

# Schussel's

## DOWN SIZING JOURNAL

March 1992

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## How to Evaluate and Choose Client/Server Systems

by Richard Finkelstein

**T**his is the second article in a two-part series on client/server architectures. The series is based on a lecture delivered by Richard Finkelstein of Performance Computing at DCI's DATABASE WORLD in Chicago, November 5-7, 1991. While the first article presented an overall view of client/server architectures, in this article, Finkelstein focuses on how to select hardware and software when building a client/server system.

(continued on next page)

## Geo's Outlook

### Microsoft Watch

**T**he last few years have witnessed various "Years Of." For example, 1988 was *The Year of the LAN* while 1989 was *The Year of UNIX*. What would I call 1992? Nothing else but *The Year of Microsoft*. Microsoft is going to dominate IT news for much of this year. Why? In no particular order, let's cover some of Microsoft's stories:

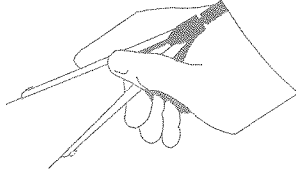
#### Windows 3.1 to be dominant user interface

1992 will (hopefully) herald in a new and improved version of Windows. Windows 3.1, which sports some important improvements over

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## How to Evaluate and Choose...

(continued from front cover)



### Designing a client/server environment

Here is my message: the designing and building of a client/server environment presents many multi-dimensional problems. It is necessary to choose a network, a server, a client, and then the software to run on each. You're probably reading this article because you don't know how to build an organized client/server environment. Well, the bad news is that neither do I. But, I can tell you how to approach this situation; if you have a good approach, designing a client/server environment for your company will be easier. By the end of this article, you will at least have a methodology to use in solving this downsizing dilemma.



**Server hardware platforms: 386, 486, NCR, RISC, super-servers**

There are many choices for server hardware platforms. You could buy an

inexpensive 386 or 486 machine -- they are very popular. Both the 386 and 486 are good machines, but there is always the chance that serious problems will stem from their memory limitations. Inadequate memory can cause both system and I/O performance problems: a database won't work if the I/O channel becomes choked quickly. Memory limitations also dictate the number of concurrent users. If you have an adequate machine and a good DBMS software server, a 386 or 486 could probably support 30 to 50 users. But,

*...Here is my message: the designing and building of a client/server environment presents many multi-dimensional problems....*

that's only if you have a *good* (efficient) DBMS server. If you don't, then you could possibly be stuck with an upper limit of *three* or *four* concurrent users. So, obviously, it is important to be very careful when choosing both the hardware server platform and the DBMS -- a bad choice can translate into limited processing capabilities.

If you have a PC-based server running OS/2 but need more power, and you've done a good job in picking a DBMS server and product tools, then you have the

option of moving to a super-server that runs OS/2. Parallax or NetFrame are two examples. These two companies have pushed and pulled OS/2 to produce greater memory and I/O capacities; you can almost always double processing performance by moving to a super-server. The down side to these super-servers is that they will probably triple your costs - (Editor's note: for the server which is probably only going to be a small component of the total delivered application cost).

A different hardware solution is NCR's new 3600 product line, which is fully scalable, and allows the user to run either OS/2 or UNIX. You can have anywhere from one to 1,000 processors. The problem with such scalability is that in running the same software across such different machines, you can't be guaranteed to receive the full, potential speed and power of that system (Editor's note: and at this time without support for symmetric multiprocessing yet, OS/2 won't be able to take advantage of the high end of the NCR line). So, even when you have a good, scalable platform, you can't simply port the same applications from system to system. This means that the fundamental client/server idea of total scalability doesn't work as well (yet) as it should.

Other choices for server platforms include RISC based

processors such as SPARC from SUN and Precision Architecture from Hewlett Packard. These products would all work well as a server. Using RISC or SPARC will afford you more concurrent users and I/O capabilities -- perhaps even double for each. So, you can access more users, but then you have the problem of control. When there are so many concurrent users, you need more software such as performance monitors, and more administration support such as DBAs and LAN administrators to understand, monitor, and control this environment. And, for the most part, these essential control aids are still missing from UNIX platforms.

Recently, a limited offering of such tools has become available. NCR and AT&T, for example, are introducing a top-end transaction processing (TP) monitor. Hewlett Packard is using the Tuxedo product as its TP monitor. Gradually, we are seeing the introduction of tools for controlling and prioritizing these environments, but, let me warn you, at this point in time, if you throw 100 users running concurrent technical applications onto a RISC platform, chaos will result.



### Server operating systems: DOS, OS/2, Netware

So, picking a server platform presents some very difficult choices, but the hardware is only the beginning because now you need to choose the operating system for the server. If you decide to go with a 386 or 486 box, DOS is a possibility, but I wouldn't suggest using DOS since it was not designed for server-type processing. DOS is single-tasking and non-paging, and has severe memory limitations.

*...Let me warn you, at this point in time, if you throw 100 users running concurrent technical applications onto a RISC platform, chaos will result...*

Basically, if there is a role for DOS in any type of client/server environment, it is only for prototyping.

In contrast to DOS, OS/2 is a quality performance platform. I have heard many stories where OS/2 has been successful as a server O/S. Three huge benefits of OS/2 are that: it supports preemptive scheduling to help manage tasks, it has virtual paging to take advantage of virtual memory if necessary, and it is protected so tasks can not corrupt each other. OS/2 2.0 will have increased memory capabilities which

will allow the O/S to run much larger applications. Version 2.0 will probably be the last chance for OS/2 to be successful in the marketplace. In my opinion, as long as OS/2 2.0 is available by the end of the first quarter, 1992, I believe that it will become an extremely popular platform on both the client and server sides. OS/2 has certain architectural features that make it very conducive to client/server-type processing. I have spoken with people that have been using the beta version, and they are confident in its market potential.

An alternative to having OS/2 on a 386 box is the Novell Netware solution. You can run Netware loadable modules (NLM) with attached applications on a network. The problem with Netware is that it lacks the predictability that users need from a server environment. Like DOS, Netware is a non-protected environment which means that applications can crash each other. It is non-preemptive -- scheduling is performed by the application, not the operating system. And since it is non-paging, the user must work with fixed memory. Again, like DOS, Netware was never meant to be a server platform in the way that OS/2 was. So, if you adopt Netware, you are

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## How to Evaluate...

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exposing yourself to this long-term issue of working with an operating system that does not really have the robustness of its competitors, OS/2 and UNIX.

