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Ge^{'s} Outlook

My Life with Laptops

For the last several years, laptop computers have played an important role in my life.

Everything I need from a computer is satisfied by my laptop. This includes applications for making presentations, clip art libraries, word processing for writing articles for SDJ(Schussel's Downsizing Journal), conference brochure copy, and spreadsheets. However, I also find a laptop extremely useful for my personal life management; I use the computer to manage telephone lists, investments, maps, directions, and countless other information. I'm not a cook, but if I were, I would surely keep recipes on the PC!

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Why I Can't DOWNSIZE!

At many of DCI's downsizing conferences and seminars, I have had opportunities to meet IS staffers currently dealing with the issue of downsizing. Among this audience, there is typically a group of old friends -- the mainframe bigots. These folks are absolutely against any movement towards distributing and downsizing applications; they love their "Big Iron".

I have found that the only way to convince mainframe bigots that distributing applications and data is the next crucial computing step of the 1990s, is to find out what their objections are, and then offer concrete examples of companies and employees that have benefited from downsizing.

As a guide for downsizing bigots, I have compiled a list of

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Desktop Environments for the 1990s

Should anyone care about Apple/IBM?

Who are the participants in this race to own your desktop? There are both hardware and software companies competing for your desktop business, and for the first time, the hardware and software companies are in competition with each other. For example, Microsoft, a leading software company, is now clearly in competition with IBM and Apple, two companies that have primarily been thought of as hardware vendors.

The hardware architectures that will be competing in the 1990s are:

Intel, IBM, IBM clones	x86
Sun, Sun clones	SPARC
ACE, MIPS, DEC, Compaq	R4000
IBM, Apple, Motorola	Power PC
Apple(Mac), Motorola	680x0

The primary software architectures competing for market share on the above hardware platforms are:

Microsoft	MS-DOS, Windows 3.0, Windows NT
IBM	OS/2, DOS
IBM/Apple	Apple Pink
Sun	Solaris
Apple	Macintosh
SCO	Open Desktop
Hewlett Packard	New Wave

The question now becomes, which of these companies are likely to be the big winners in this next generation of desktop computing, and what risks are they currently taking to get there?

IBM

Apple and IBM have jointly agreed to create Taligent Corp., a Santa Clara-based company whose goal will be to produce a desktop standard for the 1990s. It sounds promising, but will they succeed? That answer is not obvious as I believe that there are risks involved in the endeavor.

IBM with OS/2 and PS/2, and Apple with Macintosh, are

already well-established combatants. IBM is currently holding approximately 20% of the desktop hardware market, but has had weak returns from their companion software, OS/2. IBM hopes to remedy this situation with the forthcoming OS/2 version 2.

The largely Apple-inspired Pink operating environment, successor to the Macintosh from Taligent, is likely to be very attractive as an advanced, object

oriented, graphic and multimedia capable environment.

With the Taligent agreement, IBM possibly has assured itself an important role in future desktop environments for its proprietary RS/6000 POWER RISC chip. IBM's current implementation of the POWER chip set is multi-chip, and probably too expensive for the partners to attempt an overthrow of the Intel/Microsoft empire.

What more specifically are the risks IBM is taking to achieve dominance in the desktop market:

* *Risk* - The first Power Products are not slated for delivery until 1994, and by then the competition may

be too well entrenched to allow this new architecture any serious inroads.

* *Risk* - The Apple and IBM corporate cultures are VERY different. Will it really be possible for the two to work together effectively?

* *Risk* - Both Apple and IBM have bad track records in shipping new versions of PC operating systems. Will this joint project really change their habits?

* *Risk* - Motorola, the third major partner in this venture, has developed its own reputation for missing announced delivery dates for microprocessors. Witness the quite late (by its own initial estimates) shipment dates for the Motorola 68030 and 68040 chips.

Apple

As IBM's partner in the new Power PC/Pink project, Apple definitely plans on being a key player in the desktop market. At this point in their partnership, Apple appears to be the dominant partner as Ed Birss, an Apple manager, has been named to head Taligent, and most of the staff are coming from Apple's Pink project, not IBM's Patriot Partners.

One possible important advantage that Apple has is its copyright of the current Macintosh graphical interface, and the possibility of winning its lawsuit against Microsoft.

All of the risks that IBM are taking, also apply to Apple. However, Apple is carrying an additional risk:

* *Risk* - Apple, by licensing its proprietary operating system capabilities to IBM and clones (through Taligent) is creating a situation

Not only is Windows 3.0 making Gates rich, it's clear that it is going to do the same for developers who can deliver applications that run under Windows 3.0.

where it will have a challenge to differentiate Apple and Apple/IBM products. *The Apple/IBM machines will look and act like previously proprietary Apple products.* Therefore, they might have a difficult time in continuing their high price/high quality competitive strategy.

ACE

The ACE consortium, which currently has 181 members, has its first product on the market: Silicon Graphic's

Indigo workstation. With the R3000 chip (less powerful than ACE's 64bit R4000 chip) and a price under \$10,000, the first wave of reviews has been excellent.

Although SGI's current software complement lacks some of NeXT's features, it competes very well against NeXT's products. Any ACE software hole will be filled quickly by market place forces as ACE hardware delivery volumes increase.

An important coup for ACE will be Microsoft's participation in the group which will lead to ACE product versions of Windows NT.

NeXT

It now seems unlikely that Steve Job's company will play an important role in the next (pun intended) generation of desktop standards. Its unique contribution to the industry has been innovative software, but the company is too small to survive without consortium partners. For a while it looked like IBM was NeXT's best bet as IBM planned to provide the NeXTStep software environment on IBM's AIX. But, now that IBM is joining with Apple to provide an object oriented

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operating environment, IBM is rapidly backing away from its NeXT commitment.

Microsoft

Microsoft, IBM's erstwhile former ally, is indisputably the desktop owner for today and the near-term tomorrow. That's because almost all PCs shipped to date (about 70 million) have a copy of Microsoft's MS-DOS. Now that IBM is reputedly talking to Digital Research about licensing some or all of the features of DR-DOS, MS-DOS will more clearly than ever be identified as a Microsoft (alone) product.

