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In This Issue:

Reporting from CLIENT/SERVER and DATABASE WORLD

Part I of II

DATABASE WORLD and CLIENT/SERVER WORLD, held in Boston this June, were the most successful conferences and exposition ever sponsored by DCI. During my attendance at the shows, I focused my attention on the conference program. The exposition was also very well attended: the Hynes Auditorium staff remarked that for the first time they could remember, during the week of these shows, the back bay of Boston ran out of parking places.

In this article, I'll try to summarize some interesting points made in keynote presentations by Charles Wang

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Succeeding with Lotus Notes

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➲ **Item:** *Lotus announces and releases a major new version of the leading groupware product, Lotus Notes Version 3.*

➲ **Item:** *Microsoft and WordPerfect announce that they will make their products compatible with Lotus Notes.*

➲ **Item:** *Lotus estimates that 500,000 people at 2,000 companies are using Notes.*

Notes mania...everywhere you look today in the press, there are references to Lotus Notes. Having worked over the past two years at deploying this product with several major U.S. corporations, I know that the poten-

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tial for groupware is enormous, and that it can radically impact the way workgroups go about business. But, I have also learned that success with Notes is not automatic; realizing the potential of this technology requires organizations to carefully plan and implement deployment. The most important issues corporations must face are discussed in this article.

A synopsis of groupware

It is beyond our scope here to provide a copious background on Notes in particular, or groupware in general. The short story is that the groupware product category, though vaguely defined, includes products explicitly designed to enable groups of users to communicate, cooperate, and collaborate electronically by providing a shared digital workspace. Lotus Notes is far and away the most established and mature product in this category.

Notes is designed to run on client/server systems and allow multiple users to share and send information and documents in an organized fashion via PCs. Notes, of course, includes full electronic mail capabilities, but it also has a document repository for shared document access by multiple users. In addition, Notes is a development environment that allows the creation of customized applications to meet very specific business requirements.

Today, Notes is being used effectively for a wide range of applications in corporate North America. It is used as the platform for various corporate information system functions including:

☑ sales tracking and management systems,

☑ repository systems for corporate policies and procedures,

☑ focused discussion databases for research and development teams,

☑ an executive information system that provides access to summary performance information for corporate management,

☑ a call tracking and help-desk system,

☑ an electronic mail system.

I have seen systems fitting all of the above descriptions, as well as many others, successfully built and deployed with Notes. It meets this wide variety of needs because Notes is both an application development environment and the user's runtime environment. In this way (and probably only in this way), Notes is somewhat like a spreadsheet product: until an application is developed, the product is essentially an empty environment. Someone has to figure out what the application is going to be, and then someone needs to develop it. There are many different types of applications involving communication, cooperation, and collaboration between users that can be built.

There's no free lunch

There are many ways in which virtually any organization can benefit from Notes. But nothing comes free, and nothing worth while, it seems, comes easy. This includes Notes.

The benefits of Notes simply do no appear with the installation of the product. Some large organizations have attempted to establish Notes within their environment by just putting it on their employees' PCs—plant Notes on the users' PCs, so this thinking goes, and increased cooperation, coordination, and collaboration will grow like a flowering vine. This line of thought is wrong. The reality is that attempts to deploy Notes without proper analysis, planning, application development, and coordinated execution will most likely fail to reap the benefits of the product.

Notes, more than any other product I have worked with, requires an integration of the technology with an overall change management plan to succeed. And this seems to be the thing that many organizations first working with groupware miss. For some reason (perhaps because it involves PCs), people seem to think that Notes can just be thrown out there and users will automatically learn the system, and then reap all of the benefits. However, this is not personal productivity software we are talking about here...this is groupware, and before it can work, there has to be an understanding of how people currently work and how Notes will affect the way they do their jobs.

Notes pilot projects—the path to a successful implementation

The most effective manner in which to address these issues is to begin the implementation of Notes through a series of controlled pilot projects. Pilots allow an evaluation of the benefits of the technology and an assessment of it's most effective uses within each organization. Pilot projects also allow an understanding to develop regarding the underlying network, platform, and organizational issues that play roles in enabling Notes to function effectively. For instance, will the central help desk support the users? Does the LAN or WAN have the bandwidth to support the additional traffic? And, how much horsepower will users really need to run Notes effectively?

