

# *Windo Watch*



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JANUARY 1996

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*The Anniversary Issue*

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Take No Prisoners © 1996 by Leonard Grossman

There is a fire growing in my stomach!

Reagan's brilliant stroke must have us all tongue tied. In the face of the most demeaning action by Congress in the history of the civil service, we remain silent.

When they sent us home in November, I wasn't pleased, but I made the best of it. Each day I did something special, something I couldn't have done otherwise--visited a friend in the hospital, spent a day with a retired friend who had returned to the mid-west from Florida. I thought I had a good attitude.

If this is what retirement is like, I thought, I can't wait, - so what if I've got fourteen years to go. But this time it's different. I never believed it would happen again. After all.. who has any thing to gain? Won't everyone lose?

I log on the usenet and grab the clari.gov.policy.financial news every hour... hoping for good news. I try to be adult and sophisticated about this, but my mood swings with each announcement .... and it hasn't swung much for over a week. It just goes on and on. . .

It reminds of something I learned in my teaching days. Never make a threat you don't want to fulfill. Here they threatened to send us home... now they can't get out of it. Who can give in? We are not in Japan, but so much is face.

It also reminds me of my early days as a teacher in other ways. In the late 60's the Chicago teachers struck for the first time. It was over quickly. Before that the mere threat of a lengthy strike made the city quake. Then we went on a longer strike. The unthinkable occurred and yet the city survived. After that each strike was longer. An unspoken compact had been broken, yet the world did not end.

And the same is happening here. For years, the thought of an extended shut down was a threat.. chaos would prevail. But now there is merely silence...The indifference is deafening. We were pawns. Now we are less than that -we have become ciphers.

Slowly a fire is growing in my stomach... a fire of anger!  
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EDITORIAL

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## A Personal Note

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### Editorial Comment from Herb Chong

I am quite proud, and a bit shell shocked still, by being the guest editor for this issue of *WindoWatch*. As I write this, there are still two articles outstanding and they are very important ones. Still, this editorial has to be submitted so that Lois and Paul can do their magic and make this loose collection of words into a complete issue.

When Lois asked me to guest edit the anniversary issue, I was delighted and scared. I'm not one to like the limelight, but I have very firm opinions on many things. I like to write and I like to ask myself what-if questions. When I think about anniversaries and birthdays, I always think both about the past and the future. I like to remember what has happened and what might happen in the future. Speculation and then trying to make that speculation a reality is my chance to make a difference.

When I finally got around to asking the staff of writers for articles, I had some definite opinions on some articles, and some half-formed ideas on what the future articles would be. This issue is a mixture of articles that try to understand some of what has happened to us in the past year and what might happen to us in the next few years. The technology itself is fascinating, but the technology in itself is limiting. How technology, and specifically personal computer technology in the case of *WindoWatch*, affects and is affected by people is part of the *raison d'être* of *WindoWatch*.

Oh, sure, we too, put in articles that explain how things work, and cover some of the software and hardware we are running into today. However, we also devote time not just in editorials but in articles exploring how personal computers have affected us and how they

might affect us in the future. This has been my focus for this issue of *Windo Watch*. As always, there will be plenty of controversy over what some of the authors have written, but I don't expect people to think alike. What a boring place it would be if everyone did. If, for a moment, I've gotten you to think about what all this means, I've done my job. - *HC January 1996*

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My Two Cents Worth!

Lois Laulicht

It's been over a year since we hung out the *Windo Watch* shingle. Our modest success is a tribute to our writers who hold down full time jobs, have families, are short on time and don't get paid a sou for their very professional efforts.

We at *Windo Watch* make waves! We are members of a professional community where computers are our principal tool and primary interest. Additionally we are members of an expanding and diverse community called the Internet. And finally, we all know well, that what happens on Capitol Hill impacts upon our industry and the many computer professionals from both the public and private sectors.

I asked Herb Chong to oversee this important anniversary issue of the magazine and as you will see he took a very solid whack and smacked it out of the ball park. There is only one reprint from Vol 1 and that is John Campbell's *Getting Warped* !

Our readers keep downloading the magazine and flatter us no end when they ask when the next issue is going to be released. User groups request use of the magazine and a few teachers have culled articles to be used in their classrooms. It's all very gratifying.

Therefore to the *Windows of all flavors* users, we thank you for your support. We dedicate this anniversary issue to those who have

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trekked through obtuse configurations, out of memory messages, learning curves of questionable ease and to those who have been in the trenches from the very beginning of Windows! *lbl*

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*continuation of editorial page*

I will never forget that Congress chose to go home and let us twist slowly in the wind!

Regardless of how one feels about the priorities of a balanced budget, the use of blackmail is abhorrent. Last year's revolution was not complete. The majority party cannot yet regularly override a veto. They do not have a mandate to dictate overwhelming change but merely the opportunity to negotiate progress in the direction they have chosen.

This is still a democracy, whether they recognize it or not.

The idea that a failure to sign on to a fantasy long term budget plan is a basis for shutting down the government is absurd. For the president to cave in to short term fundamental changes in policy and funding when more than a third of Congress has not agreed would be unconscionable. Before major shifts of policy and direction occur in our democracy, there must be a much greater consensus than now exists. That is why the President has a veto and it takes 2/3's to override it.

The majority party has not yet made its case. If it can persuade the voters next November, then it may have the required super majority in congress to make the changes it desires. Until then, it should get on with the business of governing and out of the blackmail business.

Forgive me for rambling so but there *is* a fire growing in my stomach!

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## On Getting Warped!

*A Fable !*

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**A Trip to the Twilight Zone**

© 1995 by John Campbell

Looking back, it started just as any other day. If only I had known how that day, and those to follow, would change my life. They say I can go home soon so maybe I can make a fresh start. But I'm getting way ahead of my story. Let me introduce myself. My name is John Campbell. I liked to think that I was a reasonably normal person. I had a job, friends, nice neighbors. But that was before OS/2 Warp entered my life.

The place where I worked used a lot of IBM terminal equipment. The *IBM Man*, as we called him, occasionally showed up to repair something that had quit working. Usually, we struck up a conversation particularly since I had been bitten by the computer bug. We liked to trade notes about the latest and greatest in technology. Now, I'm no expert, understand, but I like to think I know enough about computers to be dangerous.

Don, the IBM Man, always ended these encounters by asking if I had switched to OS/2 yet. He preached OS/2 with the fervor of a born-again Christian testifying at a tent revival meeting. I was "letting the world pass me by," he warned. I ended these conversations by telling him I was satisfied with Windows. At this, Don always retreated, muttering to himself.

As time passed, I noticed that the computer magazines were doing more articles on OS/2. The writers seemed especially impressed with the newest incarnation - Warp. They were saying things like:

**WW**

**"User-friendly - easy to install - runs DOS & Windows programs seamlessly -the Operating System of the Future."**

**Finally, my curiosity got the better of me. I decided to give Warp a spin while awaiting the long-promised computing revolution from Redmond, which, as the months passed, appeared to be more myth than reality. So, what if there were rumors of installation headaches? I felt up to the challenge . I sent off my order, and waited.**

**I spent the next day telling my friends and the local computer guru types about the adventure I was about to undertake. The word spread like lightning through the entire community. My friends at the local computer consulting firm shook their heads in disbelief.**

**"OS/2? Are you out of your mind, Campbell?"**

**Aren't you getting a little too old to be asking for that kind of trouble?" seemed to be the general consensus. Even the hackers who frequented the local BBS were abuzz at the news. One teen commented to another, "This Campbell must be some awesome dude, man."**

**While awaiting Warp, I perused the Compuserve, BBS and Usenet conferences devoted to OS/2 in general, Warp in particular. A lot of activity here, I soon discovered. I was troubled by some of the message topics, such as "It ate my Computer," "How do I get rid of this thing?" and "O Dear God, help me." Several messages even asked for the Suicide Prevention Hotline number. I began to have doubts, but it was too late now. I had committed myself. I quickly scanned headers, saving a message here and there for future reference.**

**The UPS man showed up at my office the following day with an ordinary looking package. I eagerly opened it, and beheld the large, white box bearing the red OS/2 WARP logo down the side. I immediately asked for the rest of the day off. No time to waste and I hurried home with my treasure!**

## **DAY 1**

**I opened the package and sorted through the contents of various manuals, cards, and a cd-rom with two diskettes. I read some of the preliminary stuff and then appraised my setup. I had 60 meg free on drive C, so I decided on a dual-boot configuration, with Warp installed on C: . I had already read through a compatibility list I retrieved from CIS, and it appeared that I might have a problem with my Hercules Dynamite video card, and perhaps my Sony 55E cd-rom drive, but, what the heck, it was time to begin the installation!**

**I popped the first installation disk into my B: drive. And then it struck me. This beastie has to be installed from Drive A! Muttering, I pulled the case off my trusty Gateway 486 and began switching ribbon connectors on the floppies. I then rebooted and made the appropriate change in the CMOS. "There," I thought, "that wasn't so bad. Just a minor setback!" I again slipped the first disk in my machine and anxiously waited as the drive churned. I whooped for joy as the OS/2 Logo appeared! "Piece of cake," I smugly told myself.**

I followed the on-screen instructions to change disks, and watched various messages scroll by. It was now time to access the cd-rom to continue. Then, BLAP! "Oh no, the dread red screen!" I had seen references to the *red* screen in the online messages. Not good, Campbell. Warp was telling me it couldn't find my cd-rom drive. Time to go back and bone up on solutions.



I found some references to updated drivers for troublesome Sony drives on Compuserve. I searched the OS libraries and came up with some likely prospects, which I downloaded.

This time, no red screen! Instead, the display informed me that Warp was examining . . . installing files . . . updating . . . configuring . . . examining . . . writing . . . updating . . . "How long can this go on," I wondered? Finally, after what seemed hours, Warp announced that it was ready to reboot and do its thing. "Alright," I thought, "this is more like it." The reboot proceeded, and, ... BLAP! No, not the red screen this time, but rather a plain-jane screen proclaiming "TRAP! GOTCHA! Write down these twenty-five cryptic numbers and call your technical support folks!" I stared at the message in disbelief. It was now late in the day. Call IBM? No way. I'll just reboot. The three-finger salute did nothing... my computer was locked up tight. So I did a cold boot, and, nothing! No familiar "Loading Ms-Dos". Instead two strange SYS something or other symbols.

I needed some fresh air, so I decided to go out for a walk. But,

as I got up to leave, I felt a cold chill in the room. It was as though something sinister was there with me. I looked around but saw nothing. I shrugged and left. Uptown, I passed a bar.

Heretofore my drinking had been limited to maybe a mixed drink during the social hour at the annual hobby convention. I now felt the need , so I went in, sat down and ordered a Rum and Coke. That hit the spot so well that I had another.

When I returned home rather late I was determined to recapture my computer before calling it a night. I searched for my trusty DOS boot disk. Aha! Found it. But wait - it's a 5 1/4 disk so I had to swap drive letters. Cursing, I opened the case, and reversed the drives, then changed the CMOS - again! OK, I was able to get to my DOS prompt and set about the business of getting rid of Warp. Firing up my trusty Xtree, I gasped at the sight of my C drive. New directories under directories, nested under still more directories. Dozens of them - and then my eye caught some strange files in the root directory. I stared in bewilderment at one called EA DATA.SF. "No wonder this thing doesn't work - these files have holes in them," I thought. Muttering, I reached for Norton Disk Editor.

Between Xtree and Norton, I finally excised the last traces of Warp, or so I thought. With a sigh of relief, I rebooted. BLAP! I sat stunned, as the mysterious SYS jargon reappeared. "Surprise, I'm still here," it proclaimed. I tried to tell myself "get hold of yourself, Campbell, don't let this thing whip you."

Back to the conferences. Surprisingly, another 400 messages had been posted since yesterday. I waded through the pitiful cries for help posted by other Warp newbies. Several messages led me to believe that Warp had tampered with my boot sector. "The nerve of this

thing," I muttered . . . I proceeded to do the recommended SYS C. But it was still there. In desperation, I rummaged through my diagnostic disks, and finally found a Norton Emergency disk I had prepared earlier, just in case. No question that this qualified as an emergency, so I popped it into my machine and told it to restore boot sector, partition tables, everything. Success! I was able to reboot.

It was now well past midnight. Exhausted, I turned away from my computer. "Whoa, what's that?" For a moment, I thought that I saw a faint image in the room. And it seemed very cold again. I told myself it was just my imagination. I had to get some sleep. I fell, exhausted, into bed.

## DAY 2

I had strange dreams that night- Steve Manes and a bunch of little men wearing blue jackets hammering, sawing and using blow torches on my poor computer. I awoke in a cold sweat. I was supposed to go to work, but I called in sick. This Warp thing had to be tamed. So I headed straight for my computer, armed with a new resolve. I checked the Warp conferences for fresh insight, and was greeted by 650 new messages. Undaunted, I began researching my problem. Time passed. I discovered that I needed something called "Update Installation Diskettes," and a "FixPak." It seemed that first one, then the other had to be run. But wait, to run this FixPak thing I also needed a "kicker" disk, and had to create disk "images?" I haunted online conferences and downloaded files for what seemed hours. Finally, I had all of the necessary ingredients.

It was past noon, now, and I needed something to take my mind off

**all this techno stuff. I went to the same bar I had visited yesterday. This time, I ordered a whiskey - straight - and proceeded to gulp several more.**

**I was feeling a bit light-headed and giddy when I returned home. Several neighbors gave me quizzical looks as I walked down the street. “What's their problem” I wondered, “and when was that tree moved into the middle of the sidewalk?”**

**Back at my computer, I made a note to replace the monitor, which had become a little blurry. Strange, I hadn't noticed that defect before.**

**It was time to tackle the fixes. Lets see now, I create *Corrective Services Facility* disks 1 and 2, and *FixPak XR0W005 Corrective Service* disks 1, 2 and 3, being sure to label the latter three disks *CSF* so that they will not be mistaken for the first two. Huh? This jargon was enough to baffle someone who was stone, cold sober. I dutifully proceeded as instructed and then began the install process again. The phone rang. It was my boss, asking if I was feeling better and would be at work tomorrow. I told him maybe, and hung up. Can't be disturbed now, I thought. Again, Warp pondered... installed... diagnosed.... updated.... A good half-hour later, it decided it was satisfied, and rebooted. My drives churned, then, the Warp desktop appeared! Success! Yes!**

**It was now evening and I hadn't eaten since morning, so I decided to take a break. I hadn't shaved either, but no matter. I wolfed down a hurriedly microwaved frozen something or other, and returned, excitedly, to my computer. It was time to see what Warp was all about. As I entered the room, I was certain that I saw a fleeting image**

**in a corner. I looked again, but there was nothing there. I shrugged and began studying the strange new desktop image on the screen.**

**I opened the DOS folder. Five applications stared at me. But these were not stuff I ever used. "Where are MY programs," I shouted! I looked in the Windows folder. Only six applications had survived the migration to Warp? "Steady Campbell," I muttered, maybe the good stuff is in this Windows-OS/2 folder. Whew! My entire Windows desktop! It was still alive! Time now to run my programs. I excitedly clicked and double clicked here and there. I began to get that sinking feeling. Pipeline couldn't find a key file, Acrobat sternly scolded me for daring to open it in Standard Mode, Groliers couldn't find its database, Zoo Animals claimed it didn't exist, and Myst screamed a timer initialization error at me. As for the Windows 3.1 desktop, it merely blinked as I repeatedly clicked it. I fled back to the DOS folder. "I've got to put some good stuff in here, surely my trusty DOS programs will run," I thought.**

**Without reading the help file (that stuff's for sissies), I opened the File Manager thingy, and proceeded to drag my DOS programs to the desktop. Quickly, I clicked my new OzCIS icon. OZ tried to load, then gave up the ghost, complaining that it couldn't find some file.**



**QmPro refused to budge. Not even a blink. Disgusted, I left, slamming the door behind me. I headed for the bar.**

### **DAY 3**

**It must have been the wee hours of the morning of Day 3 when I staggered home. I don't remember anything**

**WW**

more about that day.

I was awakened about noon by the phone ringing. It was the boss again. I made some excuse about seeing a doctor, and hung up. Warp was now an obsession. Surely, I can make it work. I just need to bone up a bit more. I decided I might as well read the manual, and the online help. Hmm, it seems programs have a "Settings Notebook," and there's a bit more to adding programs than dragging them from a file listing. Gee, this is getting involved. The notebook had page after page of settings. Too much, Campbell. I decided to look in the OS/2 folder. Surely that stuff's set up right. I decided to try the Internet Connection. Patiently, I filled in question after question in the dialog boxes. At last, I was ready to go online and get a user account. My modem dialed, then tried to connect, and tried, and tried. I changed settings and tried again. No connect. Now I was getting mad. I decided to go through every blasted modem string the program listed, until I found one that worked. Hours passed. I had tried thirty possibilities, and none worked. I went to the bar.

As I returned home, I noted that several more trees had been moved into the sidewalk, causing me to be rather badly bruised by the time I crawled back into my house. No matter. I *will* tame this thing. I hated to admit that it was time to call tech support. I called the number, and was greeted by a menu. That menu led to another, and to still another. By then, I wasn't sure where I was in the vast labyrinth that was IBM tech support. Finally, I got a number for someone that handled connection problems. It wasn't toll free, but so what. I called the number. A voice said "hello." I asked if this was IBM. The voice cursed and hung up on me. I went back to the bar.

DAY 4

Some new friends must have taken me home. When I awoke, it was midday. I decided it was time to shave and get something to eat. I went out into the sunlight. Neighbors gave me long and wary looks while hustling their children back into their houses. My boss pulled up and demanded to know what was going on. I told him to bug off. I wouldn't even think of returning to work until I had conquered Warp. He muttered something about everyone being expendable, and left, shaking his head. I went back inside and headed for my computer. This time I was certain that I saw a strange figure in the room. Whatever it was vanished as quickly as it had appeared. I spent the rest of the day changing settings - dozens of them. I actually got one program to run - briefly. I decided to celebrate. I went to the bar.

### DAYS 5 - ?

Everything is beginning to run together now. I lost track of the passage of time. Warp had become an addiction. I spent hours on end changing parameters, following the online conferences, and haunting the bar, which by now, was as much my home as the place where the cursed computer lived. I got a pink slip in the mail. One day I seem to remember a priest stopping by, offering to do an exorcism. The Warp people online were exhorting the faithful to hang in there; that the new Windows was a wimpy system, and that real men stayed with IBM, no matter what the cost. Still, one poor soul pleaded with the sysop to give him Dr. Kevorkian's phone number.

