

Schussel's

DOWN SIZING JOURNAL

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DeBoever's Report from the Downsizing Front

A Manager's Guide to Combat

by Larry DeBoever

This is a condensation and summary of several key points from a presentation on networking and downsizing given by Larry DeBoever, Managing Director of Tucker/DeBoever Technologies, at DCI's Downsizing EXPO, in Anaheim, September 10, 1991.

What do the words *downsized architectures* mean? In the past, when asked that question, my answer was that there existed two groups of IS people who defined downsizing differently. There was the group of people I call the radical left who believed that downsizing meant replacing an IBM 3090-600J with a network

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Geo's Outlook

The Year of the Network

At the beginning of each of the past few years, the networking press has forecast that particular year to be the *Year of the LAN*. LAN usage has grown over the last five years, but not explosively enough to warrant such a remarkable title. Therefore, I think it more appropriate to call the period between 1988 and 1993 the *Half-Decade of the LAN* since LAN usage has and will progressively increase at a strong, steady pace.

In the 1990s, I expect stand alone corporate PCs to rapidly become a minority. This will happen because there are currently many good business reasons for both large and small corporations to network employees' desktops.

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DeBoever's Report...

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of 5 PCs. Their desire was basically to shoot the mainframe.

Then there was the radical right, the old guys who grew up on mainframes. For the radical right, the mainframe was the ICBM of transaction processing, and what they wanted was to shoot the radical left.

In the years since I first made these observations, it has become apparent that there exists a third faction in this downsizing drama. I have discovered that behind every successful downsizing venture, the charge was not led by the radical left, wasn't killed by the radical right, but was masterminded by a third group I call the radical dudes.

Who are the radical dudes? Radical dudes tend to be people between the ages of 30 and 40 who grew up in a mainframe world as a programmer, and somewhere in the early 1980s were bitten by the PC bug. Radical dudes understand that there are some mainframe applications that can't be offloaded to a client/server architecture, but that you can and should offload many applications. I believe that it will be this radical dude philosophy that dominates the downsizing trend of the 1990s.

A Downsizing War: American vs. United

The question is: do these radical dudes really exist, and have they been successful in downsizing and distributing data onto PC LANs? The answer to both questions is an emphatic yes. Why haven't we heard about these stories then? Because large companies in the process of downsizing have decided to be quiet and not tell the world *because their new computer systems are a competitive advantage point.*

United Airlines sells the world's dominant airline reservation system, Computerized Reservation Systems (CRS), called Apollo in the US. But, the largest flight reservation system in the US is Sabre, which is owned by American Airlines. What both of these airlines are attempting to do with their reservation systems is to provide a new layer of service for ticket agencies. Since a ticket agency will only subscribe to one reservation system, all of their customer's airline reservations, car rentals, and hotel reservations are made using that network. Both airline companies place a surcharge on reservations made on other airlines using their system. These airline companies are prospering through their reservations systems -- in 1990, Sabre's profits were equal to American Airlines'.

United and American are in combat, and their weapons are LANs. United is currently installing 9,000 corporate rings; they install three per day using their own employees -- no sub-contractors. Domestically, they will have 25,000 servers running within two years. Over the next five years, American will install 15,000 token rings. Why haven't we heard more about these installations? Because American and United are deadly competitors, and neither want to talk about their new technological advantages.

Baxter: Buying the Customer

Another company that has successfully downsized is Baxter. Baxter does \$5 billion each year in revenue. They are the largest hospital supplier in the US -- supplies like bed pans, syringes, and bandages. Baxter carries over 120,000 line items, and does \$1 million dollars worth of word processing per hour.

Baxter used to conduct their business in the traditional manner -- when a hospital needed supplies, they would call the local Baxter sales representative to place an order. Then, the Baxter representative would input that information into the computer, the order would be centrally processed, and inventory would be returned in a few days. That system worked fine, but it was not going to

make Baxter number one. So, they decided to downsize. To get the attention of the data processing department, they cut both the IS staff and budget by 15%, and told the department to downsize and improve the corporate system.

Baxter's downsizing efforts were extremely successful. They are now running an order entry application on a client/server architecture using Windows and LAN Manager. In each hospital they service, Baxter placed a client in the nurses' stations. Now, when caregivers need an item, they walk to the station and type in the order. Think of it as a Sears catalog, put into a Windows environment, and placed on a desktop. This new order entry system eliminates the need for Baxter's sales/data entry personnel. It eliminates order entry and inventory errors, and gives immediate feedback to the hospital on the availability of the items ordered. This accuracy gives Baxter the ability to guarantee two hour delivery times in their ten largest metropolitan areas. Such quick turn around means that the hospital can transform their supply rooms into floor space for patient care. So, in this case, both parties win -- the hospitals win with more floor space, better inventory accounting, and quick, reliable service, and Baxter wins because now they own the business of that hospital. *That hospital will never leave Baxter.*

Baxter, like American and United, is fundamentally changing the way they do business through the process of downsizing. All three companies are moving to client/server technology and are installing LANs, PCs, and servers in order to secure customers.