Pilots may include either one or a few specific Notes applications, but they must have a limited target user group and be focused on specific business objectives. Unless the goal of the pilot can be clearly expressed in business terms, such as "decrease response time to customers complaints" or "improve flow of sales data from the field to headquarters," then the pilot will not provide the type of information needed to judge how best to harness the technology.

Clearly targeting the pilot on a specific business problem and establishing specific pilot objectives are the first critical steps in ensuring a successful pilot. But there are a few other factors that can be controlled to increase the likelihood of success.

☑ ***Choosing the application.*** The goal in selecting a pilot application is to identify a problem and business process that can be addressed with a Notes deployment among a limited group of users. The nature of some business problems is that they involve many users and therefore don't lend themselves to limited pilots. For example, a Notes application to handle purchase order routing and tracking may sound like an excellent use of the technology, but it may not be practical as a pilot since the process requires hundreds of peoples' participation—more than you typically want to include in a pilot.

On the other hand, applications chosen for pilots should be able to expand quickly to include a wider audience. Piloting Notes with an application that automates a very specific or obscure business process will not allow the pilot to grow once the technology has proven its value.

☑ ***Choosing the target audience.*** Choosing the correct group for a Notes pilot is another step that can improve results. One characteristic to look for is a group of users who are not technology adverse. If the target group consists entirely of senior executives who tend to say *"I hate those things"* when talking about PCs, it is a good indication that they may not rush in to embrace the Notes applications.

On user workstations, Notes requires Microsoft Windows, connectivity to a

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network and, realistically, an 386 or better configuration. So, it also makes sense to target a group that has some of the platform requirements already in place. For example, work with a group that already uses Windows and is networked rather than a group still running DOS on stand-alone 286 machines. This will bypass many of the budget and training issues that derail some pilot projects. It also avoids the perception that it is costing the group thousands of dollars per user "just to run Notes," when the reality is that the upgrading of PCs and connection to a network will provide benefits beyond those provided by Notes.

Another simple but necessary characteristic of the pilot group is that it is, indeed, a group. By this, I mean that they already work together as a group and have a need to share information among themselves. Sometimes, for political reasons, organizations are tempted to initiate Notes usage by providing the product to a group of senior executives who rarely work together, or, in fact, are competitive with one another. Their only common characteristic may be that they report to the same CEO. The addition of Notes to this situation will not make these individuals suddenly want to share and cooperate with each other. Instead, you should target a group that already works together daily, sharing plans, projects, files, and objectives.

☑ ***Have a champion.*** Having an executive embrace the pilot project visibly and vocally is a very effective way to increase the likelihood of success. Pilots initiated, planned, and executed solely by technical staff members rarely have the ability to impact how individuals do their work—pilots conceived and championed by a member of the management team almost always do. Again, this

Steps to Success with Notes Pilots

√ Choose the right application.

- ► *limit number of users*
- ► *address a specific business problem*
- ► *choose a pilot that can be expanded into a final system*

√ Choose the right target audience.

- ► *users should be comfortable with computers*
- ► *the correct computer platforms should already be in place*
- ► *the group should be a group that regularly works together*

√ Have a champion.

- ► *have an executive propose, help plan, and back pilot project*

√ Establish sufficient pilot management.

- ► *use careful planning and management*
- ► *establish clear/concise pilot objectives*
- ► *set evaluation dates*
- ► *define specific project roles*

is reality. People tend to do their work in a way that meets their management's expectations and approval, and if it is clear that their management is enthused about a new way of doing things, the staff members will likely embrace it.

During the planning stage, champions can play an essential role in overcoming budgetary and scheduling obstacles. When the pilot plan calls for the users to receive a day of training, for example, having a strong member of management on your side is key to ensuring that the training will get the priority it needs. Champions also play an important role as pilots meet with success. They can spread the word to other groups, generating interest in the next generation of usage. This process helps to ensure the continued growth of the technology throughout the organization.

