Schussel's

DOWNSIZING JOURNAL

March 1993

George's Visit to Santa Teresa

Part III of III

his is the third and last article in a series by Editor George Schussel on the newest developments at IBM's Santa Teresa Laboratory.

Distributed Relational Database Architecture (DRDA)

DRDA is IBM's grand unified field theory of database integration. It's an architecture for connecting with integrity the diverse relational DBMS products that IBM sells (or will sell) and any other SQL-based DBMS product whose vendor chooses to license and implement the DRDA protocols. The IBM and independent participating products are listed in the tables on page 2.

For Laptop Junkies Only!

continue to write about my experiences with laptop/notebook computers because some of you encourage me in this endeavor and I do spend so much time using notebooks. As a matter of fact, I'm writing this article on my laptop during an American Airlines flight to San Jose.

My Compaq 4/25C finally arrived—that's what I'm using on this flight. The color screen is attracting attention from other plane passengers. Using this machine in public kind of gives me the same feeling as going to your 25th high school reunion in a Porsche 911 Turbo.

George's Visit...

Eventually, this architecture will allow a diverse group of networked computers running different DBMS to operate and appear as a single, local database. DRDA itself will take care of the system's distributed functionality, providing technical facilities such as a two-phase commit when necessary. The first elements of DRDA were announced in the late 1980s and remote read access capability was delivered by IBM in 1992. Remote update capability (two-phase commit) will be available sometime in 1994, and distributed join processing will come along later this decade. (This technology is pioneering, and it's taking a decade to deliver in full!) IBM is not being a laggard here, it's that the development of this technology is a very complex undertaking. In fact, the IBM developers are defining one of the important standards that most other industry software developers will need to adhere to.

To understand DRDA, it helps to refer to the left side of *Figure 2* (page 4). There are four principal stages in the evolution of DRDA's technical richness. Those stages are:

1. **Remote Request**—This level of distribution is really nothing more than a gateway connection between two different IBM database managers such as OS/2 DBM and DB2. The user must program controls in the operation of sending data between two DBMS.

2. **Remote Unit of Work**—At this level of functionality, the idea of a "unit" is introduced. A unit represents a bundled list of SQL

Company	Licensed Architecture?
Borland	*yes*
Brownstone Solutions	not yet
Cincom Systems	*yes*
Computer Associates	not yet
DataEase International	not yet
Enfin Software	not yet
Fortis Development	not yet
Gupta	not yet
Information Builders	not yet
Informix	*yes*
INGRES Division (Ask)	*yes*
Intelligent Environments	not yet
Locus Computing	not yet
Micro Decisionware	*yes*
Must Software	not yet
Novell	*yes*
Object Technology Intl.	*yes*
Open Books	not yet
Oracle	*yes*
Progress Software	*yes*
Sterling Software	not yet
Sybase	*yes*
XDB Systems	*yes*

Product	Environment
DB2	*MVS*
SQL/DS	*VM, DOS/VSE*
OS/2 DBM	*OS/2*
AS/400 DBM	*AS/400*
AIX DBMS	*AIX*

statements that can be surrounded with a commit protocol. This means that either the entire unit is successfully completed with a confirmation by the diverse database managers, or none of it is applied. In this phase of capability, an application may take advantage of the unit concept, but commitable units must each be sent to a single database location. The SQL statements at that database location may be executed as either dynamic or static SQL. Because an update is performed entirely at a single site, there is no need for a two-phase commit which would coordinate updates across multiple, remote sites. Note that only one site can be updated in a unit of work. This level of functionality is generally available now for all of the IBM database managers (except, of course, the AIX product, which has yet to be announced or shipped).

3. **Distributed Unit of Work**—At this stage, an important generalization has been introduced as it now becomes possible to perform updates generally across distributed database locations (and DBMS types). A commitable unit of work may consist of multiple SQL statements with the condition that each SQL statement applies to one, and only one, physical site. For the first time in the DRDA architecture, it will be possible to do a multi-site update within a single unit of work. That capability then means that a two-phase commit capability is necessary and supplied. IBM staffers indicated that this should be available in the 1993/1994 time-frame.

4. **Distributed Request**—The full generalization of DRDA will become available as multi-site updates are supported through the unit concept. The previous restraint on SQL statements that each apply to only one physical site will be removed. An SQL statement may apply to a table that has been physically distributed. It is at this level of function (and not before) that true, without navigation, database access is available. At the lower levels of function, the database user has to have a concept of where data is located in order to operate properly. At the distributed request level, the application is truly independent of the knowledge of how data is physically distributed. For this level of function to work, the optimizer software (which determines the database access path) has to be smart enough to take into account diverse characteristics such as speed of the different available processors, speed and availability of network links connecting those processors, priority relationships of this and other concurrently running jobs, etc. At this time, IBM is officially estimating that distributed request will be available in the 1996 time-frame. My conversations with Santa Teresa employees seemed to indicate that this functionality should be available in the mid 1990s (1994—1996?).

It would appear that important and useful distributed functionality will be available before distributed request at the distributed unit of work level. There already appears to be significant interest in remote unit of work in the IBM customer base. Distributed unit of work

George's Visit...

