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To: LIST
From: Rob Horwitz
Date: October 8, 1990

Attached is an edited transcript of the presentation Steve Ballmer gave at the OEM Briefing. Is is the best overview of our systems strategy currently available.

I've done a significant amount of editing so it flows properly. I have not changed the content of the messages.

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Microsoft Systems Family

The following is an edited transcript of Steve Ballmer's presentation at the OEM Briefing in Bellevue, WA on October 2, 1990.

What I want to try to do for you this morning is paint a picture of where we are from a system strategy standpoint at the highest level. There's sure been a lot in the news that might cause you to scratch your head or ask a question or two. I'll try to address these in my talk.

DOS: The foundation

Any discussion of our system strategy always has to go back to the foundation upon which we've really built our business which is DOS. DOS today remains our most popular piece of software. It's the most popular piece of software ever written. There's an installed base now of over fifty million machines that you've built that run the MS-DOS operating system and we think that's fantastic. This year that number will grow by some sixteen to seventeen million new units of one form or another running the DOS operating system.

The importance of binary standards

The DOS phenomena, made possible by a single binary standard, is amazing. I repeat this is almost every talk I give. The notion that customers, independent board makers, and independent software vendors can count on a single standard to sell compatible systems in such high volume is an incredible asset to us as business people and to our customers. It means people can proceed and buy new machines and invest in new software and know that those are good business investments. That's a powerful, powerful phenomenon. Some people predict that that will go away and that in five or ten years from now we'll live in a world in which there are four or five different machines and software configurations, all of which are different and incompatible. They claim that each of the 4 - 6 systems will have some reasonable level of success, perhaps ten to twenty percent of the market. I do not accept such a proposal one bit. A binary standard has been worth far, far too much to our customers. This isn't sort of a statement of religion on my part. I just think customers won't backslide. They just love the fact that they can just move forward and not have to worry.

If anything, we've seen the phenomenon loud and clear despite all of our efforts to really drive Windows and OS/2 penetration, and we've been reasonably successful. Still over the course of the next twelve months, seventy five percent of the machines will be just good old DOS machines. And heck, Windows and OS/2 machines even run DOS applications. There's just a lot of inertia and a lot of comfort with this environment. So I think if you look out to the year 2000, we are going to see a very similar phenomenon. We'll see one system that dominates, that sells eighty, ninety percent of the volume. We may see a couple of other niche players.

Now you can question whether in the year 2000 the thing that sells eighty or ninety percent of the volume has a chip from Intel in it, it might not. It might not run any software that was developed by me. I hope not, that's my job. In any event, I expect the binary compatibility

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phenomenon to continue. A very dominant standard remains the focus for innovation for our customers, software vendors, and independent board makers.

DOS 5.0

We will continue to make aggressive investments in DOS. We will ship DOS 5 sometime at the end of this year or early next. I think people will see DOS 5 as the most exciting release of DOS since DOS 2 when we put in the hierarchical file system and supported hard disks. DOS 5 has a range of exciting features. We improve memory utilization. We take advantage of high memory. We improve the shell. We add in new utilities like undelete. We add in task switching. This is an exciting release. We encourage our OEMs to get on the boat and ship it as quickly as possible.

We've already started a beta test with a few, shall we say, expert users who tend to review these things. Basically, anybody we've run a beta test on with DOS 5 has already replaced either DOS 3 or DOS 4, whatever they might have had on their machine, they've already replaced it and put DOS 5, even in beta form, in as the standard operating system on their machine. I think it will be an incredibly popular, popular release. We want to work aggressively with you so that you can offer it absolutely as soon as it's done.

DOS 5.0 retail upgrade program

With DOS 5 we are also going to take another step and do something a little bit innovative. Microsoft, will offer a retail product in the United States and in Europe that is a DOS 5 upgrade product which will allow customers who already own machines and already own DOS to upgrade from DOS 2, DOS 3 or DOS 4 to the new DOS 5 system. The product that will sell will be only an upgrade. It's not useable as DOS. People must still buy DOS from you with their machines. All this does is help somebody who's already bought DOS on one of your machines to upgrade to DOS 5. And it provides a convenience for customers to do that. The upgrade process preserves all of the device drivers, utilities and any other value that you may have created for a user of your hardware. So this is not a replacement for DOS, but it is a way for all of our customers to stay current. We want to upgrade users vigorously so that we can all depend, over time, on the installed base of users being at the DOS 5 level and beyond.