Centralized Management

When explaining the reasons behind downsizing successes like American Airlines, United Airlines, or Baxter, I like to place strong emphasis on the importance of having centralized architecture management. In my opinion, it doesn't matter what software products you buy, LAN Manager, LAN Server, or Banyan. If you are a large, complex organization implementing production subsystems to get a return on your investment, you will fail unless you channel everything through centralized management. That means IS professionals defining and implementing a corporate-wide system. If you don't centralize, end-users will think that the workstation on their desk belongs to them, and that they are free to customize both the software and hardware. But this is faulty thinking. Every workstation is a corporate asset; they are not the user's applications, they're the corporate applications.

Another important ingredient for successfully downsizing is a corporate

commitment to standards. I am not saying that all of your corporate hardware and software must be identical, but it is necessary that a central IS department selects and purchases consistent systems. That might mean that all servers are an IBM PS/2 Model 95 with certain characteristics, or that the standard client is a Zenith Supersport, Compaq, or AST 386 Premium with 4Mb of RAM -- not 5Mb, not 3Mb.

It is as equally crucial to get central support for corporate-wide standards, and not allow any exceptions. This might mean firing the employee who violates the standard. Why so drastic? Just take a look at Boeing. Boeing is legendary for machines that fail because some engineer, who is normally very bright, decided to modify his desktop workstation by inserting a board he bought out of California Computer Currents. If you read California Computers Currents, you understand my point; they carry ads for products and guides for just about anything, like how to take your IBM AT and turn it into a Ferrari. Because of the possibilities for such huge problems, your company must be dedicated to centralized management, and the standard platforms that IS hands down.

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Application-Driven Network Design

Another important concept that IS management should keep in mind when downsizing is that all network design should be application driven. I once made a lot of money designing corporate, enterprise-wide networks. I was taught to use the traffic model; you sloped the traffic in order to do the network sizing. The problem is that today, that model no longer works. We need network design techniques that are application driven: your traffic output will be driven by the changes in your application architecture because, when you downsize, the application changes the size and nature of the traffic.

LAN O/Ss

Mainframe and mini-computer functionality are now available in LAN O/Ss. (For more information on LAN O/Ss, see "LAN Operating Systems" in the November/December issue of Schussel's Downsizing Journal.) Three years ago, I said that LAN O/Ss were toys, but today, that statement is no longer true. Even though Banyan had been the historic leader of LAN O/S progress, the real watershed enhancements are in LAN Manager 2.0 and LAN Server (Novell is now working on accommodating that same set

of advancements). Some of these functions include:

- * Domains: Allows you to identify a group of servers to participate as part of a user class
- * Forced log off: LAN administrator can log users off of the network
- * Controlled log on: User accessibility can be limited by location, time, and applications
- * Real time alerts issued to the network administrator when there are repeated log on attempts
- * Real time alert for near-full disks and logs
- * Hotfix for bad sectors
- * Replication services
- * Operators to control simple administrative tasks
- * Forced expiration dates for log on passwords
- * Fault tolerance
- * Rollback/rollforward

LAN O/Ss are real operating systems that need to be managed by IS professionals. If you set the O/S functions to the default values, you will be missing out on the mainframe and mini-computer

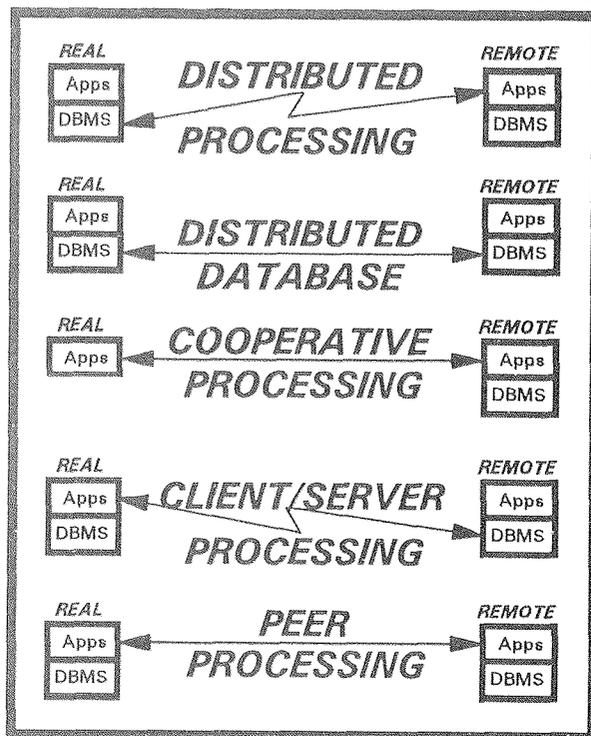
functionality that LAN O/Ss have to offer.

LAN Hardware: Token Ring

When IBM built Token Ring, it was built to run at 98Mbits; IBM is currently internally running Token Ring 98 Mbits over shielded, twisted pair wire. The shielded wire is used, not to prevent electrical interference, but because when Token Ring runs at 98 Mbits, the wire radiates like a 50,000 watt FM radio station.

