NO HABLO ASCII!

(Draft)

by Christine M. Gianone, New York City

As "proprietor" of the non-proprietary Kermit file transfer protocol, I have travelled to Europe, Asia, and the USSR in recent years to conduct seminars and workshops for Kermit users and developers. I have come to realize that the great computer marketplace of the West -- the United States, Canada, Great Britain, Australia -- has placed an onerous burden on the rest of the world: "Compute in English!" (or, perhaps more to the point, "Compute in ASCII!... or sometimes EBCDIC!"). This kind of thinking is ironic when many of us don't have to cross any borders to deal with other languages -- just walk down any street in New York City.

No doubt it will be many years until the operating systems and user interfaces of the dominant computers speak to users in their own languages. In my experience, most computer users in other lands are not terribly concerned about this. But what they are concerned about is the ability to create documents -- text, reports, electronic mail, database entries, contracts, technical manuals -- in their own languages. For almost any language other than English, this requires the computer to support "special characters" -- accented vowels and so forth. For languages like Russian, Arabic, Greek, Hebrew, or Cherokee an entirely different alphabet is required. For Japanese, Chinese, or Korean, the computer must have a repertoire of thousands of ideograms.

Many computer manufacturers have begun to provide these capabilities to their international customers. A PC's screen can display the required characters, its printer can print them, and there is often some arcane method by which the user can actually key them in ("Hold down the Alt key and type three digits representing the decimal code for the character..."). These companies even make special "national" versions of their products for each country. For example, a Portuguese version of a PC might include keys for the Portuguese special characters -- n~ (the tilde goes on top of the n, not next to it), accented vowels, upside-down question and exclamation marks, etc -- as well as versions of these characters in the PC's character-generation ROM. With any luck, these characters will also appear correctly when sent to a locally attached printer.

So far so good. But what happens when there is a need to share this international text? Suppose, for example, a Portuguese PC user creates a file on her Portuguese PC, writes it onto a disk, and mails the disk to a branch office in Norway, where there are Norwegian-version PCs -- same manufacturer, same PC model, just different national versions? Many of the special characters will be misinterpreted by the Norwegian-version PC. For example, the Portuguese uppercase O with tilde will become a Norwegian umlaut-O. An uppercase O with grave accent will become an upper-left-corner box-drawing character. And so on.

Now what happens if this same file is transferred (somehow) to a computer from another manufacturer? In all likelihood, the results will be even worse: although national and international standards bodies have produced a series of standard character sets, very few manufacturers use them. Instead, each manufacturer has its own private method of encoding "special" characters, each incompatible with the other.

To make matters worse, very few computer file systems include any kind of identification for which character set was used in creating a particular file. So if a computer supports several different character sets -- as many do -- it is incumbent upon the user to remember which one was used for which file.

That's not all. With the incredibly sophisticated technology at our disposal today, what prevents us from creating documents that contain a mixture of

languages? I don't mean just German, French, and Spanish -- we can do that now -- but Greek, Hebrew, Icelandic, Russian, Japanese? Suppose, for example, I have a business with an international clientele. Shouldn't I be able to represent their names and addresses correctly in my customer database, and print them correctly on my mailing labels, and spell their names right in my boilerplate letters? Today, unless I buy an expensive, proprietary "multilingual" PC software package, I'm out of luck. Even if I do this, the files I create with it will be incompatible with every other application on the same computer, let alone other computers!