More important than MS-DOS to Microsoft's future is Windows 3.0. About 7 million copies of Windows have shipped since its introduction 1 1/2 years ago, and the enormous success of this environment is principally responsible for Bill Gates' elevation to second in the annual ranking of richest Americans. \$4.8 billion in Microsoft stock is a not bad dowry for someone in their mid-30s. Not only is Windows 3.0 making Gates rich, it's clear that it is going to do the same for developers who can deliver applications that run under Windows 3.0.

Without much doubt, Windows 3.0 and its successors will own the desktops of the 1990s, at least until the

1993/94 time frame when Taligent enters the competition.

* *Risk* - If Microsoft loses Apple's copyright infringement lawsuit, the judge could do something drastic with Microsoft's Windows franchise, at which point, anything is possible.

* *Risk* - Microsoft must deliver its multitasking, protected, preemptible Windows NT on schedule in 1991. Otherwise, it will lose important momentum

Without much doubt, Windows 3.0 and its successors will own the desktops of the 1990s, at least until the 1993/94 time frame when Taligent enters the competition.

to IBM's OS/2 version 2. IBM's most recent in a continuing series of OS/2 v 2 slippages to early/mid-1992 has given Microsoft a fabulous opportunity to deliver the multitasking, protected 32 bit Windows NT in about the same time frame as IBM delivers the OS/2 competitor. With an over 10 to 1 installed base advantage (Windows 3.0 to OS/2v1) Microsoft would then appear to have an unsurmountable advantage.

Intel

Microsoft's dominance in the current generation of PCs is going to be helped by the newly emerging competition Intel is receiving for its 80386 chip. Intel competitors including AMD, Chips and Technologies, Cyrix, and NexGen are building and selling their own 386 clones. All of these companies are also rumored to be developing capabilities for the 486, which after all is just a fast 386 with on board math co-processor. I expect that by the middle of next year there will be a plethora of fast 386 systems on the market for about \$1,000, fully configured with VGA and large disks. At these prices, Intel systems are going to dominate the corporate computing landscape for several years into the future, regardless of competing architectures from ACE or IBM and Apple.

Conclusion

Apple and IBM are facing a massive challenge if they expect to continue the dominance that they have enjoyed on desktops in the 1980s. The fact that a consortium of the largest computer company in the world and the largest desktop supplier is not assured market domination, is proof of the vitality and competitiveness of this dynamic market. **GS**

LAN Operating Systems

For a technology that began with a modest goal, it's now apparent that the LAN operating system (O/S) is one of downsizing's critical enabling technologies.

The LAN O/S was originally created to function as a collection of utilities capable of sharing files and support services among PCs. As PC networks expanded, however, it became clear that networks, PCs, and servers had the capabilities necessary to replace mainframes. As a result, adequate software had to be created to allow task management and coordination across the network. The LAN O/S is now assuming this sophisticated role in managing network cooperative processing transactions.

Prior to LAN O/Ss, the problem in recreating the functionality of mainframe software systems across networks and workstations was that there was no PC or LAN equivalent to the full functionality of any mainframe software environment, with the exception of application development languages. In a mainframe environment, operating systems, transaction monitors, time sharing monitors, data base

management systems, and development languages are assembled in a coordinated fashion to complete the transaction processing functions.

So, in order to write real-time, interactive, transaction processing systems, software developers must have an O/S that provides multi-user, multi-tasking, re-entrant, and preemptive services. The question is -- How do you proceed on a PC LAN if you want to create comparable mainframe O/S and transaction monitor functionality? The answer now is -- the PC LAN O/S. This technology, originally developed for a simpler purpose, is now ex-

Companies building large networks capable of serious, high-end applications should choose a LAN O/S from Novell, IBM/Microsoft, or Banyan.

panding to complement single-user PC operating systems.

Communication

In a mainframe environment the central computer is constantly responding to terminal messages; it is never disconnected. In terminal to terminal communication, all messages are sent through the mainframe. Communications in a downsized environment will be more "peer to peer" with computers directly interfacing to cooperatively process a message.

LAN O/S Functions

Over time, PCs have emerged as single-user devices which raises the question of how to manage, from a software point of view, a network of single-user devices operating in concert as a multi-tasking, multi-user system. The answer has been to connect another server onto the existing network and provide services to other users through the LAN O/S. In effect, the combination of single-user operating systems running on clients over a LAN network allows the network and its constituents to emulate mainframe communication and connectivity func-

tionality. Of course, I'm using the word "emulate" loosely since the network can handle the transaction workload of the mainframe at a fraction of the total hardware/software cost. Ultimately, networks will supply graphical interfaces, run Lotus 1-2-3 and Word for Windows, and do a host (pun intended) of things that mainframes can't handle.

As a guide to LAN O/S functionality, following is a list of services currently provided by many O/Ss:

- * account for network and resource usage
- * assign tasks to idle workstations
- * audit trails

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- * remotely administer the server
- * inter-process LAN communication
- * monitor performance
- * provide access to multiple servers
- * support security through passwords and other devices

LAN O/Ss

Three of the most widely sold product sets for LAN O/Ss are supplied by Novell, Banyan, and IBM/Microsoft. While there are other vendors with smaller market shares, companies building large networks capable of serious, high-end applications should choose a product from one of these vendors. And, the choices these market leaders provide are interesting as the flavors and characteristics of the products vary so greatly.

Characterizing the products in short form, one would describe Microsoft's LAN Manager as the product with a Presentation Manager and IBM SAA flavor; Banyan's VINES as the high-end, full-function product with a UNIX flavor; and Novell's NetWare as the market leader with the fastest product best suited to office environments.

Novell

With over 50% of the total market, Novell's NetWare has been the industry winner. What

propelled Novell to the top, is that they targeted the office systems market which originated from a desire to share files, printers, etc.. Novell responded to the market demands with a product that supplies excellent print and file sharing services, with minimal network resource usage. However, as LAN networks evolve from simple office support functions into their new role as enablers for serious applications, Novell is under attack from Microsoft and a host of Microsoft VAR's (the largest of which is IBM).