☑ ***Sufficient pilot management.*** Pilots need to be carefully planned and managed. Before the pilot commences, clear, concise objectives should be established and an evaluation date set. A project schedule identifying the target audience, installation dates, and training dates must be established. Specific roles for the pilot project must be defined; for example, responsibility for developing the applications, training, and support are all issues that must be clearly resolved. And, someone with the proper, available time and resources must take on the role of project manager.

Moving from pilots to production

An effective pilot program never ends. It simply evolves into a production environment. Some organizations pilot the product for a set amount of time, then decide the technology has proven itself and should be deployed to the entire user community. But this misses the point that Notes is useful only to the extent that it is integrated into users' business processes, and should be added to users' desktops only as the appropriate applications are identified and developed.

Instead of having a fixed point in time when use of Notes moves from pilot to wholesale deployment, it is more appropriate to grow usage within pilots to include wider and wider user groups, and to clone successful pilots in other groups where a similar set of business requirements exists. For example, I know of a successful Notes pilot that has proven to be very beneficial for one division of a major corporation's New York sales office. Since the pilot has been judged to be a success, it now can grow rapidly along two dimensions. First, other sales offices in the same division can be added to the group to rapidly expand the benefits of the technology. Second, sales groups in other divisions can initiate pilots with the same applications.

Growth in the use of Notes through these two approaches can proceed quite rapidly if there is a wider audience with the same business situation addressed by the pilot applications. Often the spread of Notes is limited primarily by hardware/software platform issues and training schedules, both of which can be managed through careful planning. This approach ensures that the use of Notes, while growing quickly, grows based only on its ability to deliver proven benefits.

The message is simple: Notes, and groupware in general, can provide dramatic new ways for users to approach collaborative work, and the results can directly impact how the organization designs and builds products, delivers services, and distributes information. But, as with any major infusion of new technology to users' desktops, the introduction of Notes requires careful planning, analysis, and, most importantly, a pro-

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Reporting from CLIENT/SERVER...

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of Computer Associates, and Adam Green, a prominent dBASE consultant. Next month's issue will cover topics included in both my keynote, and that of Mike Stonebraker, UC Berkeley.

Wang on the underpinnings of application development

Charles Wang, CEO and Founder of Computer Associates, gave a particularly highly rated keynote presentation. While many speakers at the shows focused on technical software topics, Wang concentrated on the business underpinnings for application development.

Wang start his session by commenting that productivity growth statistics have showed a 2.4% per annum decline in the 1950s to 1.3% currently. A contributing factor, according to Wang, has been the disconnect between many data processing technicians and business leaders. In his opinion, many people charged with technical leadership have taken that as a rationale to pursue change for change's sake. The result is a desire to acquire the latest and greatest toys—which may not improve the overall productivity of the enterprise.

The primary conclusion that Wang drew was that evolution is usually a better business strategy than revolution. He ended his keynote by stating that the biggest recent success in the computer industry, Windows, was so precisely because it allowed an evolutionary, not revolutionary approach into a new paradigm.

I agree with the points Wang made on compatibility and evolution, and as I listened to his concluding comments, my thoughts were that this was the reason why Windows NT isn't going to be the amazing success that most analysts have thought it would be. At this time, Windows NT runs Windows 3.x applications noticeably slower than native Windows 3.x, and only runs a limited number of DOS or OS/2 applications. There's not much doubt that Windows NT will garner an important new following for mission critical applications, but it's going to be slow going for this operating system in converting desktops.

Green on dBASE (what else?)

Adam Green, a well-known, Boston-based dBASE, Xbase and FoxPro consultant gave a very interesting presentation on Windows application building. Green has a reputation for being very outspoken; he's very smart and is a superb communicator, both in written form and from a lectern.

His last year has been very interesting. Green, normally known as a fiercely independent consultant, decided to take a contract to work exclusively doing educational seminars for Borland's upcoming dBASE for Windows. Green has been very honest and open in announcing where his support is coming from. That Green would choose to work for Borland might not be considered so unusual if it wasn't for the facts that :

1. Until this past year, Green had been the single most vociferous critic of Ashton-Tate, the company that until two years ago was the corporate parent of dBASE. His criticism of Ashton-Tate was not just limited to the company: his lectures usually rated the product's technical functionality well behind that of its competitors, FoxPro and Clipper.
2. Until his relationship with Borland, Green was probably the most widely known instructor on FoxPro, dBASE's toughest competitor. FoxPro is now owned by

Microsoft, Borland's toughest competitor in all of the areas that Borland's product line covers: languages, databases, and spreadsheets.