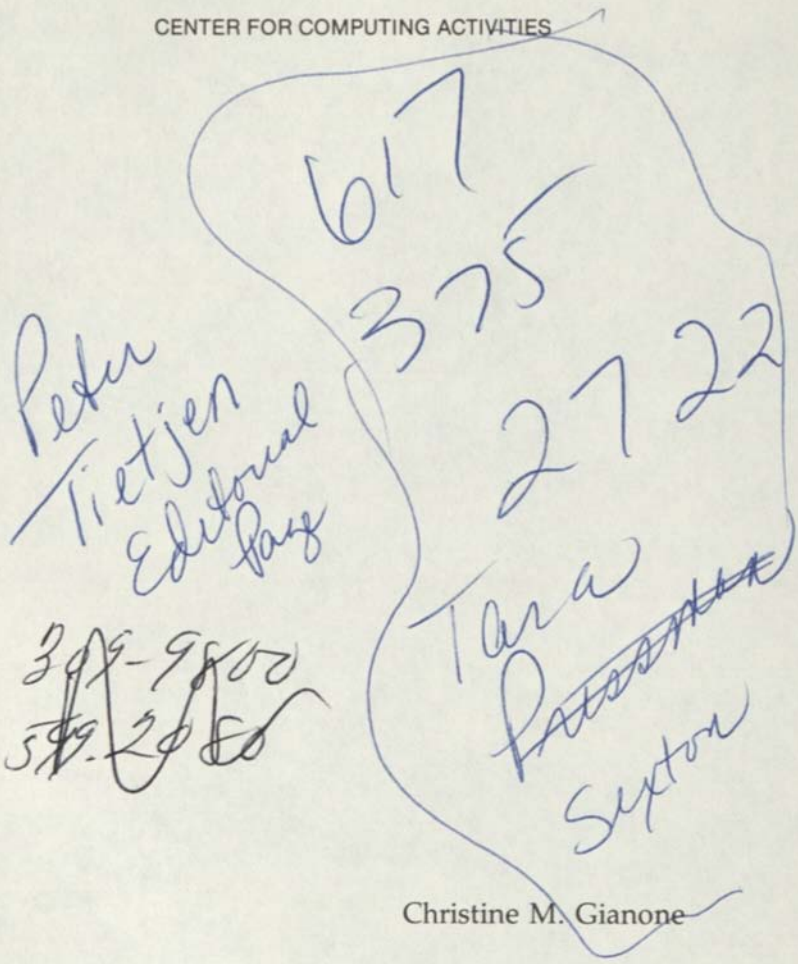
The Kermit file transfer protocol has recently been extended to allow text files in a variety of languages and character sets to be transferred between unlike computers. Kermit will use ISO and other standard character sets for transmission of textual data, converting to and from each computer's local, private character codes. But to make effective use of Kermit's new ability, users will often be required to specify manually which character set or sets have been used to encode each file -- a painful and error-prone process! Why? Because most computer file systems do not record this sort of information.

An explosion in demand for international computing and data communication is inevitable. How can we prepare for it? The answer comes in two parts. First, computer manufacturers must give their customers the ability to create files in different languages. Many have done this already. Second, files created on these computers must be marked according to the character sets used. This will allow computer applications -- including data communication software -- to correctly interpret the characters within each file.

If these steps are followed, then many of the needs of the international marketplace will be met, and -- perhaps more important -- it will become possible for reliable, automated procedures to interchange text in all languages between computers of all makers, in our own country and in all countries of the world.

COLUMBIA UNIVERSITY

CENTER FOR COMPUTING ACTIVITIES



Christine M. Gianone

Here is a short article that can go into the "opinion" section of a magazine or newspaper. I'd recommend one of the prestige, large-circulation publications. I don't know if they pay for this sort of thing, but even if they did, it wouldn't be much because it's so short, so it doesn't matter.

The way it's written now, it doesn't mention any names at all -- no IBM, no Apple, no DEC, etc. But if they want, it can be rewritten to be a lot more specific about that kind of stuff.

Here's who I think you should call, in order of preference:

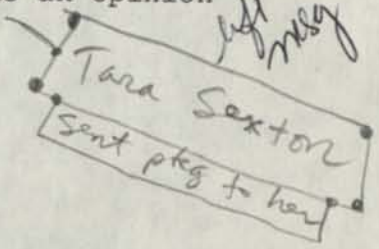
1. Elisabeth Horwitt, Senior Editor (Data Communications), Computerworld (weekly newspaper). Phone ~~617~~-879-0700 x358 (at least that was her number 2 years ago). She published our article "Kermit Leaps in Popularity" in the February 16, 1987, issue of Computerworld, and Computerworld often publishes opinion columns. Circulation is over 100,000. We sent her a press release.

2. David R. Brousell, Executive Editor, Datamation Magazine, ~~249 W. 17th Street, New York, NY 10011~~ 275 Washington St. Newton MA 02158. Phone 617-964-3030. Datamation is the oldest and biggest computer trade magazine, and has an "Opinion" column. They have published several of our press releases in the past. Might be hard to get to Brousell, because he's at the top. We did send him a press release, though. You can also try Marsha Fisher, Section Editor, who wrote the most recent opinion column.