NetWare offers many benefits as a LAN O/S, but I want

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to discuss some of NetWare's problems rather than advantages. NetWare is vulnerable as an office support product because it wasn't designed for the types of robust database applications that are necessary when replacing mainframes and minis. Some key elements lacking in the Novell environment are:

- * memory protection
- * pre-preemptive scheduling
- * virtual memory

A lack of memory protection means that all of the applications are running within one effective partition. This is the

equivalent of multi-tasking without task isolation (the way Windows 3.0 operates when used for more than one program at a time). This is a serious problem for some applications since without task isolation, if just one application aborts, it will take down the entire network and all applications. Another concomitant problem is that no one really knows how to debug in an unprotected environment. It's almost impossible to exactly replicate the conditions that existed when a program aborted.

The lack of pre-preemptive scheduling prevents different jobs from being assigned priority levels. This means that the application developer has to decide when his/her application should relinquish control. Most MIS organizations feel that it's much more efficient

to have these kinds of decisions handled centrally by one individual, perhaps a data base administrator.

The lack of virtual memory also places an additional burden on the developer to handle paging, and it is usually considered less efficient for the application builder.

Microsoft/IBM

NetWare's weaknesses open the door for Microsoft (and IBM) to steal market share from Novell with their LAN Manager/LAN Server products. These products take advantage

of the protected, multi-tasking OS/2 environment. To date, the problem with these applications has been that they offer no advantages over NetWare other than that they run in a protected environment. In fact, most users have felt that NetWare is more mature, easier to use, more reliable, and faster than LAN Manager, and have been willing to sacrifice some security for better performance.

LAN Manager sales have also been hampered by the fact that it can only go where OS/2 is running, and the sales of OS/2 have been less than robust. Now even though OS/2 Version 2 (with a 32 bit base and improvements that correct many of the existing problems) is about to ship, it seems that relief might not be in sight as the divorce between IBM and Microsoft may threaten LAN Manager's success once again.

Banyan

The third major player in the LAN O/S field is Banyan. Their product, VINES, is based on UNIX in the same way that LAN Manager/Server is based on OS/2.

Banyan has carved out the high ground in this fray by offering a higher level of management services for networks. This is especially useful for companies that want to run wide area networks with many local area drops. Banyan takes advantage of UNIX's built-in connectivity features in order to interface with the largest number of foreign environments. VINES largest disad-

vantage has been a benchmark record that shows decidedly slower transaction processing than its competitors. **GS**

IBM'S QUANDARY

This October, I was invited to attend a meeting of the Friends of Engineering and Applied Science at Harvard University in Cambridge, MA. Included among the many attendees whose professions are in the computer field was Laszlo Belady, formerly a high-level research director at IBM's research laboratory in Yorktown Heights, New York, currently Director of Mitsubishi Electric Research Laboratories. Also in attendance was Michael Rabin, Professor of Computer Science at Harvard and a consultant on research matters to IBM.

To this distinguished group I posed one of my favorite questions: why have IBM's PC software efforts been so impoverished? One interesting theory was that important innovations in software traditionally haven't been possible from an organization as large as IBM; innovation requires a tolerance of aberrant thinking which is difficult to sustain in sizable corporations. Case in point: IBM's original PC, which was a dynamic success, was created by a

small organization spun off from mainstream IBM and run independently in Boca Raton, Florida.

If our assumptions and conclusion are true, then it seems that we have issued a substantial indictment of the current IBM organization because for IBM to be competitive in the future, it would have to be split into several smaller units.

It may be that IBM management is thinking the same way as it seems that IBM is trying to foster creativity by structuring a series of relationships with companies like Knowledgeware, Apple, Bachman, Microsoft, and Novell. However, I am very skeptical about any long term success from such partnerships. Such joint efforts sometimes end in divestiture as with IBM and Rolm. Other times they end in divorce as IBM experienced with Microsoft. And often, these joint ventures end in acquisition and dissolution, which is what happened with IBM and Metaphor. It is rare that they continue successfully over long periods of time. **GS**

Borland - Having Its Cake and Eating it Too!

On October 11, the US Justice Department approved the pending Borland International/Ashton-Tate merger. The essential factor in this approval was a two-part agreement: the merged entity (Borland/Ashton-Tate) will drop the lawsuit Ashton-Tate had filed against Fox Software for dBASE copyright infringement, and the merged entity will promise to not institute similar suits in the future.

The outcome of this agreement is an excellent solution to the many, potentially complicated situations for most of the parties involved. I'm not often effusive in my praise of government actions, but this has been one situation where bureaucratic actions have significantly improved the current state of affairs for all of the concerned parties.

Borland Benefits

Both Borland and its CEO, Philippe Kahn, have benefitted from the Justice Department's rulings in several ways:

- 1) The Ashton-Tate acquisition was finalized.
- 2) The Ashton-Tate lawsuit against Fox has been dropped.

3) The agreement to dismiss the charges against Fox Software for copyright infringement is indirectly supportive of Borland's position in the copyright infringement lawsuit Lotus has brought against them for copying the Lotus menu interface structure in their Quattro Pro.

Customers

For current or potential Borland customers, the result of this merger is a company that is stronger in technology, financial posture, and marketing. In the past, Ashton-Tate did not compete in distributed

tributed DBMS marketing seminars.

Our Government

For our government and courts, this agreement clears the docket of several effort and time wasting cases. First is the ongoing Ashton-Tate/Fox copyright infringement lawsuit. Second is the subsequent dropping of Fox's anti-trust counter lawsuit. Thirdly, with this ruling, the government has avoided the necessity of going to court to stop the Borland/Ashton-Tate merger. And fourth, since the Justice Department/Borland agreement supports Borland case in the

Lotus suit -- hopefully that suit will end soon. It is even possible that this agreement could have some impact on the pending Apple/Microsoft lawsuit over potential Windows copyright infringement. (The Apple/Microsoft lawsuit is the ICBM of lawsuits

overhanging the industry. I just can't conceive of how a judge will reasonably handle the 7 million existing copies of Windows 3.0 if it is determined that Microsoft has infringed on Apple's copyrights!)

Fox Software and Other xBASE Competitors

Over the last three years, Fox has emerged as a serious dBASE development platform alternative. This agreement to drop Ashton-Tate's lawsuit

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database or client/server markets. In what will be a sharp contrast, the new Borland/Ashton-Tate will use technology available from Ashton-Tate's Interbase subsidiary to forge a powerful presence in mainstream UNIX, VAX, OS/2 and Windows NT-based corporate computing.

