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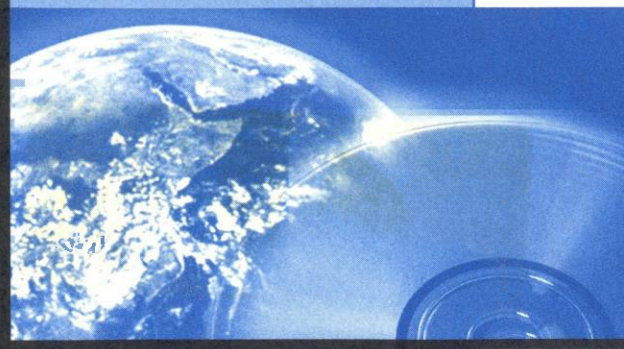

InfoTech Update

Information Technology for CPAs by CPAs

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CTI

THE BASICS OF COMPUTER TELEPHONY INTEGRATION

By Don Geerts, MCS Microtec Computer Systems, and Wayne Harding, CPA, Great Plains Software

Don Geerts is a manager of computer telephony systems with MCS Microtec Computer Systems. Wayne E. Harding, CPA, is vice-president of accountant relations for Great Plains Software in Denver, CO, and a member of the AICPA Information Technology Research Subcommittee. In this article, Don and Wayne offer a primer on CTI along with ideas on how this technology can improve business operations.

Introduction

The throughput capacities of computer systems are advancing at a staggering rate: The speed and power of processors, printing facilities, communications, and information retrieval systems are increasing so quickly that many products are considered obsolete within months of their release. Despite all of these advances, the pri-

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ELECTRONIC IMAGING

WHAT SHOULD I DO WITH ALL THIS PAPER?

By Harvey G. Carroll and M.G. Persh, CPA

Today, information is the lifeblood of government agencies and commercial businesses. This information is most often recorded in the form of paper documents. Paper documents, however, require manual effort to store, retrieve, and secure; they consume space; and, through daily use, they deteriorate quickly and become useless. In order for companies to be responsive, and—by extension—profitable, they need to be able to quickly access and manipulate information. Document imaging technology can assist a company to gain control of information, as well as to provide capabilities far beyond those of the paper office. This article discusses three important technologies that utilize imaging technology: Document Imaging and Indexing software, OCR, and Backfile Conversion.

Imaging is the automated process of producing pictorial copies (images) of office files, reports, and publications. Document Imaging and Indexing software allows the user to maintain these images and build indexes of the documents for future retrieval. For important documents that contain handwritten signatures, document imaging is an excellent way of maintaining these documents without allowing modifications to be made to them. The process also allows for simultaneous retrieval of documents by multiple users and eliminates errors in filing. The user can easily build an electronic form with document imaging software and select key fields that will be used to find specific scanned

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AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS

AICPA

The Basics of Computer Telephony Integration

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mary method of data entry into the computer remains the keyboard.

Input technologies and data entry mechanisms lag behind the rest of the computer industry, and experts predict dramatic growth in Computer Telephony Integration (CTI) technologies like Interactive Voice Response (IVR) as a result. There is a strong impetus for this development in the entire industry, highlighted in comments made by Bill Gates on November 5th, 1996, in a keynote speech to a developers conference in the Netherlands:

"If you look out over the next five to ten years, there's no doubt that the way we interact with a computer will be far better than it is today . . . a significant amount of Microsoft's $2 billion-a-year Research & Development budget [is] focused on new ways of getting through to computers."

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Change Comes to the Proprietary World of Telephony

Telephones and computers both caused a revolution in the way the world communicates. For decades, telephones have been a major part of nearly everyone's life. Computers are now rapidly becoming as prevalent as telephones in the home and office environments: Today, the ratio of telephones to computers in North America is approximately 5 to 1.

Historically, the technology of telephones and computers has remained mostly separate. With the advent of computer telephony, the best features of both telephones and computers can be combined to allow a fast, easily implemented information exchange.

The development of computer technology began within a closed, proprietary system; but eventually open standards evolved which enabled different computers and software to communicate and work together. Unlike their counterparts in the PC industry, telephone system manufacturers remained without any universal standards for many years. This lack of commonstandards led to expensive, proprietary software affordable only to large organizations. Telephone technologies like voice and call processing formerly existed only through closed systems or mainframes. Previously, would-be application developers had to overcome the roadblocks of proprietary, high-cost systems as well as the requirements for platform-specific products.