As for me, I continued to tweak, modify, and generally screw up every application I had. Execution files took on strange new names, never to execute again. Data files became mangled beyond belief or salvation. There were online rumors that someone had actually gotten Myst to run under Warp. He became an instant legend. By now I had

actually gotten several programs running - I think - as my monitor became more blurry with every passing drink - I mean hour. Finally, my old Windows wheezed and sputtered to life on the Warp desktop. I was overjoyed! At last, I had succeeded! I was now curious to see what would happen if I switched to the PC Tools replacement desktop. I moved my mouse toward the icon. Suddenly, I was again aware of a presence in the room. I could swear I heard a chuckle.

I took a deep breath and clicked on the PC Tools icon. The new desktop appeared! But then, strange things began to happen. The Warp screen began to bleed into the new one. Frantically, I began hitting keys. Escape, Break, everything I could think of. But no use. Now, my screen resembled a piece of Picasso art. The Warp and PC Tools screens had become a montage of interleaved bits and pieces. And a strange hissing noise erupted from inside my computer's case. It grew louder. I panicked and grappled for the power off switch. Too late! My machine emitted a final death rattle as it expired. The monitor blew, scattering pieces of Warp and PC Tools all over the room, knocking me to the floor.

When I regained consciousness, I surveyed the wreckage that once was my beloved computer. I began to cry. Suddenly, a ghostly figure appeared. I rubbed my eyes and stared in amazement. The apparition looked familiar. It was Bill Gates! "Sorry about your computer, Campbell," the ghost began. I have been watching all along, just knowing that something like this was going to happen.



But I am here to offer you salvation."  
"How did you do this?," I

sputtered. "You can't really be here. Is this some kind of Virtual Reality trick?" Gates smiled. He replied "It's not really that hard. Remember, we bought the Roman Catholic Church a while back. Well, now we have access to the Vatican's Vision code. They've pretty much kept visions all to themselves for centuries, you know. We modified it and now call it 'Visional Reality.'"

By now, I was sobbing hysterically. "What do you want" I implored. Gates, still smiling, held out a box. "This is your salvation, Campbell. It's Windows 95. It's User-friendly - easy to install - runs DOS & Windows programs seamlessly -the Operating System of the Future."

When I awoke, I was in this place. Must be a hospital, I thought. Did it all really happen, or was it just a nightmare?

The door opened, and a man wearing a white jacket entered the room. "Well, I see you're awake, Campbell," he said. "I'm Doctor Jones. We were worried about you for a long time. Some people found you wandering the streets, wild-eyed and raving. But I have every reason to believe you can make a full recovery."

I asked if I could go home now. "Afraid not," replied the doctor. "You people who attempt to install Warp usually have to stay at least six months. Takes a long time to recover from that experience."

I looked around. Something didn't look quite right about this place -- bars on the windows, for one thing. "Where am I?," I inquired." The doctor smiled. "Don't worry, Campbell, we will take good care of you here. Welcome to the *FOREST HILLS SANATORIUM.*"

*The best of WindoWatch Volume 1. This is the only Volume 1 article to be reprinted in our Anniversary Issue! It first appeared in June 1995 - Issue #5!*

*John M. Campbell is indeed full of all sorts of pleasant surprises. His regular job as Manager of the Unemployment Compensation Board of Elkins, WV doesn't appear to interfere to slow his creative bent. The whimsical line drawings were done by Kathy Skidmore and Shauna Hambrick. John is a regular contributor to [WindoWatch](#).*

## **Windows 95 Arrived**

**Copyright 1996 Jonathan Halpern**

**On August 24, 1995, Microsoft's Windows 95 arrived at retail stores following two years of delay and postponement. The official release of Windows 95 was introduced by a massive media promotion, and the whole process drew attention and controversy. This attention and controversy resulted from the potential impact of the new operating system! An operating system is the control program which runs a computer and determines how it works and the look and feel of the screen display. Microsoft is the dominant player in this field and its prior versions of Windows are installed on more than 65 million personal computers. Thus any event which might affect all of the users of these computers is bound to be noticed. And noticed it has been! Windows 95 has spawned books, both authorized and unauthorized, debate over its design, content and performance, has received news coverage on TV, made the cover of Business Week, and has gone far beyond the technical computing field.**

**A little history of personal computer operating systems will help understand the events of 1995. Originally personal computers were controlled by operating systems which were based on text. Computer users typed in commands from a keyboard, and the computer responded accordingly. However, research by Xerox, at its Palo Alto Research Center showed that computer use would be easier if the computer displayed pictures on the screen representing commands**

**which would be activated by pointing at them. This was called a graphical user interface.**

**The first popular use of a graphical user interface was on the Apple Macintosh computer. Microsoft, which provided the text based operating system for the IBM class of computers, felt the need to compete and thus in November 1983, announced Windows, to be shipped in April of 1984. Like many complex systems, Windows 1.0 was late. It finally was released 19 months late in November 1985.**

**This first version of Windows was a flop, but gradually Microsoft improved the product and the next year Microsoft released version 2 of the system. By 1990, they were up to version 3. Version 3 was a significant improvement, and it was a good match to the power of the popular computers of that time. Sales took off, and the popularity of the operating system was on its way. Even though Microsoft eventually sold about 10 million copies of Version 3, the system had problems running applications. It is estimated that less than half of the sold copies were actually in use. In April, 1992, version 3.1 was released. It cured many of the problems with Version 3, and sales soared. By 1993, more copies of Windows were sold than any other personal computer operating system. Most new computer systems were sold with Windows already installed, and by 1994 over 40 million copies had been sold.**

**As the popularity of Windows grew, Microsoft started planning its next generation of the operating systems. This new system was to take advantage of the vastly improved power of the new computers, and would be called Windows NT for New Technology. NT was first mentioned in 1991, and it was to take advantage of the latest technology and allow more than one application to run simultaneously. Windows NT took two more years in development and was**

ready by the spring of 1993. Although a technical success, its sales lagged. Microsoft had miscalculated the speed with which people would upgrade their computers. As a result, most personal computers in use at the time of NT's release were not powerful enough to make use of the system. Microsoft's response was to plan a system which incorporated most of the technical features of NT, but which would not need such a powerful computer. Thus was born a project to make the features of NT available on less powerful machines.

We move forward to 1995. The new version of Windows is released late. Very late. Over two years have gone by since the project had started. 1994 release dates came and went. Microsoft projected a mid-year ship date. Competition from IBM with its rival OS/2 system, which would run effectively on most of the computers in use, was growing. Windows 95 was chosen as the name for the product and by March 1995 was ready for user testing. Over the next months, Microsoft enlisted the aid of 50,000 computer users to beta test (field test for problems) Windows 95. Problems with the system were found and problems were corrected. New beta versions were distributed. In an unprecedented move, Microsoft decided to seed the market by releasing a *preview* of the final beta version to some 400,000 businesses and individual users.

On August 23, 1995, Microsoft held the official announcement for the release of Windows 95. Tonight Show host Jay Leno, was master of ceremonies for the affair and people lined up at retail stores, some of which opened at one minute after midnight, to be the first to get Windows 95. In the first four days, over a million copies were sold. In October 1995, Dataquest, an industry research company, forecast sales volume over 76 million by the end of 1996. Microsoft is projecting sales of at least 30 million copies for 1996, and is backing

**that up with an advertising budget of about \$200 million, with a major emphasis on Windows 95 and related products. To put the volume of sales in perspective, the first weekend sales of Window 95 exceeded the first weekend box office of such major movie hits as *The Lion King* and many other major movie hits.**

**As with any new computer operating system, there were some problems. Some computer components were incompatible, and some programs didn't work properly. Enough problems occurred to cause Microsoft's technical support line to be swamped with calls. In fact, some people couldn't get through for days. However, on balance Windows 95 worked as advertised. Aside from some minor hardware and software incompatibilities, the system is more robust and stable than prior versions.**

**Perhaps the most significant effect of the 1995 portion of the Windows 95 saga was the widespread publicity about the product. Microsoft presented its case for Windows 95 as the best thing since sliced bread. Critics attacked its technical foundations. Apple called it a copy of the 1989 version of their system. All this publicity drew the attention of the general media, including newspapers and general news magazines. Publications as disparate as *The New York Times*, *Business Week*, and *Rolling Stone* all covered Chicago/Windows 95.**

**All this publicity meant that everyone became aware of the new operating system. For the first time, interest and awareness of computing, personal computers, and some of the technology involved, became general news. It was not limited to computer professionals and computer junkies, known as hackers. Now, instead of a business tool or a hobbyist's toy, computers were taking on the role of an information appliance – a tool for everyone: encyclopedias and games for the**

**kids; recipes and checkbook balancing for the household; more power and ease of use for business. All in all, it is expected that Windows 95 will be a catalyst for expanding everyday household use of personal computers. In fact, in October 1995, Dataquest projected that 60% of the Windows 95 sales for 1996 would be at the consumer level, not to business.**

**Windows 95 is also making waves in the computer industry. Market share for IBM compatible computers is likely to grow at the expense of Apple computer installations. Apple has the technology to compete, but due to chronic component supply problems has been unable to ship enough product to meet demand. Thus Apple is not expected to be able to take advantage of the Windows 95 teething problems. In addition, one of the features long available to Apple users, plug and play or the ability to add components without having to get technically involved, is now a part of Windows 95. Thus Apple will lose another technical and marketing advantage.**

**Some early business adopters will replace their existing Apple computers with Windows 95 based equipment. These early adopters include Dow Chemical Co., Eli Lilly and Co., and Seafirst Bank. More than 25,000 computers are involved in these companies. Many companies view the new system as an opportunity to standardize the way their companies use computers. On the other hand, many existing business are holding off installing Windows 95 until some time in 1996. They are either waiting to let other people solve the teething problems of the new system, or are not willing to pay for the equipment upgrades required on many of the existing machines.**

**Software companies which develop and produce the applications which actually do the practical (and some not so practical) work of computers have also been affected. Although Windows 95 will run**

most existing applications, the real benefits of the new operating system are only achieved when the applications are rewritten to take advantage of the new features. This is a very complex task, and most developers have limited resources. Because of the delays in the delivery date of Windows 95 they were faced with a dilemma. Should they continue to devote effort to upgrading existing products, or should they put all their resources in the new versions. The trade-off was not simple. As the Windows 95 delays grew longer, it became more important to add new features to existing products. At the same time, if Windows 95 was a smash hit, it would be necessary to have new products ready when Windows 95 shipped. If the new product were not ready within a short time of significant adoption of Windows 95 the product would lose market share to competition. At the same time, many software buyers were holding off purchasing software upgrades in anticipation of the availability of Windows 95. As a result, the 1995 software market was depressed. For those developers who guessed right about the timing of Windows 95, sales recovery is at hand. Microsoft, of course, had the advantage of knowing their schedule, and thus had major pieces of their software catalog ready with Windows 95 versions. But there were some good *guessers* who were able to have product ready by the Windows 95 ship date. The top five applications in August were: Microsoft Plus, Norton Utilities, Soft Ram, Norton Antivirus, and After Dark 95 Screensaver. By the end of the year, major developers, including Corel, Quarterdeck, Symantec, Adobe, Micrografx, McAfee, Zenographics and many others, had delivered Windows 95 versions of products.

Manufacturers of components for computers have also been affected. Windows 95 is a larger, more complex system than the previous versions of Windows. Although Microsoft has specified a relatively *old* computer of just a year or two ago as the minimum required to run

**Windows 95, such a configuration would not be a realistic choice. Such a machine would require, at minimum, upgrades to memory and disk capacity. As a practical matter, the recommended computer is a fast 486, with 16 megabytes or more of memory, a 1 gigabyte or larger hard disk, a high speed video system and a 15 or 17 inch monitor. Thus the outlook for vendors who supply these components is for increased sales.**

**Plug and play technology does not work with older components. Thus, there will be a growing market for upgrade components for existing computers, as well as for installation into new computers. To assure compatibility, Microsoft has developed a certification program to verify what components are compatible with Windows 95. By the first quarter of 1995, Microsoft issued a hardware catalog containing products from ninety vendors which made the grade. By August 23 more vendors were certified.**

**Another area of the industry to benefit from the adoption of Windows 95 is in training, service, and consulting. The graphical interface in Windows 95 is different from prior versions of Windows. Even though it only takes a short time to be able to become productive on the new system, there are many new features. Not only does the system look different, its methods, keystroke, and mouse functions are different.**

**New techniques and tricks will be needed to take advantage of the full power of the system. The same is true of the new versions of applications. Schools, training centers, and consultants will do a land office business helping computer users to become more comfortable and effective. Trouble-shooting and problem- solving will also be growth areas. In the large corporate environment, planning the transition from the existing environment to Windows 95, will be an**

**extremely complex task. Information Systems departments will require expert advice to manage the changeover with minimal risk.**

**Even though many computer users do not need the power of the new personal computers, or the features of Windows 95, some 60% or more of the individual users and some 30% of the corporate environment will be using the system by the end of 1996. It is expected that market share will reach 80% by the end of 1997. The new operating system will force producers of application software to develop their product for the new system, and users who need the new products will have to use Windows 95. Welcome to the technology of rapid change.**

*Jon is an independent consultant for personal computer installation support and service, networking, and anything else that needs fixing. He used to do this for other people until he decided that he had more fun doing it for himself.*

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*Does This Route Lead to Windows95?*

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**On the Road to Win 95**  
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**This is the story of one man's path to Win 95. Let me caution you right now. The ending may not be quite what you expect!**

**We begin about eight months ago, with a description of my *system* that is actually two computers, running a WFWG 3.11 network, at a reasonable, to be kind, - very bare minimum.**

**The main machine, - mine, is a 386SX20, with 8 megs. RAM; a 210 meg. hard drive in four partitions, all of which are DoubleSpaced to allow some room, a STB PowerGraph Ergo non-accelerated ISA video card, with a Sony MultiScan 15sf, fifteen inch monitor, running in 1024x768x256 mode, an Intel EtherExpress 16 bit network card, a Microsoft mouse on Com1, a 9600 baud ZOOM internal modem on Com2, the Microsoft Sound System for Windows audio card, a Panasonic CR562B double speed CD-ROM running on it's own interface card since the MS Sound System doesn't provide an interface for CD-ROM's, and an HP LaserJet IIIP printer, with the Microsoft Printing System cartridge installed.**

**I know...quite a load for an old 386SX20, but, unlike what seems to be consensus in the computer world, I don't see a few seconds of time as being absolutely critical to performance. I work almost entirely from home, at my own pace, and thus, a few extra seconds here or there are not as crucial as some seem to think.**

**WW**

**The other machine, my wife's, is a 386SX16, with 4 meg of RAM; a 110 meg hard drive in three partitions, again, all DoubleSpaced for extra space, a STB PowerGraph non-accelerated ISA video card, with an AAmazing 14" monitor, running at 800x600x256, an Intel EtherExpress 16 bit network card, a Microsoft mouse on Com1, and a 2400 baud Cardinal internal modem on Com2. There is no audio card, CD-ROM or even printer attached to this box even though there is a NEC 24 pin dot matrix sitting there, it isn't hooked up.**

**Both machines are running WFWG 3.11 with 32 bit disk and file access enabled, and Norton DeskTop 3.03, with my machine acting as sort of an application and printing server, if/when such are needed. And believe it or not, this works! My wife's machine is not very fast, but it will load an application from my machine as quickly under WFWG 3.11 as it did loading the same application directly from her hard drive under Win 3.1, thanks to the 32 bit file access of WFWG 3.11.**

**Although it's not an ideal system, even for WFWG 3.11, it is one which works, and works well for our methods of operation. Indeed, from photos I had seen in various magazines, etc., we had what to all intents and purposes, looked much like Win 95, already. Icons on the desktop, for drives, applications, documents or whatever, and a tool bar across the top of the desktop which could be used to access utilities, etc.**

**However, Win 95 was coming, and I knew that, eventually, I would have to upgrade my trusty old WFWG 3.11, if I wanted to stay current. Based upon those magazine articles, and on what the Win95 Preview users were saying on the networks, I also knew that, to do so,**

I would need something much better than my old, reliable 386SX20, if I wanted the upgrade to be *up* instead of *down*.

How to do this when budgeting is tight with two almost-teen daughters and the sole income earner in a family. Buying a completely, new computer was totally out of the question! The logical conclusion was to upgrade the motherboard, and continue using the other peripherals that I already had, - at least for now!

I read everything that I could on Win 95 and found not a lot of agreement in a number of important areas between magazine sources and those people using Win 95 whom I knew and considered *expert* enough to value their opinion. One thing did seem clear: That you would need a minimum of a 386DX to run Win 95. It could run on a 386SX, although *crawl* would be a better term than *run*. It appeared that a 386DX was a reasonable move, and a 386DX33 motherboard could be found used at minimal cost. Almost perfect.

After I did the upgrade of the motherboard in one machine (mine), it seemed the system did run noticeably faster, even with the old peripherals, so I figured I was all set to upgrade. And then came the release of Win 95!

I wasn't in a particular hurry to upgrade, so I wasn't standing in line at midnight, Aug. 24, 1995, for one of the very first copies. Remember, I now had a reasonably fast system, with a lot of the superficial *interface* features of Win95 already in place through Norton Desktop. The system was stable and I hadn't had a GPF which wasn't related to a beta test I was involved in for almost two years. The system worked fine for my needs, so I figured there was no hurry. Wait and see what

**the early reports from non-Preview Win95 users looked like before jumping ship.**

**One thing rapidly became clear from various messages posted on the networks, and from magazine articles which benchmarked Win 95 vs. Win3.1 and WFWG 3.11 on a 386DX33 with 8 meg of RAM. I could expect to see no improvement in performance, or even the same performance I was getting from my current WFWG 3.11 system. Performance was something closer to that of Win 3.1 without 32 bit file access on the same system. In other words, a step backwards from what I already had running.**

**I was willing to upgrade to Win 95 if the performance was at least the same as what I had currently, but obviously did not want to take a performance hit when upgrading. It makes little sense to take the position *Let's upgrade to Win 95, so we can get all these neat, gee-whiz features which I already had under NDW, and so our system can run slower than it is currently running!***

**Excuse me. what's wrong with this picture?**

**Investigation time, again. What assumptions had I incorrectly made some six months ago, when I decided my most logical route to Win 95 lay in a motherboard upgrade to a 386DX33?**

**It didn't take long to determine, from the same sources, that the earlier conclusions that Win 95 would run at least as fast as WFWG 3.11 on a 386DX33 with 8 meg of RAM, were on the optimistic side, and not supported in fact.**

Virtually everyone, from the magazines, to the people on the nets, now were saying that the practical minimum for operations equivalent to a WFWG 3.11 system were a 486DX33 with 8 meg of RAM.

I was *under-powered* for Win 95, and so, I had to start all over again. Where do we go from here and how best to prepare for the upgrade to Win 95, without breaking the bank, or forcing the kids to eat computer disks for dinner, or clothes made from used computer printouts? For some strange reason, I have not yet been able to convince them, or their mother, that computer upgrades are a necessity of life, and come before such luxuries as eating, having a roof over their heads, or clothes on their backs. I'll keep trying, but so far, my progress in this area has not been good! Obviously a personality flaw!

