

Im internationalen UseNet wurde seit November 1994 – seit dem Bekanntwerden des Divisionsfehlers des Intel Pentium-Prozessors – auch sehr intensiv und kontrovers die Frage diskutiert, warum Macs besser als PCs sind.

John Morrissey (E-Mail: johnmorr@cyber1.servtech.com) hat aus der Fülle des Diskussionsstoffes wichtige Argumente zusammengetragen und im UseNet publiziert. Sicher, es ist eine

sehr persönliche, auch unvollständige Sicht der Dinge. Letztendlich hängt es aber von der Aufgabenstellung ab, ob ein PC oder ein Mac besser (geeignet) ist. Beide Computer-Familien haben ihre Vor- und ihre Nachteile.

Im folgenden wird die Version 1.0 (Stand: 11.3.1995) des Textes von John Morrissey wiedergegeben. Alle Ergänzungen in [...] sowie die Literaturangaben stammen vom Editor.

Productivity

In several serious studies, Macs have been shown to enhance user productivity more than PCs. The Gartner Group concluded, that an average, Macintosh users completed tasks 30% faster and 40% more accurately than Windows users with similar amounts of expertise on the respective systems.

Westinghouse Electric also concluded that its engineers were substantially more productive on Macs than on Windows.

Cost

The cost of support, ownership, and maintenance of Macs is less than PCs. Arthur D. Little concluded that Macs were about 20% cheaper over 5 years compared to a Windows machine of similar configuration, including capital costs.

Macs are no more expensive, except for the high-end Quadras and PowerMac 8100. For example, the PowerMac 6100 is about as fast as a Pentium/60 (and doesn't have the FDIV bug) and now costs under \$1300. Try getting any Pentium PC for that price, not to mention one with 16-bit sound, 16-bit colour and Ethernet.

You get more for your money. All PowerMacs and the new Quadra 630 series give you at least 16-bit colour, 16-bit sound, and Ethernet. CD-ROMs are very reasonably priced options. Performas come bundled with 12 to 18 software titles and at least a \$300-value monitor.

Used Macs also hold their value much better than PCs. You still see people wanting \$1000 for a 4-year-old (68030 = 386-class) Mac-IIci system. I wouldn't pay over \$1000 for a 18-month-old PC.

Studies show that, in a corporate setting, owning and maintaining a Mac for 5 years

saves you about \$5000 compared with a Windows PC, plus lots of headaches.

The best price performance ratio around. A Mac is simply the cheapest buy around. If you price a similar PC with a high-quality monitor (even the lowest Apple monitor is far superior to most of the stuff that ships with PCs), networking, and sound, it is usually much more expensive than the Mac. And to top it off, it won't work nearly as well.

Compatibility

Backwards compatibility is far superior on Macs as compared to PCs. Even a lowly Mac Plus (circa 1985 [it was in January 1986], Motorola 68000 CPU) is able to run the *current* versions of OS and application software. There are lots of Intel boxes that can't run current software, and its likely that Windows 95 will break even more hardware when it finally ships. The Mac is truly superior in this area: witness the switch to an entirely new CPU!

Peripherals

Plug-n-Play is here, and it works on a Mac. They do plug and play today, not a year from now, and has been working for years [since 1987], so the bugs are ironed out. There's no need to configure IRQs and other stuff like that. No need to get a new motherboard. You plug in hardware, load the software, and voilà — it works. An equal capability is still years away in the PC world.

I bring in my hard drive from home to work all of the time for big projects. I just unplug it at home, and plug it in at work. Usually, it doesn't even need mounting!

The keyboard and mouse plug into the ADB port which provides power and bus arbitration for these devices. You can hook up a modem or phone dialer or joystick or a floppy disk drive to this bus as well.

Because it is a bus, you can hook up multiple keyboards if desired [use one US and one cyrillic if there is the need]. This allows you to use a trackball and regular keyboard with a portable PowerBook.

External drives, scanners, tape backups, CD ROM – any external SCSI device can be attached to any Macintosh. SCSI devices daisy chain, so you just attach to the end of the chain.

The computer automatically mounts or accesses the device and/or figures out when you add something to it. This can be anything from simply inserting a floppy disk to adding a new monitor, video board, RAM, hard disk, etc. It also figures out what to do when you remove hardware and when you're done with a floppy, it hands it to you.

SCSI Disk Mode allows you to mount the hard disk of another (PowerBook) computer on the desktop of your Mac. This is a huge benefit for someone that uses a PowerBook and a desktop computer.

When you are in the office, the hard drive in your PowerBook is accessed by your desktop computer. When you leave the office, unplug your PowerBook and take it with you. No more wondering which file is the updated one.