(continued from previous page)

(with two-phase commit) allows applications to update a local IMS, CICS or DB2 database, and a remote DB2 database in the same unit of work. IBM's customers have told Santa Teresa Labs that copy management should be given a higher priority than distributed request. That priority reassignment in addition to the very great difficulty in implementing distributed request, should push that capability farther,

rather than nearer, in the future.

Finally, I should point out that IBM staffers acknowledged the work being done towards interoperability of diverse databases by ISO/RDA and the SQL Access Group (two different efforts). IBM expects to be able to play with both of these potentially emerging standards. However, they did stress that their own DRDA is several years ahead in being able to actually manage and integrate traffic over wire in

a distributed world. Don Haderle, an IBM Fellow, gave me the analogy of the 1970s when IBM's proprietary SNA networking technology beat open networking standards such as TCP/IP and OSI to market by a decade, or more. Haderle felt that actual usage of DRDA approaches will likewise beat the open standards by many years. In the future, IBM will support DCE and DME technologies when they're delivered in usable form.
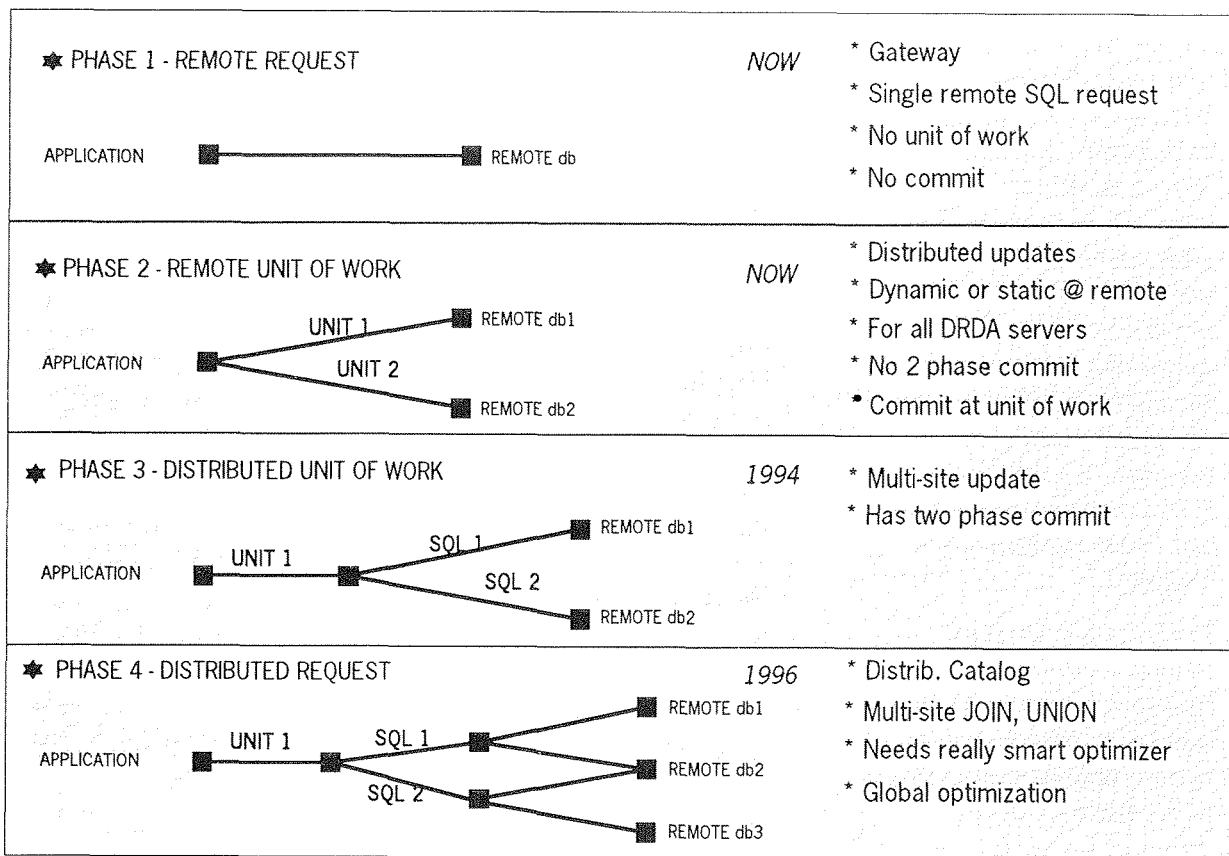
IBM's APPROACH TO DISTRIBUTED DATABASE

✦ PHASE 1 - REMOTE REQUEST   *NOW*
APPLICATION ■———————■ REMOTE db
* Gateway
* Single remote SQL request
* No unit of work
* No commit

✦ PHASE 2 - REMOTE UNIT OF WORK   *NOW*
APPLICATION ■ UNIT 1 ■ REMOTE db1 / UNIT 2 ■ REMOTE db2
* Distributed updates
* Dynamic or static @ remote
* For all DRDA servers
* No 2 phase commit
* Commit at unit of work

✦ PHASE 3 - DISTRIBUTED UNIT OF WORK   *1994*
APPLICATION ■ UNIT 1 ■ SQL 1 ■ REMOTE db1 / SQL 2 ■ REMOTE db2
* Multi-site update
* Has two phase commit

✦ PHASE 4 - DISTRIBUTED REQUEST   *1996*
APPLICATION ■ UNIT 1 ■ SQL 1 ■ ■ REMOTE db1 / SQL 2 ■ ■ REMOTE db2 / ■ REMOTE db3
* Distrib. Catalog
* Multi-site JOIN, UNION
* Needs really smart optimizer
* Global optimization

Figure 2

AD\PLATFORM

If the AIX DBMS is IBM's Elvis, then AD/Cycle is IBM's Bigfoot—it is threatening, awesome, powerful, and dominating, but there have been no confirmed sightings. AD/Cycle, announced approximately three years ago, was a grand concept. In combination with MVS/Repository Manager (RM), it would present a unified approach to application building by allowing a database concept to be applied to CASE objects. For cooperating CASE vendors, a standard underlying database and information model would allow for integration of diverse vendor's CASE tools, without the necessity for building two way gateways or bridges.