In any case, it was clear, that another motherboard upgrade was the logical choice, *if* it allowed me to continue using my current peripherals, at least, for the short run. As it turned out the real problem were the memory chips!

I had 8 - 1 meg - 30 pin SIMMs installed on the 386DX33. If I wanted to upgrade to a 486DX2-66 or 486DX4-100 motherboard, those SIMMs were useless, and I would have to trade them in for 72 pin SIMMs. To do so, however, there was a substantial cost factor to be reckoned with. My dealer was willing to give me as much of a break as he could, but the best that could be done was that it would cost me \$10 a meg. to swap the memory for the same thing, but in 72 pin SIMMs.

This meant that, not only did I have to spend the money for a new motherboard, as used 486DX2-66 or 486DX4-100 mother-boards were scarce as hen's teeth, I also had to cough up another \$80 for the memory swap. And, over here, folks, let's not forget that our various

levels of government want to get in on the act also, with their sales taxes, adding an additional 15% to the cost of everything!

I was now looking at an upgrade cost of around \$300 plus 15% in taxes, which was unacceptable, given the current budget. The next step was to look for some kind of used 486 motherboard which would accept my current memory, yet still get me to an *acceptable* operations level under Win 95.

As luck would have it, I found two of them. One, a Micronics 486DX33 ISA motherboard with slots for 30 pin SIMM memory, and another, an IBM 486SLC66 *Blue Lightning* ISA motherboard, also with slots for 30 pin SIMM memory. Pricing was almost the same. \$110 for the Micronics, \$125 for the IBM.

But which way to go? The IBM sounded like a nice deal, since it was a 66 MHz. CPU rather than the 33 MHz Micronics, but, something about this nagged at me. I turned to the nets, the logical place to uncover the source of that nagging concern.

I posted a question regarding the two motherboards, asking for recommendations for best use under Win 95, on RIME, ILink, and FIDO. It didn't take long to get some answers, and those answers began, quickly, to confirm my reservations about the IBM motherboard.

Although a few respondents told me that they had that motherboard, and were happy with it's performance under Win 95, the majority of responses cautioned against it, recommending, instead, the Micronics 486DX33 as the better alternative. The comments were consistent, stating that the 486SLC was not the equivalent of a 486DX or even a

**486SX, but instead, was actually closer to a 386SX - not even a DX of that CPU! One gentleman even included a chart for me to study, with comparative details on various processors. I found that chart so useful in these explorations that I am reproducing it here for any of you who might be able to use it.**

	IBM	Intel	Intel	IBM	Intel	Intel	
<b>Intel CPU</b>	<b>386SX</b>	<b>386SLC</b>	<b>386DX</b>	<b>486SX</b>	<b>486SLC2</b>	<b>486DX</b>	<b>486DX2</b>
<b>Internal Data Path</b>	<b>32bit</b>	<b>32bit</b>	<b>32bit</b>	<b>32bit</b>	<b>32bit</b>	<b>32bit</b>	<b>32bit</b>
<b>External Data Path</b>	<b>16bit</b>	<b>16bit</b>	<b>32bit</b>	<b>32bit</b>	<b>16bit</b>	<b>32bit</b>	<b>32bit</b>
<b>Write Buffers</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>4</b>
<b>Address Interface</b>	<b>24bit</b>	<b>24bit</b>	<b>32bit</b>	<b>32bit</b>	<b>24bit</b>	<b>32bit</b>	<b>32bit</b>
<b>Physical Addressable Memory</b>	<b>16MB</b>	<b>16MB</b>	<b>4GB</b>	<b>4GB</b>	<b>16MB</b>	<b>4GB</b>	<b>4GB</b>
<b>Virtual Addressable Memory</b>	<b>64TB</b>	<b>64TB</b>	<b>64TB</b>	<b>64TB</b>	<b>64TB</b>	<b>64TB</b>	<b>64TB</b>
<b>Math Co-processor</b>	<b>387SX</b>	<b>387SX</b>	<b>387DX</b>	<b>487SX</b>	<b>387SX</b>	<b>BuiltIn</b>	<b>BuiltIn</b>
<b>Clock Doubled</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>

**It turns out that the 486SLC is little more than a 386SX CPU with two write buffers, instead of none. It even uses a 387SX math co-processor, just as a 386SX does. not even a 487SX math co-processor, like a 486SX requires!**

**In the end, I made what appeared to really be the only choice, the Micronics 486DX33 motherboard. This also appears to have been a good choice, based on it's performance under WFWG 3.11 on my system. It is speedy and reliable. In the process of having it installed, my dealer agreed to also remove the 386SX16 motherboard from my wife's machine, and replace it with the 386DX33 which he was removing from mine. This gave that machine a new lease on life, albeit not a jump start to Win 95, since it still only has 4 megs of RAM. However, it's performance under WFWG 3.11 has improved quite noticeably, and it is now one step closer to Win 95.**

**I should imagine that you are now asking yourself what my opinion of the 486DX33 motherboard under Win 95 is, right?? Well, I am sorry to say that I can't yet tell you, and this is where the surprise ending to my saga comes in. I have not yet upgraded to Win 95, and may not do so for a while yet. So the story continues.**

**You see, my first, and biggest, problem is disk space. Yes, I have a 210 meg. Hard drive which is DoubleSpaced, but it was originally set up when DOS 5.0 was just coming out. As a result, it was partitioned into a 30 meg. C:, 75 meg. D: and E:, and 30 meg F: drive when installed. Using DoubleSpace, these are no longer "valid" sizes, however, with only WFWG 3.11 installed on the "new" C: drive, I have around 25 megs. of free space on that drive.**

**Some people tell me that, if I am very judicious about what I install from Win 95, I may, but only may, be able to get away with just that**

free space. But, from what I have so far been able to determine, Win 95 won't let you decide where to install various components, other than under the \WIN95 directory, which means that, even if I were able to get a bare bones Win 95 installation going, I would be missing a lot of the applets and features of Win 95, and might not ever be able to install them.

Therefore, before I consider installing Win 95, I suppose I should back up my data files, re-partition the hard drive to give me a larger C: drive either as multiple partitions, or a single, 210 meg. one, and then apply DoubleSpace (or DriveSpace) to those partitions in order to gain enough room for Win 95.

I could then install Win 95 over the DOS 6.22 on the system, re-install all of my applications, and restore my backed up data files. And I imagine that I will do this, but, this is a working machine! I use it daily for my mail, and it runs my GHOST BBS system each night. I would expect that the above procedure will take some fair amount of time to perform, and do not want the machine "down" for an extensive amount of time in certain respects (such as QWK mail and the BBS), and so, will have to carefully plan the whole procedure before beginning.

The advantage to all of this is that doing so would help somewhat with some other problems I have with upgrading to Win 95. The biggest of those is the simple fact that I haven't run Program Manager under Win or WFWG in a dog's age. Remember, I am using Norton Desktop, and Win 95 will not translate the NDW settings or QAG's. It only works with a pure Windows set up. Apparently there is a utility available from Norton which converts QAG's into GRP files, however, I also understand that this is not always entirely successful. And even

**if I did that, since NDW is installed on my D: drive, it wouldn't help at all with the problem of not enough space on my C: drive.**

**I could remove Norton Desktop from the system which I would have to do in any case, before upgrading to Win 95, which would give me more than enough room on my D: drive to install Win 95, but I would face the problem of not having my WFWG 3.11 programs carried in to Win 95, because I would not be installing over WFWG 3.11, but in a separate directory. The only advantage to this, over backing everything up, and starting from scratch, is that I wouldn't face the problems reinstalling all of my applications will bring.**

**What problems, you ask? Well, several of my apps are beta versions, which require the release version to be installed, followed by, in some cases, a patch to an interim version, and then, finally, the beta installation. Many others, although not beta, are upgraded versions of the original release, being upgraded by patches, and so on, from the original release, rather than anywhere having a single installation to restore things to their current state. And, I suppose like most people, those patches and so on, are somewhat scattered over my office, stored here and there in little piles of 3.5" diskettes. Some of these apps, at least, the originals, are still on 5.25" disks, stored over there in the corner! Sure, I'll find everything I will need to get my system back up to where it is today, but it will take some time, and I figure I may as well spend that time before upgrading to Win 95, rather than after doing so.**

**Logically, I suppose, the best choice would be to back up my data, and start over. This would have the side benefit of eliminating some applications which remain on my hard drive currently, but which I don't often use, and probably could get along quite handily without. It would also eliminate, I am sure, a lot of DLLs and other files in my WFWG \WINDOWS and \SYSTEM directories, which belong to**

applications long since gone from my hard drive, and are doing little more than cluttering up those directories. But this is such a daunting prospect, especially when using floppies for backup, and in all honesty, I have yet to have one single person tell me why, precisely, I should upgrade to Win 95, and go through all this.

I have heard all of the technical reasons. the improved stability, the improved multi-tasking, Plug-and-Play support, and the improved interface, with shortcuts on the desktop to make program access easier, and the task bar to access running or non-running programs and utilities and so on.

But those are technical, and are nothing that in a way, I don't already have. My system has been stable even having gone through two motherboard changes for past two years. I can download files in the background, while working on a word processing or spreadsheet document, which is about as much "multi-tasking" as this old mind can handle, and my legacy system doesn't come close to Plug-and-Play standards in any respect. My interface is long designed to suit my needs, with drive and program icons conveniently placed on my desktop (via NDW), drag and drop printing through NDW tools for printers, and a tool bar at the top of my desktop, which gives me access to utilities and applications not on the desktop, and which is easily configured for my needs, as they may change.

No question that this configuration works for me! I can easily access the programs and/or utilities that I need regularly, and a single click on the tool bar brings up my Norton main QAG. This gives me access to other groups, including groups within groups, in a few mouse clicks, just like using the Start button in Win 95. These same groups can be set up in what is called *tool bar* mode, so that I get a small group, with

**nothing but icons, right next to one another taking up very little desktop space, yet giving me quick access to each item.**

**A right double click on any icon in a group, opens that group or program, closing the one that it was called from in the process, leaving me with a less cluttered desktop. Overall, I can get to anywhere on my system fast and get tasks done quickly without even thinking about what I am doing.**

**It is said that networking is improved in Win 95? Our WFWG 3.11 set up does what we need, and, if not with speed at least without problems. And let's face it. Win 95 is not without it's problems. You can read about them on any net, or on CompuServe, AOL, Prodigy, and even, the Microsoft Network. People having problems getting hardware recognized and/or running properly. People with legacy software not quite working, or not working at all. Long since acquired utilities that no longer function under Win 95 at best, or at worst, can blow away your entire set up if used. A definite dearth of reasonable, and viable back up software alternatives. And unless you upgrade software to Win 95 versions, when they are available, and at additional cost, a lot of the features of Win 95, such as long file names and the new, more powerful common dialogue boxes.**

**I must mention that NDW 3.03 has the capability to allow for long file names when saving a file, and displays them when opening it, via the NDW enhanced common dialogues. As for dialogue boxes, these appear, depending upon captures in magazines, to look rather a lot like the FileAssist enhanced dialogues available to me currently under NDW 3.03.**

**So, let's summarize where I am currently.**

- 1) I have an upgraded system, if not ideal for Win 95, at least, mostly ready for it.**
- 2) I have a stable, reasonably fast, working environment, customized to suit my working methods, with quite a few features of Win 95 already available to me via Norton Desktop. This includes almost all of the Win 95 interface improvements in one variation or another.**
- 3) I am rather productive on my system, since I know it well, and have custom designed various aspects of it to suit how I work.**
- 4) My applications all run as is, many of which are either betas, or have been upgraded from the original release disks via patches. And, although I have more than enough room for WFWG 3.11, etc. I do not have enough for a typical Win 95 install.**
- 5) Upgrading to Win 95 would give me, in Windows, as opposed to Norton Desktop, many of the features that I have currently, but in a format sufficiently different to destroy my current level of productivity while I configure Win 95 to function the way I want it to, while I learn the ins and outs of a new operating system.**
- 6) Upgrading to Win 95 would likely mean taking anywhere from a day to multiple days to reconfigure my system so that it could handle the upgrade to Win 95, and the additional time spent to reinstall all of my applications. During that time, my productivity would not be less than current, it would be *nil!***
- 7) If/when I upgrade, I face possible problems with my legacy hardware and/or software, a complete loss of all of the utilities I**

**currently rely on for system maintenance, and security, and possible upgrade costs for hardware and/or software, - none of which my budget can, at this point, allow.**

**8) Any or all of the above points, five through seven, result in a decrease in productivity ranging from minimal to maximal, in the name of upgrading to a new Operating System which offers me little more than what I have currently installed and running under my current Operating System. I have no assurance of an increase in system speed, but rather the claim that it will be no slower than that which I have currently installed.**

**Finally, I have yet to see anywhere a logical reason that would compel me to upgrade. The technical ones and improved interface just don't cut it because they aren't valid for me. No one has yet offered me any compelling reason for upgrading although one fellow did come close when he observed that the only way to play the Win 95 Pinball game is to upgrade to Win 95!**

**Is it no wonder I have held off on the upgrade to Win 95 in spite of having upgraded my hardware for it. Obviously those hardware upgrades also serve a useful purpose under my current WFWG. The systems are faster than they ever were before resulting in an increase in my productivity. Nonetheless, I am in no hurry to upgrade to Win 95, and go through all that I must go through to do it. I will when I get to the point where I see no other choice available to me, in order to support the software I have written, and/or advance it further than it can go currently. In other words, until such time as Win 16 bit apps have died out, and are replaced by users with their Win 95 versions.**

**Can anyone reading this offer me any substantial or compelling reasons to upgrade? Am I a voice in the wilderness in my lack of a**

**desire to upgrade to Win 95, and lose what I have now for a somewhat dubious improvement? Do others of you feel the same way? Are we perhaps, the vast *Silent Majority* which has yet to be heard from??**

**Hello? Am I alone here? Is anyone out there?**

*Gregg Hommel writes one of the most popular columns run in [WindoWatch](#). He is the author of the Procomm for Windows tutorial series as well as the author of GHOST. Gregg serves on the [WindoWatch](#) editorial board. He can be contacted for comments, support or rebuttal via email, at the following addresses. Internet - [gregg.hommel@ophelia.waterloo.net](mailto:gregg.hommel@ophelia.waterloo.net) Compuserve - 72537,552 RIME R/RO mail - route to ->118 FIDO Netmail - (1:229/15) or via public mail in the ILink, RIME, FIDO, NANet, or EchoNet Windows conferences, or the RIME, ILink, or NANet Procomm conferences.*

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## *Chicago Musings*

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### **Whither Windows**

Copyright 1996 by *Paul Kinnaly*

As we enter 1996, Windows95 is by name, at least, passé! So we might well ask “Whither Windows?” Windows95 is certainly *not* the operating system that many thought it would be. Most home -and many business- users of 1993/4 in reading about *Chicago*, Microsoft’s project name for what was to become Windows95, were users of Windows 3.1 and MS-DOS, probably version 5 or 6.x. Scarcely one in ten could have told you what a *true 32bit operating system* was, but they knew it was better than what they already had and they wanted it! They disliked the infamous GPFs that unexpectedly cropped up. They hated being told they were *Out of Memory* when they had six megs available. Many hated that C:> and wanted a way to avoid ever seeing it again. *Chicago*, they heard, would do all that. It would *do away* with DOS, eliminate memory problems, allow long file names, scrap the clunky Program Manager/File Manager interface, and bring an end to hunger, war, ... Okay, maybe not *everything* we ever wanted, but it was going to be great!

Long before Windows95 actually arrived, books about it and news of what it did -and didn’t- do started showing up. DOS, it seemed, wasn’t really gone, it was just less obviously there. - And there were still many large chunks of older 16bit code as well. - And Explorer

had its faults, and even memory problems were not *completely* solved. - And there was still a famine in Africa and war in Bosnia.

The actual release of Windows95 ameliorated some of these criticisms and strengthened others. Very many home users quickly discovered that, while it wasn't a panacea, it did indeed work better than Windows 3.1 had, as long as they had at least 8 mb of memory or more. Business users, other than those at companies involved with the beta-testing of Windows95, generally hung back. Converting thousands of desktops to Win95, with associated support costs and, in many cases, hardware upgrade costs was not cost-effective; the potential gains were not seen as outweighing the costs.

Some of Microsoft's persistent critics jump on this lack of business acceptance as a sure sign that Windows95 has not filled the niche that Microsoft envisioned. But has it? Or has it merely failed to fill *our* expectations of becoming *the* Operating System?

To answer that question, and to make some educated guesses as to what Microsoft's thinking might be, we need to look back a couple of years, back to when the *Chicago* project got rolling. Most office desktop computers were 386s, usually 33mHz machines with 4 or, perhaps, 8mb RAM. Newly purchased PCs were 486s, again usually 33mHz, the 66mHz doubled chip was brand new, and again with either 4meg or 8meg of RAM. The *client-server* LAN was the up-and-coming thing in office computing and as the applications were generally stored on the server, consultants typically recommended low memory availability in desktops to keep users from trying to open too many applications at one time. Only the server would have 16, 32, or rarely 64mb of memory. Workgroup computing, using peer-to-peer LANs

was just taking hold, and only here would one often find 8, 12, or even 16megs of memory on many or all of the machines.

Meanwhile, at home, the majority of users ranged from 8mb 486-66 machines through the whole gamut down to 2 meg 286s.

The available PC operating systems of the day were: DOS+Windows 3.1 (or the new WfWG), OS/2 version 2.1, and WindowsNT 3.1, together with the dedicated Network Operating Systems such as Netware 3.1, Lantastic, LAN Manager, LAN Server, and the like. The LAN-specific OpSystems were generally client-server oriented and required fast, powerful servers be utilized; the desktop machines could be relatively dumb. Windows 3.1 itself, with its DOS base and 286-era heritage, fit this picture fairly well too. It really couldn't fully utilize the power of newer machines. After the divorce between Microsoft and IBM, the two newest OpSystems had appeared: OS/2 and WindowsNT. Both were 32bit systems, but OS/2 was designed for the desktop while NT was designed with networking in mind. As a result, IBM could market OS/2 to the user -home or business- with a new, powerful 486 or soon-to-be-available Pentium while NT, by its nature, imposed demands that few users could tolerate - a minimum of 16mb RAM requirement was almost the least of its needs!

Whatever else Microsoft has been over the years, its nose for markets has always been good. And they always know how to count! While there may be several hundred thousand servers out there, and several million home users, the big bucks were in the corporate desktop arena - particularly with the way the LAN market was changing. As LANs became WANs, workgroup computing was increasing faster than any other segment of the market. This meant there would be a rapid growth of moderately powerful desktop machines. Win3.1 wasn't targeted for them, WinNT wouldn't run on them, even in its slimmed

down, Workstation version. But OS/2 ... Oh-Oh! Therefore, Windows for Workgroups was the short-term fix. Taking advantage of the lack of easy networking for OS/2, Microsoft developed an advanced Windows that contained built-in peer-to-peer networking. Moreover, the WfWG machine was also an ideal client for an NT Server. But all this was just an interim solution.