The historical lack of standardization and integration methods among the many different telephone switch manufacturers also hindered development of computer telephony applications. A switch-specific integration package, called an API Application Programming Interface, was necessary to "translate" the signals generated by a given telephone switch so that an application could understand how to process the call. Anyone who wished to develop a computer telephony application had to either purchase an API from the switch vendor or develop their own API for each switch that they wished to integrate. This lack of standardization severely limited the software developer's ability to develop a low-cost application for a wide range of platforms.

Fortunately, the evolution of open-standard computer technology into the communications and telephony markets formed the basis for dramatic growth in CTI. Powerful CTI products are now available which provide extensive CTI features on inexpensive platforms.

Today's businesses need to leverage the power of these diverse, multiuser computer telephony systems to streamline their business practices and improve productivity. CTI can provide more complete access to information and better communications options for services to customers and employees. Some examples of this technology include the possibility for

- Bank customers to interact with account information stored in the bank computer.
- Business customers to access suppliers' order entry/inventory systems and even place orders.
- Employees to access computer-managed voice, fax, and data (text messages and other information) through telephones, computers, or both.

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- Clients of accounting firms to call and request up-to-date tax information.

The computer telephony industry now offers the power of sophisticated telephony systems to all businesses in the same way that the PC industry opened up computers to everyone in the 1980s. In little more than a decade, the computer telephony industry has grown to include numerous applications and technologies. This is no small industry. Analysts estimate that the 1995 revenue from multiuser computer telephony applications, development tool kits, services, and technologies was approximately $4 billion worldwide. Accountants must be familiar with how CTI can impact the business model.

A Definition of Computer Telephony Integration

In a basic sense, CTI is the merging of voice and data. In its promotional literature, Digital Equipment Corporation identifies computer telephone integration as "a technology platform that merges voice and data services at the functional level to add tangible benefits to business applications." This functional-level interchange means that telephony systems can utilize computer resources and vice versa.

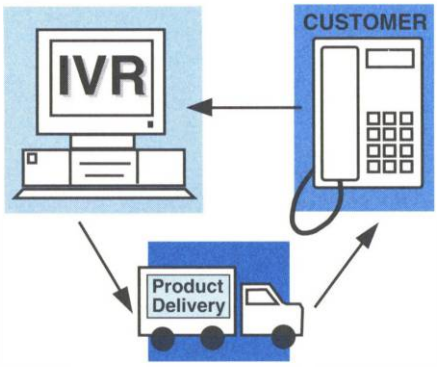
The analogy of a coffee maker with a built-in clock can help to clarify what this integration means. The coffee maker/clock is not just the combination of a coffee maker and a clock in the same box (physical integration). Rather, the functions of the coffee maker and the clock are integrated so that at a pre-determined time, the coffee maker will turn on and begin making coffee. The basic technologies of the coffee maker and the clock have not changed as a result of their fusion, they simply function in combination.

CTI Applications

CTI technology combines voice and data to form a foundation supporting business applications and seamlessly integrating the functions of both the telephone world and the computer world.

1. Interactive Voice Response (IVR)

IVR is a computer-based software system that integrates with a telephone system. This allows the telephone caller to interact with a computer through an interface similar to a voice-mail system. IVR uses the telephone keypad as the data entry mechanism for performing standardized entries into a database application. Typically, the IVR system provides a caller with voice prompts, to which the caller can respond by pressing keys on the telephone keypad.



IVR software should not be confused with voice recognition software. The IVR system will not typically react to voice commands from the caller. However, IVR software is capable of integrating with voice recognition technology to increase its capabilities.

IVR is perhaps the most important CTI application for businesses and accountants. A case in point is the example of order entry. A purchaser can call a supplier's IVR system and through a series of voice prompts, place an order directly into the supplier's sales order processing system. The caller receives voice directives and responses corresponding to his or her inputs on the telephone keypad. This eliminates the need for order entry personnel to manually re-key the order. The IVR application can provide voice descriptions of the product(s) ordered, as well as verify the quantity ordered and the availability of inventory items. These features all help to reduce the likelihood of errors in order entry, while streamlining the entire process.

In this example, IVR improves the business process of order entry. However, external accountants must address additional security issues and audit implications of the IVR system. Based on past growth and strong interest in IVR, external accountants will need to be aware of the issues related to their exposure in providing services to clients using CTI.

