DEC'S NEW INTERFACE. In announcing its compliance to Unix standards (X-Windows and Posix), DEC also took the

Fitting X-Windows into the Computing Environment



The X-Windows system layer provides device-independent windowing, graphics, and text-editing both locally and across a network. The Toolkit layer is a standard set of utilities that help developers create user environments and interfaces. The Toolkit layer has been proposed as part of the X-Windows system.

opportunity to fire a standards volley of its own. DECWindows will be DEC's new user-interface standard across all major DEC-supported operating systems: VMS, Ultrix, and MS-DOS. DECWindows is, as its name implies, a multiwindowing, graphical, user interface. It will be compatible with X-Windows fundamentals. DEC also hopes that it can work together with Microsoft so that MSWindows and DECWindows will be compatible.

The significance of a standard DEC user interface is that end users will be completely insulated from dealing with the operating system, and they will be able to function in an operating-system-independent environment. So, for example, users at MS-DOS workstations (like the VAXmate) will be able to run local DOS applications, access Ultrix database applications, and avail themselves of VMS services (like electronic mail) without shifting from one environment to another.

NFS Picks up Steam

Network filing systems continued to gain wide acceptance. Sun's Network File System (NFS) has been the de facto standard in the Unix world for the last two years, with more than 100 vendors signing up. At UniForum, Apollo, Sun's archrival, finally gave in to customer pressure and announced NFS support. With NFS implemented on Apollo systems, Sun and other NFS users get some additional goodies. The standard NFS implementation requires that each workstation "attach" to each of the file directories it wants to access on another system in the network. This can become quite tedious if new directories are created frequently. Apollo's file system offers a global directory capability—other systems can attach to Apollo's root directory, thereby gaining transparent access to all the directories in the network.

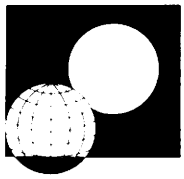
Explaining X-Windows

Here's how X-Windows works. X-Windows is a network protocol, written in C, for implementing bit-mapped graphics. It consists of a client and a server. A client is an application program; the server is the description of the display. Clients (or applications) talk to the server (or display) through the X-Windows protocol. This is the reverse of the typical networking standard, where there is usually only one server or shared resource and many clients or users. In the X-Windows networking protocol, each workstation or display becomes a server, and the individual application is the client.

When adapting X-Windows as a standard, software vendors would add a subroutine to an application, while systems manufacturers would build the X-Windows subroutine into their graphical workstation. Therefore, X-Windows will be the intermediary, sending requests for information from the application to the workstation and back again. The client and server software can reside on different systems as long as the machines are connected via a LAN. In addition, because X-Windows can be extended, vendor-written subroutines, such as 3D graphics, can be integrated into the windowing environment.

Here's an example. A user moves a mouse around causing the cursor to move on the screen. This causes a message to be sent to the host computer. The remote computer does not need to have any knowledge of the type of workstation being used. The X-Windows protocol takes care of this interaction and then allows the action to happen on the screen. Therefore, once an application is written with X-Windows, it will never have to be recompiled to accommodate new display hardware. When new display hardware is created, a new server must be programmed to handle X-Windows requests. This server is then run on the new hardware without any modification to the application. A networking protocol such as Sun's NFS would come into play when, for example, a user wants to write the results of a session onto disk.

•INTERNATIONAL OUTLOOK•



Marketing UNIX Support to Europe

By Judith S. Hurwitz

While vendors in the Unix world are still very much caught up with MIPS and multiprocessor implementations, one European distributor has focused on Unix software and support. The three-year-old company, Sphinx Limited, was founded by Pamela Gray, president of the Unix User Group (/usr/group), and Dominic Dunlop. Gray is chairman and chief executive of Sphinx, and Dunlop is the company's R&D director.

"We are more than a distributor," contends Gray. "We are really a software service and support marketing company." Sphinx has taken this tack because Unix vendors are not geared to providing the level of support users need. Traditional minicomputer vendors, Gray points out, supply a majority of the service and support an end-user organization might require. Once an end-user organization moves to the multiuser, multiprocessing Unix environment, users need help to begin fitting this structure into their workplace. Also, because software packages usually come from a variety of third parties, support and training may be unevenly provided. "The choice of software package drives everything else," says Gray. Support and training are two areas where she believes a software distributor can play an important role in the Unix marketplace.