Microsoft's GUI crusade

In 1983 Microsoft embarked on a crusade. That's the best way to describe our pursuit of the vision of graphical user interface. Back in 1983, we announced our Windows product. We talked about the benefits of graphical user interface. In 1984, we shipped our first applications for the Macintosh. In 1985, we shipped Microsoft Windows release 1. Every speech anybody from Microsoft's given for past seven years has pushed the benefits of graphical user interface. It's been a long uphill battle for us. It was, if you will, our crusade for the eighties.

With the introduction of Windows 3.0, we think we are finally seeing the crest of the hill with graphical user interface. Customers no longer push back and tell us graphical user interface

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doesn't make sense. Corporate accounts are all fully enmeshed in evaluating graphical user interface environments and getting on with business. Software vendors are racing to get out their graphical user interface applications -- there's no doubt that every software vendor's top priority today is the shipment of graphical user interface applications under Microsoft Windows. While it may take another two to four years before graphical user interface dominates in terms of the percentage of new systems sold, I don't think there's any question in anybody's mind anymore about the importance of graphical user interface.

There used to be markets that we'd all say, "that market's never going to be graphical--portables, they'll never run graphical user interface." I run Windows on my laptop when I travel on airplanes. A graphical user interface makes sense in almost every market.

As we enter the nineties, we will maintain the graphical user interface crusade. We are not going to let up on any of the pressure, the heat, the marketing, the promotion, but Microsoft will become, if you will, a two crusade company (more on this later).

Benefits of a graphical user interface

For old times sake. I've got to at least remind people what graphical user interface is about. Graphical user interface is really about four key things.

First and foremost, remember it's about a standardization of the user interface across applications. In the DOS world every application decides how to get help. Every application decides what its menus are going to look like and every user sits there and scratches their heads and tries to remember how to do things on the second, the third, the fourth application that they use. A example from my personal experience is my father. He's retired and his most enjoyable time is spent with his personal computer. He's been having a heck of a time because he uses seven, eight, nine applications a day and he manages to remember the key sequences in about three of them. He's always calling me and telling me he managed to delete something that he was trying not to delete, and he's confused. We got him set up on Windows recently and it's amazing. It's like his life changed. Now he uses nine or ten different applications a day and he's commenting to me on their various features and what's exciting about them. This is for a man who never, never was going to learn anything about personal computers.

The difference is stunning. We see it in the level of support calls that we get. If you take a look at our applications under Windows versus our character-based applications, the support level is roughly one half. Once the customer learns the first application they understand how to use that second, third, fourth application. It's a tremendous boon to the use of the PC.

The second thing the graphical user interface means is what-you-see-is-what-you-get. We use the screen in a very rich way to represent pictures, charts, fonts. We are going to talk to you over the next two days about the new world that's even more exciting where we'll display multimedia images, we'll build sound, and audio right there into the user interface. It becomes just a much, much richer method of interaction as you graduate to the world of graphical multimedia user interface. And of course graphical user interface means multiple

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applications working together on the screen at one time as well as device independence.

Windows 3.0

May 22 of this year we introduced Windows version 3.0. And Windows 3.0 has absolutely been the most phenomenal product introduction in Microsoft history. In the few months since introduction we sold a million retail units of Windows 3.0. That's in addition to what I would estimate as an additional million plus units that OEMs have shipped. It's been absolutely phenomenal.

But it's more than just about units. It's about the attention and focus of the entire computer business. Magazine people are writing that Windows 3.0 is the thing that's going to really excite the industry, light it up, stir demand this year. I was at Stewart Alsop's Agenda '91 Conference last week and I guarantee you there is no focus in the software industry that has anywhere near the priority of Windows 3.0. It's become a phenomenon unto itself. And frankly, it stunned us. These are bigger numbers than we ever projected we would sell. The number that we are most amazed by is the quantity of software development kits, SDKs, that we've sold. We were selling about five hundred or six hundred Windows development kits back in March or April a year. That's per month in the United States. We now sell over six thousand Windows developers kits per month in the United States. It's ramped up by about a factor of ten.

I expect by middle of next year we will see literally hundreds or thousands of new Windows applications sold commercially as well as applications developed and deployed internally at large corporations. So Windows is just as red hot as it could possibly be. There are over fifty of your companies that have signed up to license Windows and to sell it along with your hardware and for your support we thank you. We think it will be an instrument that allows you to aggressively market and merchandise your machines. We encourage the rest of you to get as excited as the first group about Windows and to use that to really stir up sales for hardware over the next year.