2. Call Center

In this application, CTI handles inbound calls and intelligently routes them to appropriate live operators. Routing is done through voice or keypad entry of an account number, or through a caller ID function. After input from the caller, all pertinent information is forwarded to the customer representative's computer screen, eliminating wasted time spent verbally capturing information about the customer.

External accountants must be aware of the security issues associated with accessing this information (e.g., what information is provided, how secure is other sensitive information that is not essential to the current inquiry) and the accuracy of the information provided.

3. Messaging

Voicemail is perhaps to most common use of CTI today. This technology digitally stores outgoing greetings and incoming messages from callers. Integrated messaging technology can combine this basic telephone messaging ability with the ability to receive faxes, internal e-mail, and external (internet) e-mail all from one computer application. This "universal in-box" offers users the

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The Basics of Computer Telephony Integration

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convenience of checking all their messages from a single interface.

4. Outbound Systems
All of us have had first-hand experience with this technology through automated surveys and other applications. Outbound systems allow a single user or multiple users to connect with individuals via a computer dialing a telephone number. These numbers are either generated from a customer database or on a random basis. It is possible that the call will actually be made by a computer that will ask questions after the phone is answered. At the appropriate time, the call can be handed off to a "human" representative for more personal attention.

5. Interactive Fax
This technology enjoys fairly widespread use and recognition. When calling many technical support lines, one option is a "fax back" service. The caller typically listens to a list of common problems, then enters his or her selection and fax number to receive a computer-generated fax with information on the problem.

Another application in this category is fax broadcasting. A fax can be automatically broadcast to a list of recipients, usually at night when the phone rates are lower. The key users of this technology are sales and marketing departments. However, accountants might consider this capability when sending out newsletters or "tax updates" to their clients. Fax broadcasting software is extremely affordable and easy to use.

6. Audio-Text Systems
Similar to interactive fax systems, audiotext allows a caller to access pre-recorded information from a database. The caller enters the code number for the information he or she wishes to hear, and then the application triggers the recorded voice message with the information. This technology is used in many settings, for everything from health care to "talking yellow pages." An available CTI function called text-to-speech can expand this and other CTI applications. With text-to-speech, a computer text file is converted to synthesized speech for the caller, eliminating the need for each file to be recorded.

Conclusion

CTI is already producing a dramatically positive impact on organizations as they strive to improve business operations and meet the competitive demands of the 90s. Organizations with limited communications resources can utilize the functionality of the telephone to streamline their business processes and improve customer service. CTI allows for simplified data collection, reduces errors, provides 24/7 (24 hour/7 days a week) real time access to data, and improves communications with customers and employees. The technology-savvy, productive accountant will not only use this technology internally, but also recommend its usage to clients.

MCS is a Toronto-based systems integrator and value-added reseller with over 14 years of experience implementing customized accounting and networking solutions. MCS is allied with Halex Technology Consulting, Inc., to provide customized CTI and IVR solutions to its clients. Their web address is www.mcsmicrotec.com. IT

What Should I Do With All This Paper?

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documents residing in the system. The selection of the key field items for search and retrieval is a critical process requiring the time to ensure that those key fields are functional to all groups within the organization. A common error on the part of organizations is to automate their current paper filing structure. A study should first be conducted to assess the optimum key field structure for improved business workflow. In other words, the organization should conduct a study of its current paper filing process to determine if changes are needed to streamline and improve the organizations handling and storage of its paper documents. An important objective of the study is to determine how the organization can make the best use of the imaging technology under consideration. Most imaging software products today also allow for other types of electronic documents to be maintained and indexed in the same system, among them spreadsheets, presentation graphics, and word processing documents. These documents can be introduced into the system by manually entering in a document imaging index form corresponding to the particular document needed. The process provides users with a comprehensive desktop package containing all the necessary documents to perform daily activities throughout the office.

The organization needs to decide whether to simply store the text of the document or to store the document as an original image for the purposes of evidentiary data.