The reason that there are people planning on using Netware for their client/server environment is because most of them already have Netware installed on their current systems. So, why introduce OS/2 into your environment when you have Netware? That type of logic does make sense. You don't want to introduce a new operating system when you can use what's available.

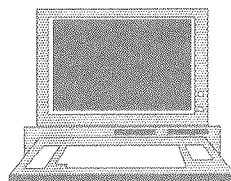
If you do decide to use Netware, you should at least be aware of these issues and be prepared to deal with problems as they develop. The basic types of problems you will encounter include: servers crashing, applications that monopolize resources like the CPU due to the lack of scheduling, or users that get locked off of the system due to inadequate memory. These types of problems will materialize in this environment just like they would in DOS.

For those who find OS/2 to be an inadequate operating system, I would recommend UNIX: it is stable and has a greater capacity. What I like

about UNIX is that it is open. (Editor's note: The two leading proponents of UNIX, OSF and Unix Software are overseen by boards of directors that represent large consortia. As a matter of practice, development projects in both organizations are voted on in a democratic, open process.) In projects like Apple's and IBM's Pink, or even IBM's OS/2 2.0, the secrecy that surrounds the work concerns me. If I questioned IBM, they would probably tell me, just sign a non-disclosure statement and we will tell you what you want to know, but I'm not

*...It is hard to cost justify the use of RISC boxes as X-terminals because they are so expensive both in terms of hardware and required software....*

interested in non-disclosure statements. I want them to say in public what the plan for the future is so that their progress can be measured against that promise. What I like about UNIX is that it's planned development is a known quantity. But, there are problems associated with using UNIX, such as its relatively high costs (for hardware platforms compared



with PC servers), but, I'll talk about these later in the article.

### **Client hardware platforms: 286, 386, RISC, Macintosh**

While there are many choices in selecting a server platform, and there are just as many decisions to be made at the client/workstation level. Using a 286 workstation is clearly a possibility. However, the 386 is more popular and a better choice. I would strongly suggest that if you're thinking about going to client/server, then you should begin thinking about using 386s for all of your clients; a 286 will not handle these types of applications as well because it lacks in its memory capabilities. Each client should have a minimum of 8MB of memory. If it is not necessary for you to decide right away on a workstation, then you should wait to see how your applications develop and how much memory they require.

You can employ RISC workstations, which are very good workstations, especially if you have a UNIX server. I like the idea of a RISC client talking to a RISC server -- I like the symmetry. But remember, just as RISC machines are very powerful, they are also relatively expensive. It is hard to cost justify the use of RISC boxes as X-terminals because they

are so expensive both in terms of hardware and required software. Most cost-benefits studies have found that they rarely are worth the extra cost.

As far as using a Macintosh for clients, I am not sure of what you can expect. Some people have been successful using Macs while others haven't. I know of companies that have been working for two or three years on Macintosh connectivity for their applications, and they have not been successful. So, be careful about investing in Macs for a client/server environment.

#### **Client operating systems: DOS, Windows, OS/2 PM, DR DOS**

Next, you need to decide on the workstation operating system environment. Again, one of your options is DOS which wouldn't be so interesting except for the advent of Microsoft Windows. Windows has almost forced me into retirement. This new operating systems has caused me much grief within my own organization -- everyone in our office who has tried it, has pulled it off their machines. The acceptance that Windows has received from my consulting clients is very shaky. For workstations,

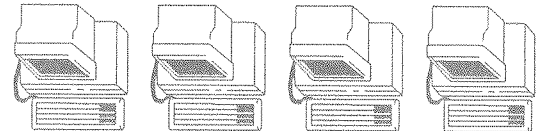
Windows seems to be alright, but for networks, watch out. Users have been running into many problems. Therefore, the risk involved in using Windows is rather high - if you go with Windows, there is a 50/50 chance that you will be unhappy in your choice. (Editor's note: Windows 3.1, due in April, 1992, is expected to be much more stable in the network environment. But as always, the proof is in the pudding...)

Why is Windows causing such problems? It is because Windows was built to run on top of DOS which was not

*...I like the platform (OS/2 PM) because of its features including protection, and built-in services for either LAN Server or LAN Manager...*

designed to do client/server work. With Windows, since it is unprotected, you have the problem of unrecoverable application errors. You will also have problems with network support since it wasn't designed for networking. (Editor's note: This also will be changing as Microsoft has promised a mid-1992 extension to Windows 3.1 that will support elementary networking including peer to peer services and printer and file sharing. Of course, this won't have any effect on how Windows 3.1 operates under Netware or Vines!)

In terms of architecture, I like OS/2 PM. Please, don't write me letters that say, "sure you like PM, but what are you going to run on it?" I agree there are no applications available, which does make it difficult to use. But, I like the platform because of its features including protection, and built-in services for either LAN Server or LAN Manager.



What would it take to make PM popular? What PM needs is to be DOS compatible. Most of the applications I see running are DOS. The problem with OS/2 PM is the application availability. It is not clear whether it will be a robust enough application environment. So, what vendors are saying is, don't worry about that, we will be able to run all of your Windows applications under OS/2 PM. But, what they are actually promising right now is only Windows in a full screen mode -- which isn't a real GUI. And, to top it off, I don't even think that this will work. It took IBM four years to do OS/2, and now they think that they can accommodate Windows through this operating

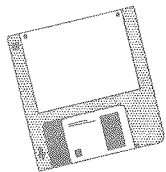
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## How to Evaluate...

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system? This is a serious problem if users can't depend on Windows applications running on PM.

Yet another alternative for workstation O/Ss is Novell's product, DR DOS. Novell recently bought Digital Research which developed DR DOS -- a multi-tasking DOS environment. DR DOS is being touted as Novell's solution to the workstation. But, I don't know if introducing another operating system is a solution -- believe me, there are enough O/Ss as it is. But, if you want to go strictly with Novell, DR DOS might be what you want.



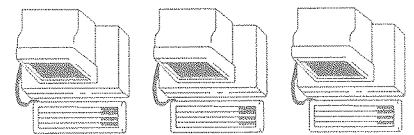
**Network operating systems: Netware, LAN Manager, LAN Server**

Netware, one of the options for network software, brings with it many problems. If you have any OS/2 servers or workstations, Netware will access them using an OS/2 requester. Frankly, an OS/2 requester is a fix to the problem of getting different operating systems to work together, and as a solution, it

doesn't work well. I have heard stories where users had experienced all types of unpredictable problems. Where do the problems end? Even if your vendor is honest with you, they won't be able to predict all of the possible problems, because, frankly, many problems are simply unpredictable. And, these problems grow as applications become more complex. You can try using multiple servers, intermittent connecting, or gateways, but problems still percolate. Why? Because, you have operating systems that were not designed to work together

market with LAN Server. The largest problem is that IBM is involved in a spat with Microsoft and instead of the two products converging as was planned, they are diverging.