3. Steve Moore, Network World, Box 9171, 375 Cochituate Road, Framingham, MA, 01701-9171, phone 508-820-2543, x732. The press release was sent to Bruce Hoard, editor, but I just found out that there's a new editor, John Gallant, oops. Anyway, this is the top telecommunications and networking weekly newspaper, and they actively solicit people to send them guest columns for their opinion page.

4. ~~Don Steinberg~~ Somebody Steve Higgins - Pals at PC Week. He's big on Kermit, and we sent him a press release. Try calling him at 617-375-4081. PC Week also has an opinion column. — also editorial editor Peter Tietjen

5. If none of these are interested, I'll dig up some others...



P.S. - A good thing to say:

Contrary to popular belief, Kermit isn't used only in academia. In fact, we have shipped Kermit to XX% of the Fortune 500 companies, which isn't bad considering we're not a software company and don't advertise at all!

cmags

(Bits) Re-send news release. Not opinion column.

Thanks the more than one person re-send news release

~~COMPUTING BEYOND ASCII...~~ ¿HABLA USTED ASCII?

(Draft)

by Christine M. Gianone, New York City NO HABLO ASCII!

As "proprietor" of the non-proprietary Kermit file transfer protocol, I have travelled to Europe, Asia, and the USSR in recent years to conduct seminars and workshops for Kermit users and developers. I have come to realize that the great computer marketplace of the West -- the United States, Canada, Great Britain, Australia -- has placed an onerous burden on the rest of the world: "Compute in English!" (or, perhaps more to the point, "Compute in ASCII!... or sometimes EBCDIC!"). This kind of thinking ~~is ironic when many~~ of us don't have to cross ~~any~~ borders ~~to~~ or deal with other languages, comes naturally to those but times are changing.

No doubt it will be many years until the operating systems and user interfaces of the dominant computers speak to users in their own languages. In my experience, most computer users in other lands are not terribly concerned about this. But what they are concerned about is the ability to create documents -- text, reports, electronic mail, database entries, contracts, technical manuals -- in their own languages. For almost any language other than English, this requires the computer to support "special characters" -- accented vowels and so forth. For languages like Russian, Arabic, Greek, Hebrew, or Cherokee an entirely different alphabet is required. For Japanese, Chinese, or Korean, the computer must have a repertoire of thousands of ideograms.

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To make matters worse, very few computer file systems include any kind of identification for which character set was used in creating a particular file. So if a computer supports several different character sets -- as many do -- it is incumbent upon the user to remember which one was used for which file.

That's not all. With the incredibly sophisticated technology at our disposal today, what prevents us from creating documents that contain a mixture of languages? I don't mean just German, French, and Spanish -- we can do that

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An explosion in demand for international computing and data communication is inevitable. How can we prepare for it? The answer comes in two parts. First, computer manufacturers must ~~provide their~~ give their customers ~~with~~ the ability to create files in different languages. Many have done this already. Second, files created on these computers must be marked according to the character sets used. This will allow computer applications -- including data communication software -- to correctly interpret the characters within each file.

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INTERNATIONAL COMPUTING???

by Christine M. Gianone, New York City

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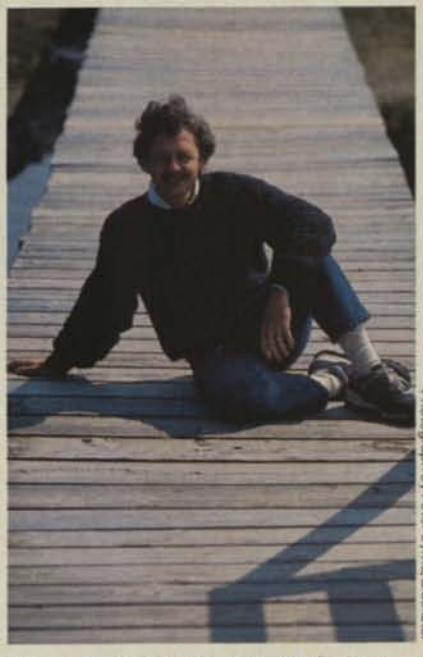
I predict there will be an explosion in demand for international computing and data communication. How can we prepare for it? The answer comes in two parts. First, computer manufacturers must provide their customers with the ability to create files in different languages. Many have done this already. Second, files created on these computers must be marked according to the character sets used. This will allow computer applications -- including data communication software -- to correctly interpret the characters within each file.