Optical Character Recognition (OCR)

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is the process of reading characters by analyzing scanned images of documents. The extracted information is then used to create computer-usable text. Once extracted, the data can then be formatted, as required for new and existing software applications (e.g., SQL database) and/or loaded on a Web page. A common scenario for using an imaging management software package would be to scan a paper document and then manually enter in key fields such as Name and SSN on an electronic form linked to this document (a method commonly used by image systems for search and retrieval purposes). If the documentation you handle is form based (e.g., tax forms, federal forms, or health claims), another method of indexing images would be to scan the document, use an OCR forms package to capture specific areas of information from the scanned form, and then create an ASCII file to automatically load the required key fields on the electronic form for that image. Needless to say, this process generates a significant savings in data entry time and accuracy. The organization needs to decide whether to simply store the text of the document (i.e. OCR scan and convert to text) or to store the document as an original image for the purposes of evidentiary data.

What files should be scanned into the imaging system? This is the $64,000 dollar question that all organizations should carefully consider before introducing a document imaging system into their work routine. The answer to this question is what we refer to as Backfile Conversion. There are three choices on how to handle emptying your organization's file cabinets into an imaging system.

- The first option is to start scanning activities from day one and leave older documents in their file folders. This choice, while the easiest as well as the cheapest, will not provide users with the most flexible means of accessing documents.
- The second option, called the partial backfile conversion, is to create a task force of key personnel from all the functional areas in the organization. These individuals would analyze the historical files to determine which documents will drop off due to retention expiration, and what files are used with the greatest frequency. They would then place these frequently used documents into workable groupings (e.g., calendar year) and keep the remaining documents in the file cabinets.
- The third option, if economically feasible, would be to scan in all documents that reside in the file cabinets. This option would provide the optimum functionality to the users of the system but would also be the most costly.

We have addressed paper documents to this point but, in a number of organizations, this would not cover all documentation maintained. Historical data is kept on paper and archived to microfilm or microfiche in many companies. There are scanners available that can handle both microfilm and microfiche media. Once documents have been scanned, the processes already addressed will work the same.

Backfile conversion can be performed internally or can be contracted out to a conversion bureau or business firm. We have found that contracting out this function makes good business sense for many organizations. One-time costs associated with backfile conversion projects include collecting and preparing the documents for conversion, hiring and/or training staff to operate imaging equipment, and purchasing equipment and software. Depending on the volume of documentation, quality of the originals, paper size, and texture of the pages, the conversion project could last several years—unless a large team of scanner operators is staffed to simultaneously process the paper or microfilm to images. Once this effort has been completed you may end up with a surplus of scanning software and equipment that will now collect dust, as well as a fully trained, but underutilized, conversion workforce. We have found that most organizations are better off contracting out most backfile conversion projects.

In recent years, conversion bureaus have become a viable and cost-effective service alternative to assist organizations in handling their volumes of paper. Conversion bureaus can handle high-volume scanning of microfilm, microfiche, or paper, as well as services related to OCR and verification of images. The cost of utilizing conversion bureau services varies and is dependent upon the volume; variety of paper (one-sided or double-sided, size, texture); preparation time to unfold or remove staples; level of accuracy desired; and schedule for completion. In most cases, the costs range from $.03/page to $.50/page.

This article discussed some of the technologies now available to implement document imaging in your organization. In addition, this article addressed some of the important issues associated with deciding which documents should be converted to digital images. There are other issues of equal importance to consider such as search and retrieval speed, permanency of documents, viewing rights to

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documents, and storage of the images. These points deserve attention when considering imaging technologies. Future articles will address these concerns in more detail. For those of us who still use paper documents extensively, these technologies will eventually dramatically change the way we handle documents.

Harvey G. Carroll, an imaging practice manager for Keane Federal Systems, Inc., provides imaging solutions, systems integration, and software development services for corporations and agencies in the greater Washington, DC, area. He can be reached at (301) 548–9160. M.G. Persh, CPA, a member of the AICPA Information Technology Practices Subcommittee and the former controller for Keane Federal Systems, Inc., contributed to this article. He can be reached at (703) 573–5050.

IT

FROM THE TAX ADVISOR

USE OF IMAGING SYSTEMS FOR RETENTION OF BOOKS AND RECORDS

Readers have asked for more tax-related technology articles. With thanks to our friends at *The Tax Adviser*, we are pleased to share with you the following article that was included in the November 1996 issue as part of the Tax Clinic.

Early this year, the IRS issued Notice 96-10 as a proposed revenue procedure that would allow taxpayers to use imaging systems (as an alternative to hard copy) to satisfy the recordkeeping required for federal tax purposes. The proposed revenue procedure would allow taxpayers an alternative to maintaining paper books and records to satisfy the recordkeeping required for federal tax purposes.