Just a quick note: for UNIX platforms, I would suggest using the TCP/IP protocol. I like TCP/IP for the same reasons that I liked using LAN Manager and LAN Server with OS/2: they were designed for each other.



*...Why is Windows causing such problems? It is because Windows was built to run on top of DOS which was not designed to do client/server work....*

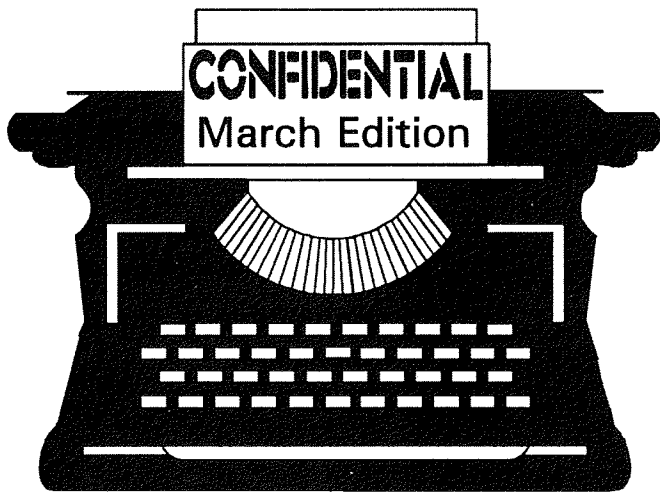
-- they have been forced and glued together.

LAN Manager and LAN Server are your alternatives to Netware. The reason that I like these two network operating systems is because they are built to run on top of OS/2 and were designed to provide networking services for OS/2. The problem is that LAN Manager has a very small marketshare, and Microsoft has a tremendous amount of support problems - - Microsoft is just not reacting well to the problems. IBM actually has captured a fairly decent share of the large network environment

**The important message: homogeneity counts**

When designing your client/server system, all of these products that I have discussed have problems with PC connectivity, especially Netware and OS/2. Here is the message: mixed, multi-vendor environments have chronic problems which you should understand before you start developing a client/server environment. You should also accept the fact that things are going to happen that are bizarre and weird, and you will have to live with that. These problems are the manifestation of a mixed environment where

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*Current  
Computer  
Wisdom*

Dr. George Schussel

*Can we talk?...Who says that the computing industry has to be dull and boring -- here are some juicy tidbits to byte on...*

**I**n honor of traditional, American, election-year politics, here at the journal, we've decided to dedicate this month's *Current Computer Wisdoms* to our great political system by publishing a *convention* wisdom commentary rather than our *conventional* column. As *Star Magazine* so eloquently reminds us, the important concept in politics and life is scandal over substance. This may hold true in our industry also. For example...

### **Strategic dalliances abound**

**IBM** and **Apple** are an odd couple if there ever was one. We wonder who is playing which role in this

relationship, and was it **IBM** who took the byte out of that **Apple**?

After being married for so many years, it was upsetting to see **IBM** and **Microsoft** split. We would like to issue a warning to both: in seeking new partners, you should be wary. Reckless playing around could lead to a fatal distraction. This situation is a perfect example of while the cat is away, with the mouse we will play.

There have been nasty accusations that Bill Gates of **Microsoft** has been hot for a **Fox(Pro)**. Gates, of course, denies the rumors and has said that if he is lusting for the **Fox**, it is only in his heart.

### **Open systems are hard to find**

**IBM** has finally got a **FOCUS** on how to change their frigid, closed image, and has made a great leap towards universal access by climbing into bed with **EDA(/SQL)**. Could this be the start of a meaningful relationship?

### **New connections wanted**

Philippe Kahn of **Borland** has been recently seen holding hands with many players. One top **Borland** executive, Robert Dickerson, has been quoted as saying that **Borland** wants to promote "promiscuous connectivity" (See "New

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## Microsoft Watch...

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3.0, is expected to be available to the general public no later than April. Some benefits of Windows 3.1 include:

- \* Ease of installation, and faster, snappier performance than that of Windows 3.0.
- \* Advantages of audio support and multimedia APIs. With the addition of a board, you'll be able to voice annotate memos that are then audibly delivered to the recipient!
- \* An expected mid-year extension which will provide simple peer-to-peer file and printer sharing. This will be the beginnings of a flanking attack on the Novell networking empire.
- \* Truetype scalable fonts that match Macintosh fonts will be available making Window's WYSISYG capabilities truly comparable.

Some industry sages and commentators believe that IBM's delivery of OS/2 2.0 will derail the march of Windows toward dominance on the corporate desktop. I disagree. Over 50,000 Windows software development tool kits have already been shipped. While Microsoft's Excel and Word

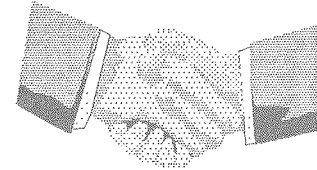
will lead the Windows application parade, the 1992 delivery of several new Windows-based applications will cement this interface's dominant role for the remainder of the 1990s. I expect that by the end of 1992, the market power (or lack thereof) of IBM's OS/2 2.0 will be apparent.

Even in the OS/2 world, I expect Windows to become the dominant user interface. To be successful in this market, it will be very important for IBM to deliver Windows accessibility from within Presentation Manager.

*...The conclusion here is that there is no way that [IBM and Microsoft] can reconcile their business strategies....*

What does Bill Gates' think of this possible threat from IBM? Well, as reported in Infoworld, September 23, 1991, Gates stated that, "We think [that Windows binary compatibility in OS/2] will be a difficult challenge that IBM won't achieve." If Gates is right, then under even the best of conditions, OS/2 will end up as minor footnote in some future book on the history of operating systems. However, to give IBM the benefit of the doubt, *if* Gates' projection is wrong, and *if* IBM delivers a Windows compatible OS/2 by the end of March, and *if* Microsoft

runs into delivery or quality problems with NT (more follows), *then* there is a real chance for OS/2 to play a major role in this market. But, unfortunately for IBM, this scenario involves many *ifs*.