MacOS

Highly integrated systems: The MacOS [Macintosh Operating System] supports lots of things that other OS's do not: true multiple language support [even Chinese and Japanese language support are available], multiple monitor support, built-in networking, neat AV capability in some models, QuickDraw GX, QuickTime, AppleScript, AOCe, Telephony, PlainTalk, MIDI, and other stuff that provide a very rich environment. This may not be what you're after now, but you'd be

surprised by the number of little things that it gets you in the long run.

One of my friends just got a Windows PC clone, and has spent countless hours on the phone with various friends asking questions like "I've put my floppy disk in the drive, but nothing happens. Where is the stuff that's supposed to be on it?" One of the Mac's biggest assets is the uniformity of interfaces for applications on it.

The way that documents automatically know who they belong to and open with a double-click, *no matter what the filename is*, is simply magical.

All manner of software and hardware work together, with practically no hassle on your part. Extremely few conflicts. You want to add an external HD, CD-ROM, tape drive and

**Der »MacPC«
kommt!**

Als DEC 1965 zwei damals bewährte Computer, die PDP-8 und den am MIT entwickelten LINC, zum Doppelcomputer LINC-8 bündelte, wurde ein Computer geboren, der mehr leisten konnte als es seine Einzelprozessoren je vermochten.

Nach diesem Rezept verfährt 1994 auch Apple, wenn es nach der Quadra 610 nun auch den Power Macintosh Computer (Motorola 601) mit dem Personal Computer (Intel 80486-DX2/66) sowie die beiden Betriebssysteme MacOS 7.5 und MS-DOS 6.2.2 & Windows 3.1 zu einem Doppelcomputer in einer Box verheiratet.

Da dieser neue »MacPC« – der Power Macintosh 6100dos – sehr preiswert sein wird (nur etwa 500,- \$ Aufpreis gegenüber dem reinen Power Macintosh 6100) wird er 1995 in der großen RISC-Umbruchsphase der Computerwelt viele Liebhaber finden, die sich schlicht an „Altbewährtes“ halten wollen. – khd (Nov. 1994)

scanner? Great! Plug 'em in! More RAM and a CPU accelerator? Plug 'em in! The worst that will happen is you'll have to drag some files onto the System Folder to make them work.

The **MacOS** is easier to use, smaller, faster, and more consistent.

Ease of system software modification. No editing text files is necessary. No 640 kB memory limit. No "how much memory is my system using NOW" questions. You want to install new system software? Just drop it in the system folder. Does it cause problems, or just not work? Just drag it out, or restart with the shift key down. Installing new system software on the Mac is a snap.

Allows disk caching and avoids having to install and update directories. Instant access to any drive or directory, easy file viewing, maintenance, transfers and deletions. Any type of file or program can also be placed on the desktop and names and icons are simple to change. A Mac knows the contents of a disk and its name so it can't be fooled.

Single Thin **Menu Bar** – the contents of the menu bar changes to reflect the menus available for the open window or program. [Most] menus are the same from program to program, so if you know one program on the Mac, you know them all. You can have 30 open programs but all commands are contained in the same menu bar.

Apple Menu – special hierarchical menu that allows immediate access to any file or aspect of the operating system from any open window or file. Tracks recently used programs, files and folders.

The **Finder** provides the complete user interface, without it, you would have a DOS machine. Kind of like Program Manager and File Manager rolled into one and done right. The Finder has no windows of its own, and it works in the background. Also, it provides a number of command or short cut keys that are consistent in every application.

The **Application Menu** shows what programs are running and allows immediate access to them.

The **Help Menu** provides balloon help and also active assistance. Active assistance

will show you how to do anything, step by step while balloon help provides descriptions of various elements on the desktop.

The **Chooser** handles networking & printing connections. On Mac printers, fax modems and data communication programs are networked, which is why you can simply plug Macs together and create a network. Selecting a printer or network is as simple as clicking on the one you want to use. Although all programs use the chooser selections to print and network, programs can store custom preferences that allow automatic adjustments, if desired.

Find File allows you to quickly find any file from any program or view. Files can be searched for on all disks by 10 simultaneous logical operators. For example you can find all documents created by WordPerfect after Dec. 1, that are larger than 10 kB than have the word "Quickley" in them. Found files appear in a window and can directly be trashed or opened or otherwise modified via drag and drop.

Mac Windows – files can be viewed and sorted many different ways. Window views include Icon, Small Icon or Name. Viewing by name allows you to view files sorted by Name, Size or Last Date the file was modified. Windows can be minimized by double clicking in the menu bar, auto-sized to fit the contents by clicking in the zoom box or re-sized by dragging the size box.