Is Windows95 the ultimate fix? Far, far from it! It is another interim step - although perhaps the word *transitional* better describes it. With its built-in networking, even smoother than that of WfWG, it fits the same niche that WfWG does in the corporate environment, as a good peer-to-peer system, equally at home as the client for an NT or a Netware Server. With 32bit, protected mode drivers for most accessories, it offers better memory management and faster data transfers across a LAN. And, being a 32bit OpSystem, it offers at least a temporary defense against a possible resurgence of OS/2 - which itself now offers a peer-to-peer package.

Where then is Microsoft headed? Will Windows9x eventually merge with WindowsNT? Perhaps, but if so, that day is far down the road. Remembering that it is the *business desktop* that is Microsoft's target, and that WindowsNT Server is their premiere product, it is then the WindowsNT Workstation that they have targeted for this market. Right now, the product is a long way from being viable as a widespread business desktop OpSystem. Not only does it generally demand resources more extensive than most business desktop systems presently have -an absolute minimum of 12mb RAM and a 486-66 processor- but, even more importantly, there is a dearth of true 32bit applications available for NT. But Windows95 can serve as the bridge. Applications desiring Microsoft's Win95 logo must -generally- also run under NT. And if one visits any software store or peruses the mail-

order catalogs, Windows95 software is literally coming out of the woodwork now with more announced each day. Thus Windows95 is spurring the solution to one of the principal obstacles in NT Workstation's way: available software. A remarkable strategy!

There's one other characteristic of Windows95 that deserves mention: it pushes users towards upgrading their hardware. We've all seen the wording on the box: "4 meg of RAM required (8 meg recommended)" and most of us have heard experienced users say, "Don't consider Win95 unless you've got 8 megs, but 16 is better!" The net effect has been a terrific rush to buy more RAM. Many (home) users - particularly those with 386SX or DX machines- have waited for Win95's release and are using it as the excuse to buy entirely new systems, usually high-end 486 or low-end Pentium machines, with 8mb, 16mb, or even more RAM. Hey! Wait a minute! Wouldn't such a machine run NT Workstation? How about that ... must be a coincidence.

Let's look at one other consideration: a few years ago, when most companies really started buying desktop systems, the machine one used at the office was typically more powerful than that used at home, if one even had a PC at home. Those machines served as part of the impetus in getting more folks to buy a machine at home. But now, the machines folks are buying for their homes are often more powerful than those they use at work - and those new machines come with Windows95 installed. Now those home users are applying pressure at the office for power, speed, and ease of use they have come to expect from their own machines. But, as noted earlier, businesses are resisting the switch to '95, at least currently.

What has Microsoft to say? Well, their few press releases to date have indicated that “Windows96” will *require* 8mb of RAM - with 12mb recommended. Releases have also indicated that the next Workstation release of NT will have the Windows95 interface *and* will require 8mb of RAM - with 16 recommended. Huh? What gives? If NT and '96 will both have virtually the same hardware and software requirements, will they be the same product? **NO WAY!**

Certainly the two products will have more similarities to one another than their present-day counterparts, but it is not feasible - at present, at least - for Microsoft to merge them. There are just too many fundamental differences in how these OpSystems are built. Win95 is built for compatibility. It allows almost unrestricted use of older DOS and Windows 3.1 applications - including games, graphics, music, etc. To provide that capability stability and security were sacrificed; that's why it doesn't have NTFS and why there's still lots of 16bit code that are needed to retain compatibility. NT, on the other hand, places its emphasis on security and stability. Part of this is built into the NTFS file system, part results in its refusal to allow software to directly manipulate hardware (reasons for an almost total lack of NT games, and little fax software - they typically try to control ports directly, which NT will not permit!). As long as Windows9x seeks to maintain compatibility with earlier applications, it cannot be *merged* with NT.

Generally, businesses do not *want* their users to be using software of the types that NT doesn't support. But they do want the security and stability that NT offers. As their workers clamor ever more loudly for that with which they are familiar at home, there will be Microsoft, offering them NT Workstation “4.0” (or NT96, or whatever...) This OpSystem will be specifically designed as the client of NT Server, and

will have the same interface that their workers have used at home. It will run on current standard baseline PCs, and will offer the security and stability that the company needs. Workgroup computing? NT Workstation will work peer-to-peer even better than Win9x *and* work better with a WAN as well ... and Bill Gates deposits another few billion in his bank account.

So where, you may well ask, does that leave the home user of Windows95? What can he or she expect? Are we just pawns in Microsoft's grand strategy? Yep! At least in my opinion, that's *exactly* what we are. But that is *not* necessarily a totally bad thing. In the process we are getting and using software that is (usually) faster, more stable, more powerful, than any we have used previously. And I expect that to continue. Admittedly, the cynical side of me notes that, while 40,000 of us were unpaid beta-testers of Windows95 and a further 400,000 paid Microsoft \$40 to gamma-test it, currently all Windows95 users are paying Microsoft \$90 to *beta-test* for the future NT. The fact remains that each of the Win95 tools (TAPI, Exchange, etc.) and most of the applications we use are now being designed for NT as well. And if you *don't* think Microsoft isn't using our Tech Support calls for this purpose, well, I have some land (sort of) that I'll sell you in Florida...

But *if* this cynical perspective is true, we will continue to see more new features in Windows9x. As it serves as the *test bed* for new NT features and applications, it will get constantly more powerful and more capable and -in many respects- grow closer to NT. However, do NOT look for a merger of the two systems to occur, at least in the near future. The home user doesn't need the security that NT demands and wants the games that NT won't permit. As long as that situation remains -which will probably be for several years, at least- Win9x will

**have to remain a separate, somewhat more limited, and somewhat less stable operating system than its big brother. But - if my vision is accurate - its test-bed role will also mean that it will probably be a half- or full-step ahead of NT in offering new features, something we will all appreciate.**

*Paul Kinnaly - who still uses LAN Manager and Word 2.0 at work, when not furloughed - has no connection with Microsoft and offers these personal opinions without guarantee. He serves as a member of [WindoWatch's](#) Editorial Board and as Webmaster for our Home Page.*

## What People Don't Like About Windows95

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### 1) '95 needs a way to set the default window properties for Explorer

**The Problem Explained:** Windows 95 only remembers the window properties of no more than 30 different windows in Explorer. When you open the 31<sup>st</sup> window, Explorer takes the least recently used window's properties, discards them and replaces them with the new window's properties. This means that if you have placed a folder on your desktop and carefully arranged shortcut icons on it, when you open more than 30 different windows, the arrangement of the icons in your folder will be lost and Explorer will revert to a default arrangement. You can't change the default.

**A Suggested Solution:** Allow the user to set global defaults for icon arrangement and window properties, and allow the user to configure how many to keep track of. Also include the ability to *lock* a window's properties so that it will never be lost. **Workaround: none.**

### 2) Explorer needs a better way to handle file extensions with long file names.

**The Problem Explained:** By default, Explorer doesn't show the extensions of files that have an association. If you receive a file which has the extension that has been associated, but the file type is actually not correct, you can't rename the file to have the correct extension un-

less you enable display of the extension. For example, you have Word for Windows 95 installed on your system. You receive a file named JOE.DOC, but it is really an ASCII text file. Explorer will show it as JOE without the extension. If you click on the file name in Explorer and rename it JOE.TXT, Word it won't become a .TXT file that you can load into NotePad by double clicking on it. Word will still load it. Why? The real name of the file is now JOE.TXT.DOC. You didn't change the extension by typing in the name JOE.DOC.

**A Suggested Solution:** Unless the user types in two dots in the name of the file, assume that anything from the last dot onwards typed by the user is the new extension. Alternatively, have a way to change the type of a file with a right click of the mouse.

**Workaround:** Always show the file extension in Explorer by changing the View Preferences.

3) DOS 7 won't sort directories. Sort limit of 64K or 2295 files in DOS.

**The Problem Explained:** The new version of the command *DIR* does not support grouping directories in alphabetical order. *DIR* will not sort more than 64K (or 2295 files).

**A Suggested Solution:** Windows 95 Disk Defragmenter should sort directories and files. DOS should have the ability to inherit these properties. The options should be user configurable, at least, allowing these switches with the *DIR* command.

**Workaround:** None.

4) Explorer always opens in the C:\Windows\\_menus directory.

**The Problem explained:** Explorer, the Win 3.x File Manager replacement, is closely integrated with Explorer, the Win 3.x Program Manager replacement. When Windows 95 first loads, it creates the user configured task bar based on what it finds in the C:\Windows\\_menus directory. Therefore, you must not change the default start-up of Explorer.

**Suggested Solution:** Let the user decide what the default start-up directory should be and allow the option of remembering the last position for the next start-up.

**Workaround:** Create a short-cut and define the start up position of Explorer. (See tips.txt in C:\Windows for the switches) or buy a third party utility like Norton File Manager which remembers the last position visited.

5) Windows 95 includes a backup utility that will not do differentials.

**The Problem Explained:** The backup utility included with Windows 95 does not properly copy new files added to your system since your last backup. It compares your current system to your last full backup and only copies *changed* files. Therefore, any new files must be manually added in order to be included with subsequent backups.

**A Suggested Solution:** Allow the user to select from five options when backing up using this utility: Full Backup, Full Copy, Differential, Incremental, or Incremental Copy.

**Workaround:** None. Third Party Applications exist.

**6) Floppy drive access randomly occurs for no reason.**

**The Problem Explained:** Windows looks at MRU ( Most Recently Used) documents, files, and shortcuts. Typically, a user installs a program from the A: Drive floppy and the *RUN* command. This is the typical Windows 3.x method. Windows 95 tracks every installation, so that the next time you want to install that same program, a list shows the installation command to be reused. Unfortunately, if the disk is not still in the drive, the floppy can be accessed frequently and unprovoked. This holds true for a file that was accessed and viewed off of the floppy as well.

**A Suggested Solution:** Allow the MRU list as it is, with the ability to configure the number of items and the ability to clear the MRU list. Windows should not try to access any of these directory pointers unless specifically asked to by the user.

**Workaround:** Install all programs from the Control Panel's Add/Remove/Install button. Clear all MRUs that point to the floppy. You can clear "Documents" from the Start Settings Menu. For the Run command line, you will need to edit the registry with regedit (after making a backup of user.dat and system.dat) Look in : HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\RunMRU. If you are running Norton Navigator, there is a patch which might help.

**7) 16 Bit applications turn Windows 95 into a 16 bit operating system.**

**The problem Explained:** Windows 95 is a 32bit, multi-threaded operating system. For downward compatibility, it also supports Windows 3.x multi-tasking applications. As long as everything is running

smoothly, the two can coexist peacefully. But, if a Windows 3.1 application should stop or run out of resources, the whole operating system responds as if it was a multi-tasking system requiring a system shutdown.

A suggested solution: Protect 16bit applications from invading the 32bit operating system.

**Workaround: Eliminate all 16bit applications and replace with 32bit applications.**

8) You can not undelete in Windows 95. You can not turn off the Recycle Bin's delete confirmation.

The Problem Explained: Windows 95 runs in protected mode. No longer does it depend on DOS for file operations; actually it bypasses DOS. For the system to be secure, there are no provisions for restoring a deleted file. There is a *Recycle Bin* which tracks deleted files and holds them aside until officially deleted. Problem is, that deleting a file does not free up any space. There is an option to delete every file immediately without going to the recycle bin. This brings up the other nit. You must confirm the deletion every time you delete a file.

A Suggested Solution: Allow the user to *delete* and recover just as Windows 3.X and DOS 6.22 did with *Undelete*. Also, allow the delete confirmation to be disabled.

**Workaround: Exit to DOS, type *LOCK*, and use DOS 6.22's *Undelete*. This is not a guarantee for as in DOS 6.22, if the sector is overwritten,**

the file is not recoverable. Another workaround is to buy a third party application like Norton Navigator's File Manager. Not only can Norton File Manager *undelete* in Windows 95, it will keep track of files deleted with Explorer.

9) 16 bit Winsock applications will not auto dial the network.

**The Problem Explained:** Windows 95 provides a 32bit Winsock driver with compatibility for 16bit Winsock applications. A 32bit application when run, will automatically call and dial the Windows 95 dialer. A 16bit application will not.

**A Suggested Solution:** Allow 16 bit and 32 bit applications to auto dial.

**Workaround:** Start the Winsock connection first, dial in, connect, then start the 16 bit application. Convert to using all 32 bit applications.

10) Long File Names get truncated with 16 bit applications.

**The Problem Explained:** Windows 95 allows long file names to be saved. This makes everything easier to read. But, each long file name has an 8.3 DOS based counterpart which when converted, is actually *harder* to read then when in Windows 3.x. It converts *The Little Red House.txt* to *thelit~1.txt*.

**A Suggested Solution:** Provide Long File Name support for all applications.

**Workaround:** There are third party applications which will do this.

**11) ALT-TAB fails to bring up the Desktop as it did in Windows 3.x.**

**The Problem Explained:** ALT-TAB in Windows 3.x always cycles every running program including Program Manager. Windows 95 went one step forward offering a menu of running programs and one step backwards taking away the desktop. What is the sense of loading scraps, shortcuts and folders on the desktop when you need to minimize all open applications to get to them?

**A Suggested Solution:** Explorer is a running shell and should be included in the ALT-TAB sequence.

**Workaround: None.**

**12) Some Third party applications are allowed to destroy file type associations.**

**The Problem Explained:** In Windows 95, file types are associated with the programs that run them. For example, a picture file (picture.jpg) may be associated with a viewer called Lview Pro.exe. The installation of another viewer program, like Apple's Quick Time For Windows, will take over the association for itself. No matter how many times you correct the association, the offending application takes over again.

**A Suggested solution:** Let the user configure the association and decide which should be the default association. Do not let a third party application change that association.

Third party application makers must not be allowed to sell Windows 95 approved programs which depend on associating file types for them to run properly. If two programs require the same association, only one will run.

**Workaround:** In most cases, changing the association of file types in Explorer will be a sufficient workaround. But, in some cases, as in the case of Apple's Quick Time, it is necessary to edit a \*.DLL binary file to override the associating properties.

*Phil Leonard is a regular contributor to [WindoWatch](#). He is a very knowledgeable Windows95 professional regularly providing our readers with insight into their '95 problems. He is employed as a Comptroller when he is not pursuing his many computer related interests.*

## **NT In the Home**

**Copyright 1996 Linda L. Rosenbaum**

**At the beginning of 1995, we had three systems networked utilizing Windows for Workgroups 3.11 and connected using 10Base-T Ethernet. Two of these systems were 486DX2/66 desktop systems with full multimedia and one was a 486DX2/50 notebook. One desktop system was utilized by my husband and one was shared between myself and my kids. The notebook was mostly utilized by my husband. We also had two printers which were shared via the network. We originally networked the two desktop systems in early 1994 in order to more easily share the one printer we had at that time as well as be able to more easily share files. We added another printer soon after we networked and shared it across the network too. We later added a DAT drive to my system and utilized it to backup the entire network.**

**My husband does a lot of work in programs such as Word for Windows as well as many graphical programs such as Corel Draw, MS Publisher, Print Shop Deluxe for Windows, and Print Artist for Windows. I felt that his 486-66 was getting a bit slow for this type of work due to the CPU as well as having only 16MB of RAM. As a result, we started exploring either upgrading his existing system or getting a new one.**

**When we started to research our options in January 1995, I originally intended to stay with WFWG 3.11 and consider Windows 95 when it**

was released. However I had been reading many good things about NT 3.5 and became more and more intrigued by it. The major reasons I was attracted to NT 3.5 were the following: 1) Much better crash protection when an application has a GPF; 2) Resource issues - being limited to the number of programs that can be run at the same time in WFWG 3.11 because of a lack of resources; and 3) the conventional memory problem: many windows programs need some to a lot of conventional memory which can also cause one to be limited in how many applications can be run at the same time.

With my interest in trying NT 3.5 getting stronger as the months progressed, I decided to buy a higher end P100 and went all SCSI rather than EIDE for the hard drive and CD-ROM drive. When we ordered our new P100 we decided to have DOS 6.22/WFWG 3.11 and NT 3.5 pre-installed for us. We also decided to keep both 486-66's and have a four system network rather than just a three system network.

We fell in love with NT 3.5! The new P100 was used by my husband and his old system went to our kids. We found, much to our surprise and delight, that our 16bit Windows applications worked very well in NT 3.5. It was a real pleasure to not have to worry about resources, conventional memory or a bad application bringing down the entire system. It was a pleasure to be able to not restart/reboot the system for days and even weeks at a time. We also found that as long as we stuck with hardware listed in the Hardware Compatibility List (HCL) adding hardware to NT 3.5 was quite easy. And we found that very little customizing was needed for NT 3.5 to perform quite well. This took some getting used to after having used various flavors of Windows since starting with Windows 3.0 in the summer of 1990.