## Can Microsoft and IBM be friends?

I wouldn't bet any money on the sequence I just described. While everyone is aware of the war between Microsoft's Windows and IBM's OS/2, the rough water between these former partners spans further than just these two products. For those who expect a reconciliation between these two, I would like to offer a recap of just how far the business strategies of IBM and Microsoft have diverged:

### 1) Type technology



IBM's strategy is focused on Adobe and Display Postscript while Microsoft is adopting Apple's Truetype for Windows products.

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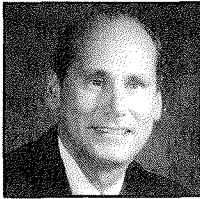




Digital Consulting, Inc.

*presents*

## *Downsizing Seminar Series*



George Schussel

I am frequently asked for seminar recommendations by people looking for in-depth, specific guidance on implementing downsizing. So, with the help of some DCI staffers, I have put together this guide for the Downsizing EXPO and the Downsizing Seminar Series; both are sponsored by DCI. For people with an interest in downsizing issues and an overall view of the field, there is probably no better place to network and learn the new technologies than at Downsizing EXPO. This conference and trade show will run twice this year, first in Chicago at the Hilton and Towers, March 10-12 and then at San Francisco's Moscone Center, August 25-27. For people who need more specialized instruction in a particular aspect of downsizing, the Downsizing Seminar Series is where you will find the information you need. Composed of several two and three day seminars and conferences, each class in the series covers a very specific area within the field of downsizing.



### **Downsizing EXPO**

#### **The National Conference and Exposition**

Chicago, March 10-12, 1992 • San Francisco, August 25-27, 1992

The Downsizing EXPO could be thought of as the keystone to all of DCI's downsizing seminars and events. A three day conference in combination with a two day exposition, Downsizing EXPO offers all the information anyone interested in downsizing needs.

The conference contains five expansive tracks which cover the complete downsizing spectrum: Downsizing Experiences, Windows Applications, Client/Server/DBMS, Open

Systems, Networks & Their Management, and Client/Server Applications. The keynote speakers featured in these tracks include: Ross Cooley, Paul Cosgrove, Larry DeBoever, Rob Dickerson, Larry Dooling, Ted Klein, Dominique Laborde, Robert McDowell, George Schussel, John Soyring, Enzo Torresi, Amy Wohl, and Will Zachman. The exposition will highlight over 100 companies exhibiting the products that will aid your move to downsized systems.

*Turn the page for information on the Downsizing Seminar Series*

*What Products Do You Need To Downsize?*



Richard Finkelstein

**Finkelstein's Practical Guide to Client/Server DBMS Computing**  
 Chicago, April 27-28, 1992 • Washington, DC, July 13-14, 1992

Richard Finkelstein, founder of Performance Computing, Inc., has a wealth of practical experience in the use of SQL-based network solutions. His seminar is principally an in-depth examination of the products needed -- on both client and server sides -- to take advantage of client/server-based downsizing. For example, if you have specific questions on the technological differences between Oracle and Sybase, this seminar is where you'll find the answers.

Richard will be speaking on topology requirements as well as proven approaches that will help you implement a stable client/server environment. Several major database servers will be evaluated including: SQL Server, Oracle, SQLBase, Interbase, Ingres, Informix, Progress, NetWare SQL, IBM Database Manager, and XDB. You will also hear real-world stories and the lessons that have been learned from pioneers of downsizing approaches.

**Seminar Outline**

- 1. The Client/Server Environment**
- 2. Choosing A Database Server -- Feature Comparison**
- 3. Database Servers: Highlights and Conclusions**
- 4. Understanding Database Benchmarks**
- 5. Choosing Front-End Tools**
- 6. Case Tools for Client/Server Development**
- 7. Client/Server Case Studies**



Jeff Tash

**Windows Client/Server Workshop: Test Driving the Tools**  
 Boston, April 28-30, 1992 • Toronto, June 15-17, 1992

Chaired by Jeff Tash, President and Founder of Database Decisions, this conference continues the DCI tradition of offering "head-to-head" comparisons of various software approaches. With a focus on the new generation of Windows-based 4GLs, products from Microsoft, Borland, Cognos, Powersoft, and Revelation Technologies, among others, will be demonstrated using closely related applications. Jeff's

commentary and demonstrations will provide an overall framework for choosing Windows tools. That these new Windows tools can build client/server applications with a fraction of the current effort that is required using C, makes this conference extremely important for people designing applications for the downsized environment.

**Conference Outline**

- 1. Vendor Workshops**
- 2. Technical Presentations**
  - \* Effective GUI design by Christine Comaford
  - \* Windows and Networking by Greg Denenfeld
  - \* Windows "Stuff": MDI, DDL, DDE, OLE by Kim Crouse
- 3. Speaker Presentations**

## How to Get Downsizing Done



Herbert Edelstein

**Implementing Client/Server Applications and Distributing Data**  
 San Francisco, April 29-30, 1992 • Chicago, July 15-16, 1992

One of DCI's most popular offerings, this seminar, chaired by Herbert Edelstein, Principal and Founder of Euclid Associates, gives you the design guidelines necessary to prepare for downsizing. Attendees will leave with an in-depth understanding of client/server enabled technologies. Herb will tell you what is needed, and will give advice on how to integrate various technologies. You will learn what it takes to have a true

distributed database, and will explore the problems of distributed transaction processing and distributed queries. The differences between cooperative processing and client/server computing -- and the advantages of each -- will be covered in detail. This seminar gives pragmatic "how-to" coverage on client/server computing and data distribution that will help you avoid potential pitfalls.

### Seminar Outline

1. What is a Distributed System?
2. The Role of Relational Database Management Systems
3. Network Considerations
4. Distributing Data
5. Database Servers
6. Distributed and Federated Databases
7. Distributed Queries
8. Transaction Management and Concurrency



Cheryl Currid

**Cheryl Currid: Managing Downsizing**  
 San Francisco, April 27-28, 1992 • Chicago, July 13-14, 1992

Cheryl Currid, Founder of Currid & Company, focuses on the management and personnel issues involved in downsizing your corporate system. Having successfully transformed much of Coca Cola Food's data processing system from mainframes to PC LANs, Cheryl is particularly well qualified to explain the management details involved in large downsizing projects.