In spite of the source of his income, I still find that Green has an amazing ability to see the Xbase world through a very clear set of glasses. And so I really was looking forward to hearing what he had learned about the Windows application development process. It turns out that, in spite of the lateness of dBASE for Windows, Green has been doing a lot of Windows development and has learned quite a bit about what's in store for most developers over the next few years.

Since his contract is for developing seminars for a non-existent product, Green decided to read Windows developer's books and use available Windows products to test and re-test development strategies on a fixed set of applications. At this point, Green's favorite Windows tool is Visual Basic, a Microsoft product.

In no particular order, following are some of Green's experiences, opinions, and conclusions:

❶ There are approximately 600 Windows API calls. Serious application developers will insist on being able to program to this native interface without going through an intermediate callable library from a language like C. Visual BASIC allows this while FoxPro for Windows, admittedly an interim product, does not.

❷ Windows application development needs to be object oriented. Procedural programming simply doesn't map to an event-oriented paradigms such as the Windows interface. Procedural programming can't deal effectively with a question such as, "Something was clicked, what was it and what do I do?" As more and more application developers start writing to Windows, the general programming movement to object orientation will accelerate.

❸ A full Windows application development tool will consist of, at least, three major components. First is the script language for procedural programming. Most such languages resemble BASIC or dBASE/Xbase. Typically, such a language will have approximately 200 commands. Second is the Windows API language containing about 600 calls. Third is the object oriented construct that is provided as an overall structure. The object and Windows components will dominate the scripting language. This means that the difference in these languages, such a big deal in the past, will become less important in the future. In other words, in the DOS world the Xbase language was everything. In the Windows world, the Xbase language or its equivalent will only be 20% or so of what the developer needs to know and deal with.

❹ What's up with the dBASE for Windows (dBW) deal? Where is this product? After Borland acquired Ashton-Tate, it announced that dBW would be available in the summer of 1992. Given that a product normally becomes available six to nine months after the beta version hits the street, it's pretty clear that dBW isn't going to ship in 1993. Green commented that Borland seriously underestimated the difficulty of developing dBW and missed being able to ship a first generation Xbase Windows product.

Computer Associates' dB Fast and Microsoft's FoxPro for Windows are both now shipping and although both admittedly are transitional products, their availability is taking market share away from Borland. Green said that the Borland dBW plan is to bring out a superior full object oriented environment in its first shipment. Since that shipment date will probably be in 1994, the product is going to have to be significantly better than the alternatives

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Open Operating Systems

No longer is hardware the controlling issue in computer systems. There are simply too many companies capable of building superior hardware quickly. Toll-free, marketing telephone numbers and a direct response channel have helped to push down the barriers to entry in the hardware field. Both DEC's and IBM's very public agony is only too visible proof of the descent of hardware vendors (and integrated suppliers) and the shift of power to software firms such as Microsoft, Novell, and Lotus. In this new world, software rules, and, in the software kingdom, the lion's share belongs to those who control the operating system (O/S).

What is an *"open"* O/S?

There is no single, widely accepted definition for an *open* O/S. In general, I've found five different definitions that are used reasonably frequently. They are as follows:

1. *De Jure Standards*—These definitions are usually published by a non-profit group such as ANSI, ISO, SQL Access Group, or X/Open. Their standards are normally built on top of the lowest common denominator of existing products. Typically, *de jure* standards are published some years behind the time when the leading vendors have brought just such capabilities to customers. *De jure* standards are becoming less and less relevant to most buyers in the 1990s because they are too slow in keeping up with quickly evolving computer technology.