Several months after we got the new P100 with NT 3.5, I decided to install NT 3.51 on my system, still a 486-66 at the time. We also

**upgraded the P100 to NT 3.51 as soon as the upgrade was available. I too found NT 3.51 to be stable and a pleasure to use on my 486-66. However I will admit it was slower than on the P100 and noticeably slower for some things as compared to WFWG 3.11 on my 486-66. But the stability etc. were well worth the loss of some speed. I *cured* the speed issue by upgrading my system to a P133. I have an above average, although not professionally oriented, midi setup and was delighted when quite a bit of it still worked in NT 3.51.**

**We have put Windows 95 on both NT 3.51 systems because there are some areas that NT 3.51 is still not as strong in as Windows 95, or for that matter WFWG 3.11. These include the running of DOS games with sound and multimedia windows applications. Some of my 16bit Windows front ends for multimedia applications don't work as well in Windows NT 3.51 as they do in Windows 95. In addition there are some other features of Windows 95 that are not available in NT 3.51 as yet and I wanted to at least remain knowledgeable of them and how they work - TAPI for example.**

**Another area that I believe Windows 95 is stronger as compared to Windows NT 3.51 is the hardware supported. There is a much broader level of support built into Windows 95 and the fact that Windows 95 can use real mode drivers extends this support even further. We have been very careful to stay with supported hardware on our NT systems but this does limit one more than I would like. In addition the hardware manufacturers are focusing their attention on Windows 95 support to the detriment, at least for now, of Windows NT 3.51.**

**We have kept Windows 95 as the only operating system on the third desktop and the notebook because its my belief that due to the hardware on the systems and their uses that NT 3.51 would not be**

**practical. The third desktop is used by my kids and their main use is multimedia CD-ROM and hard drive based games and educational titles. For the most part these work quite well in Windows 95 and I believe they would not work as well in NT 3.51.**

**We use a wide variety of software on our various systems. These range from Office 95 (Standard and Pro version), Publisher for Windows 95, MS Money for Windows 95, Corel Draw 6.0, ABC Graphics Suite for Windows 95, Quicken 4.0 for Windows, Approach 96, Procomm Plus for Windows 2.11, CompuServe Navigator for Windows, WinCIM, Ecco Pro 3.0 to a variety of 32bit and 16bit shareware programs. Additionally, we have a wide variety of CD-ROM based products including Encarta 96, Cinemania 96, Music Central 96, MS Art Gallery, MS TechNet, CompuServe CD, NautilusCD, PC Magazine CD, etc. I backup the entire network using my Sony DAT drive and Arcada Backup Exec NT Single Server Version 6.0.**

**It is my belief that NT 3.51 Workstation should be given serious consideration if one is frustrated with or constrained with Windows 3.1 or Windows for Workgroups 3.11 and also has the hardware to run it well. The minimum amount of RAM needed is 16MB but I believe 32MB is much better for NT. In addition a fast 486 is also adequate, but a Pentium is better. NT will support EIDE hard drives and EIDE/IDE CD-ROM drives but a SCSI system also is easier to get working properly in that then it is generally only necessary to make sure the specific host adapter is supported in NT. It is important that either the system itself or the components making up the system are on the Hardware Compatibility List (HCL) or have NT drivers. Microsoft updates this list regularly and it can be obtained from CompuServe as well as the Microsoft BBS.**

**Some of the negatives with a switch to NT are the higher support costs, smaller variety of hardware which is directly supported and the lack of sophistication of the drivers for some of the hardware that is supported. Unlike Windows 95 or Windows 3.1, there is no free support from MS for NT 3.51 Workstation. There are two different support plans which can be used but both do cost money. However there are other alternatives which do not involve a lot of extra money and these include CompuServe forums and the Internet. We have not had to call MS for help yet on either NT system and have been able to get the support we need via either CompuServe, other networks, or from the person who sold us P100 system and the upgrades for my system. While things can go wrong with NT, it has been my experience so far that once it gets installed and set up, it will keep working with little extra effort needed.**

**Certain types of hardware are not as well supported in NT as they are in Windows 95/Windows 3.1. These include sound cards, scanners, and printers. Many printers are supported but with less capable drivers than exist in Windows 95/Windows 3.1. However, with supported hardware, NT 3.51 does work quite well and quite reliably.**

**I strongly believe that the future of NT is excellent. We are delighted to be able to get an increasing number of 32bit applications now that Windows 95 has been released and applications are being written for it. We look forward to increasing support for NT 3.51 with respect to hardware as well as software.**

*Linda has been using computers at home since getting a 386-25 in March of 1990. She fell in love with Windows 3.1 that summer and has been upgrading ever since. She participates in several networks as well as reading many computer magazines in her quest to stay current.*

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*Alice Goes Forward!*

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Cellar 2020

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High Above the ground,  
Raining hot and long - at once!  
People ran around...

Alice had just fallen for the Mandatory Retirement clause in her lease, and suddenly had free time.

She was rummaging through the cellar in the year 2020 on the theory that it would provide the fun of a time capsule. The mission to Mars was underway, but she was tired of watching that on

DisneyNews. The Populist party was going to run Sonny Bono and Ross Perot for co-vice presidents. The fall fashions included revealing one-piece bathing suits with an anti-ultraviolet sheath. She finished wolfing down her Corn patty from Corn City, and put her auto-answer on *flexible* to fend off the telemarketing horde that always hit at 3:36PM each day, and descended the dirty steps below the earth. She had about twenty minutes of air for this.

**The first thing she found was a monochrome monitor that someone had loaned to her in 1990. Behind that were a half-dozen circuit boards that she had forgotten what they went to. 5¼” disks were somewhat rat-bitten. Software titles included Tic Tac Toe, PacMan, and Agenda from Lotus.**

**She tripped hard over several cardboard boxes from the original packing, and was drawn to a flashlight that was lit. Eveready batteries! Several scrapbooks of code to some game she had started before she had her first computer. A box of real incandescent light bulbs - she would never need them, with the power-cell roof on her house.**

**A life size Barbie doll. An unopened set of Power Rangers. Apparatus for Nintendo - from before the Holographic Imaging System (HIS), or the Holographic Energy Recycling Stand (HERS). A life-size Ken doll next to a set of Legos that didn't move. An 80486 66mhz with a one gig drive - from before the days of 0/1 chemical storage. A beeper, but she couldn't find the video screen that went with it.**

**A lump of coal, a can of gasoline - she couldn't see what they were meant to screw into. A remote control, certainly a world away from the CSP (channel switch patch) she wore under her blouse.**

**A handgun, which she promptly turned into the Local Policia, after taking a picture of it for the record.**

**There was a small tent, with a logo “camper's delight.” She could not see the point of it, as coordinate assignment would prohibit moving to another place. And Moving Visas were backed up for the duration. Then, a Cam, - but when she pushed the button, no scene came out.**

**Alice reached into her pocket, and slipped on her one-piece swimsuit with ultraviolet sheaf, and stepped out into the steaming weather. She contemplated cleaning out the cellar some day, and pushed the Rearrange-The-Furniture-Mode (RTFM) to workout mode, asking aloud of her partner “What’s for supper?” As an afterthought, she dialed 9 for Thrift Shop mode and dumped the contents of the basement. “Are you sure?” said the Voice.**

*Peter Neuendorffer is a Windows programmer and an exciting satirist who regularly contributes his considerable wit to [Windo Watch](#). Alice is his creation and she provides our readers with the tales of her unusual adventures. Peter and Alice are regular [Windo Watch](#) contributors.*

## Window Aspect: A Scripting Language

A Tutorial: Part Nine Ghost BBS v3.20

Copyright 1995 by *Gregg Hommel*

This column is dedicated to the memory of Charles J. Roberts, of East Hampton, VA., a GHOST BBS sysop, and an avid GHOST beta tester, who died unexpectedly, Sunday December 17, 1995

Never, ever judge a book by it's cover....

Chuck wasn't a computer expert, nor was he a communications maven. If anything, he was a prime example of the target market for GHOST BBS, a PCP/Win user who wanted to set up a small BBS, but did not want the hassles of a regular BBS package to do it. His first voice phone calls to me showed me this well. He was what can best be described as a *newbie*, with questions to match.

But Chuck learned quickly, and before long, he had his BBS up and running, in the process, teaching me a few things about spots in the GHOST documentation etc., that were in need of some work. Once Chuck got things going, he really enjoyed himself with GHOST.

As a matter of fact, not long after he got his BBS up and running, he called me to tell me about something that had happened. It seems a fellow named Keith had called his BBS. Keith was a local teacher, who was looking into setting up a small BBS for his students to use. He figured they could learn about computers and communications while they took down assignments and so on. I guess Keith liked what he saw

on Chuck's board, and he and Chuck began talking about the possibilities, and whether or not GHOST BBS would work for what Keith wanted.

In the end, they decided that it would, even though Keith had to buy a copy of PCP/Win in order to run GHOST. Chuck spent a great deal of his own time helping Keith get set up, and running the way he wanted the BBS to be.

In the end, both Chuck and Keith decided to become Ghost beta testers, and that's when they began ganging up on me! Shortly after the release of GHOST BBS 3.20, I began, as is my wont, to work on the next version. In fairly short order, I posted a beta version for my sites to begin testing. It wasn't much of a change, just some new code to handle Adaptive Answer and fax calls, but it was a start.

Then Chuck and Keith got together over it...

Chuck posted a file on my BBS containing a list of about sixteen or seventeen wish list items that he and Keith had come up with, based on that first beta version. I read over the file, and, although the items on the list looked like nice features to add, they also looked to require a fair amount of coding changes to accomplish the features. I wrote Chuck back a note explaining this, and telling him that I would add the items to my *to do* list for GHOST.

Chuck accepted that response, but he didn't give up quite so easily. He responded with a note explaining which features he and Keith thought were the more important ones, and encouraging me to look into at least those. Chuck was so persistent in his requests that I decided that, in order to shut him up, I would have to look into the items carefully,

**and explain to him exactly why the coding changes would be so extensive.**

**That's when I realized that I had fallen prey to doing what the title of this piece says.. I had judged the book by it's cover. One item on the top of Chuck's, was the implementation of multiple mail conferences, so his users could post a message in an area specific to their problem or question, rather than in one single, general conference.**

**I already had code in GHOST to allow for multiple bulletins, file libraries, and DOS doors. I quickly realized that it would not take much to adapt that code to allow for multiple mail conferences. There was, of course, more to it than that, but the basics were already there, and all I had to do was work out the details.**

**The end result was that, out of the sixteen or seventeen items on that original wish list, about half of them fell into place fairly quickly and easily once that first one was begun. My first impression that any of the features requested would require a great deal of re-coding was quite wrong, and now, those eight or nine new features from Chuck and Keith are part of the current GHOST BBS beta.**

**When you are writing code, don't fall prey to the same mistake. Don't let your first impression of how much work is involved dissuade you from making changes to your code. Look carefully before making such decisions.**

**Now... let's go back to our dear friend, George, who, when last we looked in on him, was trying to figure out a way to write a generic script to handle more than just a simple log on to his favorite BBS.**

**He hasn't had a lot of luck, so in this column we are going to give him**

a hand, by showing him a trick that I developed long ago, and that was explained in my original Wasp 1.0 tutorial on the nets. If you have read that tutorial, you may want to skip this column, or perhaps use it to refresh your memory. But lately, I have been getting a lot of email on this subject, and thought that perhaps, it wouldn't hurt to cover it again, if only for a whole new family of Wasp script writers, who weren't around back in the *good old days*.

This trick was, as noted above, originally developed for Wasp 1.0 scripts, but works equally as well in Wasp 2.0 - and hopefully, Wasp 3.0, whenever we have that language to work with.

There are several ways that you can handle prompts during a log on to a BBS. The most frequently used method is the one that the PCP/Win recorder uses, i.e. a series of WAITFOR commands.

But these WAITFOR commands are limited in usefulness. They are exclusive, meaning that when they are active, nothing else in the script can continue, and they are time limited. This means that, if the time allowed for them to remain active expires before a prompt appears on screen, they aren't of a lot of use, since they won't be active when it does appear.

Better than a WAITFOR, is a WHEN TARGET. These commands go active when set, and remain active until the script author, you, explicitly de-activates them, or the script stops executing. There is no time limit on them, and they will catch their target whenever it appears. *AND* they are asynchronous, which means that they can function even as the script itself continues on it's merry way, doing other things.

**The biggest drawback to a WHEN TARGET was that, back in Wasp 1.0, you could only have three of them active at a given time. That is what caused me to discover my trick, since three of these was simply not enough to watch for every prompt in a complicated PCBoard log on. I had to find another way to use them, without having to reset them multiple times to do it...**

**The next time you log on to a PCBoard or WildCat! BBS, watch the log on carefully. That's what I did, along with capturing multiple examples from different systems, comparing them, and studying them over and over. What I wanted was one or several things common to as many of the prompts as I could find.**

**The problem was there wasn't a single thing that I could find. The prompts varied from system to system, and for that matter, from log on to log on. I was mistaken, of course, for the simple reason that I was making the mistake of looking at the text of the prompts, which is generally what you use in a WAITFOR or WHEN TARGET. I quit looking at just the text, and began looking at the whole thing, and suddenly, I found what I was looking for....**

**On virtually every PCBoard or WildCat! BBS that I looked at, no matter what else the sysop had set as the text for his prompts, one thing remained in almost every single prompt that appeared on the system.. not text per se, but a symbol, a "?".**

**Such a silly, stupid little thing, but, to confirm it, I did some further captures, and sure enough, that crazy "?" appeared in almost every prompt on both kinds of systems, and rarely, if ever, appeared anywhere but in a prompt. That was it, I told myself ! What I must do is watch for the "?" and when it appears, I've got a prompt. But... how do I tell which prompt?**

**As it turned out, a rather simple, solution. When a prompt is sent from a BBS, everything stops while it waits for you to respond. Not only does everything stop, but invariably, your remote cursor is left sitting on screen, at the end of a displayed line of text that is the prompt. All that I had to do was get that text from the screen of my terminal window, and check it for a key word or words that would tell me which prompt it was, and thus, how to respond to it.**

**Turns out that Wasp has a simple command that can be used to get the text onscreen in the terminal window, on a given row, from a given column to another column. That command is TERMGETS. All that I had to do was determine the row onscreen, and the column from and to. Again Wasp came to the rescue with a simple way of doing this. The final command used in my scripts to get the prompt is...**

```
termgets $ROW 0 prompt_str $COL
```

**where prompt\_str is a string variable that stores the text found.**

**So let's look at this. Remember, I said that, when a prompt string is received, you end up with that prompt onscreen in the terminal window, and with your cursor placed on that line, but immediately after the text of the prompt. So, the above line uses that.. \$ROW is the current row on the terminal window screen, i.e. the row the cursor is currently on, and \$COL is the same thing, but the current column of the cursor.**

**Therefore, I am telling Wasp to go to onscreen ROW where the cursor is, and to get text from the screen starting at column 0, and ending at the column where the cursor is currently. In other words, the entire text of the currently displayed prompt.**

So let's put the two things together now...

- 1) We need a **WHEN TARGET** to watch for any prompts coming in. Those prompts **\*ALL\*** contain the trigger "?", so the line for that, would be

**when target 0 "?" call get\_prompt**

- 2) We need a procedure **get\_prompt**, which starts with the **TERMGETS** command above, and then proceeds to determine which prompt is being displayed.

And that is where we will pick things up next month.. with the creation of the procedure which determines which prompt is being displayed, and then responds to it for us. Sounds simple enough, but there are a few scripting tricks in that procedure, also.. enough that it makes a discussion of it a worthwhile endeavor in this column...

*Gregg Hommel is a much respected Aspect script writer and programmer. He is well known on the various nets hosting any number of conferences. He is applying his considerable programming talents to the construct of his own homepage and ours. Gregg sits on our Editorial Board and is a regular **WindoWatch** contributor. Gregg can be reached at [gregghom@ophelia.waterloo.net](mailto:gregghom@ophelia.waterloo.net).*

## **A Thousand Times**

**Copyright 1996 Herb Chong**

**Computer systems have been getting faster and faster since they were invented. For the past ten years, computer power has been doubling at about the rate of twice every eighteen months. Although there are limits in sight with current and foreseeable technology, it is by no means certain that we are going to hit a hard speed limit any time soon. Suppose you had a system that had a thousand times more disk space, a thousand times faster, and a thousand times more memory. What kinds of things could you do with it that you couldn't do today?**

### **Disk Space**

**If you had a thousand times more disk space, how much would that be? Many people have about 1G of disk space on their systems these days. It's nearly the standard for higher end systems and rapidly becoming the standard for people who are upgrading their systems. A thousand times 1G is one terabyte. What kind of things would fit in a terabyte of disk space? Plain ordinary word processing documents won't change much, so you won't see much of a space increase for a single document. Bitmap images take up far too much space on most people's computers, but most people can keep enough files on their computers to have a favorite collection on-line. One thousand times that space would let people store even the obscure and the never-to-be-looked-at-again.**

**Right now, it's impractical to store your music collection on your computer. At normal CD-quality audio, you could put about 100,000 minutes of music on the terabyte of space. This is about 1,700 average music CDs. I only have about 300 CDs, but some friends of mine have more than 3,000. You could put most home CD collections on your computer, and with a little expansion, accommodate even large home CD collections. If you assume lousy compression, such as used in the Sony MiniDisc or Philips digital recording systems, you can get away with between 4:1 and 2:1 compression. With this amount, you will even have room left over for other things.**

**Today, no-one keeps their video collection on a computer. Even large commercial television studios and networks don't do it yet, but they are starting to. If we assume 640x480x24-bit 30 frames/s video, roughly comparable to broadcast quality video, that's about 1.6GB per minute. Since it's possible to do 10:1 to 40:1 compression without noticeably affecting visual quality, let's assume 20:1 compression. I have made videos at this compression ratio and have not noticed enough artifacting without already knowing what to look for. Thus we net out at 80MB/ minute. Adding compressed audio makes almost no difference in the net data rate. A terabyte of space allows about 12,000 minutes of on-line video. At about 90 minutes per movie, you get about 140 full length movies. If people continue to use their recording devices mostly for time-shifting, a terabyte is enough room to hold many favorite movies and recordings from the past week or two. People who are collecting episodes of their favorite TV shows would run out of room, but then serious collections probably would be willing to get more off-line storage too, like traditional video tape or perhaps recordable media like holographic memory or writable laser discs.**

**With a terabyte of disk space, you have enough room to store, temporarily, anyway, a daily newspaper or two, and several magazines with words, pictures, audio clips, video clips, and reference information to where you can get more background if you wish. If you wanted to, you could record and edit your own music and video on the system.**

## **Time**

**If you had a CPU, video card, and memory that was one thousand times faster than what you have today, what could you do with it? The Pentium 100 is rapidly becoming the standard today. Some of the images that I rendered for the article in the last issue of WindoWatch took about 9 hours to render on my Pentium 90. If it was one thousand times faster, they would take only about 30 seconds to render. Reducing the realism of the image reduces the time required by about a factor of 10. This still doesn't make it possible to do flicker free realistic scene generation.**

**The movie "Toy Story" required between 45 minutes and 2 hours to render a single frame. At one thousand times faster, it's possible to generate the images at somewhere from about 3 seconds to 5 seconds. Broadcast quality video generated in real-time is still well beyond the realm of practical. You couldn't run a holodeck without hundreds or thousands of these kinds of computer systems.**

**Speech recognition takes lots of computing power. Even with today's technology though, it's possible to get reasonable quality and reasonable speed for discrete and continuous voice recognition. Adding even just ten times more computing power would make them faster and more accurate. Somewhere between one hundred and one thousand times as much computing power and you get enough to do**

**continuous speech recognition. It would become practical to speak to your computer and have it understand what you want it to do.**

**The next barrier then comes in the understanding of what you want to do. Despite naive assumptions to the contrary, it takes an extraordinary amount of knowledge and computing power to just parse normal spoken language into relatively unambiguous parts. After parsing comes understanding. That takes even larger amounts of knowledge and computing power. One thousand times as much computer power is what researchers in the field think is needed just to be able to parse and understand a spoken request or command in a reasonable amount of time. Doing it in real-time like you see in Star Trek is still beyond what you might reasonably expect. The knowledge needed to endow a computer with *common sense* alone would put a sizable dent in the terabyte of disk space we have allocated ourselves.**

**Needless to say, one thousand times as much CPU power means that mundane things like spreadsheets, accounting programs, and other more traditional uses of computers would run very quickly. So would file management tasks and utility functions we traditionally do with personal computers to keep them healthy.**

**For just about anything else people do on their computers today, including just pure playback of video and audio, even today's Pentium systems are adequate. Increasing the speed of computers by one thousand times makes some things practical, but a few things that people are talking about today are still beyond reach. However, if you settle for real-time generation of game quality graphics, whole new vistas open for user interface development.**

Windows has both fueled and been fueled by the rapid growth in Intel x86 processor power. Imagine running Windows 95 on a 386DX-16 with 1M of RAM. It can't be done. Even with 4MB of RAM, it can't be done except to prove how patient you are. On the other hand, if people still used command line and screen interfaces like those from Lotus 1-2-3 Version 1 or 2, how necessary is a high powered graphics co-processor and CPU? Windows 95 was not even imaginable when the original PC with the 8086 came out. Running DOS 1.0 on a modern PC-compatible system today is pointless even if it could be done.