### Seminar Outline

- |   |  |
|---|--|
| 1. What is Downsizing & Why are Companies Considering It? | 8. Choosing a Client/Server Database         |
| 2. Evolution of Computing                                 | 9. Building the "white collar" Workstation   |
| 3. Approaches & Strategies                                | 10. People Issues -- Retraining & Refocusing |
| 4. Case Studies   | 11. Organizational & Political Issues        |
| 5. Budgeting (based on LANs and WANs)                     | 12. Picking Pilot Projects                   |
| 6. Product Survey   | 13. Downsizing Do's & Don'ts                 |
| 7. Network Operating System Options                       |  |



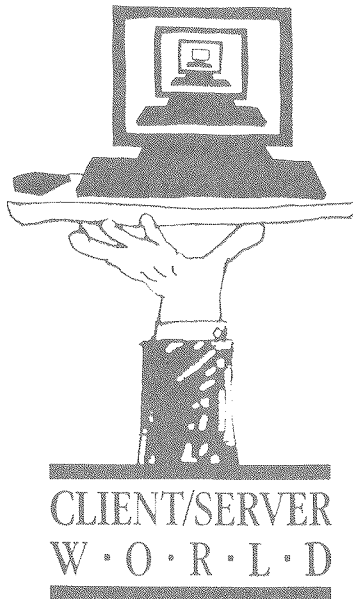
Jim Davey

## Information Modeling and Analysis for Client/Server Applications

Washington, D.C., April 7-9 • Dallas, May 19-21, 1992 •  
Los Angeles, July 28-30, 1992

Another new seminar in the Downsizing Seminar Series is **Information Modeling and Analysis for Client/Server Applications**, chaired by DCI's Jim Davey. As Davey will explain, client/server computing represents a new way of looking at application development and application implementation. This technical seminar will focus on approaches for developing client/server applications; case studies and workshops will be used to apply the techniques presented. (For more information on Jim Davey's work, turn to page 18 for his article, "An Old Programmer's Look at the New Programming").

### *Conferences/Expositions with a Downsizing Focus*



#### **Client/Server WORLD at DATABASE WORLD**

Boston, June 29 - July 1, 1992

If you prefer the hustle and bustle of a large event with hundreds of presentations, demonstrations, attendees, and vendors, then you should check out CLIENT/SERVER WORLD. DCI has run more database conferences than anyone else and over the years, our database conferences have grown into DATABASE WORLD, a trade show and conference. This year, for the first time, DCI, in combination with the Client/Server Roundtable and more than a dozen leading publications, is adding CLIENT/SERVER WORLD with its three conferences to DATABASE WORLD. These three conferences collectively feature over 30 presentations on client/server DBMSs, networks, and software applications. Each of the conferences has its own conference chairman, tailored keynote addresses, presentations, product education workshops, and seminars.

#### **SOFTWARE WORLD Conference and Exposition**

Toronto, April 14-16, 1992



The most comprehensive software program in Canada, SOFTWARE WORLD is comprised of five conferences: The Software Development and CASE Conference, The Database and Client/Server Computing Conference, The Windows Applications Conference, The Future Technologies Conference, and The Application Software Conference.

The conference that promises to be the most interesting to downsizing aficionados is the Database and Client/Server Computing Conference. With such renown speakers as Ian Angus of ANGUS Telemanagement Group and Larry DeBoever of Tucker/DeBoever Technologies, Inc., SOFTWARE WORLD will have the information necessary for anyone interested in downsizing: enterprise modeling, distributed multi-server DBMSs, new generation application development tools, and SAA OS/2 applications.

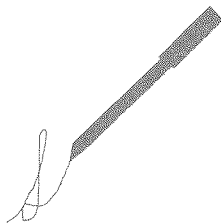
***For more information on DCI's conferences, seminars, and expositions, or to receive a free copy of DCI's complete brochure, please call (508) 470-3880.***

## Microsoft Watch...

(continued from page 8)

### 2) PC networking

IBM is now selling Novell's Netware in addition to LAN Server. Microsoft is continuing to evolve LAN Manager. According to published comments from both IBM and Microsoft executives, LAN Manager and LAN Server will not converge as was once planned. And, what pushes Microsoft even further away from IBM is the inclusion of networking capabilities in both Windows 3.1 and Windows NT. File sharing, printer sharing, and peer-to-peer connectivity will be available in both Windows 3.1 and NT by 1992 (Of course, the validity of this statement requires NT to ship in 1992 which might not happen).



### 3) Handwriting technology

IBM has signed on with Go Corporation as a strategic partner and will use GO's technology in its pen-based computing products. Microsoft, instead, is developing its own Windows-oriented,

pen-based computing approaches.

### 4) Client side operating system

IBM is continuing to tout OS/2 as the best multi-tasking, protected, preemptible environment. Once the 32 bit OS/2 2.0 is available, I would think that OS/2 1.3 -- which is only 16 bit -- would become obsolete. However, IBMers are claiming that version 1.3 will be a good choice for client side environments where the advanced features of OS/2 2.0 will not always be required.

*...Even in the OS/2 world, I expect Windows to become the dominant user interface....*

Microsoft will offer both DOS/Windows 3.x and Windows NT as operating systems for the client. DOS/Windows will be appropriate where the user's need is for a simple task switching, non-protected environment. And, when the user requires a protected, multi-tasking environment (like OS/2), NT will be the system that Microsoft's provides.

### 5) Server side operating system

It is for server platforms that Microsoft will be selling

its full-blown version of Windows NT. Managed by Dave Cutler (who has a DEC VMS background), and representing the next generation of architecture, NT is Microsoft's great hope. At the top of Microsoft's scalable Windows architecture, NT is a full 32 bit operating system with embedded security, fault tolerance, multi-tasking capabilities, preemptibility, and protection. From day one it will support symmetric multi-processing. The server version will also support multiple processors (SMP) and mirrored disks. NT is being designed as a portable environment and will run on various hardware architectures. Initial shipment for the Intel x86 and MIPS R/4000 have been scheduled.

Shortly, there should be announcements about NT's availability as an alternative to VMS and Ultrix on DEC's Alpha chip.

IBM's alternative to NT will be OS/2 2.0. IBM's marketing line is that for both the client and the server, OS/2 is the proper PC operating system. If your performance needs are more than a high-end PS/2 can handle, IBM will try to sell you a mini-computer or mainframe alternative.

(continued on next page)

## Microsoft Watch...

(continued from page 13)

### 6) Workstation strategy

IBM is now selling the AIX software system on RS/6000 hardware. Connectivity and inter-operability between the PS/2 and RS/6000 product lines aren't as extensive as IBM customers would like to have. Microsoft's workstation strategy has been aligned with the Advanced Computing Environment (ACE) initiative. As a founding partner of ACE, Microsoft has clearly allied itself with IBM's deadliest competitors: Compaq, DEC, and MIPS. In addition, it has been rumored that DEC and Microsoft are working on porting NT to the new DEC Alpha chip.