Folders hold files, programs, etc. An unlimited number of them can be created and they can be nested 32 deep. They can be named anything you like (up to 31 characters) and can have any icon you choose or create.

Trash Can – To delete a file drag it to the trash. You can open the trash and retrieve or double check files before you empty it. The trash can bulges when there is something in it and can be opened like a folder to display its contents.

A place for everything – The Mac system folder provides sub-folders for all the various types of files the system and other programs need to operate. These folders eliminate navigating huge file lists of things you've never heard of to open a program. The folders

[inside the System Folder] are:

Apple Menu Folder – Anything you want to appear in the Apple Menu goes here.

Control Panels – Small programs that control the system go here.

Extensions – Small programs that enhance or extend the basic system go here.

Fonts – Fonts used by all programs go here (Common fonts... Big Mac feature!).

Preferences – Programs automatically use this folder for preferences.

Startup Items – put any programs you want to automatically launch at startup here.

Shutdown Items – put any program you want to launch at shutdown here [MacOS 7.5].

File Type and Creator – Because all Mac files have a data fork and a resource fork, the Mac can tell what type of document or file every type of document or file is and display the appropriate icon. File types are four letter codes like "text" or "ttro" (teachtext read only), Creator codes are also 4 letters (MSWD is Microsoft Word, for example [3]). A word processing file created by Word then has a creator of MSWD and a file type of WBDN (don't ask). A QuickTime movie will have a creator type of whatever program created it and a file type of "MooV". Double clicking on this QuickTime file will launch the program that created it and open the file.

Drag and Drop – You can drag a document to a program to open that document with that program. You can select text (or a picture or a frame in a movie) in a document and drag it to another document to insert it or to the desktop to create a clipping file. You can drag any file, folder or program to move it to any other location on the computer. You can drag a disk to the trash to un-mount it and eject it.

Aliases – You can create an alias of any [volume], file, folder or program and use that alias as a pointer to the original. This works across networks and modems as well. You can have an alias to something on a friend's machine on the other side of the country. Opening the alias will have your computer call his, mount the volume,

and open the original. Want to copy files to his machine? Keep an alias to a folder on his machine and just drop the files on it and the OS does the rest. An alias of a program on a floppy, when clicked, will cause the Mac to ask you to insert a certain disk (by name). You can create multiple aliases of a frequently accessed file for easy access.

PowerTalk – Provides [under MacOS 7.5] a unified system level mailbox for all your e-mail, fax and voice mail services. One access password, one In Box, and one Out Box with scheduled connections to on-line services and other servers. PowerTalk also maintains catalogues of people you deal with and allows you to instantly communicate with them in a preferred method by dragging the file or document you want to send them to their business card.

PlainTalk – At its simplest level, provides sophisticated text to speech capabilities. Numerous voices are supported, including singing. It also allows for voice control of the computer. Anything that is on the screen or in any menu can be spoken and the computer will respond.

Copying Files – Before copying files, the Mac first verifies that there is enough space on the destination before beginning the copy. It also will give you a progress bar to show exactly how far along the copy process is. You can also easily find out how much space the contents of a folder uses, even if it contains nested folders.

Opening Files – The Mac finds your application for you, no matter where you move it to. No need to tell it where you moved it to by editing your path setting. The Mac keeps straight which files belong to which applications independent of the kind of file or its location. Your word processor and program editors could both have TEXT files that belong to them; Mac programs also know what documents belong to them, so you don't have to scroll through a lot of crap to find a WordPerfect documents in a folder with other document files. Macs can format and read PC disks and files and translate common formats like TXT.

Memory Use – You can easily find out how much RAM

is being used, how much is installed, etc. By selecting "About this Macintosh" from the Apple Menu. All memory is treated the same, no special 640 kB, extended memory, expanded memory, or resource memory to cause headaches.

WYSIWIG – All Macs are What-You-See-Is-What-You-Get. Windows is 92 dpi [dots per inch] or some obscure number and cannot do this.

Colour Matching – All Macs come with ColorSync which ensures that the colour you see on the screen is the colour that prints.

AppleScript automates *anything*. This is not a batch file, but a system-wide programming and scripting environment that includes applications, documents, networks and file servers. Most applications are recordable which means that you can do the task once and the script will be written. This is not a macro.

Apple Events provide the mechanism for AppleScript and interapplication communications as well. For example, with one click in my S Contacts database, I start a FileMaker Pro script to send an Apple Event to the Desktop Dialer to dial the phone indicated by the current customer record. Another event records the phone call in another database and starts a timer. Yet another event updates the last contact date in DayMaker and opens a follow-up note in my contact manager. Hanging up the phone sends an event to turn off the timer and save the follow-up note.