The long path from concept to product delivery has made the delivery of AD/Cycle and its associated Repository Manager a very *iffy* proposition. Ed Yourdon, writing in the July 1991 issue of *American Programmer* summarized AD/Cycle's status well when he said:

"Bottom line, a credible working version of AD/Cycle won't appear before 1994 or 1995 and if IBM doesn't change some of its fundamental tenets—most important

the idea that repositories are intended to reside forevermore only on mainframes—then it will sink under its own weight. It's too early to lay odds on the possibility of a complete collapse of AD/Cycle, but I'll do it anyway. I say there is one chance in three that it will never work as advertised and that IBM will eventually quietly withdraw the product."

Another intelligent reviewer of this technology has been Paul Winsberg, who writing in the October 1992 *Database Review* said:

"It has been my misfortune to interpret the Byzantine technology of Repository Manager, the centerpiece of AD/Cycle, in lectures and articles over the last several years. The litany of IBM's sins is lengthy and well documented; it is enough to say that Repository Manager is a bad solution (severe technical flaws) to the wrong problem (mainframe CASE based on proprietary standards). It seems IBM is now solving the right problem with sound technology and a rational architecture."

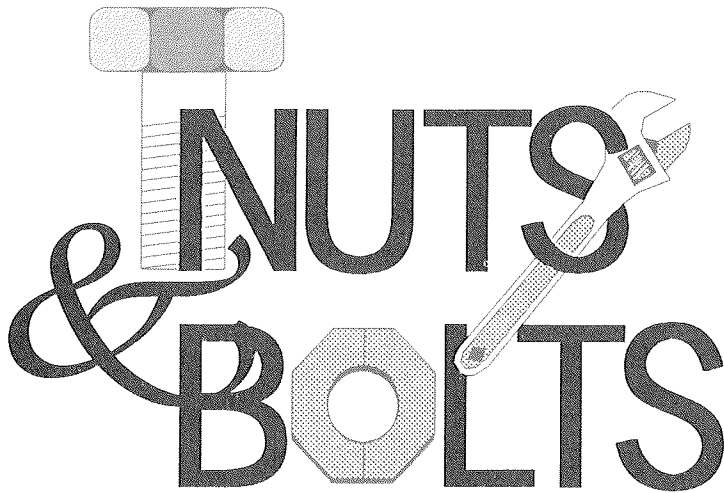Winsberg then went on to talk about IBM's redirection of AD/Cycle in a new

direction, code named AD/Platform. The name "AD/Platform" is company confidential, I was told, but the press has widely reported this name, so I'm not breaking any new news here.

The basic ideas behind AD/Platform are:

- Keeping the best parts of the Information Model from AD/Cycle.

- Re-implementing AD/Cycle as an development environment principally based on the network running OS/2 and AIX.

- Making sure that AD/Cycle applications are designed to operate in a network-based, client/server world.

- A LAN-based approach with open support for GUI, connectivity and database standards which does not require the presence of a mainframe or MVS component.

- Utilizing an object oriented DBMS (from an outside supplier) as the engine for storing data in the information model.
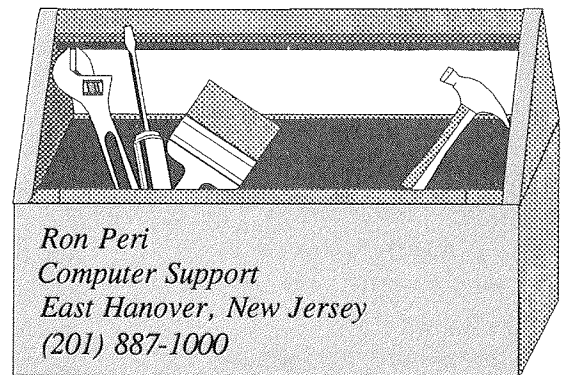
IBM staffers confirmed to me that Repository Manager/MVS has been "stabilized." This is IBM's euphemism for purgatory—

NUTS & BOLTS

Answers for your downsizing questions.

Ron Peri
Computer Support
East Hanover, New Jersey
(201) 887-1000

Q **With NetWare everywhere, people want to connect diverse NetWare LANs into an enterprise architecture. This has been difficult to accomplish because of NetWare's lack of enterprise directory services. Please explain the functions that an enterprise directory should offer.**

A There are several functions that a good enterprise directory should offer. First and foremost, there must be a standard naming convention or model that is consistently followed throughout the organization. Typically, this will be in the form of a hierarchical model that provides a logical name for the user or resource within the context of the user's department, division, and company. For example, if Ted works in IS at the ABC company, his name on the network might be "Ted@IS@ABC." To make things easier, a good enterprise directory service should also provide aliases or nicknames, so that a user entering "Ted" is able to reach the same person that is at "Ted@IS@ABC."