2. *Interoperability*—For many years, DEC spoke about it's VAX/VMS systems being *open* because they had extensive facilities for communication and data interchange with a wide variety of non-DEC systems. Other companies such as Sybase, Sequent, and IBM have also been leaders in providing facilities for interoperability. Certainly providing data interchange and other similar facilities is good, but it isn't enough to ensure a product's classification as *open* in today's market.

3. *Flexibility to change hardware vendors*—Some software vendors have long championed their products' ability to run in a wide variety of hardware environments. Examples of leaders in this approach include tool and DBMS vendors such as Cincom, Sybase, Oracle, and Informix. The software vendors' argument is that a commitment to one software vendor's architecture frees the user from being tied to any individual hardware vendor. However, while this statement is true to a significant extent, once you go with one software vendor, you are then locked into that vendor's line of products.

4. *Flexibility to change software vendors*—This is the counter point to the idea of *open* hardware. Some hardware vendors such as Pyramid, Compaq, and Sequent have championed the fact that their hardware runs all standard O/Ss including UNIX, Windows, and DOS. Their argument is that by using their hardware, users are able to chose from a wide variety of software vendors. To the extent that these hardware vendors support many popular software standards, it is probably true that the choice between these systems leaves the user with many options. Therefore, this is a likely choice for a standard definition of new age "*open* systems."

5. *Marketecture Standards*—I am finding that the most important definition of "*open* systems" has to do with the market of ideas, systems, hardware, and software that exists in this environment. Years ago, I considered the IBM 360/370 environment to be the most *open* because its

size encouraged the development of companies to built clone hardware and software products that would operate in an IBM compatible environment. Nowadays, the largest O/S vendors for the new downsized and distributed computing culture are Microsoft and Novell (and perhaps IBM). The already huge and still rapidly growing base of NetWare, UNIX, and Windows sites means that tens of thousands of independent hardware and software vendors have been drawn to these environments and are developing improved and cost-effective solutions. *This is why you want to be a user of NetWare, UNIX, DOS, and/or Windows.* Your choice of capabilities and the price that you pay for those features are both going to be better with these products than with any others. Needless to say, any product that aspires to be a *marketecture standard* has to be freely licensed to all qualified VARs under policies that generate favorable business partners.

The battle for dominance

The dominating computing architecture for the remainder of this decade will be client/server. This means that there are at least two environments in which O/Ss will compete for market dominance. Those two are: 1) the single user client or desktop, and 2) the multi-user server. The requirements for success as well as the market contenders in these two categories differ. For example, the typical client will support a single user running multiple applications through a GUI. Ease of learning and use will be more important than sheer performance for the client. However, the client can't be a small machine because it will have to juggle multiple applications and interfaces (such as databases and connectivity drivers). The server side O/S, on the other hand, has to be optimized for multiple, concurrent users. A server GUI is a bit of oxymoron, since low level access to the server is not something that will usually be made available. For administrators who require low level access, such control can be available through a client machine. Servers, like databases, will be about performance, performance, and *performance*.

How to read the chart

The following chart *(see pages 10–11)* is organized with O/S names across the top, and various O/S attributes running down the side. Following are explanations for each of the different *attribute* categories.

Product—This row is self-explanatory. The various column headings, however, may raise questions as to the selection criteria. Is Microsoft's Windows NT any more *open* than DEC's VMS? Why was one O/S included and not another? The truth is that I don't have answers for these questions yet.

Vendor—Self-explanatory.

GUI (Graphical User Interface)—The dominant graphical interfaces that are available on the platform.

Client or Server—Some of the O/Ss are designed for client-side use only, others for the server side, and still others for both environments.

Multi-tasking—To qualify as multi-tasking, the O/S must be able to keep several applications concurrently running by automatically allocating, with priority, CPU cycles.

Pre-emptible—To be considered pre-emptible, the O/S must have a scheduler that allows various priority levels to be attached to different tasks and allow the interruption and suspension of tasks for those of higher priority.

Multi-processor—The multiprocessing O/S needs to symmetrically, automatically shuttle tasks amongst various CPUs, each of which is capable of doing any of the computing steps.