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ARCHITECTURES DEFINED:



Downsizing Terminology: Problems in understanding the different downsizing architectures are often compounded by the looseness in downsizing terminology. This chart should help to clarify the differences in some of the buzzwords you've heard.

Beware of Flying Mice!

This November as my wife, Sandi, and I were flying to Key West on American Airlines for a short vacation, I pulled out my laptop and began writing an article for this issue of **SDJ**. Since I was working in Word for Windows, my favorite word processor, I had a mouse plugged into the serial port of the laptop. Soon after I had started writing, a flight attendant stopped by to hand me a card that stated the following:

Dear Customer: certain devices used on board the aircraft, both on the ground and in-flight, may radiate electronic pulses affecting the aircraft navigational or communications equipment.

The card (AA form T220, CPN 5516354, signed by R. W. Baker, Executive Vice-President of Operations, American Airlines) went on to explain that a number of different types of electronic devices haven't yet been tested for electronic interference, and therefore are not approved for use aboard any American Airlines flight. Surprisingly, a computer mouse attached by a cord was one of the unapproved devices listed. In other words, I had to stop

using my mouse, which meant that I couldn't use my word processor.

As I feebly tried to explain to the flight attendant that I had been computing with a mouse on planes for the past two years, she went on to tell me that this was a new regulation.

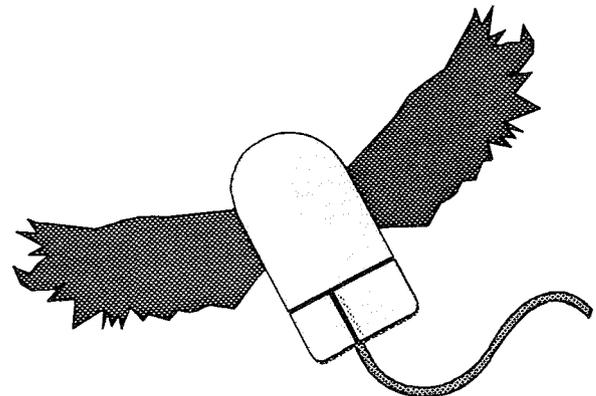
Just about everyone who flies knows about the interference caused by certain electronic devices. That's the reason why your kid can't play with a Nintendo Gameboy on a plane. What I didn't realize was that computer mice fall into this category. I knew that a graphical user interface could be dangerous to my pocketbook, but I never thought that it would be hazardous to my in-flight safety!

As I reverted back to my character-based word processor (I had one stored on my hard disk), I thought about the two good reasons for busy travelers not to give up character-based word processors yet. The first is obvious -- they are mouseless, and therefore are not restricted by the airlines. The second advantage over GUIs is that a really old word processor like mine (Spellbinder, 1983), and 800KB of files will both fit on a single floppy diskette. This portability allows you to print

documents while traveling; you just boot the floppy in any computer, and voila, you can print your files! Copying a GUI word processor of 6-12 MBytes to another computer to print a file means that you could end up needing to log onto someone's network (and usually, you're not welcome), or copy about 6-12 floppies to a hard disk. I like to think of my approach to printing on the road as the poor man's alternative to sneakernets, FAXs and modems.

OK readers, I want to hear from you. What do you think about outlawed flying mice? Send me your notes, stories or comments (FAX 508/470-0526).

Has Apple gained an important competitive advantage by embedding a trackball into the keyboard area as opposed to IBM style notebooks which require mice? Will character-based processing live forever or is American Airlines being



overly zealous in imagining radio frequency interference from flying mice? **GS**

Winners and Losers

January Edition



DEC



Best...



...Worst

Current Computer Wisdom

Dr. George Schussel

This month's CCW covers Digital Equipment Corporation exclusively. Early this past December, DEC's management spoke publicly about their open licensing strategy for the upcoming 64 bit RISC Alpha chip. This open marketing could give DEC the chance to regain the leadership position it held in the late 1970s and early 1980s. The announcement, which had been widely anticipated in the press, was a surprise both in the processing power the chip promises, and the relative openness of DEC's preliminary marketing plan.

Popular, Cheap, and Open

The Alpha chip will support both DEC's VMS and OSF/1 UNIX, a superset of DEC's ULTRIX. The

significance of this openness is that in the past, VMS ran on a VAX, a popular but expensive, closed environment. With DEC's new plans, VMS will still run on a VAX, but the Alpha VAX will be significantly cheaper to purchase, and will be part of an open environment where many different vendors produce clones, much like what has happened in the PC world.

Without doubt, VMS is the most widely admired and beloved operating system. It's robustness, ease of use, and rich functionality is what has given DEC a competitive edge in the market against companies like Data General, which during the past ten years have offered more raw performance, in hardware terms, for the dollar. The variety of programming languages, CASE tools, databases, office support and general programs available for VMS is over-

whelming. As a standard software platform, VMS has ranked in popularity with IBM's MVS, Microsoft's DOS, and the various versions of UNIX.