QuickDraw GX allows for 64,000 characters in a font making true typographic layout possible. Allows layers in documents for CYMK printing and watermarks. Desktop printers and custom printouts are possible. For example, a multipage document can be printed on Day Timer size sheets and automatically paginated for a booklet.

QuickTime is Apple's technology for dealing with time-based information like music, sound, and video. Provides full-screen 30 fps [frames per second] video with stereo 16-bit

sound. Can also play MIDI files directly from the Mac using General MIDI patches licensed from Roland. You can create a QuickTime movie with an audio and a MIDI soundtrack.

Ease of using **CD-ROM** – I have over 50 CD-ROM titles. If I had to install all the crap that Windows boxes require to run a single CD ROM, I'd need a 1 Gig HD just for the directories.

The shortest learning curve for any computer system.

32 bit OS – unlike DOS/Windows which are both 16-bit OS's only.

Networking

Any Macintosh can network to and share files with any other Macintosh. Support for this is built into the OS and hardware and has been since 1985. LocalTalk, Ethernet, Token Ring, and TCP/IP hardware and software are installed on all new Macs.

Over the last summer, I had a job at a company that had two PCs with Windows. They were in adjacent offices, approximately 20 feet from each other. My boss decided to network them in order to share files and a printer. First, he got Windows for Workgroups, and all the cards, cables, etc. that tech support people said he'd need.

The installation and setup took nearly a week, after which the two computers still didn't recognize each other over the network. The problems were finally ironed out, but only after almost a month of hassles and wasted time.

The same kind of network with Macs would have taken about 2[–5] minutes to create, and would have only costed some dollars for a cable to connect them with.

Maintenance

The way you can add or remove extensions by dragging icons (or using the Extensions Manager) is marvellous. Add a new item to the Apple Menu Items folder and have it appear in the Apple Menu instantaneously. No reboot. Add Control Panels, Extensions and Fonts by dragging them onto the

System Folder and let the Mac worry about where they go. Fonts appear for use immediately, no reboot.

Applications

Many applications work exactly the same in both Mac and Windows versions. As far as I can tell, all are better on the Mac. [One exception is Microsoft's Word which works much slower on Macs.] I've never met a DOS or Windows program that impressed me as being as well designed as a typical Mac application.

Mac programs work more alike than programs for any other platform, i.e., there is a "Mac-ness" that nearly all programs share. This generally allows you to assume you know *how* a program is used, and allows you to concentrate on *what* to do with it. My boss has many DOS programs he's never used because he couldn't get over figuring out how to get them to work.

Many of the really cool software people use, was developed first, and sometimes still exclusively, for the Mac. There is indeed *more* PC software, but almost all of [a lot of] it is junk. Many PC users *still* use DOS. I can only think of two situations where PC software is better: some games, and some Microsoft products [, or the one and only special application, only running under DOS]. The latest Microsoft releases are optimized for Windows, not for the Mac, and suffer accordingly. This is fine by me, however... WordPerfect will kick sand in Word's face any-day.

When you install a program on a Mac, it is smart enough to put things where they belong and to tell you what it put where. (If you drop a control panel on the Mac's System folder it politely asks you if you would like to put it in the Control Panels folder).

The real beauty of this system is that when you want de-install most programs, all you have to is trash the program and its preferences plus the odd extension. This is fairly easy because the extension has a name something like "WordPerfect Extension" not "WRDPFTBS.INI".

AppleTalk Remote Access (ARA) allows you to phone your computer, turn it on and operate it as if you were in your office. If you forgot a file at the office, you can retrieve it remotely, even if your computer is turned off. (Unlike PCs, Macs have soft power so there is no power switch on the back to start your computer.) Great for picking up e-mail and messages while travelling.

Consistent Hot Keys – Undo, Cut, Copy, and Paste are always Command-Z, Command-X, Command-C, and Command-V, respectively, in any application. Notice you can do all of these with one hand while the other hand is on the mouse and they are all beside each other.

Other common operations always use the same Command keys, like New (N), Open (O), Save (S), Close Window (W), Print(P), Find (F), Quit (Q), Select All (A), Plain Text (T), Bold (B), Italic (I), etc. across all applications.

This means you learn them once and you can use them anywhere.

New Technology

Apple is the world leader in implementing new [and innovative] computer technology... [1–2]. From the GUI, to RISC-based desktop computers, digital video, CD-quality sound, PDAs [Personal Digital Assistents], speech recognition, etc.