Sec. 6001 and Regs. Sec. 1.6001-1(a) require taxpayers to retain "such books and records, including inventories, as are sufficient to establish the amount of gross income, deductions, credits, or other matters required to be shown by such person in any return...." Regs. Sec. 1.6001-1(e) further requires that any books and records required to be maintained by Sec. 6001 must be "retained so long as the contents thereof may become material in the administration of any internal revenue law."

The proposed revenue procedure sets forth the requirements that a taxpayer's imaging system would have to meet to qualify as books and records within the meaning of Sec. 6001. Specifically, the imaging system must:

- Create accurate electronic images of hard copy documents.

Under the proposed procedure, taxpayers who conform with all of these requirements would no longer have to maintain and store paper books and records

- Index, store, preserve, retrieve and reproduce imaged documents.
- Include reasonable controls to ensure the integrity, accuracy and reliability of the imaging system and to prevent the unauthorized creation of, addition to, alteration of or deterioration of any imaged document.
- Be maintained under detailed written procedures readily available to the Service on request.
- Provide support for and be cross-referenced to the taxpayer's books and records.
- Create images and produce hard copies that exhibit a "high degree of legibility and readability."

The proposed procedure would also require taxpayers to retain imaged documents "until their contents are no longer material to the administration of the Internal Revenue laws" (Regs. Sec. 1.6001-1(e)). Taxpayers who use an imaging system must also provide the Service, either at the time of an audit or for periodic testing of the taxpayer's compliance with the revenue procedure, with the resources necessary for the IRS to promptly locate, retrieve, read, and reproduce on paper any imaged document. The district director's periodic testing of a taxpayer's imaging system would not constitute an "examination," "investigation," or "inspection" of the taxpayer's books and records within the meaning of Sec. 7605(b), and would not be a prior audit for purposes of Section 530 of the Revenue Act of 1978.

Under the proposed procedure, taxpayers who conform with all of these requirements would no longer have to maintain and store paper books and records. This could result in significant cost savings.

From Howard J. Berman, J.D., Arthur Anderson LLP New York, N.Y.; Ronald A. Stein, CPA, J.D., Arthur Anderson LLP Chicago, Ill.; and Thomas J. Gotliboski, CPA, J.D., Arthur Anderson LLP Houston, Tex.

IT

TECH TOOLS

PILOT BY U.S. ROBOTICS

By Bob Cuthbertson

Bob Cuthbertson is Vice President of Professional Services at the Canadian Institute of Chartered Accountants, is responsible for products and services developed for and marketed to members and other customers. These products and services include courses, conferences, publications, reference services, electronic infobases, self-study materials, and software. In this article, Bob offers us a users' report on a PDA that many practitioners have been giving more than a second look.

Years ago, when adding extra memory meant moving up to 256K, I heard a presentation from Mike Hammer (not the PI), now renowned as the guru of business reengineering, in which he discussed a variety of trends in technology. One of the points he made dealt with desktop organizers. He was firmly of the opinion that this was a totally useless product once you had moved two feet from your computer. Remember that computers, even so-called portables, were in the boat-anchor weight category. At the time, I agreed with him.

Later, when portables had evolved to weigh in at a mere 17 pounds (37 kg for the younger set), I had second thoughts. When Lotus introduced Organizer, with an interface that looked exactly like my paper-based day book, I was seduced.

But it still wasn't right. While I was at my desk, Organizer was great. It offered lots of advantages over a paper-based product—it never got smudged or eaten by the cat; you could link sections together, print address labels, and print off itineraries for the boss; and there was just as much satisfaction in completing a "to do," only the computer drew the line through the item. However, when I went to a meeting, went home, rode the subway or flew on an airplane, Organizer was useless and I reverted to my paper day book.

As technology progressed, and portables got lighter and used battery power effectively, my commitment to desktop organizers increased. Yet, I still had trouble taking my six-pound laptop to a meeting (let's face it, you look like a technonerd) and I sure didn't take it to lunch or fire it up on the subway. Up until a few months ago, I was still carrying a paper day book (admittedly bound in a really nice Cole Haan cover), to meetings and later, hopefully, transcribing all the appointments and to do's that arose out of them.