Physical object definitions. In addition to the naming model, there must also be a way to define the physical objects or entities referred to by the naming convention. Objects should have characteristics or attributes that match their type. For example, the physical definitions for file servers and printers will be very different than the physical definition for a user. It should also be possible to group or categorize various names and types of objects.

Directory information database. Logical names and physical entities should be stored in a special directory database, most commonly referred to as the Directory Information Base (DIB). Since the DIB maintains all key information about the components and users of the network, it becomes the primary source of information for network management.

Global capabilities. The directory services should be so organized that communication behind the enterprise can use the directory to access users and resources. Thus, e-mail messages can be automatically routed, third party applications can be seen as services, and communication gateways can be accessed by name.

The emerging standard of X.500 directory services will enable anyone anywhere with access to a global internet to send mail cross-country and cross-company without knowing anything beyond the user's address.

▣ **Distribution and replication capabilities.** Since a single copy of the directory could not possibly support any reasonably-sized company, the directory service must have some simple way to distribute copies of itself to all systems needing regular access to users and components. Such distribution or replications should be done in such a way that all copies are kept synchronized and up-to-date.

▣ **Search capabilities.** A good directory service will provide several simple methods for looking up names. At a minimum, it should provide the following:

1. **White pages lookup.** As with the white pages of your phone book, it should be possible to look up resources based on their names or aliases.

2. **Browsing.** It should be possible to go to any section of the directory and find a number by browsing through that section of the directory.

3. **Yellow pages lookup.** The directory should be organized in categories, so that a user could request a listing of all the printers in accounts payable, or the names of all database servers at the company's headquarters.

There are other features that should also be provided. These include security services and application

...Banyan and Novell have very equivalent offerings. NetWare has an edge in that it is X.500 compliant in its initial release. Banyan has the advantage of being available today....

program interfaces (APIs to allow user applications to directly access resources).

Q **Both Novell and Banyan have announced such services for NetWare. Could you contrast their offerings?**

A Novell has been the premier provider of file services, laying claim to the invention of the file server. They have worked hard to fully develop and mature *file* services over nine generations of software releases. Banyan, on the other hand, has worked very hard to develop and mature its *directory* services.

Banyan's StreetTalk is a very mature product after ten years of development. Enterprise Network Services (ENS) for NetWare is effectively StreetTalk for NetWare with the security and other management services of Banyan's VINES.

X.500, an OSI standard for directory services, is emerging as a standard to ensure that if a vendor's product adheres to the model, its directory will be able to interoperate with other directories across gateways. X.500 provides a baseline of agreement that will permit public and private gateways to accommodate for electronic messaging and other network services. Therefore, the degree to which Banyan and NetWare adhere to the X.500 standard is a key consideration in selecting one over the other.

▣ **Naming Model.** StreetTalk has a naming model three levels deep whereas NetWare 4.0 will

Nuts & Bolts...

(continued from previous page)

support an unlimited number of levels (e.g. Jim@A@B@C@D@...). In addition, NetWare is X.500 compliant in its initial offering. Banyan is adding X.500 features and connectivity for its next release.

Physical objects. NetWare's object definitions and attributes are all those that apply to NetWare from the X.500 standard, as well as attributes that are specific to NetWare.

DIB. Novell has not had a DIB in the past. NetWare 4.0 will offer a very sophisticated DIB based on Novell's Btrieve database. Btrieve is being modified extensively in order to provide this functionality. Banyan has a DIB designed solely for directory services which was actually redesigned in 1989 to improve performance. Banyan must now make modifications to achieve X.500 compliance.

Search capabilities. Both NetWare 4.0 and Banyan offer robust search models that are able to perform yellow page, white page, and browsing name searches.

In sum, then, Banyan and Novell have very equivalent offerings.

NetWare has an edge in that it is X.500 compliant in its initial release. Banyan has the advantage of being available today.
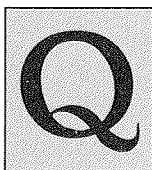
Q **Banyan's Vines historically has been considered a better choice than NetWare for enterprise connectivity largely because of its directory. Now that these capabilities are available on NetWare, could you identify situations where Vines would be a better solution than NetWare?**
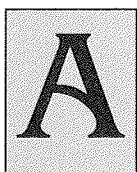
A Novell's new directory names services is available only with NetWare 4.0. Therefore, here are three situations in which you should consider Banyan's ENS for NetWare:

1. If you have a mixed Banyan and Novell environment today. Banyan's ENS will significantly simplify usage and administration.

2. If you have no immediate need for NetWare 4.0 or have a mixture of NetWare 2.X and 3.X networks that will not be upgraded to NetWare 4.0.

3. If you can't wait for NetWare 4.0 to ship, but must do something now with regards to enterprise-wide management.

Generally speaking, organizations large enough to require enterprise directory services will probably want the various features of NetWare 4.0 (1000 users, increased security, etc.). Since NetWare 4.0 will make server consolidations much easier, it is hard to foresee the advantage of Banyan in such situations. However, for those companies who want to totally avoid the expense of a NetWare 4.0 upgrade, ENS provides a cost effective method for gaining a global directory. *RP*

For Laptop Junkies...