DBMS, 4GLs, CASE, and Object-Oriented TOOLS—In these rows are listed the various systems-level applications that are available under each designated environment. GS

DCI's World of Open

PRODUCT	**DOS 5.0 & DOS 6.0**	**Windows 3.1**	**Windows 4.0 (1994)**	**Windows NT**	**NetWare 3.11**
VENDOR	Microsoft Corp., IBM	Microsoft Corp.	Microsoft Corp.	Microsoft Corp.	Novell, Inc.
MICRO-PROCESSOR	Intel 8088, 286, 386, 486, Pentium	Intel 386, 486, Pentium	Intel 386, 486, Pentium	Intel 386, 486, Pentium, Alpha, MIPS	Intel 386, 486, Pentium
GUI	Windows 3.1	Windows 3.1	Windows 4.0	Windows	None at server
CLIENT or SERVER	Client	Client	Client	Client and Server versions	Server
MULTITASKING?	No	Task switching	Yes	Yes	No
PRE-EMPTIBLE?	No	No	Yes	Yes	No
MULTI-PROCESSOR?	No	No	No	Server - Yes Client - No	Yes with SFT
DBMS	ProLogic, XDB, QuadBase, Progress, Paradox, dBASE IV, FoxPro	Gupta, XDB, Watcom SQL, Quadbase, Approach, Paradox/W, Blyth Omnis 7, Raima, Revelation Technologies, Access	*Unknown*	Oracle, Sybase, Informix, Ingres	Oracle, Sybase, Informix, Ingres, Gupta, NetWare SQL, Object Store
4GL's	DataEase, Advanced Revelation, dBASE, Foxpro, Paradox, CA-Clipper, Magic, Prologic, Uniface, Cognos, Unify	PowerBuilder, Foxpro, Access, DataEase Express, Visual Basic, Blyth Omnis 7, Mozart, Approach, Paradox, CA-dBFast, SQL Windows, Easel, KnowledgeWare ObjectView, Enfin, Uniface, Visix, Cognos Powerhouse	This O/S will be the follow-up to Windows 3.1. Delivery is planned for 1994, so it's too early to identify the DBMS and other systems tools that will be available. It is reasonable to expect that it will support almost all Windows 3.1 environments.	*Unknown*	None for server side development. Supports almost all client side tools running under UNIX, DOS, Windows, OS/2 and Mac.
CASE & Object Oriented TOOLS	EasyCase	Bachman, LBMS, Popkin System Architect, Intellicorp, AA Foundation, CASEWorks, IEF, IEW, CSA, EasyCase, ServerWare	*Unknown*	*Unknown*	None for server side development. Supports almost all client side tools running under UNIX, DOS, Windows, OS/2 and Mac.

Prepared by George Schussel, DCI, with the assistance of Rich Finkelstein of Performance Computing and Rich Lee of Novell.

Operating Systems

NetWare 4.0	OS/2 Version 2	UnixWare	Generic UNIX including DEC, SUN, IBM, Pyramid, Sequent, SCO, Apple, NeXT	System 7
Novell, Inc.	IBM Corp	USL/Novell	Various	Apple
Intel 386, 486, Pentium	Intel 386, 486, Pentium	Intel 386, 486, Pentium	All RISC plus CISC microprocessors	Macintosh, 680x0, Power PC
None at server	Presentation Manager, Windows, Workplace Shell	OSF Motif	Open Look, OSF Motif	Apple Mac
Server	Client and Server versions	Client and Server versions	Client and Server versions	Client and Server versions
Yes	Yes	Yes	Yes	Task switching
No	Yes	Yes	Yes	No
Yes with SFT	No	Yes	Yes	No
Unknown at present. Potentially all NetWare 3.11 DBMS products will port including Oracle, Sybase, Informix, Gupta, and NetWare SQL.	DB2/2, Oracle, Gupta, XDB, SQL Server, Progress, FOCUS	Progress, Informix	Oracle, Sybase, Informix, Ingres, HP Allbase, Empress, Interbase, Progress, Nomad, FOCUS, DB2/6000	FoxPro +, Claris Filemaker, Oracle, Acius 4th Dimension
None for server side development. Supports almost all client side tools running under UNIX, DOS, Windows, OS/2 and Mac.	FOCUS, Easel, Ellipse, KnowledgeWare ObjectView, Intelligent Environments Application Manager, Progress, Uniface, Neuron Data	Progress, Informix	Oracle, Sybase, Informix, Ingres, HP Allbase, Empress, Interbase, Progress, Nomad, FOCUS, DB2/6000, Unify, Cognos, Uniface, Fourgen, JAM	Blyth Omnis 7, WNDX, Visix Galaxy, Brio Data Edit, Oracle Tools. Later in 1993: Uniface, Forte, PowerBuilder, Inference ART.
None for server side development. Supports almost all client side tools running under UNIX, DOS, Windows, OS/2 and Mac.	KnowledgeWare, Oracle, Bachman, Intersolv, Intellicorp, AA Foundation, CASEWorks, IEF, ADW, Choreographer, Enfin	*Unknown*	Oracle CASE, Foundation, Software T/Pictures, Enfin	CSA SilverRun, Sybase Deft, Smalltalk, Visix Galaxy, MacApp