Late one night, leafing through a computer magazine (when you travel a lot, hotel rooms look a lot alike, and the only thing that can distinguish them is the freebies they provide: Hyatt provides *PC Computing*, a great bedtime read) In the course of my reading, I came across an ad for a product called "Pilot." From the pictures it looked like a Newton, but a lot smaller. I had already decided that a Newton wasn't going to work for me—I had narrowed my selection criteria for paper-based day books to something that would fit in a jacket pocket, and I planned to apply that criteria to any electronic replacement. This really looked like the answer for my problems, so with intensive research—I spent at least ten minutes on the USR web site— I made up my mind to get one.

The Plain Facts

Pilot is a handheld device that provides the common organizer functions—Date Book, Address Book, To Do List, Memo Pad, and Calculator. It supports handwriting recognition using the same Graffiti system used by the Newton, which involves somewhat weird but easy to learn, character formation. The Pilot also comes with a "stylus," a fancy name for a

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Pilot By U.S. Robotics

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plastic stick which acts as an interface with the main device. I'm sure a martini olive stick would work if you lose your stylus. Also provided is a "cradle," a soothing name for an electronic connection to your computer's serial port. This is where the Pilot really starts to make itself useful, because you also get a suite of desktop organizer functions which mirror those of the hand-held device. The Pilot also has the ability to assign passwords and hide entries as private. It runs for up to three months on AA batteries.

Specific Functions

All functions are accessible from buttons on the Pilot or from invoking the Applications icon on the screen—see photo on page 7.

Date Book

The Date Book includes the expected features that allow you to make appointments, set start and end times, set repeat values, create alarms for times or reminders for days (useful for anniversaries), and attach notes to further elaborate on the importance of the appointment you've just entered. You can display your appointments by day, or by week—where your prior commitments are displayed like bar graphs on a time scale. You can select a portion of the bar graph and go to the detailed description of the appointment.

Address Book

The Address Book provides you with the ability to enter addresses, phone numbers, and other information for your contacts. You have fields for up to five phone numbers—work, home, car, fax, pager, etc.—and e-mail addresses. You can choose which of these to display in the List view of the Address Book. Like appointments, you can attach a memo to any of your address entries and also assign them to groups.

To Do List

With this function, you can easily create a list of all the things you need to do, assign priorities, due dates, categories and, of course, attach a note to an individual entry for further description or clarification. You can choose to see only those items left to do, or sort them by priority or due date.

Memo Pad

This is a free-form database of the results of any of your brainstorms, or just a record of information you want to carry with you. You can use this function to quickly record information like phone numbers or to do's and later cut and paste the data into the appropriate section.

Find

You can use this feature to find a string of text in any of the Pilot applications. Need to know when you've scheduled your next visit the dentist? Use Find and you'll get the answer, plus you can Go To the Address function to get the phone number to cancel that appointment.

Calculator

This function allows your $399 Pilot to transform itself into a $9.95 calculator. At least you don't have to carry two electronic devices now. The cool thing is that you can use your fingers to enter numbers and functions!

INTELLISYNC FOR PILOT

By Puma Technologies

Say you don't like the interface that comes with the Pilot Desktop suite of applications. I didn't. I have been using Lotus Organizer for years, and what I wanted was seamless synchronization. This add-on product delivered what I needed. If you use Lotus Organizer, Day-Timer Organizer, MS Schedule +, Now Up-to-date for Windows or Windows 95, Sidekick 1.0, 2.0 or 95, then this is what you need to really make your Pilot an effective tool.

You can even synchronize your Pilot with multiple PC applications, although I think this is another one of those "Why would you do that? Because-it-can-be-done" features.

Setup is extremely easy and takes only a few minutes. There is some simple field matching required. You can also specify settings for conflict resolution—Pilot wins, PC app wins, put up a message, add or ignore.

When it's installed, IntelliSync just takes over the HotSync function from the Pilot. It works just the same as it did when you "synced" with the Pilot desktop applications, but instead it uses your chosen organizer to keep synchronized.

A few nitpicks. Support for Lotus Organizer is limited to Version 2.1, which is a lesser version than the one shipped on the Lotus SmartSuite CD. It's called 2.1s and won't work with IntelliSync. If you have implemented Lotus Organizer as a network application, forget using IntelliSync—it only supports single user installations. You could always have both versions installed and just copy your .org file to the single-user version for the purpose of synchronization, but that's not exactly seamless. It remains to be seen how quickly IntelliSync is updated for new versions of its supported software.