If these steps are followed, then many of the needs of the international marketplace will be met, and -- perhaps more important -- it will become possible for reliable, automated procedures to interchange text in all languages between computers of all makers, in all countries. And this will truly make the world a smaller place.

The Spread of the Entrepreneurial Spirit

There's nothing quite like the power of an idea. An idea can neither be confined nor possessed. It has no sense of loyalty. And it cannot experience pleasure or pain. But when an idea takes hold in the minds of people, it can become more powerful than an atomic bomb, with consequences even more far reaching. Just witness what the idea of freedom has meant, and how as you read this it is changing cultures, political systems, even whole nations. Recent events in the Soviet Union are a case in point.

In our industry, the idea is spreading that the information systems function can do more than it has before. And if what we've seen so far is any indication, that idea is spreading fast. The "more" in this instance is selling the accumulated expertise of a company's internal IS organization on the open market. Whether it is incorporated in software or a service like facilities management, this expertise is being leveraged by IS departments any way they can.



Photograph by Peter Sylva/Blackstar

SENIOR WRITER CARLYLE: Probing the spirit of entrepreneurial IS managers

But the reasons that IS executives get into the business of selling IS expertise are certainly not monolithic. As senior writer Ralph Emmett Carlyle writes in this issue's cover story, "The Selling of IS," page 22, "For some, they are just techies: amateurs playing business games. . . . For others, they personify a trend in which centers of innovation have shifted from vendors to customers and are seen as a vital link in the industry's evolution. . ."

For Carlyle, who has been writing about information systems in DATAMATION for 13 years, the trend provides an opportunity to offer insights about the changing nature of the IS function and the role of the people running it. Solving problems may be rewarding, he says, but there are other motivations as well. Using IS to generate revenue and profit for a company, and therefore changing the perception that the IS organization is solely a cost center, is also a powerful idea.

Carlyle is quick to point out, however, that sometimes the rush to embrace the entrepreneurial spirit can be a reaction to reversals in a company's core business or a result of the industry's downsizing trend. Moreover, such a new role may not be easy to manage, particularly if a company runs the risk of selling expertise that has served to differentiate it from its competition.

CASE and Spreadsheets

Much has been written about the need for and benefits of computer-aided software engineering (CASE), but a recent University of Houston survey homes in on the actual effect CASE has on programmer productivity. Based on a survey of actual usage at 12 companies, our article, "Reaping CASE Harvests," page 31, tells where CASE has been effective and what the training and implementation challenges are for this important technology.

David R. Brousell, Executive Editor

DATAMATION

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Blank Stares At Blank Pages

At the risk of sounding like the DATAMATION version of "60 Minutes' " Andy Rooney, I would like to pose a question to printer manufacturers that has burned in my mind for some time now.

Why is it, with all of the brilliant intellects at work in the computer industry, that no one has been able to engineer a continuous feed printer that does not waste one sheet of paper for every sheet it prints?

I can't count the number of times, printing out letters on not-inexpensive DATAMATION stationery, that my hackles have been raised upon having to toss out at least one blank page. After the first few encounters with this frustration, I recall asking whether we shouldn't perhaps save the cast-off stationery for that endangered species, the typewritten letter. The editorial assistant said, yes, that was a good idea, but one that already had been tried. The castoffs just piled up too quickly, she said; no one used them, and eventually they were just thrown out. Nevertheless, I tried saving them for a while and promptly discovered that she was right.

Since flinging epithets at the innocent printer seemed a dead-end way to deal

with the problem, I decided to talk to some of the responsible parties. Incredibly, posing the question to a few representatives from Hewlett-Packard Co. got blank stares and stammered nonresponses. They seemed to think I was joking. But they didn't say it couldn't be done.

Granted, the notion is out of the ordinary. The way continuous feed printers operate would seem, on the surface, to be one of those trivial facts of computing life that is not worth noticing. In fact, however, it cannot be doubted that any corporation would be shocked to discover the amount and cost of unused paper discarded from all of its continuous feed printers.

Given the never-ending search for cost-cutting measures and greater efficiency in corporations, I cannot understand why users have not pressured manufacturers to end this obvious source of waste. It must be because such an endeavor, if an IS manager were to consider it, would fall into the category of All Those Things I Should Do but Will Never Have the Time For.