The conclusion here is that there is no way that these two adversaries can reconcile their business strategies. The best we can hope for is less public bashing and reduced hostilities. For example, customers would appreciate it if Microsoft committed to continuing top level support for LAN Manager and SQL Server under OS/2.

### One on one: NT versus OS/2

While NT is still *vapor* at this time, portions of the sys-

tem have been demonstrated, and it has become obvious that NT shouldn't be ignored by anyone. Both corporate executives and software developers have an important vested interest in this upcoming product.

Although NT will be competitive with OS/2, it is really more of a threat to UNIX: NT will be scalable upwards into symmetric processing territory where machines are pulling 100 MIPS or more -- mini-computer and mainframe country. OS/2, which doesn't support multiple processors, has been relegated by IBM into the role of

*...While NT is still vapor at this time...it has become obvious that NT shouldn't be ignored by anyone....*

providing security and integrity at the desktop level. In other words, OS/2 isn't going to be ported to more powerful IBM hardware products. If you want to buy from IBM and need more power, the blue giant will sell you an AS/400 mini or MVS mainframe. Microsoft, however, plans to scale its NT system so that applications can run unchanged on everything from 386 PCs to large symmetric processing server boxes made by companies like Compaq, Pyramid, and Sequent.

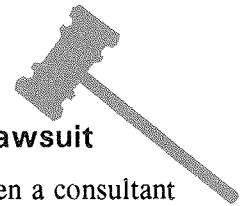
Right out of the box, the NT operating system should

offer the following advantages over OS/2:

- \* Support for symmetric multi-processing
- \* Better compatibility with applications written for Windows 3.0, Windows 3.1
- \* Better operation with the Microsoft/Sybase SQL Server DBMS
- \* The ability to run on multiple hardware architectures including MIPS, Intel, and DEC Alpha
- \* The ability to run UNIX as a subsystem

Of course, OS/2 2.0 has some potential advantages over the vaporous NT:

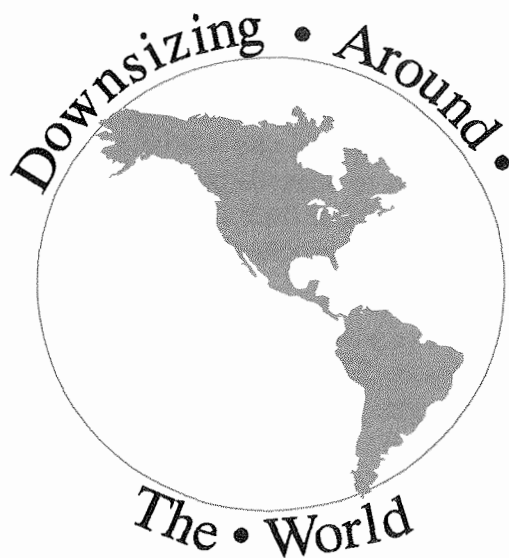
- \* It's here (almost)
- \* Offers better compliance with SAA
- \* Better support for OS/2 EE Data Base Manager
- \* Less memory requirements (4 MB) as compared with the rumored 8 MB for NT



### The Apple lawsuit

Having been a consultant in a few "look and feel" copyright lawsuits, I know how complex and difficult they can be. However, the extensive amount of time the Apple/Microsoft suit is taking to reach a settlement seems to be beyond reasonable limits.

(continued on page 17)



**I** am writing this article while awaiting a business phone call from Stockholm. The person calling me wants to discuss the possibility of DCI organizing a downsizing conference to be located in Sweden. Why are Europeans calling an American firm to organize and run a conference? Because downsizing is quintessentially an American concept. Like jazz, rap music and big, reliable, old-fashioned cast iron V8 auto engines, the concept of downsizing was born in the U.S.

### **We were the champions**

Things have changed substantially since I was a young man growing up in Southern California. In the 1950s, America was the world leader in technology (or this was, at least, what the trend setters thought). When I attended Beverly Hills High

School (seriously, I couldn't make that up!), the children of the richest families, on their 16th birthdays, were given their choice of transportation. While Corvettes and Thunderbirds were the ultimate chariots, 1957 Chevy hardtop coupes and convertibles were also very hot and much better party vehicles. Chevrolet had made a serious technology statement with the small block (265 cubic inches) overhead valve V8 they produced, for the first time, in 1956. At that time, nothing made in Europe was comparable, and the Japanese were thought to be making paper maché toys, not serious performance machinery. An Austin Healey would occasionally make an appearance in the high school parking lot, but European four-cylinder engines didn't have the power or the reliability of *American Iron*.

By the mid-1960s, I had finished graduate school. As my roommate and I were exiting our graduation ceremony, Dick told me that after all those years of hard work, he was treating himself to a new car -- a Toyota Corolla. When I looked at his new Toyota, I couldn't imagine why anyone would want such a vehicle -- other than to perhaps save some money. It was small, square and styled in the manner of a brick. At that time, little did I understand what a profound revolution in world economics this little Toyota presaged.

### **The making of a nation**

America emerged from World War II with an enormous infrastructural advantage over economic rivals from Europe and the Far East. But, over the following decades, our lead gap began to close with the rebuilding of Japan. The policies the Japanese followed both socially and politically form a textbook case on how to transform a devastated country into a economic tour-de-force with a world-wide competitive advantage. The Japanese parliament established laws that encouraged economic cooperation between government and industry and amongst industry cartels. The government taxed consumption while encouraging savings and investment. Their children worked long, hard hours each day in school and were primed for engineering, math, trades and sciences -- fields that contribute actual knowledge and production to modern society instead of a redistribution of wealth.

### **The spread of new technologies**

It would be both interesting and fun to continue this discourse, but this isn't Schussel's Political Journal. So, I will leave any further Japan/America comparisons to the politicians. But, these political and ideological ideas

*(continued on next page)*

are relevant to any discussion concerning downsizing since the concept of downsizing is American. We now have the capability of producing a technology in which American companies could dominate on a world-wide scale for years to come.

Historically, data processing and information technology trends have started in the U.S. and then have migrated overseas. There are exceptions; the use of data dictionaries is more widespread in England than it is in America. The ideas of downsizing, however, have been built on American technologies: PC-based languages like dBASE, local area networking technology such as Novell's, and client/server computing styles such as Sybase's. But, now that DCI and others are running downsizing conferences overseas, the time for international technology transfer will shorten.