All of these were Mac firsts [1], and some of them are still available only on Macs. If anything, this will continue at a faster pace with CHRP [now called PUMA], better GeoPort support, better AV technology, FireWire, and so on.

The Future

With the remarkable successful transition to the PowerPC processor, the Mac's hardware future is bright. The 601 already costs less and outperforms the Pentium/60 and Pentium/90. The low-cost 603 is shipping and Apple is scrambling to finish 603-based notebooks.

The 604 is shipping in volume, and should have a home

in the new Macs released this spring [1995]. The 620 is in silicon and looks awesome. And there is *still* room to grow. All Intel has is a plan for the P6, which is still vapour at this point.

Reliability

I have an Apple-IIe... It's 14 years old and still works fine (except for the p key which sticks). Our family has owned a collection of used and new macs (512, 512KE, Plus, LC, Centris 610 and 650).

The 512 died, and had to have its power supply replaced. That's it. The *only* hardware problems we have ever had in 14 years owning 7 different Apples. That's pretty impressive.

Hardware

Sound – Macs are CD Quality 48 kHz 16-bit stereo in and out from the factory. Using a program like OSC Deck, you can turn a Mac into a 6 track digital editing system with no additional hardware. (Also, unlike PCs, the Mac CD player is smart enough not to try playing data files.)

A/V Features – Macs have S-VHS in and out, allowing you to connect televisions, VCRs, and camcorders directly. You can display these A/V signals on the Mac while you work on other programs, or you can create your own digital movies. You can capture any video frame and insert it into any document as well. [Avid's VideoShop – a full-featured video software, including special effects and morphing – turns a Mac into a very powerful and easy-to-use video editing system. This package is bundled with Apple's TV/Video kit for the Performa's.] You can also output the desktop to videotape, which is great for training videos.

GeoPorts – The newer Mac's printer and modem ports are actually GeoPorts. GeoPorts are high speed communications ports that allow voice, ISDN and high speed data communications. Using these ports, for example, it is unnecessary to use a modem to connect to a BBS. The Mac emulates a modem through the GeoPort Telecom Adapter as required. You appreciate this when you want to set up your Mac to do voice mail, e-mail and fax simultaneously.

Standardized hardware, so you don't end up spending hours or even days trying to get all your hardware to work together.

PowerMacs support up to 17 inch monitors right out of the box.

Macs have already done the transition to the RISC technology. One of these days, the PC will have to - to catch up with the advances in the RISC technology. When it does, all of the PC investment in software/hardware will have to be thrown.

Programming

[Programming the Mac could be done in any important programming language, including Fortran, Pascal, Modula-2, Oberon, C, C++. The "Macness" that all Mac programs share is due to the famous Macintosh Toolbox, the first API ever built [1]. This Toolbox is a big library of elementary routines stored in system ROMs of all Macs, and it's accessible to the application programmer.]

If you are doing programming [in C++], Macs have the best class libraries around. MFC for Windows is years behind the Mac's grown up class libraries, such as MacApp, Think Class Library, PowerPlant, QuickApp, etc...

Monitors

Multiple monitors are a snap. Resolution switching on-the-fly is too.

When you change the resolution or the pixel depth of your monitor, it simply changes and the screen redraws, no need to restart the OS. (Also, except for the really cheap 139 monitor, all Mac monitors are 70–75 Hz, so they don't flicker like most PC monitors). All Macs now support 65,000 colours on 14 inch monitors out of the box at a minimum (Power Macs support millions of colours at 172)

Multiple Monitors – If you have need for more screen space, simply plug in a second monitor and have the two treated as one large monitor (drag windows across them as if they were one big monitor) or use them as two separate monitors. You can have a different application running on each monitor (or if you run SoftWindows, you can have a Mac on one monitor and a PC on the other. Still not enough

screen space, plug in a 3rd, 4th, 5th (up to the limit of slots for video boards) and have one huge virtual monitor. It doesn't matter if some are black and white, some are colour, some are 1 bit and some are 24 bits, the OS takes care of everything for you.

References

- [1] Dittberner, K.-H.: Der Apple Macintosh – Vorbild in der Computerwelt. FU Berlin (IfP): wdv-notes Nr. 318, 1991–1994.
- [2] Levy, Steven: Insanely Great – The Life and Times of Macintosh. The computer that changed everything. San Francisco (USA): Viking Press 1993. ISBN: 0-670-85244-9. Price: 19.95 \$.
- [3] Dittberner, K.-H.: MacOS: Datentypen und Creator-Codes von Macintosh-Applikationen. FU Berlin (IfP): wdv-notes Nr. 201, 1989–1995.

The End