As compared with MVS, the DEC product is newer, far easier to implement and support, and is enormously less expensive. It typically runs on hardware platforms that cost in the \$100 thousand range rather than in the million dollar range of the typical IBM mainframe.

Most observers would give a huge edge in functionality and robustness to VMS over UNIX, the environment it most resembles. The fact that there is only one version of VMS in circulation where there exist many versions of incompatible UNIX adds to DEC's edge. While converting

and porting applications between those different UNIX versions may not be difficult, it is still necessary, which represents a serious drawback to the UNIX platform.

The point is that VMS is now promised to be available on state-of-the-art, open hardware platforms. It appears that DEC is following SUN's lead. Such strategy has been reasonably successful for SUN, while not compromising its position of dominance in the SPARC market. I predict that DEC will achieve greater success with its open licensing of Alpha than SUN has with SPARC. The difference will be caused by the huge difference in size and importance of the installed bases for the architectures. In overall importance to the worldwide computing community, the VAX/VMS architecture is probably 5-10 times more widely used than SPARC (VMS's popularity is even larger in commercial, as opposed to engineering, environments).

DEC's announcement will allow other hardware vendors to market advanced, state-of-the-art Alpha-based systems to run the enormous base of VMS software. Belatedly, but with a potentially enormous impact, DEC has decided to join the fray of other companies attempting to establish the

fourth generation of hardware standards. In random order the others are:

SUN's SPARC -- SUN kicked off the idea of trying to establish your proprietary platform as an industry standard by openly and reasonably licensing it to others. In doing so, SUN was trying to duplicate the success that IBM had achieved with its PC architecture. While many companies signed on to clone SPARC, no one besides SUN has been able to sell a large quantity of SPARC. This strategy has benefited SUN; SUN has been perceived as a leader (true or not) in the movement towards open systems.

MIPS/ACE -- MIPS has successfully licensed its R3000/R4000 RISC design to many firms, including DEC. The biggest hope for MIPS is the adoption of the R4000 chip as one of the two hardware processor designs for the Advanced Computing Environment (ACE) consortium. With Compaq, DEC, Microsoft and 200 other companies signed on, ACE looks to be a success. However,

their products aren't scheduled for delivery in quantity until late 1992; so the jury is still out on what the ultimate impact of ACE will be on computing standards.

HEWLETT
PACKARD's PRECISION ARCHITECTURE -- Based on performance and price, Precision Architecture is not bad, but it will never become a standard platform since HP opened the design too late, and no company of substance has adopted the architecture.

APPLE/IBM/
MOTOROLA's
RS/6000 BASED
POWER CHIP -- This much discussed chip is the new kid on the block. The problems and risks facing this consortium were chronicled in the September, 1991 issue of SDJ. In any case, DEC's Alpha is going to hit the market with an abundance of VAX software available, while POWER will require all new software. Compatibility with past investments in software is an advantage -- an overwhelming advantage.

GS

A Company to Watch: Revelation Technologies

Revelation Technologies Inc. (RTI) is one of the software companies leading the charge toward downsizing. Although I had heard of their PC-based application development product, Advanced Revelation (AREV), the company attracted my attention after I heard several interesting comments about AREV at various DCI downsizing events. At one conference, a representative from Turner Construction of New York, a \$3 billion company, explained how his company had used AREV to downsize all of their applications. Two years ago, Turner Construction rebuilt their entire information systems department with downsized systems based on AREV running over Banyan Vines networks. As part of this process, Turner "shot" their 3090 mainframe -- the company now runs entirely with a PC DBMS on a LAN.

The Current Technology

Jim Davey, a DCI senior researcher, and I decided to check out RTI's AREV in detail. We found Advanced Revelation to be one of the few PC-based products with enough database and network

functionality to allow the building of mainframe-type applications. We also found that RTI management has a future plan to radically change the AREV architecture in order to make it more "open" and suitable for downsizing projects.

The following information is based on: 1) a detailed look at AREV which included building a simple application; 2) discussions with AREV customers and analysts; 3) an indepth article from the November 18, 1991 issue of *InfoWorld* which evaluated FoxPro 2.0, DataFlex 3.0, and AREV 2.1.

RTI has the technology needed to become a top player in the downsizing/rightsizing software tools business.

Strengths

AREV 2.1 offers a number of important features to those who want to implement robust systems on PC LANs. In summary these are:

An extremely robust programming language - RBASIC: Basically, we found that any application that could be written in COBOL/CICS, could be functionally duplicated in AREV.

High level of data integrity: AREV offers some mainframe functions including transaction commit and rollback. The data input screen offers a rich option of editing functions; it is possible for the user to add additional functionality through programming.

Data Dictionary: AREV is built around the concept of an active data dictionary. Data definitions, functions and relationships defined in the dictionary are automatically and uniformly enforced

across all applications. This valuable approach is commonly used in leading mainframe application building toolsets, but is rather unusual to find in a PC-based tool.