Adding Value to Unix

Sphinx, which considers itself a "value-added software distributor," markets Unix/Xenix and MS-DOS software from the software authors in the United States and the United Kingdom. In many instances, Sphinx holds source code for the software products it distributes. The company also makes arrangements to port application packages to a European manufacturer's systems. To accomplish this evaluation and porting, Sphinx has established what it claims is one of the most extensive independent Unix hardware laboratories in Europe. Because the laboratory includes so many different types of hardware (DOS- and Unix-based) linked by an Ethernet LAN, Sphinx's clients can perform comparative benchmark tests. In addition, the company, which employs 62 people, will package consultation services, technical information, training, and other support services for its hardware vendor clients.

Sphinx also represents many of the leading authors of Unix/Xenix applications software. Once the company tests and accepts a software package, Sphinx's hardware clients can then distribute the software with their hardware. According to Gray, this strategy opens European markets for Unix software writers.

ICUS: Targeting the Rest of Europe

In order to expand its channels of distribution beyond the United Kingdom, Sphinx has set up a new organization to target the rest of Europe. The company hopes that the International Consortium for Unix Software (ICUS) will become a Europe-wide distribution and value-added support-services network for Unix/Xenix application software, with Sphinx acting as a master distributor. Gray expects that ICUS will meet the needs of multinational companies for international input in the areas of consultation, training, support, implementation, and performance issues.

Distributors from a variety of European countries will be invited to join the "club" for a $1,500 per month fee. The fee gives distributors access to Sphinx's services. For example, as manager of ICUS, Sphinx will acquire applications software products, test them, port them to a variety of hardware platforms, and provide on-going support and technical services. Sphinx already supports 120 software ports.

Purchasing Power of the Club

Distributors that join ICUS will get a large portfolio of software. Members will not have to maintain an inventory, second-source support, or marketing support for these products. Hardware vendors gain a valuable marketing advantage because, according to Gray, "There is no way one vendor can handle Europe as a whole without an enormous investment." She does not think that any other companies have tried this approach to combining distribution and support in the United States or Europe.

Gray perceives that ICUS will play a dual role. "ICUS provides distributors with the buying power of a club while providing software authors with marketing support for their products," she says. Because 80 percent of Unix soft-

ware comes from U.S. authors, the consortium hopes to provide "a low-cost entry into European markets." While ICUS won't modify software, it will have equipment in-house that will give packages its "seal of approval." In addition, ICUS plans to provide training packages and software screens in a foreign language as required by a distributor. For example, if a manufacturer wants to sell its systems in a variety of countries, ICUS will write training materials and have them translated into the required languages. Gray points out that this provides uniform training and support in all countries.

Initially, Sphinx announced plans to have as many as 14 distribution partners by the end of February and predicts that the consortium will grow to a maximum of 20 distributors. The first 8 distributors that have been signed are:

- Aeni Informatique in Paris
- Inforama SA in Paris
- Hightech in Brussels
- Gaul Computers in Antwerp
- Memory Computer in Dublin
- Transmediair in Utrecht, Holland
- Infotech in Nijmegen, Holland
- B.L&R Consultores in Madrid

In addition, Sphinx is also finalizing ICUS contracts with partners in West Germany, Scandinavia, Switzerland, Italy, Turkey, and the Middle Eastern Gulf States.

Sphinx and its ICUS organization have announced the first contract for the new group with International Computers Limited (ICL) subsidiaries. As part of the contract, Sphinx will provide a portfolio of Unix application software to run on ICL's CLAN multiuser systems. ICL will be able to sell more than 30 Unix packages, including word processors, fourth-generation-language development tools, communications protocols, graphics, office automation, database management systems (DBMSs), a variety of languages, spreadsheets, project-planning software, and various utilities. ICUS will provide technical support, porting facilities, training, and consultation.

An X/Open Contract

As an outgrowth of its involvement with Unix software porting, Sphinx won a contract with the X/Open group of computer manufacturers to design and plan the creation of a software-product porting and approval center in Europe. The X/Open standard specifies a common applications environment based on AT&T Unix System V interface definition as published in the X/Open Portability Guide.

The United Kingdom-based center, scheduled to open during 1987, will test software packages to ensure that they conform to the X/Open standard. Under the terms of the contract, Sphinx will be responsible for defining the methods, equipment, and services necessary to establish a center that will enable software authors to transfer their products in the most cost-effective manner to X/Open-compliant hardware. The central objective of the service will be to build up a portfolio of branded quality applications products that are vendor independent. The center will also provide consultations and assist vendors in systems integration and porting applications software. It will also train programmers to port application products. The center will be a commercially secure environment equipped with representative systems from X/Open members.