In the two years that Ashton-Tate owned Interbase, there was no synergy between the dBASE and Interbase product lines. Since the acquisition, however, I have already received several mailings inviting me to Borland/Interbase dis-

Winners and Losers

November/December
Edition

   Borland
 IBM
 *and*  Compaq
  Versant Object
Technology



Best...



...Worst

Current Computer Wisdom

Dr. George Schussel

Borland is definitely on a roll. The U.S. Justice department has approved their merger with Ashton-Tate, a by-product of which was the dropping of the Ashton-Tate/Fox lawsuit. With this deal, not only did Borland succeed in their bid to own Ashton-Tate, but they also got to drop what had been viewed by Borland as an ugly lawsuit. Philippe Kahn, President of Borland, now gets to have his cake and eat it too. (*For further details on the Borland/Ashton-Tate merger, refer to Borland -- Having its Cake and Eating it Too on page 8.*)

With Borland's acquisition of Ashton-Tate, they will be inheriting Interbase, an Ashton-Tate subsidiary. The new Borland/Ashton-Tate entity will use Interbase technology to actively and aggressively jump into the server business where they are likely to make a big splash.

Kahn, as the star speaker at DCI's DATABASE WORLD this November 5-7, wooed the audience with a highly sophisticated, multimedia presentation -- Borland's marketing machine has never been better. And Borland's stock price reflects their current successes: over the past few weeks, Borland stock jumped 20 points.

CCW hates to continue picking on poor, old **IBM**, but the latest news is that there will be another three month slippage in the shipping of OS/2 version 2. IBM must ship OS/2 v 2 by the end of the first quarter, 1992, or their creditability in the eyes of PC users everywhere will be irretrievably lost.

The fabulous, growth company, **Compaq**, at one time was very profitable using a high quality, high price strategy. PC clones, however, have become as high quality as Compaq's prod-

ucts, but are much cheaper. Compaq was very slow in realizing that the clones were catching up in quality (but not in price), and as a result, has suffered financially. The recent management changes, staff cuts, and price cuts are all probably good news in the long run for Compaq. However, in the short run, I don't think that the company can fully recover its lost market share.

Versant Object Technology, a small, object oriented, California database company seems to have superior technology and top-flight marketing, an unusual combination. Wide ranging, excellent press coverage of the company's products and management have put Versant in the lime light over the past few weeks. The SQL++ capabilities within their database product, makes Versant the first of the OO vendors to enter what promises to be a highly lucrative market. **GS**

Why I Can't...

(continued from front cover)

the basic excuses I hear muttered time and time again by mainframe enthusiasts. So, when the time comes, with this list, you will be armed with informed arguments powerful enough to overcome any mainframe bigot's excuse.

Following are the eight basic excuses I've heard over the past few years:

- 1) PCs are usually turned on and off during the course of a day while my mainframe runs all the time.

Therefore, any comparison of the cost of MIPS is misleading.

- 2) You can't compare mainframe MIPS to PC MIPS because they are different. Mainframe MIPS are bigger, hairier, and can do a lot more work.

- 3) MIPS don't really count anyway. A "real" computer is one with large disk farms, fast channels, and a capability for moving lots of data around. A high MIPS rating is nice for graphics, CAD/CAM, and stuff like that, but isn't relevant to "true" data processing.

- 4) Used IBM 4341s sell for \$5,000. Why buy a PC when for the same money when I can get a "real" computer and run "real"

programs doing "real" work.

- 5) You can't secure data that is located on several PCs spread around a company. Our systems and data are too valuable to put up with that kind of threat.

- 6) As a matter of fact, LANs don't provide adequate security either.

- 7) I already have downsized into AS/400s. See, I'm cool.

- 8) We need an application package to run our business and such packages are only available for MVS,

These two objections usually arise during lectures when I'm explaining how PC MIPS can be bought for 1/200 of the mainframe MIPS cost. This first of these two objections, that PCs get turned on and off while mainframes don't, is a true comment regarding the type of computing that has been done for the last decade -- stand alone, PC-based personal computing. However, what downsizing is all about is the porting of mainframe software and mainframe thinking onto PC networks. In the 1990's, the "personal" aspect will

somewhat leave PCs, and they will become part of the corporate computing milieu. PCs will be left on constantly, and work will be allocated to the idle workstations from the network operating system.

In fact, Novell has just announced upcoming support for such a feature.

The second part of this objection, that PC MIPS aren't the same as mainframe MIPS, is basically true, but irrelevant. For a good, in-depth discussion on how mainframe and PC mips compare, I suggest reading an article by Mark Ames in the May 6, 1991 Computerworld. Ames presents the results of a number of benchmarks running on IBM mainframes and Intel microprocessor-based PCs. What he found is that PC MIPS are in fact overstated -- in some cases by a factor of

"Let me explain this in terms you can understand, You're wrong!"

DOS/VSE, OS/400, etc..

Some of these arguments raise valid points and need to be considered on a case by case basis. Others are just bunk (in my opinion) of course! How do you address these concerns, and get what you want without getting fired? Let's look at the excuses individually.

Excuses 1 and 2) PCs during the day are turned on and off while mainframes aren't; PC MIPS just aren't comparable to mainframe MIPS.

three. In general then, the conclusion that PC MIPS are 200 times cheaper than mainframe MIPS is wrong, PC MIPS are really only 60 times cheaper than mainframe MIPS! Who cares? The comparison is so ludicrously imbalanced towards the PC workstation that a few hundred percent one way or the other won't be noticeable in the real, day-to-day world.

Excuse 3) MIPS don't really matter in "real" data processing.

This objection is so wrong, that it's normally only used by people desperate to avoid the inevitable. When you hear this excuse, there are several ways in which you could counter.

The first and most obvious way to deal with this red herring is to counter with the fact that most new styles of computing use graphics and improved menu-type user interfaces, which "anyone" will admit require heavy use of computing cycles. This, however, is the easy way out of a potential MIPS argument.

I prefer to take this excuse head on. I usually start with a quote from consultant Frank Dzubeck, who in a recent round table discussion said to one of his detractors, "Let me explain this in terms you can understand, You're wrong!". MIPS, in fact, are very relevant to typical commercial

data processing. I then build this case by getting my adversary to agree with the contention that database processing is "real" data processing. Once he's admitted this, he's a goner, because I can build several examples from my experience where speed in database processing is more directly correlated to processor speed and memory than to disk access speeds and transfer rates.