Security: AREV offers mainframe-like data and access security. The approach is multi-level and flexible. Data encryption is offered as an option.

Foreign DBMS access: Access to DB2, SQL Server and Oracle Server is available through AREV's "Bonding Technology." In this sense, the product's capabilities are at the same level as those found in leading mini-

featuring the Open Insight™ and Open Engine™ product lines.
 Open Engine is a new version of AREV with an advanced Bonding Technology. With Open Engine, RTI has opened the front-end for various tools, Actor or Toolbook being two examples. Interfaces built with these tools can talk directly to the Open Engine client side software. In this new client/server architecture, AREV stores procedures that can be executed on either the client or server side, an idea that Sybase originated (and that is available from AREV through its SQL Server Bond). RTI's Open Engine is the first architecture I've seen that allows ease of execution on either or both the client and server sides.
 The other major attraction of the RTI product line is Open Insight, a Windows-based front-end. This product is founded on technology developed by Knowledge Garden, and offers the capability of building Windows applications as a function, and expert systems/rule-based processing. I think that with Open Engine and Open Insight, RTI has the technology needed to become a top player in the downsizing/tightening software tools business. **GS**

many of the built-in data integrity and security features lacking in the other (PC-based application development environments). " **Future Technology**
 AREV 2.1 is now two years old. So, it is time to look at the future direction of RTI. By the time this article is printed, RTI should have begun shipments of its new generation of technology

We found Advanced Revelation to be one of the few PC-based products with enough database and network functionality to allow the building of mainframe-type applications.

Report Writer: If report writing is one of your dominant applications, you'll be better off looking at a product such as InfoBuilder's **FOCUS**.
Ease of learning: We did not find AREV intuitive or particularly easy to learn. The *InfoWorld* article summarized our feelings: "Advanced Revelation is difficult to grasp, partially as a result of the underlying architecture that supports additional loads were applied, AREV's performance degraded the least, and its programming features were well suited for TP applications.

However impressed Jim and I were with AREV, we did discover some problem areas. These included: **SQL, Relational support:** Jim and I didn't use AREV's embedded SQL capabilities, but the *InfoWorld* testers found that AREV's SQL implementation (level 1+) was not particularly full, and performance was uneven.
 Jim and I were with AREV, we did discover some problem areas. These included:

Needs Work
 computer software product lines.
Text and variable length fields: AREV's capabilities here are top notch -- there is better support for these functions than most mini-computer relational DBMS products.
Transaction Processing: In this area, AREV's performance was judged to be the best of all products evaluated in the *InfoWorld* article. As additional loads were applied, AREV's performance degraded the least, and its programming features were well suited for TP applications.

The Year of the...

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Today, networks are cost efficient and provide essential administration facilities. The installation of networks will become easier in the future as Microsoft rolls out its plan for implementing network hooks and capabilities within the Windows environment.

Why networks make sense right now!

Local area networks (LANs) were sold in the early years as a way of sharing printers and files in the office environment. However, recent advances in network and database technologies have started changing the focus of LANs toward enterprise style computing with client/server, data-based applications. But, even in a smaller office environment, networks can offer a number of advantages beyond simple printer sharing:

1) Fewer software licenses.

When companies begin buying hundreds of copies of Windows-based applications, the software licensing fees can become prohibitive. As a cost efficient alternative, network operating systems will allow LAN administrators the ability of licensing copies by metered usage rather than the total number of PCs. For popular products like WordPerfect for Windows or Freelance

for Windows, this will mean that with a network, only 20% - 40% of the licenses that would be needed with stand-alone PCs will be required. Such meter-based licensing will be new for most PC software companies, but is a hard dollar saving technique too good to be overlooked.

More specifically, meter-based licensing works as follows: instead of licensing a copy of WordPerfect for each PC, you will install one copy on your LAN Server along with a meter (a software function). Then, when any PC on the network calls for WordPerfect, the application is downloaded from the server to that local PC hard drive. The meter keeps count of how many down-loaded applications of WordPerfect are running. This way, *a company only pays for the number of applications it needs at any one given point in time, not on a continuous basis.* An important, advantageous by-product of this approach is that less local disk space is needed for storing redundant software copies.

2) Faster installation/maintenance of software. On stand-alone PCs, as new

releases of windows-based applications become available, PC technicians are kept busy as they travel around to dozens or hundreds of PCs installing the new versions/releases. But, installation of new software on network systems where applications are down-loaded from a server will mean savings of 80% to 95+ % of a technician's time. For

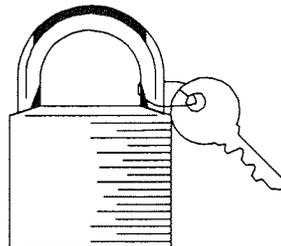
What networked PCs will save your company.