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What's the *object...*

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☑ *OO, more than other approaches, needs industry standards for success, however, there are none yet in place.*

Object oriented will really come into its own as it becomes possible to buy object and class libraries, and integrate those purchases with a company's own developments. Such interoperability, of course, requires mature industry standards.

Conclusion

Some users and applications can take advantage of object oriented technology at this time. For most situations, however, object oriented approaches just aren't ready for prime time yet. At this point in time, the challenge of building and managing an effective class library system is just too difficult a process for the average IS shop. The retraining issue for existing staff also needs to be carefully evaluated by any potential user. Since retraining for client/server SQL approaches is also a requirement for many shops, there simply won't be enough time or money to concurrently retrain employees for both new technologies. That's why it's very important that any commitment to object oriented approaches be very carefully justified.

The company that has most publicly staked its position on object oriented technology is Borland. They have openly bragged that their object oriented investments give them a competitive edge on competing software developers. But, in the reality of the products delivered to the market, Borland has not done an exceptionally good job with it's new object oriented-based products such as Paradox for Windows or dBASE for Windows. At this time, they are losing market share in the PC database field to Microsoft and other companies because of the lateness of their product deliveries.

Notwithstanding Borland's very public travails, object technology seems to be popular in Silicon Valley, and with firms that develop systems software products. The large, up-front money, man-power, and time investments that are necessary for success with complex object oriented approaches means that OO will not challenge RDBMS and Windows 4GL approaches for the typical user or application developer. However, object oriented ideas such as strong data typing and code inheritance will influence the development of mainstream and relational approaches over the next few years. GS

Succeeding with Lotus...

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gram of change management that ensures that users actually embrace the new system. The piloting approach is the most effective way to guarantee that these issues are addressed as Notes takes hold in an organization. Deploying Notes through carefully managed pilots is not the only process that is necessary to guarantee a successful installment of Notes, but it is the most important. KL

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or it will be too late to salvage the Windows dBASE market for Borland. If it is too late for dBW, then Borland will have paid $480 million (for Ashton-Tate) for what will have become nothing (a majority share of a declining DOS market).

❺ Regardless of what tools were used for development, Windows applications will all have a lot in common. First of all, they will look alike in the same way that all Macintosh applications look alike. Secondly, the video driver component of those applications will all run at the same speed. The result is that buyers will have more difficulty in discerning differences among Windows tools. In addition, if any one product has a good idea, it's likely to be copied quickly by competitors. The final result is that marketing will become even more important to the Borlands, Microsofts, and Computer Associates of the world.

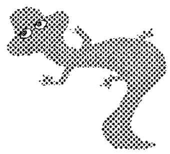
❻ The necessary retraining for IS staff for the new object oriented and Windows worlds is major. Green said that it took him at least six months of concentrated effort to reset his personal application development mindset. It's clear that some IS staff isn't going to be able to make the paradigm jump. In the future, programmers will likely fall into two camps—people that create class libraries (technical systems and developers that work for systems software companies) and others that assemble applications from object oriented libraries.