Windows and OS/2

The first thing people want to know when I get too excited about Windows is, "Steve, what about OS/2?" I read in the press that Windows and OS/2 are arch enemies, that they are at war, that they are fighting or something. So I think it's really important that you understand how we see DOS and OS/2 fitting together and what role Windows has to play.

Today Windows is a product that's available on DOS. As Windows gets more and more exciting, and as the Windows phenomenon heats up, that helps the DOS business. We have recognized that it is essential to our success and our strategy that the Windows phenomenon also help OS/2. I want you to understand how Windows is an asset in our view and will help us in selling and marketing OS/2.

When we introduced OS/2 back in 1987, we were on a replacement strategy. OS/2 would replace DOS. We gave speeches in which the only question was, "would OS/2 outsell DOS in

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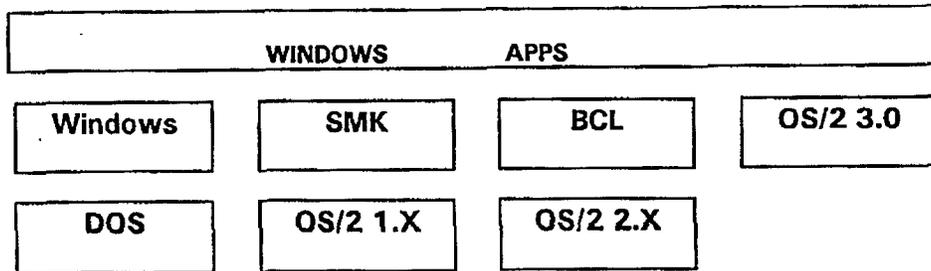
1990 or in 1991?" Well, we sold about a quarter million copies of OS/2 last year. That means we shellacked UNIX, especially on the PC architecture, but people still yawned. And they say, "A quarter million copies of OS/2 last year, a million copies of Windows in four months. It doesn't sound very good, Steve." We recognize that OS/2 will not replace DOS, not in the foreseeable future. Rather, OS/2 needs to be part of a family of operating systems that is upwardly compatible from DOS. Our strategy absolutely requires a successful OS/2 product. If PCs are to be at the hub of the way large corporations do mission critical computing, OS/2 must succeed. Many of these corporations simply will not accept the limitations of DOS, in terms of multitasking and protection. So OS/2's success is vital to us.

What does OS/2 being successful mean? If it doesn't mean replacing DOS, it must mean that OS/2 occupies that mission critical part of our product line where it will sell 20% - 35% of the units and good old DOS will still sell 60%-80% of the units. But they have to be a family, and DOS's success has to help OS/2.

We see a real opportunity to leverage the success of Windows to make OS/2 more popular. We have announced and discussed what we call our software migration kit (SMK) and binary compatibility layers (BCL). Those are big mouthfuls, but let me give you the simple concept.

We have developed a set of libraries which let you create an application that can be a Windows application or an OS/2 application. You create one binary and it runs either on Windows or on OS/2, and by the way if it's running on OS/2 and you want it to, it can take advantage of advanced OS/2 features like threads, like protection, the things that corporate accounts very, very much want.

The picture below is important. It shows Windows on DOS today, but in order to get Windows applications onto OS/2's future releases, we've developed these libraries which in the case of OS/2 1.x, we call the SMK, and in the case of OS/2 2.x, we call the BCL. But they are basically a set of libraries that let those same Windows applications run on OS/2.



We are going to talk to you a lot today and tomorrow about a thing called OS/2 3.0, which is yet the next release on which we are already working. In OS/2 3.0 we want to build the ability to run Windows applications in as a fundamental piece so that Windows and Presentation Manager applications can fit if you will, as equals side-by-side. But the key message here is, we've developed a strategy that lets Windows, instead of being something that just runs on DOS, be an environment that spans DOS and OS/2. So, the success and energy and work that we and you will put into Windows will also fuel the success of the high-

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end, mission-critical operating system which we all need as part of our product lines.

The key asset OS/2 [our high-end mission-critical operating system] has versus a competitor such as UNIX is to be part of our family of operating systems and thereby leverage the strength of Windows. As people look at putting in mission critical operating systems on servers or on clients, they know they can leverage off of the hottest and most exciting base of applications being built in the PC industry, and that's the base of Windows applications.

IBM / Microsoft Relationship

The next question which has to come to everybody's mind is, "What's going on with IBM, Steve? There have been many conflicting accounts in the press these past two weeks. Does IBM buy into this strategy? Where are you with IBM from a development standpoint? I'm going to try to make this announcement that we made with IBM very clear so that you get a crisp, crisp view.