The printer manufacturer that undertakes to change this situation could reap substantial benefits. In intangible terms, such a company would surely generate goodwill among potential customers by lending credence to the axiom that computers increase an organization's efficiency, not to mention helping to conserve natural resources. In tangible terms, building a continuous feed printer that did not waste paper certainly would sell better than one that does.

With all of this, would it be too much to expect that a printer manufacturer might take it upon itself to end such an embarrassment to the industry? I certainly couldn't answer that, but let's just say I'm not holding my breath until it happens.

—Marsha J. Fisher, Section Editor

PLANNER

JULY

SIGGRAPH '89 Traveling Art Show
Through Sept. 5, Boston. Contact Gail Jennes, The Computer Museum, Museum Wharf, 300 Congress Street, Boston, MA 02210, (617)-426-2800.

National Conference on Methodologies and Tools for Real-Time Systems
July 17–18, Arlington, Va. Contact Adrien Meskin, The National Institute for Software Quality & Productivity, P.O. Box 70555, Washington, D.C. 20088, (301)-498-8200, ext. 114.

16th Annual Conference & Exhibition on Computer Graphics and Interactive Techniques (SIGGRAPH '89)
July 30–Aug. 4, Boston. Contact Chris Herot, Javelin Software Corp., 1 Kendall Square, Building 200, Cambridge, MA 02139, (617)-494-4842.

Database '89
July 31–Aug. 2, San Francisco. Contact Sales Office, Digital Consulting Inc., 6 Windsor Street, Andover, MA 01810, (508)-470-3880, fax (508)-470-0526.

AUGUST

International Symposium on Telecommunication in Education (ISTE)
Aug. 21–24, Jerusalem. Contact ISTE Symposium Secretariat, C/O International Ltd., P.O. Box 29313, 65121 Tel-Aviv, Israel, 03-654548/9/0, fax 972/3-660604.

UniForum Regional '89
Aug. 22–24, Boston. Contact Heidi Thorne, Professional Exposition Management Co., 2400 East Devon, Suite 205, Des Plaines, IL 60018, (800)-323-5155, fax (312)-299-1349.

XI World Computer Congress '89
Aug. 28–Sept. 1, San Francisco. Contact Stephen Yau, Organizing Committee, University of Florida, CIS Department, Room 301, Gainesville, FL 32611, (904)-335-8006.

As the U.S. Economy Slows, What's Going To Happen to Technology Prices?

Potential buyers of new information systems may be getting confusing signs from the economy and industry.

BY MADELINE FRANCHI

Do you remember stagflation? That economic relic of the 1970s, when U.S. economic growth slowed while inflation accelerated, is back—to hardly anyone's surprise. It almost always happens at the tail end of an economic expansion. Growth rates begin to slow down. But previous activity has generated price increases, which take a year or two to work their way through the system.

This time, however, buyers of information systems may feel as if they're experiencing the effects of stagflation for the first time ever. Prices of systems aren't exactly on their way up; they're just not dropping as fast as they did in past years. In fact, prices of computers are hardly dropping at all, annually. But that borders on inflation for customers used to paying 15 to 20% less each year for their organizations' systems.

In the general U.S. economy, both producer and consumer prices have increased more than 5% over the past year.

The Federal Reserve's effort to contain inflation has resulted in higher interest rates in the United States. If you're part of a U.S. company or agency, you no doubt have felt the pinch of higher interest rates making your borrowing and leasing costs more expensive. The Fed has been steadily pushing up the federal funds rate—the rate that member banks charge each other for short-term loans—in an effort to cool inflation. With their costs of funds rising, banks have been passing along higher rates to borrowers. This credit tightening has resulted in a three-percentage-point increase in the prime rate from February 1988 to May 1989.

With the U.S. economy showing signs of finally slowing down, inflation is expected to abate. The consumer price index is forecast to rise merely 3.6% next year. The Fed is now expected to ease pressure on interest rates. Cahners Economics anticipates that interest rates will begin to decline as early as next month—for the first time since the October 1987 stock market crash. By the end of this year, the prime rate is forecast to be down to about 11% and then drop to near 9% by year-end 1990.

So if your organization's business strategy calls for borrowing funds to purchase or lease computer equipment, you might get better credit terms if you can delay action until next year.

In the meantime, what is going to happen to prices of systems? According to data from the U.S. Commerce Department, prices of computers and office equipment remained relatively stable over the past several quarters, though still lower than they were last year at this time. Such stability is unusual for an industry that has typically experienced steady price declines on the heels of advances in microprocessor-based technologies. The cost of materials, notably semiconductor memory chips, is one factor keeping computer prices in a holding pattern now. Cahners Economics expects much the same for next year, with computer prices dropping barely 3%.