I bought my machine from the local MicroAge dealer. It was backordered by six weeks—true to their word, the machine arrived six weeks to the day from when I ordered it. As I have mentioned previously, the Compaq 4/25C is the Godzilla of notebooks at this time. With 12 MB of RAM and 209 MB of hard drive space, it has plenty of *uumph* for all of my current applications. As has always been the case, it is Lotus' Freelance graphics program that forces me into a larger machine. I've begun using Freelance for Windows (more on this later) and it's an awesome package. But attempting to use Freelance for Windows on a 386 is frustrating because of it's slow processing and response speeds.

The MicroAge dealer didn't recommend to me for purchase the IBM ThinkPad 700C, the only other machine with the same high-end list of components as the Compaq. The reason for this is that the 700C is backordered by 14 weeks! IBM is creating great image with its megabuck advertising campaign for the 700C, but it sure isn't making any money since they don't seem able to deliver the product.

As those of you who have read my previous notebook columns have noted, I have always been an established Toshiba user. So, the rest of this column is going to be devoted to comparing Toshiba and Compaq machines from a user (personal) point of view. I'm going to do this comparison even though my basis is somewhat skewed given that I've been using a 386 Toshiba and now I've have a 486 Compaq. However, most of the points I'll make will apply to the comparably configured machines from each vendor.

COMPAQ—The Good

486 Power. First of all, 486 power is really necessary if you're going to multi-task under Windows. Before my Compaq arrived, I had upgraded the memory in my Toshiba 2200SX to 10 MB. What a huge difference that upgrade made. When I am using my computer, I will typically have three DOS regions and several Windows applications such as Word and Freelance running. Before the upgrade (and to some extent after), the 4 MB Toshiba was constantly swapping code to disk in this scenario. If you're going to use Windows, OS/2 or the upcoming Windows NT multi-programming environment, you will need

to definitely purchase at least 8 MB of RAM. The Norton Utilities SI rating on the Compaq is 28, compared with 14 for the 386 Toshiba and 38 for my desktop clone 486/33 machine. Because my desktop only has 4 MB at the current time, however, the Compaq notebook is going to whip it speedwise most of the time.

Delivery. The Compaq was delivered with Compaq's version of DOS and Windows already installed. That is a very smart idea, and was one of the key features that drove my decision in selecting this machine. If you've followed my past adventures with other machines, you know that bad software and other problems have typically caused me to endure 15 to 20 hours of installation and set-up time for each new notebook. Those are real hours—they are the total number of man-hours invested by our PC technician and myself to obtain a satisfactory working configuration. However, with the new Compaq, all we had to do was reinstall or LapLink my applications and customize Windows for my desktop. The set-up process took only three hours which was a huge improvement over my past experiences with Toshibas.

For Laptop Junkies...

(continued from previous page)

Screen. The TFT (thin film transistor) active matrix color screen used in the Compaq (and also available from Toshiba and IBM among others) is excellent. It is much, much brighter and easier to read than the black and white screen available on gray scale machines. Just as the move from black and white TVs to color TVs was complete, so will be the move to these new color notebooks. The Compaq 4/25C screen is approximately one inch smaller than the screen on the IBM 700C.

Keyboard. The feel of the Compaq keyboard is excellent. The key sizes are full. In addition, all of the keys normally used are here. To enable F11 and F12 (not on the keyboard) the user needs to press a function key and then either F1 (for F11) or F2 (for F12). I don't think that the lack of these two keys will be a major issue. Perhaps it is because I'm used to the Toshiba layout, but I prefer Toshiba's approach of putting the home/end/pg up/pg dn/insert/delete keys along the far right side of the machine. Compaq puts them along the top, where I don't think

they're as well-suited for touch typing.

Power Supply. While no larger than Toshiba's design, the Compaq power supply has the additional feature of battery recharging while the computer is plugged into an electrical outlet *and in use.* With the Toshiba, if the computer is being used while plugged in, the battery can not be recharged—the machine must be plugged in and shut off for recharging. Compaq's approach definitely has advantages.

Embedded Trackball. This was the absolute, must-have feature that convinced me to get a Compaq rather than either the Toshiba T4400 or T4500.
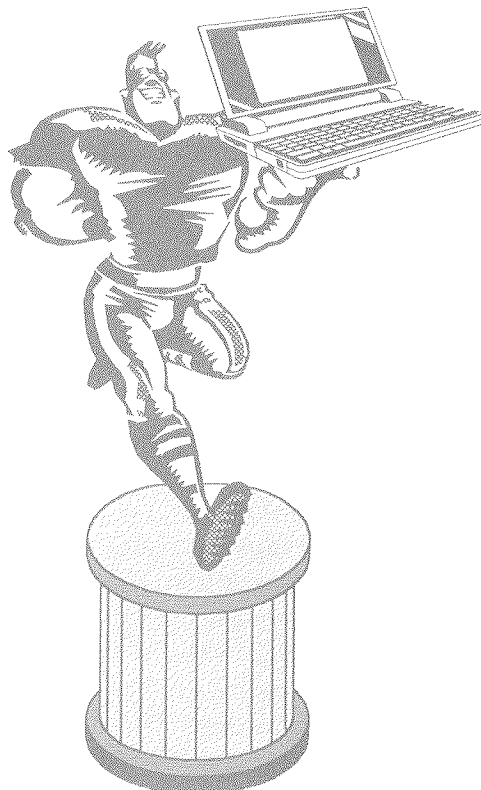
I can't conceive of a high-end notebook computer coming to market without an embedded trackball. After all, who is going to use one of these machines without Windows or OS/2? Nevertheless, Toshiba machines haven't adopted this feature. Windows and OS/2 aren't important in Japan, and I'm sure that weighed heavily in the argument between Toshiba America and the home office as features for the Toshiba were being designed. Toshiba is losing market share in the US, and they're going to have to listen more closely to their American users if they want to reverse that trend.