❼ Ultimately, most data will not reside on file-based systems such as Xbase for DOS. SQL is going to inherit most corporate data; a shared SQL database is where the data dictionary should also reside. Client/server architectures will predominate. There is an important need for data dictionaries in the Xbase/Windows application development world. However, the *.dbf* format is the industry standard and it doesn't have enough robustness to serve as the host for a shared data dictionary.

❽ An overwhelming advantage for the Windows environment is going to be the thousands of applets, class libraries, and application frameworks that software developers will build for this most popular GUI. The ease, relatively, of assembling applications this way will make an era of disposable applications a reality. Use two man weeks to assemble the application, use it for six months, and then toss it!

Green's presentation was one of the best I attended at DATABASE WORLD in the insight it offered application developers. His personal experiences corroborated much of the intelligence that other object pioneers are recounting. The fact that he has had a lot of time to think, study, and test develop means that his conclusions about the future of application development are likely to be well considered.

The lesson here for all of us is to not underestimate the magnitude of conversion that is required in the shift to visual computing. Speaking for myself, I have spent the last six months in migrating hundreds of DOS/Freelance presentation foils to Freelance for Windows. At first, I used the Windows environment to manage my slides in the DOS world. That was nice, but it forced me to manage a tremendous amount of redundant data. Recently, I have fully moved into the Windows environment. The change hasn't been easy—and is still not complete. The new environment is much better in many, but not all, ways than DOS. I have a real appreciation for the massive conversion job that awaits most North American IS departments.
GS



UPCOMING **downsizing** Events...

DOWNSIZING EXPO is teaming up with a new show, **OP/EN EXPO**, *The Open Operating Systems and Enterprise Networks Conference and Exposition,* for two fall dates, August 3-5, in Santa Clara and September 13-15, in Toronto. Some of the various topics that will be covered at these events include: downsizing technologies and architectures, client/server computing, managing the downsizing process, life after downsizing, business re-engineering, and enterprise servers & midrange computing. Co-Chairmen George Schussel and Larry DeBoever will preside over each three-day event.

A new seminar which is being held twice this fall, August 19-20 in Chicago, and December 16-17 in Washington, DC, is *Analysis and Design for Client/Server Applications.* Instructor Jim Davey will be covering a new design methodology, event driven client/server development (EDC/SD), that will help to resolve the mainframe/PC culture clash.

One of DCI's most popular seminars has been updated for its fall dates; *Cheryl Currid: Implementing Downsizing* will be in San Francisco, September 9-10, and in Orlando, November 11-12. In this two day seminar, Currid covers downsizing vs. rightsizing, approaches and strategies for downsizing, the link with re-engineering, downsizing case studies, organizational and political issues, downsizing products and technologies, networking options, and client/server databases.

Finkelstein's Practical Guide to Client/Server DBMS Computing, being held in Philadelphia, September 30 -October 1, and in Ottawa, November 17-18, has also been recently updated. Course instructor Richard Finkelstein will be covering the topics: building a client/server DBMS, evaluating database servers, database server guidelines, middleware, client/server tools, and merging object oriented and relational technologies.

Herbert Edelstein's two-day seminar, *Implementing Client/Server Applications and Distributing Data,* will be in Philadelphia, September 28-29, and in Ottawa, November 15-16. The perfect preamble to *Finkelstein's Practical Guide to Client/Server DBMS Computing,* this seminar will cover the topics of: client/server computing, open systems, networks, relational DBMSs & SQL, database integrity, and distributed data.

A favorite conference among DCI attendees, *Client/Server Workshop–Building Client/Server Applications for Windows, OS/2, Macintosh, Motif, and OpenLook,* is being held this fall in Boston, September 27-29. Conference Chairman Jeff Tash will help attendees get started building successful client/server applications through three days of helpful insight and practical advice. There will be live demonstrations of client/server products, and several leading software tool developers will share their company's strategic client/server visions.

The three day seminar, *Business Process Reengineering,* teaches attendees how "using information technology to renew the business" can be beneficial to any company's bottom line. In Dallas, August 24-26, and in San Francisco, October 25-27, instructors Roger Burlton and Brett Martensen will cover topics including: case studies, process renewal methodology, enabling technologies, managing workflows, tactics for success, the change implementation phase, and techniques and tools.

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

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