Communications prices, however, are continuing to rise—albeit modestly. During the second quarter of this year, the price indicator for communications equipment was about 4% higher than it was in the same quarter of 1988. This hike was in line with the producer price increase of the general U.S. economy. Expect a steady inflationary climb of 2 to 4% in prices of communications equipment over the next two years.

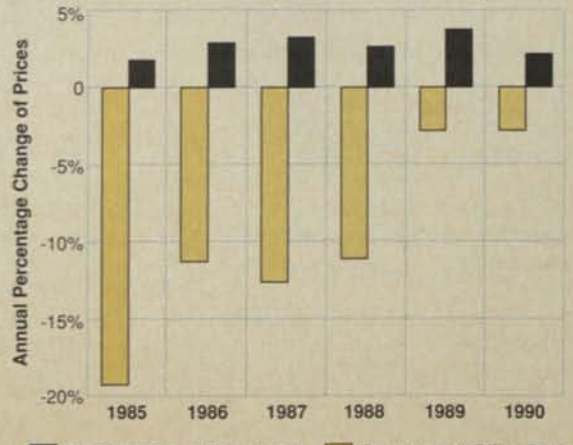
The Right Time to Borrow

Lower interest rates are coming, so postpone major loan and leasing activity.

Source: Federal Reserve Board; Forecasts: Cahners Economics

The IS Pricing Game

Bet on CPU prices to go down slightly, and count on communications gear to cost more.



Source: U.S. Commerce Department.; Forecasts: Cahners Economics

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HAVE YOU FOUND CRYSTAL GAZING and palm reading to be about as much help in managing your network as the vendor support you've been getting? Well, let us hear about it! Send us a guest column for *Network World*'s Opinions pages.

Columns should be timely, opinionated, literate, thoughtful and accurate.

Manuscripts should be letter-quality, double-spaced and between 600 and 900 words in length. Disk or modem submissions are preferred.

If you'd like to write a column, call Steve Moore, features editor, at (508) 820-2543, ext. 732 or fax your idea to us at (508) 879-3167.

Oops! I don't see Don Steinberg... Maybe try one of these guys

OPINION

LETTERS

SAMSUNG'S 386 SERVERS

To the Editor:

In the May 29 issue of PC Week (Page 37) is an article titled "NetWare 386 Buyers Face a Thorny Migration Path" that discusses how Novell's 386 NetWare will be supported by third-party vendors.

The article, unfortunately, leaves the reader with the wrong impression regarding what file-server products are compatible with NetWare 386. On Page 44, the article states, "The new NetWare has only been tested to run on Novell's own 386 servers (which are no longer being manufactured), Compaq's Deskpro 386 and IBM's 386-based PS/2 models. Most of Novell's customers with 386 servers use one of those brands."

Samsung Information Systems manufactures, markets and sells Novell's 386 file-server products. Currently, Novell and Samsung are co-labeling the 386 AE file server. This co-labeling agreement occurred when Novell left the hardware world in August 1988.

Moreover, Samsung has always been the manufacturer of the product, not Novell.

Tom Quinn, senior vice president
Samsung Information Systems
San Jose, Calif.

PEST CONTROL

To the Editor:

No one is in favor of buggy software (Editorial, PC Week, June 12). For nine years, we have advised our clients to follow the consultant's maxim: Never buy anything with a low serial number. With the increasing complexity of serial numbers, we have updated that advice to include most version 1.0 software.

We do not object to PC Week reporting bugs in dBASE IV. However, we do object to your apparent endemic practice of conveniently ignoring the numerous bugs in competing products, including Paradox 3.0, R:base for DOS 2.11 and Oracle, especially the PC version.

Based on this analysis, I advised Ed Esber and Luther Nussbaum to simply make Ashton-Tate the second-largest PC database company. I believe their problems with the press would vanish if that happened.

Tony Lima, president
Pacific System Design Workshop Inc.
San Carlos, Calif.

The Case of the Computer's Cluttered Hard Disk

A Gumshoe with an Itchy Keyboard Finger Takes on the Problem

By Max McMillen

It was a slow day at the Chandler Computer Aid Agency. I was just kicking back with my feet up on the desk when I heard something outside the door.