1. **Money** - Fewer copies of software will need to be purchased.
2. **Support** - Fewer PC and network technicians will be needed.
3. **Security** - IS professionals will be in charge of application distribution as well as corporate data.
4. **Previously lost processing power** - PCs will be in use constantly, if not by a user, then by the network.
5. **Local disk space** - Applications will be located on the server, freeing up more PC disk space.

companies with over one hundred PCs, I can't imagine installing software through any other method than on a network.

3) **Data sharing/control/security.** Most CIOs feel uncomfortable with the idea that on a LAN, the critical corporate data is not under a central lock and key. However, server-based data files can combine the traditional glass house benefits of security and data integrity with the practical benefits of distributed processing on a PC network. If data is centralized on servers in an IS controlled environment, you know that coffee isn't going to be spilled on your precious corporate information. You can also be comfortable about professional personnel being responsible for timely backups. With data on a server, access can be controlled by names, security codes, and terminal accessibility among other methods. Server-based data means that data sharing with security and without redundancy is a potential reality.

4) **More efficient usage of PCs is possible.** Network style computing is group-based which is fundamentally different from the



personal computing of the 1980s. One of the disadvantages of personal style computing is that when a PC is turned off, that PC's power can't be harnessed. For example, my portable notebook is capable of an impressive three MIPS of computing power, but because it's turned off most of the day, that potential power is never used. With a network installation, however, when I'm done with using "my" machine, it would remain on and available

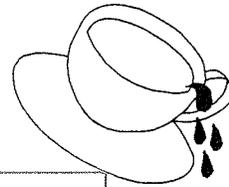
If data is centralized on servers in an IS controlled environment, you know that coffee isn't going to be spilled on your precious corporate information.

for computing assignments down-loaded through the network. This idea isn't as farfetched as it might sound. Novell has just announced such a scheduling capability for future NetWare products. Revelation Technologies' Advanced Revelation Open Engine software supports a smart scheduler that searches the network for idle machines to execute client/server

application modules.

Anyway, you get the idea - networks make a lot of sense today on the basis of reduced costs, resource sharing and security. But even more interesting is how much sense they're going to make as simpler implementation/integration technologies are delivered by Microsoft, Novell, IBM, DEC and others.

Future Versions of Windows Will Make Networks Better



The major network environments of today have little to no support for DOS-based PC environments. These are:

- IBM's Systems Application Architecture (SAA) and SNA
- DEC's Network Applications Support
- OSF's Distributed Computing Environment
- SUN's Open Network Computing.

However, this lack of support is going to change in the future as Microsoft leads a charge to add traditional networking features to DOS environments by expanding the networking capabilities of Windows on the client. DEC and Microsoft in November, 1991 announced that they will

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be working together to add network functionality into the DEC Pathworks (LAN Manager) environment.

The types of additional functions that are being added into Windows will confuse the previous functionality differences between PC operating systems and LAN/server operating systems. But this confusion isn't a bad thing -- it means that users will have a choice of whether to implement a function through the Windows environment, or to turn it on through LAN Manager or NetWare. Examples of such functions that Microsoft has promised to implement into Windows include:

- * Administrative functions such as the installation of new software from one Windows environment to another.
- * Real time, on-the-fly re-configuration for a PC so that the PC can function as a client, server or peer in connections with other Windows PCs.
- * The capability for open database connections. Microsoft is going to implement a driver environment for Windows on top of specifications promulgated by the SQL

Access group. In the same way that operating system vendors provide an environment for printer manufacturers to write printer drivers, Microsoft wants to provide access to diverse DBMS environments. Although access to server databases has been available on the PC for a few years now, it has always been through gateways -- one-to-one pathways that must be custom designed and built.

- * Support for multiple file servers and types.
- Heterogeneity is a fact of life

Installation of new software on network systems where applications are down-loaded from a server will mean savings of 80% to 95+ % of a technician's time.

in PC networking. No one will have an environment that consists of hardware and software components from only one vendor. Differences between the leading LAN operating system vendors



-- Novell, IBM, DEC, Microsoft, and Banyan means that many users are going to want simultaneous access to facilities that are spread over several of these environments. Microsoft will provide that capability (no surprise) through the Windows environment (surprise).

Conclusion

If you haven't seriously looked at networks as a way of connecting your desktops, now is the time to do so. There are already several good reasons for implementing networks

based on current technology - and there will be more in the future. If you want to consider enterprise-style computing where you implement systems on PCs rather than mainframes or minis, then a network will be

one of the foundation enabling technologies. If you're not

ready to move to the network environment, then wait a little while longer; new Windows-based functionality will make networking easier and more flexible than ever.

GS

In the next issue: an interview with Robert Dickerson, Vice President & General Manager - Database Business Unit, Borland International.

IBM

Revisited

Release 1.0

In the October issue of *Schussel's Downsizing Journal*, I ran an editorial on IBM's current state of affairs entitled "What's Wrong with IBM?" (can you guess the tone of the article?). In retrospect, the commentary was prophetic; the following month the media, both industry specific and popular, gave IBM top billing with dozens of stories about impending RIFs (reduction in force). These stories covered the reorganization and other steps that IBM is expected to take in order to reverse recent business setbacks.