Dr. Pamela Gray

NEWS ANALYSIS

PRODUCTS • TRENDS • ISSUES • ANALYSIS

INSIDE

•STANDARDS•

TOPS for DOS and Xenix

Communication Machinery Corporation is beginning to sell ISO protocol software that the company states will provide high-performance Technical Office Protocol (TOP) local area networking to MS-DOS, PC-DOS, and Xenix-based PCs. According to Jay Eaglstun, ISO engineering director, this is the first implementation of TOP for DOS and Xenix. He contends that most LAN software offerings use too much of the PC's processing power to execute protocol commands. This implementation builds protocol software onto the node processor rather than running the software on the DOS or Xenix Host.

The protocol resides within the company's front-end communications processor called the ENP-60. The ISO protocol software includes the transport, network, and link layers of the ISO model (TP4, CLNS, and LLC1). Application software for ISO includes TOP 1.0-compatible file transfer management, which consists of the file transfer kernel with read, write, and file management functional units.

Convergent Adds V.3

Convergent Technologies jumped on the Unix System V.3 bandwagon by upgrading its CTIX 6.0 operating system. In a related announcement, Convergent said it has also beefed up its networking options. The operating system now incorporates Remote File Sharing (RFS), which runs under the company's implementation of Streams-based TCP/IP. Convergent will also support NFS.

Convergent also announced PC Exchange, based on Banyan Systems' Virtual Networking System (VINES). PC Exchange allows users to access shared resources and other network resources in a DOS-like manner. Services included in the product are: file sharing, print spooling to shared printers, gateways to electronic mail systems, and access to the company's WorkGroup Server communication options such as 3270 emulation and X.25.

PC Exchange software is installed on the PC as well as on the communications server. The PC software allows communication with the server. The software on the server supports resource sharing, transparent networking, and Unix services. PCs can be connected to WorkGroup Servers through standard Ethernet cable, RS-232C asynchronous lines, and Convergent Cluster or Telecclusters. Convergent promises to add support for Token-Ring networking in the future, which will allow DOS-based PCs to interconnect with the company's Unix-based WorkGroup Servers across a variety of networks.

•DOS MEETS UNIX•

Network Innovations Nets OEM Deal

Unify Corporation will sell a customized version of Network Innovation's Mutiplex connectivity software. Under the terms of the agreement, Unify will use Multiplex to link its Unix-based databases with MS-DOS-based PC applications, including Lotus 1-2-3 and various PC graphics packages. Unify will resell Multiplex's product under the name "Query/CP." Multiplex uses a Lotus-like interface (see Vol. 10, No. 1) called TK to allow data from databases to be incorporated into PC programs.

Interchanging Between DOS and Unix

We've been complaining that vendors that create DOS versions of their Unix products don't allow users to exchange data between the two. The good news is that we're beginning to see vendors address this issue. In fact, we found two: Interactive Systems Corporation, which has had a long tenure in the Unix marketplace, and newcomer Arrow Laboratories.

UNIX/DOS TIE-IN. Interactive Systems has introduced two different products to move files between DOS and Unix. The first allows a DOS file system to be mounted like a Unix file system. Thereafter, according to Interactive, the DOS file appears as though it were a Unix file to any Unix application. The DOS file system handler can be independently configured (like a device driver) and, if necessary, can be deleted at system generation time.

To move Unix files to DOS, Interactive Systems has teamed up with Western Digital Corporation to offer Vianet DOS-to-Unix Networking support as an option on Interactive's 386/ix. Vianet treats Unix files as simple extensions of the local DOS file system. Unix password, user, and group protections are enforced throughout the network. The Vianet allows access to other DOS machines on the network.

DOS/UNIX WP. Arrow Laboratories, a start-up in Baltimore, introduced a word processing package which runs under both DOS and Unix, enabling files to be transferred between the two versions. The company was founded two years ago, primarily by ex-Compucorp employees, including the programmers who wrote Compucorp's office automation software.

Multiuser WP/DP. The company was formed to create a multiuser word processing and database environment. Arrow wrote the software in C to make it portable. So far, the software has been ported to Novell networks, and Unix boxes including Sperry (Unisys), Plexus, Altos, and Sun workstations. In addition, the company states that it has programmed some networking functions into the software itself. For example, the software sets up each user as a subdirectory of a master index. Therefore, the administrator does not have to reserve a specified portion of a disk for a user.

To allow the DOS and Unix versions of the software to interact, a Counterpoint Unix machine acts as a server storing both versions of the software. The server then can access files stored on disk. A user can pick up a document written either in DOS or Unix because the file structure is the same. To insure that conflicts do not arise, the company's programmers have written record-locking software.

The system is oriented around text documents. For example, both printer drivers and macros for changing the keyboard layout are written in a word processing document format. While the word processor has all the required functionality, there are some awkward key combinations required to access certain features.