The trackball on the Compaq is the absolute, unquestionably best available—and that declaration includes Apple Powerbooks. It is mounted to the right of the screen, with the buttons on the back side. This solution provides a perfect fit to one's (right) hand and doesn't increase the size of the computer in any way. It's much better than any horizontal solution above the keyboard—such solutions can cause the heel of your hand to accidentally hit spurious keys as you use the ball. The apple design with a large ball below the keyboard is fine, but it monopolizes a significant amount of room. Compaq

hit a home run with this design feature.

Simultaneous External Video. Especially useful for projection screen shows, you can drive an external projector and look at a live screen at the same time. This is a new feature that is available on most high-end laptops. Actually, I never understood why it wasn't a feature on all machines all along. I certainly appreciate this feature since I'll be using the Compaq in most of my keynote addresses.

DOS Memory. Running under Windows, I get 618K for my DOS regions. The T2200SX only gave me 574K. That's a big and important difference for DOS programs. I don't know if newer Toshiba technology is competitive in this area.

COMPAQ—The Bad

No Dashboard. In an example of poor ergonomic thinking, Compaq has placed the in-use light directly on each component. In other words, the power supply LED is on the power supply, the A-drive LED on the A-drive, likewise with the C-drive—you get the picture. This means that you're lifting and looking at various places on the

machine for visual indicators of usage. Toshiba, on the other hand, employs a far more useful design—a dashboard visible along the top of the machine (with the top either open or closed) for all of the indicator lights.

High Speed Floppy. This is the Compaq's only bad point when viewed in light of comparable Toshibas. Toshiba uses some type of technology in

...As I have mentioned previously, the Compaq 4/25C is the Godzilla of notebooks at this time. With 12 MB of RAM and 209 MB of hard drive space, it has plenty of uumph for all of my current applications....

their floppy disk drives that allows floppies to be written to much faster than on any other PC I've ever used. For example, a Norton Speed Disk will run for about 1—2 minutes on a Toshiba 3" floppy. Every other machine I've ever used, including my new Compaq, takes about 5—7 minutes for the same utility run.

COMPAQ—The Ugly (and I mean ugly!)

Auto-Resume. For those of you not familiar with this feature, it's one of the best engineering improvements that can be made to a PC. Pioneered by Toshiba, its a feature that, once enabled, simply saves the entire working environment to ROM so that when you shut off your computer and then restart it, it is exactly where you left it, regardless of the number of programs running. It is really so great that a law should be passed that this facility must be included on all PCs and workstations. In fact, agencies of the US Government are considering such a proposal as an important energy saving device. It saves wasted electrical energy and it saves you wasted time in restarting applications.

The Toshiba implementation of auto-resume is perfect. You enable it once through a menu switch setting and then never need touch that switch again. If you want to override the auto-resume, there's a recessed button that allows you to do just that. The Compaq implementation of this feature, on the other hand,

For Laptop Junkies...

(continued from previous page)

is so awful that the engineers responsible should be found and fired—or worse.

Instead of just implementing this feature in a simple manner like Toshiba, Compaq has created a series of *Standby* and *Hibernation* features that are confusing to explain, non-integrated, overlapping, inconsistent, and far less functional. To top it off, this set of features is documented incorrectly in a 15-page chapter in the Compaq manual. The net of it all is that there is no ROM in the Compaq for Hibernation so that it takes 14 MB of the hard disk space for a permanent swap file to enable Hibernation. While a Toshiba start-up or shut-down takes about one second (to ROM), with the Compaq you're dealing with approximately one minute of disk spinning to accomplish the same function. In addition, with the Compaq you have to keep track of whether you shut the machine down by 1) turning it off, 2) enabling standby, or 3) entering Hibernation. Each mode has difference consequences and you can lose your work by using an inappropriate step—if you're in the wrong "standby" mode.

I'm as disappointed as I can be with this aspect of the Compaq. And I'm surprised since the magazine reviews of this Compaq feature all lauded hibernation as a good and useful technology advance. I no longer trust magazine reviewers (as you should not) and have decided to check things out myself if they're critical.

My Perfect Machine

I am really enjoying the new Compaq, but it's not the perfect machine. To achieve "perfect" status, the machine would need to have everything that the 4/25C already has and in addition:

- **Be lighter.** A 4 lb. machine would be about right. At 7½ lb., the Compaq is a little on the heavy side.