However, don't give up the argument based on disk capacity and speed. New disk

I expect mainframe or traditional mini-computer platforms to evolve toward the role of servers and transaction processors, as most peripheral and decision support processing moves onto the LAN.

and channel technologies available from super server vendors like Parallax and Compaq include RAID (redundant array of inexpensive disks), gigabyte storage potential with error correction and 40+ Megabit transfer rates (/sec). This is the equivalent of what's available on IBM mainframes, but at a much lower price.

Excuse 4) Used 4341s sell for only \$5,000.

Recently, I've been hearing this excuse on a regular basis. Now, I believe

that an IBM 4341 is a "real" computer -- it certainly seems real enough when you compute that hardware maintenance will run \$3-4,000 per month, a systems programmer for support will cost about the same, the room, air conditioning, and electricity will cost the same as for a mainframe, and that decent database software for the 4341 will run at least \$50,000. And that \$50,000 software charge is usually only a starter. All in all, once you get the system's software and applications installed, it is very likely that the data center's budget will be up in mainframe territory.

The point here is that CPU cost is only one piece of mainframe computing costs (just as the PC is only one piece of downsized computing costs). The only true way to compare costs is to evaluate the total

budgets for accomplishing a task or operation. Most of my clients have found that downsizing typically provides budget savings of 50% (even though PC MIPS only cost 1 - 2% of mainframe MIPS, obviously, many other costs don't fall by 99%). *A cheap, older CPU doesn't change the fact that significant cost savings and benefits are realizable from downsizing.*

I have heard reports of 4341s selling only \$2,500.

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So, if you're in the market for one, do shop carefully. It is hard to believe, but I once paid \$500,000 for a used IBM 370/145!

Excuses 5 & 6)

Spreading data around on PCs is too risky, and LANs don't have adequate security.

If you're experienced in the PC LAN world of dBASE III+ types of applications, then this is an excuse you've heard often. My recommendation to those contemplating the downsizing decision but are

concerned about such security issues, is that you should downsize to a client/server, DBMS technology (for someone from the PC file sharing world, this technology must be looked at as *upsizing*). Sybase, DEC, Gupta, Borland, and others sell true client/server DBMS types of products that offer mainframe security and integrity on PC and workstation platforms.

Most existing LAN-based applications were designed with PC file management approaches of the 1980s. In these file management approaches, there was no real application security or recoverability. Entire files were transmitted over the network to the accessing user; multi-user access with true lock-out and recoverability wasn't possible. However,

currently available client/server products like Microsoft's SQL Server provide the same security and data integrity that is normally found on mainframes or mini-computers. In addition, LAN management systems like Banyan's Vines and Novell's NetWare offer security schemes for terminal and file access control. Many organizations choose not to use these securities, but that can't be blamed on the software.

Excuse 7) I'm already downsized onto mini-computers and AS/400s.

down from mainframes. Minis, after all, started the trend toward distributed computing and downsizing. In fact, much of the boom experienced in New England during the 1980s was due to the tremendous growth in business enjoyed by mini-computer vendors selling "downsized" solutions.

The problem I have with accepting an AS/400 or DEC VAX as a downsized platform dates back to a presentation I saw at a DCI Downsizing Conference last year. Doug Michels, co-founder of the Santa Cruz Operation, commented that downsizing and open systems should go together like hand-in-glove. I firmly agree with that point. The problem is that proprietary environments aren't open, an the AS/400 and DEC VAX are proprietary. Such environments limit the hardware choices a customer has. In the past, proprietary environments didn't always limit the software choices of the user -- DEC VMS users and IBM MVS users have had somewhat of a diversity. However, in the future, open systems like Windows, OS/2, and UNIX will offer a much wider choice of software.

In situations where one is depending on proprietary minis or mainframes, I recommend the old approach -- "If it ain't broke, don't fix it".

This comment is especially prevalent during my sessions with IBM AS/400 customers. The AS/400 is undoubtedly the most popular mini-computer platform for vertical, business-oriented solutions. IBM aggressively sells the machine as a downsized target for customers who want to move away from MVS types of environments.

Hewlett Packard and DEC, among other mini-computer vendors, have also been especially aggressive in selling their minis as platforms for companies wanting to move

In the meantime, what people must do is choose the combination of environments and applications that make the most business sense. Here is where gateway technology can

be put to good use. In situations where one is dependent on applications running on proprietary minis or mainframes, I recommend the old approach -- "If it ain't broke, don't fix it". There is nothing wrong with using these types of proprietary solutions *but with gateways using LANs and client/server approaches for decision support and extensions to the older, proprietary systems*. It's exactly in such a manner that I expect mainframe or traditional mini-computer platforms to evolve toward the role of servers and transaction processors, as most peripheral and decision support processing moves onto the LAN.

Excuse 8) We need application packages -- nothing is available for client/server environments.

Some organizations currently have a very satisfactory operating environment with mainframe or proprietary mini-computers based on a comprehensive vertical industry package. Such solutions are commonly used in industries such as construction, manufacturing, and insurance.

At other times, I meet people who have built fine database environments to handle transactions and processing for their business. Often, these environments are built on the proprietary, non-relational database

management systems that were popular in the 1980s. These people are usually concerned with whether they need to drop these approaches and rebuild everything on a client/server approach. My answer is that I am against replacing systems that are functioning well. For example, I am almost always against database conversions. My experience with these kinds of efforts shows that they are much more difficult than initially forecast. As a matter of fact, *I find the expression "database conversion" to be a misnomer: since the database model is fundamental to the construction of an application's logic, an apparently simple switch of DBMS usually requires a complete application rewrite in order to take advantage of the new DBMS environment*.

Unless there are compelling application reasons to do so, I recommend staying away from straight database conversions.

This same logic applies to a movement to a distributed client/server environment. If your mainframe applications are satisfactory, then an interface to client/server computing is probably more productive than trying to replace the entire mainframe environment. In this case, SQL server gateway technologies are what you should investigate. If you write an application that interfaces your current database to an SQL database on a PC server, then a network can be used to bring

many client/server benefits without trashing the mainframe database. This can be a very effective technique for off loading decision support activities to a friendlier, cost-effective PC environment.