Downsizing ideas, though only relatively new in the U.S., are already being seized by our foreign counterparts. During the first week of March, Cheryl Currid of Currid & Company, and I will be in Tokyo helping Compaq open its Japanese subsidiary. Cheryl will be speaking to Japanese executives about managing the move to downsized platforms while I will be giving a presentation on the distributed database and client/server computing technologies. Other

international cities I am traveling to this spring for similar downsizing conferences include Paris, Dusseldorf, Amsterdam, Madrid, and Winnipeg.

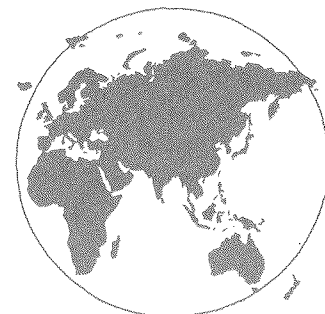
Although I've never been to Japan for business, I have traveled over the last decade to many overseas locations to present and discuss software development approaches. I found the people of each country to be unique. Germans, for example, are very serious about software development; the typical German speaker is very dry and to the point. Yet, at the same time, they expect jokes and stories from American speakers and enjoy a laugh as much as anyone. The Germans are very mainframe oriented in their thinking and believe in initiatives like IBM's AD/Cycle; IBM has a very strong reputation and OS/2 is widely installed. Most Europeans are considerably more conservative in their approach to data processing than their American counterparts. Although there is a lot of interest in downsizing ideas, I don't believe that many European companies will take the serious plunge into downsizing until it is a well-established practice in U.S.

The most conservative of all Europeans have historically been the Spanish. Social mores in Spain encourage traditional solutions. In Madrid, my lectures on downsizing approaches have been met with amounts of skepticism. I have

run into a similar response in another Latin country, Venezuela. A word of advice for those of you who will be traveling to Spain on business: bring plenty of formal clothes and leave your jokes behind.

I expect my trip to Japan to be very different from previous European experiences. The stories I have heard all indicate that the Japanese: 1) believe in engineering software and software factories, rather than individuality and creativity, 2) are very mainframe oriented and several years behind the U.S. in adopting the PC/workstation revolution.

In a future **SDJ**, I will be writing about some of my overseas experiences. I am especially interested in the reception our ideas will receive in Japan. If the stories I've heard are correct, Japanese computing ideas will be mainframe-oriented, similar to our mid-1970's designs. On the other hand, Japanese companies like Epson, NEC and Toshiba are producing world-class downsized hardware. I have a feeling that the Japanese could very quickly embrace downsized computing ideas and offer us some serious competition. Stay tuned, I'll let you know. **GS**





## How to Evaluate...

(continued from page 6)

you basically throw everything from your shelves onto a network.

You're probably thinking that, gee, that sounds nice, but I can't stick with just one vendor. That's okay. What I have given you are goals, not mandates. If you're moving to client/server, you should acknowledge the problem of heterogeneity and strive for a more homogeneous environment. Begin to standardize

your hardware. I know that your company wants to save money by purchasing those clones, but remember, the long term costs of doing that can be quite severe. In my mind, the best preventative measure you can take is to use systems and platforms that were designed to work together. By limiting yourself in this fashion, you will still have many choices, though less than what is currently available on the market, but your aim will be more focused and guided. There is a cost to heterogeneity, and

where you can't eliminate it, you need to limit it. *RF*

(Editor's note: Rich Finkelshtein is one of the best known and most successful consultants on client/server DBMS operations. He also can be dramatic when warning about the dangers and problems of attempting too much. We strongly suggest that users have the assistance of a capable consultant, like Rich, on their first client/server project. A consultant will earn his pay many times over by saving you the wasted time and effort that Rich chronicles above in a couple of stories.)

## Microsoft Watch...

(continued from page 14)

There are people earning their livings writing newsletters about this suit! Most of the informed opinions that I've heard believe that Microsoft is going to lose at some level. The February 12, 1992 issue of the Wall Street Journal ran a story headlined "Microsoft Values Claims by Apple at \$4.37 Billion". What the average citizen (or investor) probably doesn't realize is how large or painful a losing judgement could be for Microsoft. The possibility of either an injunction or major redesign of Windows' appearance can't be dismissed.

For expert judgement on this matter, I rely on the opinion of my daughter Jen-

nifer, an M.I.T. sophomore. Over this past summer, while Jennifer was home on vacation, I installed Windows 3.0 and Word 1.1 on her laptop. After using the computer for a few minutes, she was amazed at how closely Windows and Word resembled a Macintosh. Jennifer's comment was "Can they do that? Can they copy something so closely without being sued?"


I think that this lawsuit is the only major cloud hanging over Microsoft's head. Either a favorable decision in the lawsuit, or a reasonable, negotiated settlement with Apple should be worth a 20 point jump in Microsoft stock. On the other hand, a seriously adverse decision could drop the stock price by at least the same amount.

## Conclusion

It's going to be an interesting year for Microsoft watchers. The abundance of available applications is going to continue the momentous propagation of Windows. Though Windows NT will generate much press and interest this year, that publicity will probably not translate into sales until next year. So, from 1993 on, NT may be a serious headache to IBM if the combination of NT on RISC hardware starts to carve chunks out of IBM's mini-computer sales. And ultimately, the resolution of the lawsuit should remove (for better or worse) a major uncertainty that currently hangs over the entire Windows market. *GS*

# An Old Programmer's Look at the New Programming

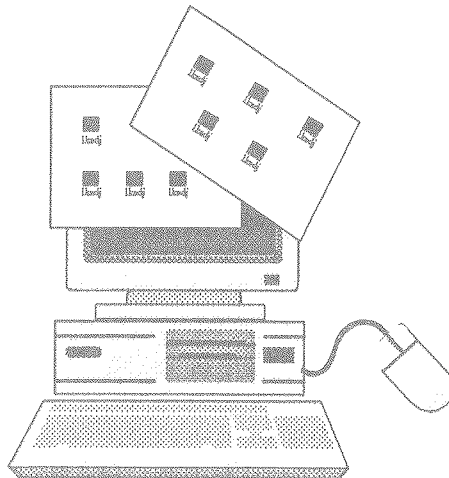
by Jim Davey

 New programming is a lot like new math. If you know old math (which is what parents learned), the new math (what your kids are taught) is confusing and makes little sense at first. It takes many late night sessions helping your children with their homework to get an idea of what this new math is all about.