- **Have a longer battery life.** Even with all of the power saving features enabled, the Compaq gives only between 2 and 2½ hours of constant usage. Of course, the requests for longer battery life are never ending. One way to compensate for the short battery life is a fast recharging time. Most notebooks recently have improved their recharging times. Both Toshiba and Compaq offer a one hour full-

charge. A five minute recharge, however, would make recharging in airplane bathrooms a real possibility.

- **Have a larger screen.** The Compaq's screen is not too bad, but I've seen larger. I'm sure that the next iteration of Compaq machines will improve on this point.

- **Be thinner.** The Compaq is about two inches thick. This is partly a result of having a TFT screen. The older Toshiba 2200SX with a monochrome screen is only about 1¼ inches thick. That difference is important because it means that the Toshiba can be inserted into places where you could normally only place a file folder, like the back of an airplane seat, for example. The Compaq is too thick for such storage.

Overall, the Compaq seems like it will be an enjoyable machine to use over the next year (or even, hopefully, two years). However, Compaq needs to completely re-engineer their abominable Hibernation technology. I would give the Compaq 4/25C a solid B+/A- for technology and value. *GS*

Hi Mom, This IBM's For You!

The resignation of IBM Chairman and CEO John Akers has been a leading news story for the past several weeks. On a recent flight to IBM's Santa Teresa Laboratories, I began thinking about applying for Mr. Akers' old job. I know it's a lot of hard work, but if I had the job, it would be the fitting capstone to my career. While running DCI has been challenging and rewarding, my mother who has lived her entire life in France, has never been able to understand what I do for a living. Try explaining the position of *industry analyst* to a French woman born in 1903 and you'll see what I mean. When I first graduated from Harvard and worked in the field of operations research, I sent my mom all of my published papers. However, I had no luck in explaining to her or any member of my family how I earned a living. Later, as I worked more with computers, my mother said that she could finally understand my job—I worked with IBM machines. Just think, now, how proud she would be if I told her I was the President of IBM!

Now, I understand that I have some very tough competition in this race. Bill Gates, for one, has been favorably mentioned in the press as a leading candidate for the job. I can't understand that recommendation—why would Gates leave the top position at a company more highly valued (Microsoft's total market valuation) to go to IBM? This is true especially since he owns major piece of Microsoft, the more highly valued company. Another problem for the IBM board if it's considering Gates is that, with his net worth of approximately $7 billion, it would be fairly difficult to develop a motivating compensation scheme for Gates.

I have read that Esther Dyson has recommended Boris Yeltsin for the job—she considers turning around IBM to be comparable to turning around Russia. It is true that Yeltsin's party and his experience with vodka may give him a leg up on virtual reality. But I don't think that the IBM board is ready to get that radical.

What about H. Ross Perot? Once an IBMer himself, maybe Perot will leave saving the U.S. economy for a greater challenge—the salvage of IBM. He has been known, in the past, to make large charitable contributions.

The conventional thinking is that IBM has to go outside to get someone who can forge a change in the IBM culture. Examples of companies that have used this strategy successfully include General Electric and Apple with John Sculley. However, the IBM tradition of promoting from within is very strong. I think that networking chief Ellen Hancock is a serious contender for the top job. The nice thing about appointing Ms. Hancock is that it would make the statement that this job is too tough for any man.

The new CEO is going to be mighty important to IBM's 300,000 employees, the stock holders, and of course its customers. If the new CEO doesn't have either a networking or PC background, that would be extremely negative for IBM and its business prospects. I made a good living for 20 years as an IBM basher but it is no longer any fun to bash IBM. People who work there are nice to me now, and their situations are too disheartening. It will be good for everyone in this industry and for our country if IBM makes a sharp and effective turn around. It's going to be interesting. *GS*

George's Visit...

no more future versions. Repository Manager/MVS suffered from being a multi-vendor oriented research environment with broad reaching goals that were one step beyond reasonable implementation for most in the vendor and user community. As a research project, it would have received kudos. The pressure of needs for improved development environments, however, didn't allow IBM the luxury of calling AD/Cycle a research project. It was therefore forced prematurely into a product development phase which just wouldn't work. Even if all of the technical glitches could have been overcome, the final nail in the coffin was that the storage of data for the metamodel didn't map well into underlying DB2 tables performance wise, that is. In other words the combination of slow performance on expensive mainframes made the idea of running Repository Manager/MVS financially untenable!

Object of IBM's desire

IBM has definitely awakened to the benefits of object orientation. When information has a high relationship information content, performance from the relational model of storage hasn't been adequate, according to IBM staffers. For example, if you want to store a map of New York City in a database, the fact that relational records are stored in unordered form and without contextual relationship to other records, won't help you any. A number of

...If the AIX DBMS is IBM's Elvis, then AD/Cycle is IBM's Bigfoot—it is threatening, awesome, powerful, and dominating, but there have been no confirmed sightings....

consultants, including myself, have speculated that an object oriented DBMS would have been a better choice for storage of AD/Cycle Repository Manager information.

The movement of computing toward multi-media with the storage of images, for example, is another reason for IBM to seriously consider object databases. Relational DBMS (but not DB2) have been extended with BLOBs (binary large objects), however, the basic notions and assumptions of the relational model don't particularly offer advantages for manipulating or understanding data that doesn't fit well into the structure of tables. And while relational DBMS such as Borland's Interbase, have BLOB support, useful manipulation of multimedia data requires that users be able to extend the functions of an RDBMS with user defined data types and operations. This is not a capability that IBM, or other relational vendors, offer.