Whatever your reason for keeping the mainframe, whether it is a sophisticated database environment or a mature application environment, the migration of decision support to a network, SQL client/server environment will be beneficial. This type of solution, in fact, is likely to predominate during the next few years as application vendors rebuild their older, time sharing applications onto new network models. At this time, there are only a few standard types of application that are ready for client/server architectures.

Almost all application vendors are now setting a frantic course for building such downsized applications. For example, John Landry, Senior Vice President of Research and Development for D & B Computing (formed by the merger of McCormack & Dodge and MSA) has set an aggressive client/server computing direction for his company. Frank Dodge, well known former chairman of McCormack and Dodge, has formed a new company, Dodge and Associates, with the goal of developing a complete suite of client/server-based financial

(continued on next page)

Why I can't...

(continued from previous page)

applications. However, many vertical industry application vendors have yet to make detailed plans for the client/server world, and it's likely that wide availability of such applications won't be a reality for another couple of years.

Conclusion

Downsizing with client/server approaches and networks are an inevitable part of most future computing environments. The inertia built up from 20 years of mainframe, time sharing systems will not yield its domination for several more years, however. The smart IS manager will figure out how to keep the best parts of the aging time shared application base alive for another few years while extending this existing paradigm with the better and cheaper technologies afforded by downsized approaches. **GS**

Apple Has a Winner!

JWD to Apple

Announced at the fall Comdex show, Apple's new PowerBook series of notebook computers powerfully showed Apple's intent to compete with IBM and IBM clone notebooks in both function and price. With this move, I believe that Apple has insured for themselves a highly successful and profitable 1992. The PowerBook series is highly competitive in design, construction, features, size (all expected) and price (a pleasant surprise).

PowerBook 100

The PowerBook 100 is built by Sony, and has a 68000 chip. It weighs about 6lbs and comes with a 20MB hard drive, but no internal floppy. Although the machine was announced at the price of \$2,299, my local Apple superstore was taking orders at the higher price of \$2,499. For many PC users, the lack of an internal floppy drive

makes this machine not too interesting for general purpose, business uses.

I did feel that the size, construction and screen quality of the 100 were absolutely competitive with the Toshiba 2200 that I am now carrying, and my Toshiba cost about \$4,000. (For more details on Toshiba's laptops, refer to *My Life with Laptops* on page 1).

The 100 has a trackball built into the bottom of the keyboard, as does the entire PowerBook series, which is a great idea. This built-in trackball eliminates the need for a mouse, and will make porting and using the computer just that much easier.

PowerBooks 140 and 170

Assuming that the PowerBook machines being built by Apple, models 140 and 170, are the same quality as the 100 which is built by Sony, I would think that the smart



shopper should buy the 140. It weighs only two lbs. more than the 100, but packs in a lot more features. It's display is one inch larger than the 100's, and it has the faster 68030 processor, and an inboard floppy.

The list price of the 140 was quoted in press releases as \$2,899 - only \$600 more than the 100. That places this machine in competition with current 386SX notebooks running DOS and Windows.

Getting Rid of the MAC?

Given that most MAC users are used to monochrome screens, I see no drawbacks for the typical MAC user moving from an Apple desktop to a PowerBook. The notebooks, if they're produced in adequate quantity to allow for typical street discounts, will represent a price **reduction** from past Apple desktop products.

However, in the coming months, there will be a drawback for those people anxious to use these notebooks: the demand will be intense and is likely to far exceed the supply for several months.

Reverse Migration

These PowerBooks represent a very reasonable

portable computing platform for the typical DOS user who has moved from Apple over to Windows. We may see a reverse migration back to the "classic" PC producer, Apple, because of these notebooks. *This isn't as crazy as it sounds.* The success of Windows means that there are now millions of trained Excel and Word for Windows users. So, anyone trained in Windows could now become a PowerBook user with access to hundreds of Macintosh applications with almost no

These PowerBooks represent a very reasonable portable computing platform for the typical DOS user who had moved from Apple over to Windows.

retraining.

What will make these new Apple notebooks even more appealing to IBM users is Apple's Superdrive internal floppy disk drive which is found in the PowerBook series. Apple's Superdrive, a 1.4 Mbyte inboard drive, can read, write, and format DOS and OS/2 disks. I understand that the Superdrive works well for application software that runs on both Apple and IBM machines (e.g. Microsoft

Word). However, more esoteric types of files including graphics may not translate.

The Gist

Again, the problem for potential buyers is going to be availability. It looks like almost none of the PowerBook line will be available until 1st quarter, 1992.

If DOS machines are to maintain their historical price discount relative to Apple products, then the notebook computers sold by companies like AST, Toshiba, and IBM will have to drop in price considerably by mid-1992. There also is the possibility that by the time the PowerBooks are available to the general public, they may again be priced high compared to IBMs and IBM

clones.

In any case, it is nice to see Apple doing such an about face from their former high-price policy. They deserve a "JWD" (job well done). If these machines have been priced adequately for margin purposes, Apple can "bank" on an outstanding 1992. **GS**

My life with ...

(continued from front cover)

Because everything I do is so dependent on my laptop, I'm particularly sensitive about it's quality, reliability, and features. For me, reading the typical PC Week review is only moderately useful since these types of published evaluations focus on speed, something I find almost irrelevant in a "personal" computer like a laptop. The attributes I find to be the most important are screen quality and keyboard layout (it must be compatible with IBM AT style keyboards -- it drives me crazy when I see placement of the back slash key at the lower left side of the keyboard like it is on some of the newer notebooks).

Both of these two attributes, screen visibility and keyboard quality, I believe are of equal importance. I found the first generation of laptop screens, without screen backlighting, very difficult to read. Right here, let me stop and offer you a word of caution: many published screen evaluations are not totally reliable. I have found that if you are seriously interested in buying a laptop, the only accurate way to judge the screen quality is to take your software to the machine and check out the screen for yourself.

My First Laptop

I purchased my first laptop, a Tandy 1400 with twin 720KB floppies, in 1987. That machine was small enough to carry everywhere, and powerful enough to run various office applications like WordPerfect and Lotus Freelance. The CGA screen was easy to see, but an annoyance when working with graphics applications of the low resolution. Another nuisance was that the 7.5MHz 8088 processor was a dog when I tried to print graphics -- some plots actually took 30 - 40 minutes!