IntelliSync is available by phone order for $69.95 US. You can get more information from the Pilot web page on the U. S. Robotics site (http://www.usr.com).

Games

The Pilot comes with a fun game to teach you Graffiti skills. You can also download some other games from the USR website which have no educational value but are mildly amusing on long plane rides.

HotSync

This is the real beauty of the Pilot. All you do is rest it in its cradle and push the HotSync button and within seconds, your desktop is synchronized with your hand-held device. No transcribing or multi-stage exporting. It just works seamlessly. Of course, you have to like the Pilot desktop apps for this to work for you. There is nothing inherently wrong with them, but many organizations have standardized on other software and won't be happy with you if you choose to use something different. There is a solution for this dilemma (see sidebar on IntelliSync).

User Comments

The Pilot is light, friendly, and easy to work with and carry around. It meets my need of substituting for my desktop organizer while I'm away from my desktop. I was able to learn the Graffiti characters in a couple of hours, although I still have the Pilot-supplied cheat sheet for punctuation and accented characters glued to the back of my unit.

I invested in a number of accessories for my Pilot—some worthwhile, some less so. I bought an extra cradle for the extra laptop docking station I have at home. I bought a cable to connect the Pilot to my serial port directly, for traveling. These were worthwhile. I bought a leather carrying case—a waste of money, since it adds to the Pilot's bulk and doesn't come close to the quality of my Cole Haan day book. I got an extra "Stylus" for registering my Pilot—see above comment re: martini olive sticks.

The Pilot has no communications abilities other than connecting over a modem to achieve synchronization. This is the biggest shortcoming of products like the Newton. On the other hand, it's a lot smaller and when I need to communicate I usually have my laptop with me. (Ever wonder how those Newton users could send faxes when they were in the middle of nowhere, with no available cellular connection? The power of advertising!)

If you want to get a good feel for how the Pilot works, you can download a demo from the U. S. Robotics site, www.usr.com, that very effectively simulates the workings of the product. Be forewarned that the download is a big one, but if you're considering a purchase, it's worthwhile.

In summary, the Pilot was a good investment for me. What made it a *great* investment was a software product called IntelliSync. See Sidebar on page 8.

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IT

FURTHER ENHANCEMENTS PLANNED FOR PILOT

Trade publications have reported that U.S. Robotics is planning to turn the Palm Pilot Organizer into an enterprise productivity tool by adding an e-mail client, TCP/IP support and network synchronization capabilities.

Anticipated in early spring, the company plans to release two new hand-held models, a professional edition equipped with e-mail capabilities and TCP/IP support for Internet access, as well as a low-end personal edition that supports as many as 2,500 addresses. The professional edition is anticipated to weigh-in at 5.5 ounces and carry a suggested price of $399, including both TCP/IP support and a built-in e-mail application that lets Pilot users read, delete, reply, forward and send messages, and then to synchronize those messages with desktop-based e-mail packages. Additionally, the unit is designed to support as many as 4,000 addresses, 2,400 appointments, 750 to-do items, 750 memos, and 100 e-mail messages. The low-end personal edition, priced at $299, includes support for 2,500 addresses, 2,400 appointments, 500 to-do items, and 500 memos. Both devices will utilize backlit LCD screens, PalmPilot 2.0 software, and an application for tracking expenses that synchronizes with Microsoft Excel ©. In addition, U.S. Robotics plans to offer a Network HotSync software add-on application that provides remote data synchronization over any TCP/IP network. You can get the most recent information on these enhancements and more at the U.S. Robotics web site. (www.usr.com)

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INFOTECH UPDATE

Fall 1995 through Nov/Dec 1996

As you may recall, we modified the publication schedule of ITU during the past year. We now publish bi-monthly and hence refer to each issue using the months rather than the seasons. This index offers a list of articles presented over the following issues: Fall 1995, Winter 1996, May/June 96, July/August 96, September/October 96, and November/December 96.

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IT

CPA COMPUTER REPORT DISCOUNT EXTENDED THROUGH MAY 15, 1997

In a member benefit mailing that included the CD-ROM version of *Computer Desktop Encyclopedia*, AICPA Information Technology Section Members received an offer for a discounted subscription to Franklynn Peterson's *CPA Computer Report*. While the order form indicated the offer expired 2/28/97, we are pleased to inform you that you have until May 15, 1997, to take advantage of this offer. IT Section members can subscribe at a rate of $120/yr. This is a discount of over 35% off the regular subscription rate of $189/yr. If you misplaced the sample newsletter with the order form, please call (212) 596-6211 and we will gladly send you another offer.