With one thousand times more computer power available, navigating a *real* office in high resolution and color rapidly and without flicker would be possible. A mouse-like object would not be the next development either. If you consider a 3-D office model, then holding one of the mouse like devices with 6 axis input won't work for very long for the same reason that light pens were discovered to be a bad idea. Holding a instrument in the air without support for long intervals is just too tiring. It's likely we'll navigate our computer desktop of the future using a combination of an ordinary mouse with more than two buttons, perhaps three or four, or combine it with a joystick-like affair and *fly* through our user interface. As described earlier, spoken interfaces for general purpose, working day use, will not happen. However, putting that kind of interface to use for casual users of computers, such as at an ATM, would be useful, although people like to interact in silence because of the privacy it gives them.

### Remembering

The standard computer shipping today in the era of Windows 95 generally comes with 8MB of RAM. A larger system would come with

**16MB. To work with round numbers and hedge our bets, assume that one thousand times as much memory would 10 GB of RAM on a computer. Since it is not relevant to increase screen resolutions by a factor of one thousand but by only a factor of ten (100dpi to 1000dpi), our user interface of the future with high resolution would not require appreciably more memory. After all, what is a factor of one hundred between friends. We assume for the time being that on-line permanent storage, which I continued to call disk space above, is still going to be cheaper than RAM and faster too. So long as this is true, it means that a tradeoff has to be made between using RAM for holding something and the on-line storage. It also means that there is going to be less RAM than disk space on a typical computer system.**

**If a thousand times more RAM were available along with a thousand times more disk space, it means that the relative uses of RAM and disk would still be about the same. RAM is volatile and so you keep temporary data, applications you are using at the moment, and their data, in memory most of the time. You also can afford to do much more aggressive caching. More things from the disks would be in memory, simply because the objects stored there are going to be larger and not everything can fit. The notion of launching an application and changing to one that is already running might blur though. It really makes no difference to you if an application is on disk or in memory except for speed, and if the system takes care of it, why do you care?**

**Except for video, audio, and user interfaces, most people don't really need a thousand times as much memory. Having one thousand times as much means that the system can do more things to make the system run faster. The user interface can be richer and more responsive, but just how much more detail can you add to a button or a window? It's what's in the window that matters. For all intents and purposes then, I**

**predict that having a thousand times more RAM will mean a faster system and little else to the average user. For power users doing highly memory intensive tasks, the one thousand times means the difference between talking about how nice it would be to solve a problem and being able solve a problem. For people like you and I, all we'll see is even faster operation.**

### **Summary**

**If a computer system like what we have talked about today were suddenly to appear on your desktop, most of you would play on it with delight and awe at the speed at which it got things done. It would enable uses which we simply can't do today. However, there are some things which are still beyond the reach of a mere three orders of magnitude increase in power. Two things for sure are that user interfaces and new uses to which we put such machines can only be guessed at today, and that tomorrow's state of the art computer games will still not have enough to run properly. The game box of the future will say something like "Minimum system requirements: 25GHz x8600-compatible with 8GB memory, 400GB of free disk space, and 3D video card supporting 16Kx16K TrueColor at 30 million polygons per second."**

*Herb Chong is a very versatile man. His talents include programming, research, writing and teaching. His contribution to [WindoWatch](#) has been very great. We were very pleased when he became the WindoWatch Contributing Editor and are very proud of the fine job he did with last assignment as Guest Editor Extraordinaire.*

## **Is the Future Almost Now?**

**Copyright 1996 Lois Laulich**

**It's fun to diddle with the notion of owning or having access to a powerful computer that will take care of many routine details of life. Just as important, such a device would free up time and resources for more interesting pursuits. In the past, when we've discussed the computer as an appliance, we've dealt primarily with how much, - developmental costs; when - the targeted availability; and for whom - the market!**

**Although we've always had among us visionaries who can see around the corner of time, the reality of our social norms tend to restrict our vision to well worn paths. Cost constraints limit the goodies of progress for the affluent, at least in the beginning. It seems that the high costs of the infrastructure, the availability of new possibilities for the general public, and questions of utility for those who have no specialized experience with computers have reduced discussion to wishful dreaming. But no more!**

**As more options emerge to define what a computer appliance might become, we tend to get mired in issues of management and special interests. Discussion deteriorates into controversy about the pros and cons of governmental control or restriction. The reality of such far reaching technology and how it will impact upon the economy, social institutions and our daily lives seem to be left totally to chance.**

**When we think of the computer as an appliance with Hal of the film 2001 as the model, most of us think in terms of a personalized and highly idealized Electronic Cottage. Indeed, parts of the society are already highly computerized. Most modern hospitals have already automated important parts of their intensive care units. We regularly read of computerized stock transactions, automated buys and sells, and the resulting havoc that uncontrolled automation can create in the financial markets. Then there are the tinkerers among us who have successfully automated all or parts of their domiciles for security, scheduling of lighting, the pedestrian scheduling of a VCR to tape a television program.... and much more.**

**If we as individuals had control over technological development we might begin by creating three laundry lists: those trite and routine tasks appropriate for a personal computer appliance, those not suitable or where human judgment is required, and finally a third listing, representing questionable areas for debate.**

**For instance, in my own pedestrian way, I do want an intelligent appliance that will suck up dirt, dust, and debris in my house and then take it all out to the trash on an as needed basis. My \*ELF must clean the silver, the stove broiler, call the local grocery store by modem with my monthly purchase list and arrange for delivery. Also get quotes for a new auto, arrange for financing and then deliver the sucker to the front door with the motor running and the insurance purchased. It must have the intelligence to comparison shop for that new Pentium v.00? relying upon industry data to postpone the inevitable obsolescence. I do not, however, want a device located at some central collection point automatically monitoring my visitors, email, or telephone calls, either data or voice, and putting its digitized input onto a tape to be called up by a thug extorting money, a company**

**determined to sell me goods I don't need, or a government objecting to my politics.**

**Perhaps our futuristic predictions are based upon a technology that is limited to a single computer and we have been too narrowly defining what a computer appliance can be. Most of us understand the concept of a network but have not expanded our dream of the future to include multiple computers as part of a universe we can use and even control!**

**For example, for \$300, the following device is being advertised as an alternative to traditional Internet services and indeed has some of the properties of a computer appliance. In their fact sheet ViewCall America says:**

**A powerful, easy-to-use information appliance that connects directly to the television and standard telephone line to deliver Internet access. With a built-in Netscape-compatible browser, users can surf the World Wide Web without a PC. WEBster is controlled by an infrared remote control. An optional infrared keyboard is also available.**

**Online Services--A subscription service that enables 'average consumers' to access services intended to be convenient and to deliver information. These include home shopping, banking, news and information, education, entertainment, and e-mail. Navigation is easy and guided by four well-marked, color buttons on the remote control. This device takes us several steps beyond the much discussed cable model because the user is not just a receptacle from the Internet, but will have access to email, messaging and the too many Internet choices available now! The monthly fees will**

**likely determine the extent of acceptance by non-computer users.**

**The user becomes a partner, I believe, only when one can actively make choices of Internet features from a large offering, as opposed to pre-selected features in the cable model . In fact, many of the popular online services like CIS and AOL, were until very recently offering a classic cable model in their closed system approach to services.**

**When Joe McGarvey of Interactive Week discussed the issue of network-centric PCs, he quoted the views of industry leaders and CEO's who argued "that future efforts should focus on the network rather than the PC." They went on to say that "By shifting the processing and storage workload to powerful network servers, personal computers can evolve into network appliances that are not only less expensive than today's desktop machines, but easier to use." This is the controversial dumb terminal model.**

**We've all come to take for granted that we take on the identity of our Internet Service Provider (ISP) every time we get onto the Internet. Industry leaders take the notion several steps further and take the position that The Internet (or any large network for that matter) is the provider and keeper of vast amounts of information for smallish clients, thee and me and our local hard drives. Our storage devices with our beloved data are becoming redundant. They further claim that their network computer planned for early 1996 release, would not be tied to a specific microprocessor but would have the advantage of having multi-platform utility with the use of the highly touted JavaScripting. A quite different spin to our evolving definition of the computer as an appliance.**

**There are still other developers zeroing in on cheap, or less expensive devices to help large numbers of people get online and utilize the riches of the Internet. Sega and Sony are tooling up systems for Internet access and Email as has Direct TV already with its “pizza” size portable dishes. Still another departure of what many had thought as a computer appliance.**

**ISDN is changing the landscape of education as we speak. More and more in regions where the installation of fiber optics is a reality, school children are reaping the benefits of the fast relay of pictures, video, and on-site action in their classrooms through offerings like the Project Ocean of Know. Plain old telephone lines or (POTS) is still the service of necessity for most of us, but that is rapidly changing. The implications for home schooling are pretty obvious, but the more complex issues of a public school system mired in the politics of race and poverty is one of the issues of an Appliance Computer Network Enterprise that we are going to have to address as a national community.**

**Perhaps we must make the assumption that the future is closer at hand than we originally thought... at least important parts of that future.**

**What can be delivered now or very soon:**

- 1. Internet access for information**
- 2. Banking**
- 3. Online mail, telephone and faxing services**
- 4. Library and newspaper services.**
- 5. Shopping (from groceries to fashion)**
- 6. Higher and secondary education complete with degrees and accreditation.**
- 7. And in personal terms ISDN is rapidly coming to most major markets. Channel One will offer ISDN dial up services shortly after**

**the first of the year for \$65. per month plus the cost of specialized equipment at the user's end.**

**Applianced Computer Network(ing) Enterprises (ACNE):**

**Using the assumption that the computer appliance will be dynamic, expanding and decreasing in scope to fit the needs of the user, then we can sensibly assume that the Internet as we know it, will also be dynamic. My crystal ball tells me that Microsoft is correct when they assert that the Internet is a WAN and that OLE64 or OLE 128 will be a crucially important tool. However, my vision sees many Internets or WANs just as there are many television channels and many private networks. The resources of that totality or as much of that totality that each user opts to use *is* the appliance. The new president of Bell Laboratories, Dan Stanzione, maintains a new kind of home appliance could stimulate widespread construction of interactive broadband networks. Perhaps we are in the process of creating another utility and if not, should we be?**

**How will this impact upon the society? And to what part of the society... and should we care?**

**Signs of the times:**

- **In 1995, the World Wide Web expanded at about 1% a day.**
- **Demand for personal computers for the home market represent a 22% increase in U.S. sales.**
- **Price cuts made the PC the Xmas95 present of choice with faster CPU's and multimedia much in demand.**
- **Windows 95 added to PC demand as has wide media coverage of the Internet.**
- **More people working at home requiring sophisticated sources of information!**

- **Response Analysis Corp. of Princeton, NJ in a recent survey: found that 60% of households with incomes of \$60,000 a year or more had computers. They used this income level as a cut off point and did not interview those with lower incomes.**

**It seems to me, that each of the above events have put us on a track where we react to the consequence of our collective behavior. This takes us to the third list. An overstated and extreme example is that nuclear proliferation created acute social, international and pollution problems for the global community. It appears that we are again repeating the same or similar mistakes without a backward glance. There is no question, however, that for some people in unspecified job categories employed by traditional and established industries, mass automation will continue to threaten their livelihoods, decrease their economic and social status and sharply increase existing social distance within the national community and beyond.**

**Gates in his new book, “The Road Ahead,” by Viking hedged his bet. The book describes a vast menu of technological possibilities and their potential implications. Readers are exhorted to consider the educational and social issues that will *have* to be addressed to cope with the vast array of social changes.”**

**Cheap communications technology already allows millions of computers to be linked to one another across the globe providing information services that were unthinkable a few years ago. However, when Gates writes, that the information superhighway is not yet a reality and won’t become so for at least another decade, he shoots himself in the foot.**

**Of the many bottom line conclusions asserted by computer writers, no one has pointed out a simplistic and bare bones truth. The goodies of any broad based universal device which provides information, entertainment, education and enrichment, is only as good as the literacy of the clients it serves.**

**Right now, the Internet provides the focus of main stream interest, the framework, the training wheels, if you will, for information appliance technology for large numbers of people across the globe. This will not simply be a national revolution, but rather an international one, fueled by the market place and creating huge economic growth *and* dislocation in its wake. The role of human handlers must go beyond motives of glory and profit and attempt to build into their planning, protection of individuals, their livelihoods and freedoms.**

*Lois Laulich is the Publisher Editor of [WindoWatch](#).*

**\* ELF Electronic Lifeform Format**

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*There is an Internet in Your Future!*

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## **Reflecting on the Internet and Its Impacts**

Copyright 1996 by *Jerome Laulicht*

### **Personality Tests and the Internet**

**The Internet reminds me of the projective tests I first encountered when I was a budding clinical psychologist. I was meticulous about learning the theories, tools, techniques and lingo of my future profession. It intrigued me that people could see such a great variety of different things when they looked at ink blots or photos. I am again intrigued when I realize the great variety of perceptions and what people say about the Internet. - its future impacts and effects! There are interesting similarities between reactions to projective tests and to the Internet. People fantasize scenarios, make up their own stories, and project their own needs, differing hopes and expectations.**

**We find people drooling over the Internet as a great new advertising medium, and as a fantastic new tool for education at all levels ranging from kindergarten, using home schooling, through college degree programs. Of course, there's the hope that it *is* a place to sell wares from wine to homes and that people can be stimulated into making more credit card purchases, despite the fact that there is not yet a reliable way to make these transactions secure. Still others see it as a paradise for those who want to assemble pornography collections for**

others to stare at. Any day I expect to read of an Internet home page based business at <http://www.talksex@hotcontact.sexwhee.com> It would allow one to talk rather than write sex, while looking at a picture of a gorgeous person, or perhaps considering the option of being a character in a virtual reality film. The imagination runs wild: what viewer do you wish to use? --with what person?-- or perhaps you prefer to *create* your own person and a persona for yourself; And finally, what credit card do you wish to use? Some specialists see it as an opportunity to commit crimes with less risk from the comfort and privacy of one's home or office.

No one can forecast with accuracy the technical potentials of the Internet or the imaginative potential of its users. It might largely be a question of what creative people dream up, what people *really* want and the investment to make it so. Predicting the impacts of the Internet is both difficult and always fascinating. It will be in part a consequence of imagination-- linking fantasy to reality. These, too, were important elements when developing, using and interpreting the results of what were once my favorite tools, the Rorshach and TAT tests.

The fact is that none of us have a fix on what a dynamic Internet is but rather have hopes, make guesses and predictions of what it might become. People are seriously trying to formulate big statements about its present and future functions. We should take heed and learn from the varied conceptions of what desktop computers can best do. These have ranged from number crunching to word processing to databases to games to communications. As one writer recently put it: "the PC is only now beginning to reveal its true value and greatest potential, as a communication device that lets people share ideas freely on a global network." This nonsense type of assertion has

frequently been made about the functions of computers, and similar simplifications have been made about the Internet.

Computers are for all of these things. Undoubtedly still other uses will become widespread and popular as more powerful computers invite new uses. The Internet too can and will have a variety of functions. It is to dance with trivia to do anything but develop for an Internet which can meet multiple needs for multiple functions.

Another intriguing example of how varied and unpredictable is the use of the Internet is the torturous brief history of the search for computer security. This goal has been made more difficult, both more elusive and more desirable, by the massive growth of the Internet. No one much cares about the security of home pages which are essentially advertisements or promotions. There is much concern when trying to encourage online credit card transactions and transmitting proprietary data and information.

However, so much can be done on the Internet with little concern for security or firewalls. One can imagine a busy and widely useful Internet focused upon material where secrecy is of no consequence, or with issues of security becoming defined as unimportant or, simplistically, as non-problems.

Companies try to achieve more security by operating their own wide-area networks. One wonders if any major effort demanding high computer security can soon be developed on the Internet because the most skillful culprits may well be the security mavens rather than the criminals. It is these experts on creating security who are motivated to look for serious flaws in the work of other security professionals and are, indeed, the most likely to find them. It was one of them, Paul Kochner, who came up with the idea of clocking the time to compute

the secret key as a method to break, thereby unprotecting, credit card exchanges and Internet security software. He has also suggested that we should not rush to deploy trusted electronic security systems.

### A Shift to Fantasy: Newspapers and Magazines on the Internet

A fantasy has become a reality for me! I have been able to renew a cherished habit of reading the NY Times, albeit an abbreviated version, with my morning coffee. My other fantasy was for a serious start on ending the nuclear arms race and this too is happening. No longer must I wait several days for the paper to arrive by mail. Since leaving urban America, CNN by satellite and seeing the news with breakfast is not always pleasant. We now download the daily Times and maintain our mail subscription. I was emphatically reminded of the change on Dec. 26 when I received four back issues of the paper, not unusual after a major holiday or storm.

This would be a trite way to introduce a topic in a classy magazine except that I live in very rural West Virginia and the nearest newsstand carrying the Times is at least thirty-five miles away. The cost for the electronic edition is now minimal because a growing number of rural areas now have local Internet access services for a competitive monthly fee. The Internet has moved well beyond the cities and the Universities. By itself, this is no big deal but is probably a prototype of what we should expect of how many small effects occasionally add up to a large one.

The Times in a complete version is also available from the Nexis service and America Online. Nexis maintains a major archive of back issues which can be searched. AOL provides access to current and quite recent issues. Quality papers distributed nationally and quickly are needed. CNN and USA Today are not sufficient and the TV network news offers little. What is now available from a few sites

could become more widely accessible at low cost phone rates if other publications would create their own variations. The approach of the Times is only one paradigm and others have begun experimenting.

Publishers of papers and magazines could distribute full editions of their wares commercially for a fee through their own home pages or share revenues with online service providers who carry their publications. Massive electronic distribution will have to wait for the day of more efficient compression and greater bandwidth. The explosion of tools for electronic publishing which are suitable for Internet use is opening a new set of avenues and of authors for the distribution of information throughout the world. With less reliance upon a single fixed price and with special arrangements for selected users like schools or other site licensees. Nothing new there! Bottom line costs are lower with no paper, print or transportation costs.