I looked up and, through the frosted glass, I could see someone checking the name on the door against a piece of paper in her hand. She hesitated before knocking.

I invited her in, but she stood in the doorway for a moment with the dingy hall light behind her.

She threw a glance over her shoulder as she closed the door. In a husky voice she asked, "Is this the Chandler Computer Aid Agency?"

"You can read, sister. Your computer is my next job."

"I need complete discretion," she rasped.

"Look, lady, no one comes to this seedy part of town for computer aid unless they need discretion. Just spill the chips, and let's get to work."

A door slammed downstairs, and she jumped in fear. She was a microchip away from a crash. I could see she needed help badly, but getting her to boot up was going to be like loading software.

"I have to go," she said, as she sidled up to the window and looked out to the street below.

"Here's an advance," she said. "There's more under the keyboard at the address inside the envelope. Get the system working, and it's yours."

She turned to the door.

"Lady, I need to know who I'm working for and what I'm doing."

"I thought you said you were discreet."

"I can keep a secret, but I don't work for nobody without a moniker."

"Susan Smith."

She knew I knew it was a lie. But we both knew I wouldn't pursue it.

"The computer's acting up," she said. "It won't do the word processing my husband needs done. I'm here because my friend, who's an expert, is out of town."

"OK, Susan, when can I start?"

"Tonight, at midnight. Come and whistle by the juniper tree. You know how to whistle, don't you?"

With that, she disappeared out the door.

A whistle escaped my lips as I opened the envelope. This client had an address as high class as the hat on her head. I figured she must be in deep trouble to come to my neck of the woods for help, but the rent was due, and I decided to take the job.

I went to the movie theater down the street to waste some time.

Afterward, I stopped at my favorite taco stand and ordered six tacos.

Then I walked to the street corner to catch the bus. I was going to be early, but the buses wouldn't be running that late.

The neighborhood was as highfalutin as I expected. I decided to lay low for a couple of hours, counting the Cadillacs that rolled by. I thought I'd check out the place, find a few quick getaways, just in case.

Someday, someone may come along and decide to make use of those files, but my client sure didn't need them.

Around midnight, I found the juniper tree and let out a whistle.

Except for the porch light, the house was dark. I began to wonder what I had gotten myself into when the back door opened and a ghostly figure stepped onto the porch.

"This way," she whispered. "Hurry."

I followed her through the kitchen and up the stairs to the fanciest home office I'd ever laid eyes on.

She turned on the desk light and the computer.

"A friend of mine was here this afternoon. He worked on it for a while, but it still isn't right. He installed a program he said would make things easier for me."

"Oh yeah? Well, let's just take a look."

"I'll leave you here for a while. My husband's expecting me."

I turned to the computer and thought about the job at hand.

At C>, I did a directory and the screen scrolled about 300 files. For someone who needed simple word processing, this computer had more files than a corns-and-calluses clinic.

I had a similar case last year in which some "experts" had enhanced a computer with a lot of programs for making things easier.

Yeah, a whole lot easier. Just like now, all it had done was confuse the poor soul who was trying to work on it.

I printed out the directory and tried to decide where to begin.

My client had subdirectories for three different word processors, but when I looked, the directories were empty.

She had a menu program and a file-management program that someone had overridden.

The file-management program was being used only to highlight files in the word processor.

As I looked, I realized a couple of versions of DOS had been installed at one time or another, and none was recent.

These computer geniuses had updated and altered the hard disk, made it "easier," "faster" and "better," but none of them had ever cleaned it up or listened to what my client really needed.

I began by making subdirectories for all the programs I could identify. Then I began deleting directories for the programs that didn't exist.

I installed an updated DOS version and deleted all the old DOS files. I organized working files into subdirectories in the word-processing directory. Soon the root directory was down to 15 files, and the thought of a hefty retainer took wing faster than the Spruce Goose.

As the sky began to lighten with the dawn's early light, I neared the end of my job. There was still a lot of "junk" on this hard disk, but at least it was organized.

Someday, someone might come along and decide to make use of all those programs and files, but my soon-to-be-former client didn't need them.

I gathered up the envelope under the keyboard, turned the system off and beat it down the stairs and out the back door.

The buses would be running soon, and a brisk walk in the dawn air would do my tired head some good. ■

Max McMillen is a producer's assistant in Los Angeles and a computer consultant to the entertainment industry.

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