Because the package is intended to be used in a multiuser LAN environment, file locking has been added. In addition, individual documents can be password or read-only protected. Up to four document windows can be opened. The system's spell checker also has some handy features, such as being able to access a dictionary while typing a document and automatically insert a word into the text.

Arrow seems to be targeting that gray area between office automation applications and desktop publishing, so laser printing and font generation is integral to the software. For example, an operator can intersperse a large number of fonts within a document, indicating pica width, line spacing, and character size. The format line is adjusted to accommodate each character size and space requirements. In addition, the next version of the package promises to accommodate true WYSIWYG (what you see is what you get) functionality. Arrow has closely linked its multifont document creation capability with the Cordata laser printer, incorporating all the fonts that can be used with that printer. Other printers can be accessed if drivers are written.

The Database Software. A database is also part of Arrow's package. It is intended to handle simple office database needs such as mailing lists or medical records. The database is neither elaborate nor easy for a novice to use without some training, but we did find a few interesting features. For example, the package allows free-form text to be included as a field. Also, users have access to full word processing within the database function. Users can use the search functions of the word processing software to find occurrences of words within the database.

Pricing. The price for the DOS version of the word processor is $995 for six users and $1245 with the database. The Unix version of the word processor sells for $1495 and $1895 with the database (based on eight users).

We applaud a good beginning. We believe that being able to exchange documents between DOS and Unix is an important requirement in this industry, and we look forward to seeing more vendors address this issue.

•NEW COMPANY•

WP from Fortune Spinoff

When is something new really old? Fortune Systems has taken its Fortune Word word processor and spun off a company to enhance and market it. The wholly-owned subsidiary has come up with a non-data-like name—Tigera—and some slick packaging. Renamed Word ERA, the Wang-like package has

Patricia Seybold's Technology Forum

May 18-20, Royal Sonesta Hotel, Cambridge, MA

Visionary Tools Come of Age

An Interactive Seminar

SIGNIFICANT NEW COMPUTING TOOLS

Technologies such as artificial intelligence, expert systems, and truly accessible application generators even a year ago were considered "blue sky." Today, these tools have left the realm of the academic and esoteric to enter the mainstream of office computing. The TECHNOLOGY FORUM targets the most significant new computing tools by spotlighting the near-term plans of several cutting edge vendors as well as the innovative implementations of visionary users. On the seminar agenda are present-day examples of:

- procedural automation
- artificial intelligence as embodied in user interfaces and applications
- expert systems
- macro capabilities
- applications generators
- prototyping systems
- DBMS
- integration toolkits

PROGRAM

The sessions touch upon products for all tiers of information systems: from PCs to Servers to Minis to Mainframes. These include tools for end-users as well as those which aid application programmers, system integrators and software developers in delivering better tools to end-users. Not content to confine ourselves to conventional information systems, we'll also examine ways to integrate voice, image, graphics and video into the office computing environment.

FORMAT

Product developers will present existing and prototype tools supplemented by video demonstrations. Directly following each presentation, Patricia Seybold will open a dialog with the speaker(s) to ferret out the capabilities and limitations of the products, to discuss their future directions and to speculate about broader ramifications. A question and answer period will extend the dialog to participants.

Presentations by Patricia Seybold will provide context and highlight trends. An interactive workshop will give participants an opportunity to explore first-hand the implications of this new generation of tools. In the evening, a round table discussion with speakers will provide participants with an informal opportunity to pursue specific inquiries.

WHO SHOULD ATTEND

The TECHNOLOGY FORUM presents critical information on computing trends and software tools serving the business needs of select groups of members from both the end-user and vendor communities. Among these key decision-makers are:

- MIS and DP Professionals
- Information Center Personnel
- Product Planners for PC Companies, LAN suppliers, Mini vendors and mainframe software suppliers
- End-Users looking for application development tools
- Office Information System Planners

HOW TO REGISTER

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been enhanced to include other languages, notably French, German, Italian, and Spanish. Different languages can be intermixed in one document.

The Unix-based word processor can support up to four windows. Other product enhancements include voice annotation and recognition. Word ERA can exchange documents with Wang, Xerox 860, and will support DISOSS transfer in the future. According to company president, Susan Espy, the product will be ported to DOS during the second half of 1987. She adds that, in the future, Tigera will market its parent company's windowing product, which enables as many as eight windows to display a variety of Unix-based packages. Word Era is available for Unix System V.2 and V.3.

So far, Tigera has signed distribution agreements with Convergent Technologies, Pyramid Technology Corporation, and O/E Distribution, an AT&T VAR. Multiuser prices begin at $895.