HARDWARE UPGRADES

MMX EXTENDS THE DESKTOP

By Christopher J. Leach, CPA

Chris is the owner of Leach Consulting and Accounting in San Diego, CA and also serves as chair of the AICPA Information Technology Practices Subcommittee. In this article, Chris discusses the MMX chip that is bidding up the cost of new PCs. He offers a way for you to evaluate whether or not your next PC should incorporate this new technology.

An Overview of the Technology

On the heels of the Pentium Pro, Intel and other chip manufacturers have designed another processor which has a lot of promise - the MMX chip. Without getting too technical, the MMX instructions use a technique called "single-instruction multiple-data," or SIMD, which allows the CPU to operate on two, four, or even eight data elements at the same time, without any speed degradation.

According to sources at Intel, MMX is not an acronym, however it is not inconceivable that it did stand for MultiMedia eXtension at some point in time, for this is exactly what the MMX chip is best at doing. This processor represents the first major change to Intel's x86 architecture since the advent of the 386 chip over a decade ago. The chip consists of a new set of instructions designed to enrich and accelerate the multimedia and communications capability of the PC. Designed with the home user and Internet surfer in mind, the MMX chip is getting a lot of praise from software developers.

Decisions, Decisions

It's hard not to be optimistic about the MMX chip. Anything that pushes the boundaries of classical computing architecture is a good thing. The real question, however, is: What exactly does this mean to the business user? For the typical business user, MMX has few performance benefits. Looking forward toward the office of the future, however, multimedia will be a critical application. Communications, and specifically the Internet, are an important link to clients and information. With this in mind, it would seem that a move to MMX technology would be the best way to go.

Designed with the home user and Internet surfer in mind, the MMX chip is getting a lot of praise from software developers

Of course, the MMX architecture is still backward compatible with everything that preceded it, so you will still be able to run all that software you've amassed over the years, and you won't have to start from scratch. Since the main areas where performance will be improved is in shifting graphics and sounds around the screen, it is the games companies who seem to be the key targets for bringing this technology to the mass market.

Looking back on the introduction of similar power improvements in the past, it would be naive to suggest that consumers will ignore the innovations and stick with what they've already got. Intel is neither alone in this optimism, nor is it keeping the architecture to itself. Both Cyrix and AMD will also be producing their fully compatible versions, which is good sign for the consumer, as the competition should keep prices low. Intel's idea of a good price for hardware incorporating the MMX chips is the same as the current price of Pentiums.

The Bottom Line

Given all of the discussion about the advanced capabilities of the MMX chip, it is important to consider the following points before you rush out and acquire this new technology:

- Price point is likely to be higher
- Since it is a new product, there is a HIGH chance for as-yet undiscovered bugs
- The CPU will NOT fit in a standard CPU socket. That means for users who plan to upgrade either the purchase of a new mother board, or checking out 3rd party manufactures like Concept Manufacturing (www.conceptmfg.com) in Redwood City, CA. This company makes an adapter which will overcome this hurdle.

Still unsure? There is risk in any business decision. Technology continues to move at an ever-increasing rate. We are all going to get a nick here or there while sitting on the cutting edge of technology, but we believe the benefits far outweigh the risks. IT

INFORMATION TECHNOLOGY CONFERENCE

May 13, 1997,

in New Orleans!!

"Tune Up Your Technology Skills" is the theme for the one-day Information Technology Conference that will precede this year's AICPA Spring Industry Conference. A popular feature of the Conference is the session on the Top 10 Technologies of 1997 and how they affect industries and businesses.

Other sessions will discuss the Internet and Intranet, computer security, electronic commerce, and the programming nightmare scheduled for 12:01 am., January 1, 2000, when many computers will read 1900.

On Wednesday evening, May 14, 1997, there will be a Mardi Gras Reception for all the Spring National Industry Conference participants and their spouses, featuring sumptuous New Orleans cuisine and music.

The registration fee for the Spring Industry Conference is $650 and $295 for the one-day Information Technology Conference. Early-bird, team, and combination discounts are available. Information Technology Section Members save an additional $25 off the lowest applicable IT Conference Registration Fee.

For a brochure and/or more information on the conferences and registration, call toll-free: 800/862–4272

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