### Books on the Internet

To illustrate this better, - another step into fantasy but this time with books! We are *not* talking of book publishing but rather of selling and distributing books, and critical information about them, and the dissemination of this information. The impact of the Internet depends largely upon people creating meaningful ideas and operations.

I have been a book lover forever and know that books have rigid physical properties. We are all caught up by tradition and habit but know that it is the content which counts--not paper or bindings or size. As a matter of preference I reject the popular book-on-tape because the actor/reader intrudes upon my imagination and interaction with the author. The obvious ideal is the ability to choose from up-dated selections of current fiction and non-fiction, classics,

recent best-sellers, and catalogues of the vast number of books published in recent decades. In other words, book distributors should have some of the characteristics of a library with meaty abstracts and indexes. There is every reason to believe that there will be commercial enterprises on the Internet targeted at book buyers and readers with a variety of special interests as well as libraries and schools. Communities and institutions already have budgets for new acquisitions. The only difference here is that catalogues and ordering forms can be available online for customers.

The book clubs don't seem to have taken advantage of the Internet for either information or marketing services. The existing traditional book clubs, despite their knowledge of books, probably do not have the moxie to develop such ventures or fear a too limited payoff. They may be too bound by tradition and their habitual ways of doing business. Take the Quality Paperback Book Club as an example. It is part of the genre of clubs appealing to special tastes or reading interests and is a subsidiary of the Book-of-the Month Club.

The highlights of my experience with them were an eye-opener. It is almost impossible to establish contact through their 800 phone number with its endless busy signals. Only an inspired call to the parent company after two frustrating months worked! I was told that Quality, an ironic adjective, did *not* have enough lines or enough people. Nor do they have an Email address! My original letter had elicited an unhelpful form response. I had been receiving the usual monthly mailings with fairly adequate information on the few featured books and essentially nothing on the many others listed. Apparently, no one had thought to develop a home page with commentary on the others. You get the picture—no connection at all between their goals and the Internet.

**Since the ability to assemble, store and deliver words is a computer's strong point, it is surprising that they have not been much used for books. I know of only one organized example using electronic distribution. The Guttenberg Project provides to the public older non-copyrighted works in text format. A Club operating from the Internet could offer far more choices each month since inventory is basically files on hard disks. Their home page could at little cost provide adequate reviews and descriptions of many books leading to many more choices. All it takes is disk space and good page design..**

**Transactions and delivery could be electronic as well, allowing quick shipment at lower costs. This sort of enterprise could become a major source for ill-funded and small libraries. Authors would get their royalties and publishers make a profit. Both hard and paperback editions would still flourish and would very likely continue to be the favored treatment of books for a long time. Purchasers of the electronic version would get the content at much lower cost. Perhaps libraries could create income from selling books-on-a-disk similar to books on tape. What about an online rental library and sending those selected books directly to your hard disk?**

### **Schools, Public Libraries and the Internet**

**It seems to me that a browser plug-in is needed for commercial book sellers and book clubs to use to distribute book announcements and confirmation of orders. There is much talk of marketing on the Internet and I am using books as a paradigm of what might be realistically possible and in demand. I assume that those people interested in making Internet purchases will require some sort of listing or catalogue. Without a catalogue there is no advantage to this**

**kind of shopping as compared to traditional 800 numbers, discount stores, or supermarkets. For rather obvious reasons, books are the kind of product that might sell well on the Internet.**

**Using the Simtel shareware library as a model, a book server(s) calls upon public or specialized source libraries from which every community, library, school, individual or family could choose. Almost everyone would then have the opportunity, as I did, notwithstanding poverty, to have full access at no cost to the magnificent New York City Public Library system.**

**Even though it's wonderful to own real books it is often impossible for many to buy more than a few of what is perceived as a non-essential item. Paperbacks don't make it for long-term possession as personal treasures. Perhaps a real use could be found for those old 286's and Apples for online reading and browsing in public places like city halls, municipal buildings and of course, schools and libraries.**

**We should not get too starry-eyed and think that libraries will be able to provide new services at the same funding level. Libraries will need additional tables and chairs and places to plug in those old machines for people who don't have computers at home. This is no longer fantasy and goes beyond book clubs and book purchases. We are discussing libraries in smaller towns and branch libraries in the poorer sections of cities suddenly having larger book choices because they will be able to access these developing Internet resources. Taking advantage of the opportunity will demand going beyond technical and organizational wizardry. Without technically competent computer staff, librarians and teachers this is indeed a mere hope and fantasy.**

Lets not drift too far from reality and get mired in the enchantment of hype when we think about the Internet's potential. When one reads that 60% of American homes now have computers, one must also heed the additional sentences which say that this is true *just* for those homes with annual incomes over \$60,000. Statements about the great potential educational benefits of the Internet need skeptical evaluation. Think of the technological knowledge required to merely get onto the Internet and then use it at all well. Think of the numbers of computers required even if students work in groups to tap this resource frequently. Then think of other ways in which schools use computers and the sharp limits on funding for computers. Now forget all the technical hoo-hah and ask how schools can possibly find the financial and personnel resources to acquire enough equipment as well as teach students first to read and then enough about computers and software to make the Internet work for them. It will be nearly impossible for many schools and students to benefit much from this resource without private organizations *interfering* to make these things happen. Governments will not provide much of the money needed, and this is exacerbated by the demand for no deficit and lower taxes.

As best I can see, the only chance of filling the void is to create a much better-organized and effective way to recycle Internet ready computers with Corporate America getting generous tax write-offs for their contributions. *Internet Ready* is the key phrase however! We badly need efficient agencies to publicize the need, collect and distribute useful for the Internet computer equipment. Perhaps we can encourage the resurgence of earlier corporate efforts to make sure that school children had access to efficient equipment for the task. In this case it is full access to the Internet!

**With financial support and vigorous technical leadership from the computer industry perhaps we will soon reach the point of creating an industry foundation to provide start-up support for a number of such local agencies. If we are serious about the positive role of computers and in the Internet impacting upon the society positively, this is what we will do.**

*Jerome Laulicht is Professor Emeritus from the University of Pittsburgh. He is the author of many scholarly and research articles along with his [WindoWatch](#) contributions.*

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*Excel V5 vs. Lotus V5 (Win 3.1 versions)*

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## **Spreadsheets and the Suites** **Part II of the Suite Series**

**Copyright 1996 by Frank McGowan**

**Once again, the standard caveat lector: I approach Lotus from a Microsoft point of view, having cut my eye teeth on Excel. My only prior exposure to Lotus was a workshop I conducted last year that used version 2.4 for DOS. Lately I've been teaching and using Excel almost exclusively. So I came to Lotus with my vision virtually untainted by preconceived notions regarding its effectiveness on Windows.**

**So, now that we've got that out of the way . . .**

**Why would someone reasonably competent and comfortable with Excel want to switch to Lotus, anyway? Well, I certainly can't come up with a good reason, but that doesn't mean you mightn't. Certainly there must be lots of folks agonizing, even as I type, over which one they should choose for their home or business. If I were a neophyte in the area of spreadsheets, I would be very tempted to choose Lotus, if only for the outstanding tutorial that comes with it.**

**Normally I don't bother with tutorials packaged with software, because my experience with them has been pretty dismal. Most of them either start somewhere in what should be the middle of the**

learning curve; take forever to get far enough along to reach anything very interesting; or are so *user-friendly* they slop over into treacherous cuteness like a box of Forrest Gump chocolates. I generally don't stick around long enough to see what's in the next chocolate.

Lotus's tutorial avoids these potholes, starting at the beginning and moving along at a pace that all but the most cognitively-challenged should be able to maintain. The exercises are complex enough to be interesting and realistic but not so tricky that they are overwhelming. When you get lost, as I managed to do a couple of times, it's easy to backtrack and get your bearings.

On one hand, it was somewhat exhilarating to see how quickly I was able to become conversant with the product, while on the other hand it was a bit depressing to realize that anyone who took the time to work *hir* (okay, this is my attempt to avoid a gender-specific pronoun without resorting to "his/her") way through the tutorial would have no need for my services as a trainer. Getting up to speed is easy on Lotus - given that *easy* should always be read as *compared to*.

Once you're ready to do real work, things even out between Excel and Lotus. They contain features that produce the same kinds of results and are on a par for ease of use. For instance, Lotus offers a **Fill by Example** that works like Excel's **Fill, Series** feature: you enter the first of a sequence, such as a month's name, and Lotus/Excel fills in the following blanks.

Differentiating between them is not easy. You find yourself looking at very minor points. For example, I was at first put off by the lack of drag handles on the Lotus cells, thinking it had to be quicker to fill cells in Excel, by clicking the drag handle and dragging across. I

discovered that Lotus behaves much the same, but their method involves a special *chevron* effect that indicates that dragging will put the cell's contents in the other cells. This is not very significant, unless you think style points count for more than 50% of a score.

One thing I found in Lotus that appealed is the choice of **Amortize a Loan** as one of the SmartMasters you can select when opening a new worksheet. With Excel, you have to know that the function to use is PMT, not all that obvious, especially to a beginner. That's probably not enough reason to prefer Lotus to Excel, but at least it's a point in its favor.

Data manipulation, sorting, charting, etc., is a tossup: both Excel and Lotus let you display your results in whatever form you think presents it best; and neither has much of an edge in methodology. However, it's a bit disconcerting that the sort buttons don't appear automatically on the Lotus toolbar - you have to put them there yourself, via the SmartIcons option under the Tools menu. Of course, that means you have to know they exist, and then figure out how to get to them - a point for Excel, I feel.

Essentially, after gaining some familiarity with Lotus, I've decided that Lotus is to Excel as Spanish is to Italian: clearly related, but different enough to require some learning; and similar enough to get you into trouble if you're not careful. I speak from hard experience on the Spanish/Italian subject. I'm a little fluent in Italian, four years of college and a lot less in Spanish, two years high school, and three years of street Spanish garnered in the service of my country in Alamogordo, New Mexico.

**A few years ago, Sue and I were in Guadalajara, wandering around the Mercado. Acres and acres of all kinds of things you absolutely can't live without. I decided to surprise my bride with a souvenir. Finally I opted for a small hand-woven basket. The vendor's price was three thousand pesos (tres mil). Knowing that one should always bargain or be regarded as a *cabron* by the locals, I countered with an offer for two thousand. Unfortunately, I chose the Italian word ("due") rather than the Spanish ("dos"), which the vendor heard as English for *do it*. When I objected that I hadn't gotten enough change for my five-thousand peso note, he was understandably perturbed. Luckily, cooler heads prevailed before the misunderstanding escalated and an international incident was averted. It was more than an hour before I realized the mistake I'd made. It's unlikely you'll find yourself on the verge of a fistfight because you inadvertently mistake a Lotus function for its Excel counterpart; but you should be careful!**

*Frank McGowan is a teacher, trainer, and computer consultant. This is the second of his SUITES articles for 16bit Windows users. He is a regular contributor to [WindoWatch](#) and can be reached at [76342.3036@compuserve.com](mailto:76342.3036@compuserve.com)*

**The Technology Focus in Israel  
Copyright 1996 Stanley Kanner**

**At the recent education exhibition in Jerusalem, Israel's love affair with technology was very evident. Every single exhibitor at the fair dealt with technology. From computerized robots to internet connections, there was nothing but technology to be seen. As the international economies have been shifting more and more to high tech, the Israeli economy has been booming.**

**Israel is a technology oasis, in the middle of a technological desert. Many of the surrounding countries that it is trying to make political peace with have poor economies. A worker for the foreign ministry in Israel told me that a Jordanian counterpart had bragged to him that Jordan did forty million dollars a year worth of business in computer related industries. He went on to say that this represented about one per cent of what Israel does in high tech business.**

**The differences here are vast. With peace between Jordan and Israel, hopefully Syria and Israel, and the possibilities of peace with other Arab countries, Israel is in the position of being the high tech supplier to the Arab world. However there exist mammoth albeit traditional barriers to be overcome. An observer for Peace Watch, an international organization monitoring the peace process, recently told me that the Arabs have great distrust of the Israeli technological edge. It was his opinion that they are concerned that if they let the Israeli high tech business into their countries they will be economically**

**managed by Israel. He went on to say that at a recent technology fair in Aman, the number of Israeli companies represented were restricted for fear of domination of the exhibition by the Israeli exhibitors.**

**From this side of the Jordan river in Jerusalem, it appears that there are many Israeli companies ready to expand their business into the neighboring Arab countries.**

**In the Middle East, real life situations effect your everyday comings and goings. I was trying to get reactions from Arabs in East Jerusalem and Aman of the effect of peace and Israeli high tech on Arab countries, only to find that the West Bank had been sealed off and East Jerusalem was on strike due to the assassination in Gaza of "The Engineer."**

**I am planning a trip to Aman this month and will attempt to get first hand information on the Arab perspective as it relates to these possible technological impacts on their societies. Hopefully the West Bank will be open.**

*Stan Kanner is a regular [WindoWatch](#) contributor who is spending a year in Israel. He has been active on the Internet with his online high school. He can be reached by email at [stankan@mail.netvision.net.il](mailto:stankan@mail.netvision.net.il)*

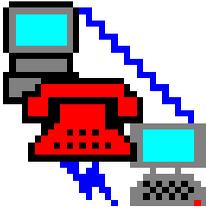
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*Are We Drifting...?*

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## Reflections of a ModemJunkie

Copyright 1996 by *Leonard Grossman*

**“Think about the future,” the editor said, - but nothing came to mind. Then I thought about the immortal words of Maynard G. Krebs, who, when asked to write an essay entitled “Whither are We Drifting?” as a high school assignment, responded, “I don’t know.” Krebs was a *beatnik* character on the 50’s TV. show, *Dobie Gillis*. If you were born on the cusp of the baby boom you will remember. Krebs got an “A.”**

**Even though Congress has granted me excessive time to think about this and other weighty matters, I don’t know either. Whether we are talking about the on-line world or computers in general, this is a period of flux. Patterns and trends are hazy.**

**For more than 20 years I have attended the same New Years Eve party. For the last half dozen, I have swapped computer stories all night. It was after midnight when I realized the subject hadn’t even come up. Finally about 1:00 a.m. one of my once a year friends asked, as he always does: “What new toys did you get this year.” I realized there was nothing exciting. Oh yes, during 1995 I did add a few meg of**

**RAM to the pawn shop special and I convinced NEC to replace my single speed CD ROM with an upgrade, but other than that nothing much. I'm not counting that tape backup I so desperately had to have and which stares at me from its bay inducing guilt but not prompting me to take action.**

**But even if I had made a major upgrade, would it be that exciting. Yes, things would be faster... and I have recently begun to download shareware which snootily informs me that it requires a 486 when I try to install it. But there is nothing I need to do that I can't do right now. In the face of the federal shut down, and the payless furloughs expected when we do get back to work, I can't really justify any major expenditures at the moment.**

**At a meeting of NICOL, The Northern Illinois Computer Owners League, the first week of January, about 25 to 30% of the members were using Windows 95. More anticipated moving over in the near future but a few, like me, had already deleted it from their systems. The trend seems to be reluctant acceptance of Win95, not enthusiasm. We did watch a demo of Word Pro from Lotus run under WIN95 on a blistering IBM ThinkPad, and projected overhead. Even on this P150 or whatever it was with 20 meg of RAM, things seemed slow to me,, but then I quite happily compose on Word Perfect 5.1 for DOS. If I need to do something fancy I import the file in WPWIN and slog on from there. Most of what I write, aside from legal documents when the government is open, gets transported to editors, each of whom publishes in a different format. Nothing beats ASCII for this purpose. That way everyone can use my stuff and I don't have to remember the preferred format of each publisher. Why compose in Windows fonts if I am going to save it in ASCII in the end? The demonstrator did point out that the default is now to single space rather than double space after a period. "Sez Who?", we wanted to know. There was no answer.**

**One maven suggested that the difference was because Word Processing with proportional spacing is more like print than type, but who knows.**

**Word Pro does offer some exciting features, but Lotus (IBM) seems to be risking the same fate that hit Word Perfect. The new app makes significant changes in the interface. Whether Ami Pro fans will find it worth while to learn a new application, and if so whether the one they choose will be Word Pro, is an open question.**

**The most fascinating thing about the demo was the opening WIN95 screen. After complimenting the demonstrator on his fancy wallpaper, a sharp eyed member of the group noticed one shortcut icon not far above the START button. All it contained was the letters *MG*. Sure enough, this tried and true Lotus demonstrator, with all the latest file management tools at his disposal, could not bear to get along without that great Lotus orphan, Magellan, only a single click away. Be still my beating heart... maybe there is hope yet.**

**I discovered found one exciting new application in the past few days. It's the IBM Infomarket. This internet client places a banner on your screen which is updated with the latest Reuters headlines every few minutes while you are on line. With this app I was able was keep up with the latest news on the government shutdown while editing this column. When an important headline scrolls across my screen, I can click on an icon and the latest Reuters stories appear in my browser. This feature led me to edit using a shareware Windows program called Textpad instead of my trusty WP 5.1. Can't multitask in DOS. Looks like I'm being converted to Windows inch by inch.**

**Like other currently free internet services, it is expected that a fee will be charged for the Infomarket later this year.**

**At the same NICOL meeting a show of hands was asked with regard to CPUs. A large percentage of the group were on Pentiums and 486s. Virtually all of the Pentiums were running at least 16 meg of RAM. None of the 486s ran less than 8 meg of RAM. Only a few retrogrades like me were still running 386 machines. No one admitted using 286s any more, at least as primary machines. Even my government office replaced 30 286 and 386/16 machines with P90s just before they locked us out. They were 486s upgraded to P90, but that's another story. One lawyer complained that he was one of only two in the office upgraded to only a 486. I noted that when we laplinked his data to the new machine there was nothing there—not a single document created by him. “Does it make a difference whether you don't use a 486 or don't use Pentium,” I asked. He seemed to think so.**

**So, clearly, the trend to faster and faster and more and more RAM. Not much new in that. Even Netscape can't escape the syndrome. As it continues to work out the bugs in its 32 bit and 16 bit Netscape 2.x betas, it has left behind it's simpler 1.2 version, which while no longer a beta, and preferred by many users, still had some flaws. Following Microsoft's bigger is better, all or nothing approach, the software has gotten fat—and as the corporate management uses the funds generated by the amazing response to its public offering to purchase other companies, I just hope it hasn't forgotten it's original vision and just what made it so popular. Bill Gates has Netscape in his sights—the next year will be interesting.**

**Not everyone is arguing that bigger and faster is better. The New York Times and the Chicago Tribune recently featured stories hyping the \$500 terminal connected to the Internet- happily downloading applets but keeping its operating software on servers somewhere out there and storing users files out there as well. On the other hand, PC**

Week included a box on its cover page, week after week, in which it insisted that the concept of the \$500 machine is dead.