The lead story in the Money section of the November 27 *USA Today* was entitled "Big Blue trims some of the fat: IBM takes \$3B charge, cuts 20,000 jobs". The article noted that the company's stock closed up on the day the impending RIFs were announced. The idea is that a leaner, meaner IBM is potentially more aggressive and profitable.

The editorial lead in the November 25 issue of *InfoWorld* was titled "Yes, these days you can be fired for buying IBM". This article was bearish on the IBM move to

reduce the staff by 20,000. The author postulated that IBM needs to reduce their headcount by approximately 100,000 if they seriously want to remedy their problems. This writer also suggested that a radical internal reorganization is necessary for IBM to survive and prosper.

At DCI's *DATABASE WORLD* this November, I was told that turnover and resignations in the AD/Cycle architecture group at IBM's Santa Teresa Labs were extensive. Based upon information from people that I know within the software laboratory, it would seem that there is pressure to reduce the staff through early retirement and other such programs.

Computerworld's November 25 issue had a comment that "...the mainframe crown is being melted down, refashioned and passed around." At DCI, we've known that mainframes have been, relatively speaking, on the way out for several years. That is why this journal is *Schussel's Downsizing Journal*, and not *Schussel's Mainframe Journal!*

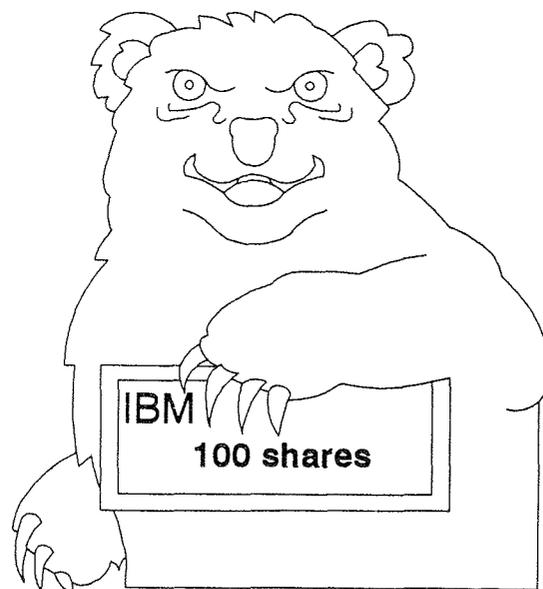
The Key Point

Through all the noise and smoke, the key issue to look at

will be IBM's product announcements and analyst's evaluations of future products. Regardless of employee counts, IBM needs to deliver attractively priced leadership products with good reliability and service. If IBM can't do this, then the RIFs could turn into a prolonged death spiral.

However, before we bury IBM, it is important to point out that its industry position is such that if it produces leading products, those products should be tremendously popular.

So, now we know for what to look. IBM's customers, shareholders, employees, and the entire industry will be anxiously awaiting IBM's future products. I, for one, am still skeptical. As evidenced by the subtitle of this article, Release 1.0, this subject is far from being put to bed, and *SDJ* is *sure* to have future commentaries. **GS**



Notes and Quotes

Database World, Chicago, November 5-7, 1991

Tremendous activity abounded at DCI's DATABASE WORLD, held this fall at Chicago's Rosemont Convention Center. Some of the highlights from both the conference and the exposition are as follows:

There was a good deal of interest in object oriented (OO) application development approaches. Although standards for OO analysis, design, and implementation have yet to be established (other than the C++ language), most people who had some exposure to OO techniques felt that it is an up and coming technology that can't be ignored.

In his keynote address, **Philippe Kahn**, Founder and CEO of Borland International, stressed that Borland's successes have been significantly attributable to the use of OO development techniques. Kahn pointed out that when the success of Borland is contrasted with the performance of a vendor that uses conventional development techniques, like

Ashton-Tate for example, the results are all too obvious. His message was that if you don't start using OO techniques now, in the not-so-distant future, your job or even company could become irrelevant.

Kahn's presentation was noteworthy not only for its content, but for its style. Using a laptop computer to drive a video projector, he smoothly integrated a Quattro Pro slide show on the psychology of



learning (objects are more natural!) with a live demo of a working application showing how changes from an ObjectVision 2 decision tree are easily propagated into a live application.

The "Great Object vs Relational Debate" brought together several movers and shakers from both the object and relational worlds. Arguing for the relational side were **Mike Stonebraker** of UC Berkeley, **Bob Epstein** of

Sybase, and **Dominique Laborde** of Computer Associates. The object debate team consisted of **Mary Loomis** of Versant, **Zack Urlocker** of Borland and **Stan Zdonick** of Brown University. The debate focused on different types of applications, and when one should use "R" (relational) or OO systems. Another point of contention concerned which technology would eventually dominate the market. Will OO replace R in the same way that relational systems replaced hierarchical and network database approaches? The panel could not reach a collective conclusion.