The old style of programming was based on functional decomposition, coupling, and cohesion. The goal was to organize a problem into hierarchical structures that defined the program control structure and then substructure -- right down to the functional modules. Old programming took a top down approach: you started with a large, complex application and broke it down into smaller parts until each of the parts was simple. Then, the program control structure was the basic framework that tied all of these parts together. Each program had its own

unique control structure, but they all started at the beginning and ran through to the end. All activity was controlled by the program, including user activity: the user was told by the program what to do.

New programming is based on objects and windows. Objects are used to define application details while windows are used to organize these objects into applications. The goal of new programming is to organize



the workspace so that it supports user activities.

With such new programming techniques and technologies, the development process has become very different. The new focus is on business problems and user support, rather than on programming activities and efficient computer usage.

The developer today needs not to be concerned about the program control structure or program organization: both are

handled by the development tool. Instead, the user's task is to define what objects are needed, organize those objects into windows, and then write a script or program module for each object/event. And, rather than executing from beginning to end, the program now starts when the user clicks on an object, and then waits for the user's next request.

Applications now consist of windows, each of which contains implementation objects: click buttons, dialog boxes, scroll bars, fields, tables, and menus. Each of these object types has a predefined set of actions or events which are allowed to affect it. For example, a button can be clicked or double clicked.

For each object/event, there exists a defined script or program module that is executed whenever the event occurs. Such scripts can either be written by the developer or be selected from an existing library. Different products employ different methods for "writing" scripts: some use special scripting languages, others use standard languages including BASIC or C, others employ script painters or fill-in-the-blank templates, and some use graphical editors to "draw" the scripts.

Applications can be developed quicker with new programming since the focus is directed more towards the

business problems rather than the computer solutions. Another improvement is that applications are built incrementally, with functions being added as new requirements are discovered. Objects are predefined so the developer need not "program" object behavior, only the business requirements associated with each object. Visual interest can also be added so that the resulting applications are rich in visual effects.

New programming, like new math, is here to stay. Old programmers will now have to spend many late-night homework sessions in order to make the transition. Speaking as an old programmer who has made the move, it can be done, and once you've got the swing of new programming, you'll find that it is actually a lot more fun than old programming ever was. *JD*

(Editor's note: Over the last few months, Jim has had the chance to take an in-depth look at many of the new, Windows-based, graphical program generators -- tools that either stand-alone, or a client/server-based environment, have a high level capability for building Windows-style applications. Until the last six or eight months, most people built Windows applications in C. These new Windows tools

from companies such as Advanced Revelation, Microsoft, and Powersoft have radically lowered the threshold of difficulty for building applications. If you are interested in seeing these products, I would recommend looking at Open Insight from Revelation Technologies, PowerBuilder from Powersoft, or Object Vision from Borland.

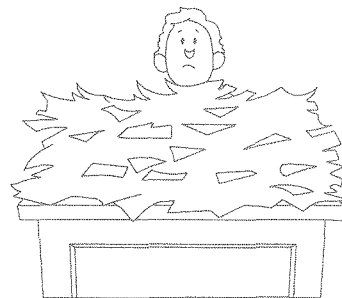
Open Insight is a Windows application painter that has been integrated into the rest of the Advanced Revelation software line providing both a database and

*...New programming is a lot like new math. If you know old math (which is what parents learned), the new math (what your kids are taught) is confusing and makes little sense at first....*

transaction processing control environment for multi-user applications. PowerBuilder is one of the nicest, pure screen, painter, stand-alone application builder packages. It does not provide database or transaction control, but does interface with other products such as Oracle Server or SQL Server for this type of functionality. Object Vision will appeal to people who like to express problems in the form of decision trees. It is a good tool for quickly building applications which lack complex, decision rule characteristics.

The style of products and programming that Jim describes in his article will be covered in much greater depth at a number of DCI's spring shows. For more information on all applicable seminars and conferences, please turn to page 9 for DCI's special supplement on the **Downsizing Seminar Series**.

As an old, structured programmer learning new Windows tools, Jim has been busy developing a new form of structured methodology and analysis approach for tools such as Open Insight and PowerBuilder. More information on his new methodologies will be offered at: Information Modeling and Analysis for Client/Server Applications (see supplement for more information and dates), Application Development Technologies, Los Angeles, May 4-5, 1992 and Toronto, July 14-15, 1992.)



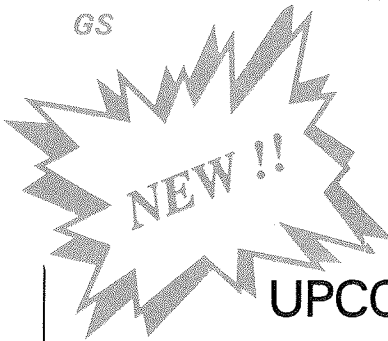
## Current Computer Wisdoms...

(continued from page 7)

Plans for dBASE and Paradox," February 1992, *Schussel's Downsizing Journal*). Maybe we should tell them that too much connectivity can lead to a problem with AICS (Borland's Automatic Intelligent Connectivity System).

Speaking of Philippe Hahn, uhm, err, we mean Philippe Kahn, we have heard that the great one himself has been evangelizing Borland products. Kahn has joined the recent trend of slur campaigning by attacking a leading competitor with this snappy slogan: This is your brain. This is your brain on Microsoft's Visual Basic. Get the picture?

GS



## UPCOMING downsizing Events...

Spring is a busy time of the year for everyone, and this is certainly true in the computer industry. This spring, DCI is offering many important conferences, expositions, and seminars for people interested in downsizing. New to DCI's collection is the Downsizing Seminar Series. DCI, in conjunction with our journal, has provided our readers with a special supplement that details each of these seminars and conferences. Written by our Editor, George Schussel, this insert informs you about what's new and hot in downsizing and downsizing education. *Turn to page 9 for more information on DCI's Downsizing Seminar Series.*

DCI is pleased to offer, for the first time, the leading office automation conference: **Re-engineering The Office, Amy D. Wohl's 7th Annual Office Systems and Networks Dialogue.** Chaired by Amy Wohl, President of Wohl Associates, seminar attendees will hear the newest information directly from chief executives of leading business software firms. Amy and others will bring you the latest word on office automation trends: imaging, software-based office systems, collaborative computing, graphics, and word processing.

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## Schussel's

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