In my view we had the \$500 machines and abandoned them because we wanted more. And we won't be going back. Even if the software and transmission problems could be solved, there is a greater obstacle to the dumb terminal approach. The recent experience of CompuServe users as a result of German censorship and AOL's embarrassing *breast* incident, combined with the proposed telecommunications bill's prohibitions on *indecent* raise significant issues of personal privacy.

Quite simply, I don't want my thoughts stored *out there*. Even more important, I don't want my computer habits to be so easily discovered by others. My addiction is my own business.

Last summer I said this was the Golden Age of the Internet. As censorship and commercial interests change the way we use it, it will never be the same. The on-line culture has changed drastically in the past year. Now, the Newbies are the Net. What will the future bring? Why are you asking me? Heck, I predicted Congress would never shut down the government.

*Leonard Grossman* in an attorney who works for the government when the government is allowed to work. He is a *WindoWatch* regular and has been contributing "Reflections" for some time. Comments can be sent to [grossman@mcs.com](mailto:grossman@mcs.com) or [leonard.grossman@syslink.mcs.com](mailto:leonard.grossman@syslink.mcs.com)

**The In-Touch Sampler for WindoWatch**  
Copyright 1996 by Lance Jones

**Name:** File Plus

**Version:** 2.13

**File Date:** 01/13/96

**Size:** 429 Kb

**Download Time:** Approx. 7 minutes with 14.4 modem

**Developed By:** Carl Moore

**Registration:** Shareware \$30.00 US

**File Location:** <ftp://ftp.wazoo.com/pub/users/cmoore/fp213sw.zip>

**Windows95.com:** Category -- SHELL ENHANCEMENTS

**Description:** File Plus is a very robust disk and file manipulation program. The basic file and directory functions include Copy, Copy As, Move, Move As, Clone, Rename, Make Directory, Delete, Find File(s), Search File(s) and Attributes. The application also provides a comprehensive and relatively simple interface to work with .ZIP files as well. With one click of a button you can unzip any archive to any directory of your choice. Similarly, you can zip entire groups of files and directories. There is multimedia sound support for PC's with sound cards, and virtually every function in File Plus can have a .WAV file sound associated with it. Another useful feature of the program is a flexible user-button definition system for creating custom commands.

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**Name:** InterGo!

**Version:** 1.0

**File Date:** 12/22/95

**Size:** 2.7 Mb

**Download Time:** Approx. 44 minutes with 14.4 modem

**Developed By:** TeacherSoft, Inc.

**Registration:** N/A

**File Location:** <ftp://ftp.teachersoft.com/ftpusers/IGO95T.EXE>

**Windows95.com:** Category -- INTERNET SUITES

**Description:** InterGo is quite simply one of the most unique Internet suites I have encountered. The graphical "Desk Scene" appears when you first run InterGo. You use the Desk to see tips, connect to the Internet, open the browser to see Web pages, transfer files, open the Address Book, send and receive electronic mail, and use telnet to use other computers. Hints describe the active objects on the Desk (the ones you can click) as you move your mouse over them. You click on active objects to choose what you want to do (i.e. click the lamp to display helpful tips on using InterGo, click the telephone to connect to the Internet, click the globe to open the Web browser, etc.).

The "Library Scene" lets you read books arranged in graphical bookcases. The Library starts with classic books and enhanced reference books (dictionary, encyclopedia, thesaurus, atlas, and so forth), but also includes history and literature volumes. When you click on a book, the Web browser launches, taking you quickly to the related site of interest. When you set up your interests, more books are added that link to Web pages on the subjects you selected. You can save any page from the Internet as a book in the Library and quickly return to the page, and you can even look-up words you encounter on any page in the browser or in E-mail messages.

The "Newsroom Scene" lets you arrange newsgroups, Web pages, and mailing lists on graphical television monitors. For example, you might have a monitor that contains all the information you've gathered about investments. You also use the Newsroom to read the articles in newsgroups. There are eight news monitors in the Newsroom and some already contain sources of information on various subjects. You can add to those sources and delete the sources if you don't need them. You can put any sources you wish on the other monitors. There are even more notable features of InterGo which would require several

**more paragraphs. I highly recommend giving this application a try. It's wonderful!**

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**Name: Internet Phone**

**Version: 3.1 Beta**

**File Date: 12/13/95**

**Size: 944 Kb**

**Download Time: Approx. 16 minute with 14.4 modem**

**Developed By: VocalTec Ltd.**

**Registration: Free 30-day evaluation**

**File Location: ftp://ftp.vocaltec.com/pub/iphone19.exe**

**Windows95.com: Category -- N/A**

**Description: Internet Phone enables you to converse with other Internet users all over the world, in a real-time, voice-activated environment. The international or local phone calls cost nothing more than your standard Internet connection phone charges, and this version of Internet Phone now supports full-duplex conversations (letting you speak and listen at the same time, just like with a real telephone, not like a "walkie-talkie").**

**This particular version is also worth noting because it offers a few simple yet significant enhancements over the previous versions of the software. It allows you to make calls to other Internet Phone users from within a Web browser (the feature works with Netscape's Navigator and Microsoft's Internet Explorer -- it may not work on other browsers). Standard hypertext links to Internet Phone users can be added to Web pages, and when you choose such a link in a Web page, the browser automatically runs Internet Phone, which connects to a server and starts a call to the user. The program maintains a local HTML file (IPHONE.HTM, located in the IPhone directory) to which you can add links to any Internet Phone user. This file serves as a sort of private phone-book, which you can access from within Internet Phone or from your Web browser. Very nice!**

**Name: InWatch 95**

**Version: 1.0**

**File Date: 01/06/96**

**Size: 347 Kb**

**Download Time: Approx. 5 minutes with 14.4 modem**

**Developed By: Rick Green**

**Registration: Shareware \$14.95 US**

**File Location: <http://www.mich.com/~surfin/inwtch95.zip>**

**Windows95.com: Category -- GENERAL UTILITIES**

**Description: Inwatch or "Installation Watcher" is the program I've been waiting for. It's an incredibly useful utility, designed to take the stress out of installing Windows 95 applications. Typically, when you install a new program, it will make modifications to your configuration files, usually without telling you what changes it's making. If you decide that you no longer want the application to reside on your hard disk, simply deleting the related files will not necessarily remove all traces of the program. Some applications will add as many as 100 lines to your WIN.INI file, using up valuable memory resources in the process.**

**Before you install an application, simply use the back-up function of InWatch to make copies of your configuration files. After installation is complete, you can use the compare function to check the backed-up files against the new, possibly altered files. InWatch will create a comparison file that you can inspect and save for later reference. Another great feature of InWatch is its ability to inform you of all the files or directories that have been added or updated in your root directories, your Windows and Windows System directories, your Program Files and your Fonts directories. Nice app!**

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*Lance Jones is the owner of the In-Touch Newsletter. He provides the best and most up to date information on newest Windows95 32bit shareware. To receive his list on a regular basis sign up on his home page at [sword@islandnet.com](mailto:sword@islandnet.com)*

**-A Guide To Software Revisions  
Contributed by Derek Buchler**

**Once you start playing with software you quickly become aware that each software package has a revision code attached to it. It is obvious that this revision code gives the sequence of changes to the product, but in reality there's substantially more information available through the rev code than that. This article provides a guide for interpreting the meaning of the revision codes and what they actually signify.**

**% 1.0:**

**Also known as "one point uh-oh", or "barely out of beta". We had to release because the lab guys had reached a point of exhaustion and the marketing guys were in a cold sweat of terror. We're praying that you'll find it more functional than, say, a computer virus and that its operation has some resemblance to that specified in the marketing copy.**

**% 1.1:**

**We fixed all the killer bugs ...**

**% 1.2:**

**Uh, we introduced a few new bugs fixing the killer bugs and so we had to fix them, too.**

**% 2.0:**

**We did the product we really wanted to do to begin with. Mind you, it's really not what the customer needs yet, but we're working on it.**

**% 2.1:**

**Well, not surprisingly, we broke some things in making major changes so we had to fix them. But we did a really good job of testing this time, so we don't think we introduced any new bugs while we were fixing these bugs.**

**% 2.2:**

**Uh, sorry, one slipped through. One lousy typo error and you won't *believe* how much trouble it caused!**

**% 2.3:**

**Some anal-retentive pain in the ass found a deep-seated bug that's been there since 1.0 and has been raising hell until we fixed it.**

**% 3.0:**

**Hey, we finally think we've got it right! Most of the customers are really happy with this.**

**% 3.1:**

**Of course we did break a few *little* things.**

**% 4.0:**

**More features. It's doubled in size now, by the way, and you'll need to get memory and a faster processor ...**

**% 4.1:**

**Just one or two bugs this time. Honest.**

**% 5.0:**

**We really need to go on to a new product but we have an installed base out there to protect. We're cutting the staffing after this.**

**% 6.0:**

**We had to fix a few things we broke in 5.0. Not very many, but it's been so long since we looked at this thing we might as well call it a major upgrade. Oh, yeah, we added a few flashy cosmetic features so we could justify the major upgrade number.**

**% 6.1:**

**Since I'm leaving the company and I'm the last guy left in the lab who works on the product, I wanted to make sure that all the changes I've made are incorporated before I go. I added some cute demos, too, since I was getting pretty bored back here in my dark little corner (I kept complaining about the lighting but they wouldn't do anything). They're talking about obsolescence planning but they'll try to keep selling it for as long as there's a buck or two to be made. I'm leaving the bits in as good a shape as I can in case somebody has to tweak them, but it'll be sheer luck if no one loses them.**

*Another goodie from Derek Buchler's bag of amusing stories, satire, and plain old hardy-har-har-har! Derek is a regular [WindoWatch](#) contributor and a system administrator.*

## The "586" Upgrade

Copyright 1996 by Paul Kinnaly

Here's the scenario: You're running a 486. Perhaps it was new only a year or two ago, but now it's dated and -when compared with the Pentium systems that *everyone* has now- slow as molasses. No way will your budget (or spouse?) permit you to go and buy another new system. But -just perhaps- you might be able to upgrade your current one. And you've seen ads touting new *586 class chips*, often labeled as *5x86*. Maybe...

At first glance, it makes sense. Typically these chips have a larger internal (L1) cache than your original Intel CPU did. They contain many of the internal features of a Pentium's architecture. Their clock speed is usually substantially faster than your current CPU. And, they may be able to use faster "write-back" caching -if you have a 238 pin socket- while your original CPU only used "write-through" caching. All this sounds like an upgrade worthy of consideration.

Well, maybe, but think a little more. Most of the "5x86 type" chips on the market, regardless of speed, are little more than slightly enhanced 486s. As they are typically designed to replace a 486 on a motherboard designed for a 486, they contain Pentium-style internal circuitry, but must access the system bus, memory, etc. in 32bit rather

than 64bit chunks. Typically, 100mHz 5x86 chips are no faster in day-to-day usage than perhaps a 66 or 75mHz Pentium - i.e., not notably faster than a 486/66. This is based on some test results like WinTune, WinBench, etc. As such, a 5x86-133 might test out near a Pentium 90, - at best!

How come? Remember, if you are running a 486, you are running a 32bit motherboard and a system clock speed of 25, 33, or 40mHz at best - regardless of your CPU's speed. The slowest true Pentium runs a 60mHz, 64bit motherboard. No matter how fast or efficient the CPU is, every time it has to go to the bus -even for memory access- it's going to do it *much* slower.

The Norton Utilities for Windows95 System Information benchmark's emphasis is on measuring how effectively the system uses the CPU in combination with the computer's memory. Therefore, the benchmark does not take into account such factors as the disk drives, the video display, other peripherals, or the network. The program includes results from several typical systems including a 486-33 and Pentium 90.

I tested my 486-66 then a 5x86-100 as well. The results were as follows:

486-33	-	5.9
486-66	-	10.3
5x86-100	-	11.4
Pentium90	-	20.4

It is fairly obvious that the improvement of the 5x86 chip, despite a 50% faster clock speed, was only marginal in this test.

**Windows Magazine's WinTune 2.0 also includes a database of test results of their tests on many different systems. Below are the ranges of CPU (integer) processing speeds reflected in the database (different memory wait-states, L2 cache memory, etc. influence the results of individual machines):**

**486-33 - 26 MIPS  
486-66 - 55-70 MIPS  
486-100 - 63-91 MIPS  
486-120 - 136 MIPS  
Pentium66 - 109-123 MIPS  
Pentium90 - 165-167 MIPS  
Pentium100 - 180-185 MIPS  
Pentium120 - 220 MIPS  
Pentium133 - 244-247 MIPS  
Pentium166 - 303 MIPS**

**My 486-66 scored about 60 MIPS on this test, in line with other similar systems. But, the 5x86-100 scored only 72 MIPS... That's a 20% improvement in raw CPU speed, but still substantially below even the slowest Pentium! In fact, it was much more in the range of a 486-100.**

**Another consideration to keep in mind: since these are *non-standard* chips (i.e., not Intel), some software has trouble identifying them as other than a 486 or perhaps even a 386. Thus some Pentium-optimized routines used by the software -and which the CPU is probably capable**

**of executing- might be skipped, with the less efficient 486 or 386 routines used instead.**

**In conclusion, despite the claims advertised loudly by vendors of such chips, they cannot change a 486 system into a Pentium level machine. The best you can expect is a slight improvement in speed. Is it worth the price? With Pentium motherboards including a true 90mHz Pentium CPU priced in the \$500 range, you should consider whether such a chip upgrade would really be worth the price.**

*Paul Kinnaly picked up on a thread during a discussion of the 5X86 chips in the Ilink Win95 conference. We decided that others who are considering an upgrade of their computers might like to see these results. Still another piece of information which must be included in this mix, is the well publicized expectation that there will be across the board reductions in the Intel Pentiums CPUs in late January of 1996.*

*Paul in the [Windo Watch](#) home page Webmaster and serves on the editorial board of [Windo Watch](#).*

**Herb's Art Gallery**  
**Copyright 1996 by Herb Chong**



**"Dave's House 1: Bedroom 2", is a ray traced image created using trueSpace 2.0.**

**I had purchased the Acuris CD-ROM entitled Dave's House 1 to get it's fully textured house model for a project I am working on. Part of the project involves flying through the bedroom of a house. This is the bedroom that I am working on. It takes about 50MB to load the project model and almost 80MB to render it.**

**This one image took just over 9 hours to render on my Pentium 90. I made something like ten test renderings before I came up with one I liked. It still needs some tweaking, but it's almost done. Now to put in some animated "objects." .... Herb**

**GREAT ART ON YOUR DESKTOP - Trident's ArtScreen Programs**  
Copyright 1996 by *Jerome Laulicht*

**I thought there was no special reason why anyone should care enough about screen savers to write or read an article about them until I stumbled on the ultimate screen saver for my large monitor.**

**Originally acquired for its capacity to display larger size fonts and making reading easier, it now has a second use: to view delightful and gorgeous pictures which invite and demand attention. This made me realize that I must have been subconsciously searching for an ultimate screen saver solution for myself and have found one for people with similar tastes. Since I am not an art connoisseur nor a known art lover my tastes are not esoteric. What we have are two sets of great paintings chosen from Washington's National Gallery of Art and from several European art museums.**

**I can also choose music to accompany my gazing and read educational stuff about the painters and pictures in my spare time. I am seeing real payoff from my fancy modern monitor which is, of course, too advanced to even need a screen saver. You can get the same pleasure if you have a 256 color monitor with at least 640 x 480 resolution. Be assured that you will also get pleasure with the standard size monitors most of us have.**

**There must be something close to a genetic need for an screen saver on one's computer which explains why new ones keep popping up. I write this, however, to share the pleasure which started with my first glimpse of these paintings. I was intrigued because this program provided such a glorious and varied desktop display. It also merits comment because it shows that a screen saver can be a happy educational and art experience as well as a learning tool. It shows us the potentials of the display equipment which is rapidly becoming standard on our desktops for a variety of other purposes. I think many us have been unaware and unschooled of what we already have.**

**The only important things to take into account if you are thinking of buying any screen saver is whether you need one for the health of your monitor; whether you can easily deal with the modest cost (Trident's programs are available for under \$27 each or both for \$50); and, most important, whether you like the pictures and won't tire of them quickly. It is perhaps wise to get a sampling of the art before buying, perhaps in a brochure. The technical need is arguable and depends on facts about the monitor about which most of us have no idea. If it bothers you, check with the place from whom you bought it.**

**In spite of all of the above, I kept asking myself why bother with an article. The answer is that this screen saver is special and that I strongly suspect people could put together still other collections of art—paintings, sculptures, tapestries, great photos, etc.-- which would be wonderful enough to attract buyers. By now, Trident, has likely issued still another planned set of paintings from another large museum, along with a collection of contemporary art.**

**If screen savers are to merit attention, they have to be designed by people talented in visual design and presentation. Trident Software has a simple and elegant solution: show the talents of the best of us.**

**Go to the museums and work with them to reproduce high quality computerized versions of masterpieces with professional help on the presentation of each one. Their first two collections were released under the rubric of ARTSCREENS. One is called Great Masters--masterpieces from five European museums. Since over 60,000 copies were sold since 1993, this was enough to justify more. The second effort is called the Impressionists Collection.**

**If I ever saw a program which should be marketed as shareware, ArtScreen is it. A good demo version would surely significantly increase the sales of this little known original from a small company. People who do not see themselves as art lovers may find it difficult to pay almost \$30 for a collection they believe to be beyond their ken. I wish I could say in this review that one could at least try an abbreviated version of this program before you decide whether to buy. I wish the lines between shareware and commercial software were not so sharp in the minds of all of us and could be redrawn so that we would think in terms of gradations. I believe, however, that many of people who think they do not like art would like this program for its variety of paintings and find this a painless way to see fine art.**

### **Museum Visits in my Home**

**My only other serious “criticism” of ArtScreen is the limitation of each program to only forty paintings. This is more than adequate and very satisfying for a screen saver but too limited for a program giving me a chance to look at fine art at home on a good screen. I do want more paintings. I would also like to see a try at excellent photos of sculpture at these and other museums. Further, I want to see the next program released with two versions: One having a limited number of**

reproductions intended as a screen saver. The other version would have many more paintings for display. Trident is indeed thinking of a CD including all the paintings already reproduced, plus more art with educational material. In the planning stage a few months ago, would be a special kind of museum visit, something which I cannot get on TV and perhaps not even on VCR tape at reasonable cost. I could visit and revisit selected paintings at museums I may well never even see and perhaps be able to follow up on some of the works and the museums on the Internet.

I obviously think the Trident program worth buying and highly recommend it WindoWatch reader.

Trident Software  
*ARTSCREENS* Great Masters Collection  
*ARTSCREENS* Impressionist Collection  
\$27.50 each or the pair for \$50.  
703-243-0303 for Ordering Information