IBM staffers offered opinions that their relational DBMS products would be extended with object concepts over the next few years. It's likely that this means that some sort of facilities for inheritance, encapsulation, and polymorphism will be added. In this sense, IBM is pursuing the same development directions as many of the other RDBMS vendors such as Oracle, Hewlett Packard, INGRES, and Interbase. The people I spoke to, however, didn't think that object extensions to an RDBMS weren't the real answer because of performance issues. In other

words, if one has to map to an underlying table oriented structure and the nature of the problem doesn't fit, then performance is likely to be too poor to satisfy many customers.

More interesting for the short term, however, were the comments by staffers that IBM needs to establish a short term position with object oriented technology and that the company will either purchase or develop capabilities in this technology in the near term future (where this was interpreted to mean that we'll hear something early in 1993, possibly before you read this article.)

IBM's first product for OODBMS will have a UNIX flavor as it was mentioned that it would be for the AIX platform with TCP/IP support. This product will be built on a C++ technology base. As recent as two years ago, Santa Teresa Lab's development efforts were very much focused toward the MVS platform. It was interesting to see how far their thoughts have migrated toward products that run under OS/2 and AIX.

I interpreted IBM's comments to mean that they are likely to buy the source code to an existing object DBMS such as Versant or Ontos (my names, not IBM's) and re-engineer it into an IBM distributed product for the RS/6000 platform. With success on that platform, the specifications for the product could eventually be rolled out onto other IBM platforms such as VM, MVS or OS/2. IBM usually doesn't share code bases across different hardware architectures, but the basic functions and syntax of a successful AIX product will surely influence development directions across all of the SAA platforms. Reasonably full support for object orientation from IBM will probably roll out over a period of several years.

Conclusion

My day in Santa Teresa was interesting and worthwhile. I came away with the impression that IBM hasn't backed away from an aggressive posture extending to the state of software art as far as data management is concerned. In spite of some serious setbacks, which are to be expected out of a development laboratory like this, IBM seems to be adjusting its focus toward platforms such as OS/2 and AIX which are becoming more widely used for new application development. In the future, I expect that a continuously increasing percentage of development staff will focus on these new environments. Taking advantage of the new 390 architectures will pose a challenge and opportunity for IBM's software engineers.

I do not expect a change in the character of IBM data management software, however. By this I mean that they will continue to stress high availability, security, and integrity along with performance. And that means that their products will typically not pioneer new trends, until those trends are well established and requested by IBM's large customers. There are likely to continue to be situations, then, where IBM is late such as in its support for integrated CASE solutions and object oriented facilities. But, on the other hand, there clearly have been cases where IBM's data management software has been early to market, such as with DB2's delivery of cost-based optimizer, shared SQL, and multi-threading (1984) and declarative referential integrity and group security IDs (1988). All of these capabilities, for example, are just now being delivered by Oracle in its new Version 7.0. Early or late, I expect that IBM's moves in this area will continue to generate interest. *GS*

UPCOMING downsizing Events...

DATABASE WORLD and CLIENT/SERVER WORLD are once again being held jointly in Boston, June 14-16, 1993. There are nine conference tracks between both shows: *Object-Oriented Technology Conference, Database Technologies Conference, DB2/Information Warehouse Conference, Xbase Conference, Database Connectivity Conference, Client/Server Databases Conference, Managing the Client/Server Environment Conference, Client/Server Networking Conference, Building Client/Server Applications Conference.* Keynotes are being delivered by several renowned industry figures including: Chris Date, Michael Stonebraker, George Schussel, Larry DeBoever, and William Zachmann. In addition, Philippe Kahn of Borland is to be the plenary speaker.

For people who can't wait until June to attend a show covering downsizing topics, you'll be interested in the expositions being held concurrently May 4-6, 1993 at the Metro Toronto Convention Centre—SOFTWARE WORLD and CLIENT/SERVER WORLD. Conference Chairmen George Schussel, Roger Burlton, and Ed Yourdon will be heading up this conference which features eleven conference tracks: *CASE and Application Development, Windows Development, Database Technologies, Object-Oriented, Emerging Technologies, Business Re-Engineering, Application Software, Managing a Client/Server Environment, Developing Client/Server Applications, Networking and Operating Systems, Open Systems.*

In addition to these large shows, DCI is also offering several downsizing one and two-day seminars throughout the spring with such industry notables as Cheryl Currid, Herbert Edelstein, Larry DeBoever, Richard Finkelstein, and George Schussel. Call DCI at (508) 470-3880 for more information.

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

Schussel's Downsizing Journal

Subscription Form

☐ *I want to subscribe. Please send me the next issue.*
☐ *Please RENEW my subscription.*
☐ Check payable to Digital Consulting, Inc. is enclosed
☐ Bill me
☐ MC # _____ Exp. _____
☐ Visa # _____ Exp. _____

Subscription Rates
● $199 for one year in the U.S., US$225 elsewhere
● All amounts payable in U.S. dollars please

Name _____

Title _____

Company _____

Address _____

_____

Telephone _____

To Subscribe: ✉ Drop a copy of this form in the mail: 204 Andover Street, Andover MA 01810 USA
☎ Phone 508-470-3870   or   ▤ FAX 508-470-1992