I reasoned that if I could buy the 2200 within a few weeks of its announcement, I could probably get three months of satisfaction before newer, lighter, faster, and better machines made me feel bad about my purchase.

My First Toshiba

By 1989, I was prepared to take the step up to a 286-based laptop with a hard disk -- a serious computer! After looking at all of the available models, I thought that the best combination of features and price to be found was the Toshiba 1600. This system had a fast 286 processor, a hard disk, and a sharp screen (only EGA though). I especially liked the 1600's keyboard; it was designed well and had a superb feel.

So, I ordered the 1600. The Toshiba came in and I set about installing all of my soft-

ware (which includes countless utilities and macros). After spending a couple of hours with only limited success, I rationalized that perhaps DCI's PC technician should finish the setup, after all, I did have a presentation to prepare. What was so difficult in the setup process was Toshiba's GSM (Grey Scale Manager). This little sweetheart is a macro program for adjusting the screen's response to various color drivers. I knew that the GSM wasn't going to be my friend when the manual stated "The direct format of the GSM command is:

```
GSM {-L}{-W}{-
D}{-I}{-R
filename}{-S
filename}{-2
c,b[,w]}{c:g[ c:g
...]}
```

I'm not kidding. This is a direct quote from page 9 of the Toshiba manual. This

chapter which explained how to use GSM went on for another 20 pages. After reading the chapter a few times, I was convinced that there are 4GLs easier to use than this stuff! The conclusion to this story is that after a couple of phone calls to Toshiba, and approximately 16 hours of the technician's time, I had a working 1600.

Moving Up (or Not?)

In the summer of 1990 I had a chance to do a consulting job for Zenith. As payment, I asked for three of their new

generation VGA laptops. At that time, Zenith was in the process of being acquired by Bull, the French computer company, and was rapidly losing its number one ranking in laptop sales. The Zenith machines I received, one model 386SX and two 286e, demonstrated why Zenith was losing market share.

The first problem I noticed was the huge brick of a battery that weighed about 2 lbs. The size and weight of these units made carrying a Zenith competitive with carrying Apple's portable through airports -- both are recommended for those who need arm stretching exercises. The next problem I had with the batteries is that after a full charging, they were only able to power the laptops for about one hour. On all three units, the batteries behaved in the same manner, so I gave up trying to get a warranty replacement.

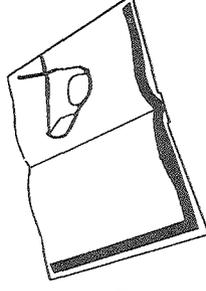
The final straw was the Zenith's screen quality. When I installed Lotus Freelance 4.0, I found that Lotus software was totally invisible on the Zenith screen. I'm not talking hard to see, I mean invisible -- blank white. Lotus technicians were kind enough to take and test one of the machines, but were unable to help. Zenith has no national support, and Zenith support staff working at the local Heath dealership was also unable to help. Now, I admit that the Lotus screens with greens on blue, etc., weren't designed for LCD laptops, but no other laptop that I've seen

has proven totally incapable of showing popular software. Our solution was that we got CRTs for the Zeniths, and they were summarily dismissed to common support areas at DCI to run Word for Windows.

Doing My Homework

Still carrying my 12lb Toshiba 1600, I eagerly awaited my new notebook, a machine that would be powered by a 386 chip, sporting a VGA screen and hard disk (60MB). Then I could really carry all my favorite software.

Which notebook would it be? Early comparison shopping led me to AST's Premium Exec as the choice of the litter. Street priced at just



under \$4,000 for the configuration I wanted, it seemed to be of high quality. Because of my good experiences with the Toshiba 1600, however, I kept comparing the AST to the competitive Toshiba 2000SX. I slightly preferred the Toshiba's screen, but it was also about \$400 more than the AST. So, it was a close call as I prepared to order the AST with a 60MB hard drive. The trouble was that no ASTs with a 60MB hard drive were available for immediate delivery.

As I decided to wait for a new laptop through the summer, I noticed that prices for laptops were falling about \$50/week. In other words, every week that I managed to carry my old Toshiba 1600, I

felt \$50 better about what would be my new notebook. The other side of this coin, however, is that as soon as my shiny new notebook arrived, I would develop buyer's remorse at the same \$50/week rate.

My Current Toshiba

By the end of the summer Toshiba had updated its 2000SX with the 2000SXE, a similar machine but with the faster 20MHz chip. I decided to look at the Toshiba screen again, and when I did I concluded that it was the absolutely one of the best notebooks I had seen.

And then it happened. Mid-September, Toshiba announced the 2200 with the same chip as

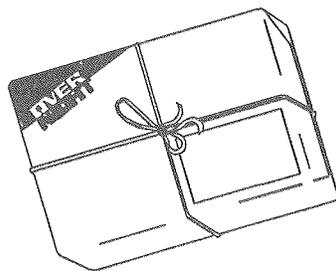
the SXE, but with a new design that was one and a half pounds lighter! This was it; I had to strike. I reasoned that if I could buy the 2200 within a few weeks of its announcement, I could probably get three months of satisfaction before newer, lighter, faster, and better machines made me feel bad about my purchase. I called every local dealer to find a 2200 that I could test. What I found was that no one was planning on stocking it. The problem for the dealers was that Toshiba's rapid product introductions were obsoleting their stock too fast! These dealers were more than happy to order me a laptop, they just weren't going to keep any in the stores.

(continued on next page)

So, against my better judgement, I ordered one from my local dealer, sight unseen. Time was of the essence, I explained, FedEx it in! The week after I placed my order, PC Week featured the 2200 in a color spread on its front page as the first example of a second generation notebook. I broke out into a sweat; my goodness, I thought, my secret is out and buyer's orders are going to swamp the channel. Bless my stars that I got my order in before the news broke.

Every day I checked with my dealer. Where's my order? Coming tomorrow was the answer (isn't that always the answer?). After waiting ten days, I pressured my dealer only to find that he had not yet ordered the machine from Toshiba, but was trying to buy it from a distributor. Panicked, I cancelled the order and did what

only a desperate buyer does -- I started calling mail order houses to find one that had it in stock and could FedEx it TODAY! Of course, this is an approach used only in sheer desperation, because I know (at the intellectual level) that new machines always have some problems, and you need some support. With mail order, your support is nil. Nevertheless, 47th Street Photo had the object of my desire in stock, and as I had a week long trip in days, I committed.