What became clear, however, was that by the middle of 1992, there will be several relational products touting object types of features including class hierarchies and inheritance. At the exposition, Versant

and Ontos, among other OO vendors, were demonstrating their environments, while several relational vendors including Oracle, Ingres, Informix and Sybase talked about their upcoming SQL++ environments. Actually, I'm using the term SQL++ figuratively -- it is far too early in this technology's evolution to begin clamoring for standards. In fact, many at Database World felt that only

in the mid-90s will OO standards begin to emerge.

The impending announcements of extensions to relational models for object support attracted so much attention, that it will be the focus for the next DATABASE WORLD conference being held in Boston, June 30 - July 1, 1992. The conference will feature a DCI lab report on the different types of SQL ++ implementations. There will be product demonstrations, and consultants will be available for advice on the importance of the different implementations.

In his keynote, **Mike Stonebraker** made a number of predictions about where the industry is headed. In one interesting projection, he forecast that the need for disk storage will increase by a factor of 10^4 or 10,000. The example used to explain this reasoning was a typical personnel file record which might currently take 100 bytes of storage. In the future, as we move towards multi-media, a company might want to expand their employee files with the addition of a picture. A digitized picture is likely to take 10^6 bytes of storage, which would mean an expansion of 10,000 fold.

Stonebraker spoke about the advent of RAID (redundant array of inexpensive disk) technology and forecast that it would replace winchester-type

disks, both in micro and main-frame environments. RAID technology was also mentioned by **Phil Neches** of NCR in an interview published in the October issue of **Schussel's Downsizing Journal**.

Another interesting conference session was hosted by **Dick Hackathorn** of Bolder Technologies. Hackathorn, who is currently in the process of writing a book on distributed data access, spoke about the current state of standards for access to heterogeneous database environments. He pointed out that gateways, which must be custom built, are too expensive and complex to solve the general problem of access to a wide variety of diverse DBMSs.

Hackathorn focused on two current efforts that are likely to be important in the mid-90s: IBM's DRDA (distributed relational data architecture), and ISO/ANSI/SQL Access Group's RDA (remote data access). IBM's DRDA technology is built on the proprietary IBM standards SNA and SAA. While preliminary DRDA capabilities are now available, the interesting features including two-phase commit won't be available for a couple of years. RDA is built on top of OSI specifications, and a preliminary demonstration of its interoperability between diverse SQL DBMSs was held

this past summer by 20 members of the SQL Access group. Currently, RDA technology is at the same level of technical sophistication as IBM's DRDA.

A major theme at the Chicago Database World was **client/server computing**. It seems that there is no denying the advantages of this new computing style. Many vendors are showing advanced Windows-based application tools for client/server environments. Two that I found particularly interesting were PowerBuilder from Powersoft and Open Engine from Revelation Technologies.

* PowerBuilder has a Windows 3.0-based development and execution environment. The product doesn't include a DBMS or file manager, and therefore needs to be interfaced to an SQL server product like Oracle or SQL Server.

* Open Engine is an original design approach that will allow customers to choose any DBMS they desire, and any front end tool for application building purposes. Open Engine had not been announced at the time of the conference, but will have been by the time you read this article. **GS**

For more information about DATABASE WORLD, being held June 30 - July 1, 1992, in Boston, or any other DCI conference or seminar, please call (508) 470-3880.

DeBoever's Report...

(continued from page 4)

So, why don't we have 98 Mbits Token Ring running in our corporations? Well, because IBM has devised a wonderful marketing plan. Every two to three years, IBM plans to speed up the Token Ring available to the public. Years ago when it first came out, we bought 4 Mbits Token Ring. A few years later, they made the 16 Mbits card available. In a year or two, IBM will announce a 32 Mbits Token Ring card, and then a 64 card. With each update, they are collecting large revenues. Get the picture? IBM wants to sell a new Token Ring card every three years to their large accounts who are building production sub-systems that need Token Ring cards in quantities that begin at 10,000. **LD**

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UPCOMING downsizing Events...

Downsizing - An Executive Briefing on the Technology and Management Issues, a one-day management seminar, is being run this January in California: San Francisco, January 15, 1992; Los Angeles, January 17, 1992. As well as covering many basic issues that a company's management would need to know when downsizing, Dr. George Schussel will give special attention to some of the more sensitive situations that can arise. Topics covered will include: downsizing technologies, Windows NT, OS/2 Version 2, ACE, UNIX, LAN O/Ss, client/server computing, managing the move to a downsizing system.

One key fact emerging from the downsizing trend is the knowledge that as PCs rival mainframes in power and performance, local control of data and applications on distributed databases can be cost effective for your company. **Implementing Distributed Databases** is a two day seminar dedicated to the key issues of interoperability among distributed databases. Chaired by Herbert Edelstein of Euclid Associates, the seminar is being held in Boston on January 30-31, 1992 and in Toronto, February 24-25, 1992.

For more information on any of these classes, call DCI at (508) 470-3880.



For your enjoyment and ease of reference, like a chameleon, **SDJ** will be changing its colors monthly. Our changing color scheme will make it easier to spot each new issue at a glance, and quicker to reference past issues.