Sure enough, the next day my box of happiness arrived from New York. Using wisdom born of experience, I summoned our PC technician, Robin, to accomplish the software installation. Two hours after she had begun work, I walked by Robin's office and noticed her looking at the computer with phone in hand. This is not good, I thought to myself. Robin explained to me that the problem was a faulty DOS 4.01 -- bad software. We tested this theory by loading a desktop DOS to format the hard disk. This caused the machine to run properly, but like a desktop, without neat laptop features like "battery gage" and "resume" upon which laptop users rely. The fact that we could load another machine's DOS and Windows 3.0 onto the laptop at all, however, is a BIG advantage,

an advantage that isn't available for IBM's OS/2 users -- OS/2 uses device specific drivers and is not generally portable in the same way that DOS environments are.

Nightmare on 47th Street

Dealing with the folks at 47th Street Photo for service is worse than you can imagine. For starters, they do have an 800 number for service, but it's busy all the time.

So, obviously, I needed new DOS diskettes for my laptop. I called the sales num-

ber at 47th Street Photo to try to get my salesman. That's not possible, but other sales people take your name and promise that someone will get back to you. After two days and 4 phone calls of this type, I realized that I've discovered another version of the "check's in the mail".

Fortunately, 47th Street Photo is open on Sunday, so while I sat and watched the Patriots lose yet another football game, I used the redial key for a solid 25 minutes to finally break through and reach a "service technician". The technician told me that he couldn't help; they had no extra software and if they opened another box to make a copy of the software, that other box would have to be sold as a used computer. He then suggested that I contact Toshiba.

Now, I'm mad. If I don't have a functioning computer, then I want to make sure that 47th Street Photo doesn't get paid until that computer works. I wisely had charged the purchase to American Express; their 800 lines work all the time. However, this is where truth diverges from the commercials I see so often. I called and explained the situation to my AMEX representative who informed me that if I returned the defective unit, I could ask them not to bill the charge. I then explained to the sales representative that the retailer had directed me to the manufacturer for satisfaction. AMEX informed me that since the problem was being pursued

by Toshiba, they were obligated to pay 47th Street Photo and to bill me. A true Catch 22.

Luckily, Toshiba was more responsive. After a couple of phone calls, I found a sympathetic listener. New software was FedExed. Actually, over the next two weeks I received 3 separate packages of software. At that time, I made a mental note to list Toshiba as one of the good guys.

The End of a Horror Story?

I'm already starting to panic about my purchase, however. The new notebook is so small that I'm carrying it around more than ever, and am finding it more useful than any other machine I've ever owned. So, when I hear the occasional PING, PING from inside the machine, I go into terror mode. Terror, because I can't imagine what it would be like waiting the two months I expect to be without the machine if it needs service. So far, the PING, PING isn't getting any worse, and the machine is still working perfectly, so maybe it is as the doctors say "a functional" problem. In other words, take an aspirin and don't worry about it.

However, on another front, different fears of mine are already coming true. Since I purchased my machine, I have been on the road for two weeks and unable to return home to have the Toshiba DOS installed. As I'm in the plane on my way home, I read that

Toshiba has announced new models, the 3300 and 4400. A shot of adrenalin goes through my body -- Even before I have my machine set up correctly, there are new, better machines announced!

Alright, I tell myself, get a grip George. I can ignore the 7lb 4400 with a 486 chip because although it is much faster than the 2200, it is also 2 lbs heavier, a trade off I wouldn't want to make.

Another drawback is that the 4400's battery is the older Nickel Cadmium technology, rather than the newer nickel hydride technology that my 2200 battery sports. This newer nickel hydride technology seems vastly superior since its life is much, much longer than my old 1600, and it doesn't have the memory problem of NiCads. This means I can use it in short battery driven spurts and in between uses, keep it fully charged.

The 3300, however, is another issue altogether. It sports Intel's new 386SL chip and doesn't weigh any more than the 2200 I already have. But fortunately, it doesn't seem to offer any major benefits other than a larger standard hard drive.

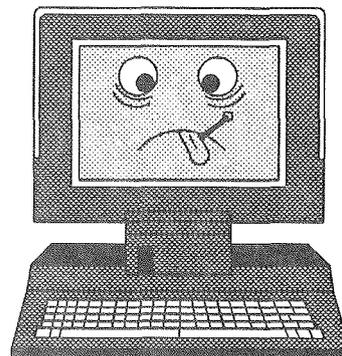
Lessons Learned

What are the lessons here? First of all, why don't PC

manufacturers load a basic operating system onto the hard disk before shipping like Apple does with the Mac? PC manufacturers want their products to be as ubiquitous as televisions. The typical household, however, doesn't have access to 5 hours of an experienced PC technician's time. For these reasons, unfortunately, some laptops are not yet reasonable consumer products.

It may sound like I've had a long and difficult road with my laptops. The truth is that I can't imagine being without one. The productivity increase that the machine allows while I'm traveling or at home, literally allows me to do twice as much work as I could accomplish with a desktop machine at the office. Having said all this, I think that laptop and notebook suppliers have a lot more work to do in making their machines more readily available to the regular public -- people that don't happen to have a full time PC technician on their staff.

In spite of my travails, I am now happy and will greatly adore my 2200 for another 12 months -- that's the half life of one of these units. I figure that by the fall of 1992, I'll be able to buy a 33MHz 386, color notebook that weighs about 6 lbs. Santa knows what to get me for 1992! **GS**



Borland -- Having Its Cake...

(continued from page 8)

against Fox allows Fox to continue competing on the basis of technology. Removing the financial drain of supporting a lawsuit will be good for Fox, and presumably, its customers as well.

Microsoft is expected to enter the xBASE market in 1992, and the clearing of the Ashton-Tate/Fox lawsuit would apparently make this market more attractive for additional competition.

Ashton-Tate

While the remaining Ashton-Tate entity within Borland lost the potential win from the lawsuit, such a judgement would have been highly resented by many in the dBASE/xBASE user, consultant, and developer community.

From a business perspective, the positive impact to the Ashton-Tate entity by being part of Borland will more than compensate for the potential loss of income from a favorable lawsuit judgement -- which was highly speculative in any case. **GS**

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