Both Microsoft and IBM have recognized that our development methodology to date on OS/2 has not allowed us to move forward as quickly and as efficiently as we wanted to. OS/2, as I'm sure all of you know, has been the product of a joint development agreement between Microsoft and IBM. Under this joint development agreement, we've taken each release of OS/2 and sort of split it down the middle. Maybe not literally down the middle, but down the middle. Some of the work has been done at IBM in Boca Raton [Florida] and Hersley [England], and some of the work at Microsoft here in Seattle. Both companies simply don't believe at this stage that that is a competitive methodology for developing PC software. It may or may not work for large software projects on mainframes, but if you want to do a high quality, competitive PC operating system, it is effective to do most all of that work in a single location.

Microsoft and IBM decided that rather than splitting each release in two and having development teams at the far corners of the United States, we would instead put the primary development for a given release at a single geographic location. DOS and Windows are being done primarily here in Seattle. OS/2 1.x and 2.x, are being done primarily in Boca Raton, Florida. And OS/2 3.0 work is being done here in Seattle. That means that we can get a whole team together. We can pump them up. We can talk to them about the mission. We can review the code and we can do that without three thousand miles of geography in-between.

Well, that sounds okay, but the next question is, "What's going on? Is IBM really, as I've read, taking back control of OS/2?" The answer is NO. All software, DOS, Windows, OS/2 1.x, OS/2 2.x, and OS/2 3.x, is fully cross-licensed between Microsoft and IBM. I have full, up-to-the-second rights to every line of code written at IBM and they also have the same rights to every bit of software in these products written at Microsoft. That means I will continue to deliver software to you, our OEM customers as I always have. We will continue our early shipper program. We will work with you to make pre-releases of this software available to your customers as soon as it's available from anybody including IBM. I will keep a team of over forty people working on OS/2 1.x and 2.x.

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Now forty people is less people than I have on OS/2 3.0. I'll admit that, But forty people is more people than we have working on any of our application products. Just think about that. People have written that we are giving up on OS/2 1.x and 2.x, yet I have more people working on it than I have on Excel, Word, PowerPoint, or Project. This really is exactly as we and IBM announced - it's an opportunity to get efficient. It is not an opportunity for IBM to take control, and it's not an opportunity to change our business relationship with our OEMs. If you find a bug, or if you have a customer concern with OS/2, you call us. We'll fix it. That won't change. Or we won't fix it. If you were upset with us before we might not get better, but we aren't going to get worse either. Try us. Keep pushing us. There's not one iota of our business relationship here that's changed.

We'll continue to work with you exactly as we have in the past. We'll provide you releases that run on your hardware. We'll continue to work with you to get fixes made. If you see anything that concerns you regarding the way we're working with you on OS/2, please let Joachim Kempin know, or let me know, or let Mike Hallman know, because it's a vital piece of our strategy. Not one thing has changed in terms of its importance or the way we want to work with you on it.

OS/2 releases

Its important to give you a picture of what features we pick up with each release. OS/2 1.x is the release that you know. It's for the 286 and up. It has preemptive multitasking, protection, and segmented memory. It's a great network server. It runs DOS applications one at a time and it's a great platform for the client on mission critical applications.

OS/2 2.x is the release that takes advantage of the 386. The additions in 2.x are linear memory, which we page instead of segmented memory, and we pick up the ability to run Windows applications through the binary compatibility layer that I talked about earlier.

OS/2 3.x, a release on which we have now over a hundred and sixty people assigned, is a release in which we really re-craft the innards of OS/2. OS/2 3.x will be portable but let it be perfectly clear, our first target is the X86 platform. Yes, we'll put it on RISC chips but let it be clear that OS/2 3.x is a mainline piece of our X86 operating system strategy.

OS/2 3.x will be rewritten to be in C. It will support symmetric multiprocessing. It will be secure. It will be fully 32-bits internally which OS/2 2.x is not. It will run POSIX applications, so it will be biddable on government bids in the United States and in the EEC. It will have the capability I talked about earlier, not only to run Windows applications, but it will have Windows built in, sitting there side-by-side with any other piece of OS/2. So, Windows becomes a fundamental piece of OS/2 3.x.

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OS/2 Features

OS/2 1.X	OS/2 2.x	OS/2 3.x
286 and up	386 and up	386 and up
Pre-emptive multitasking	Pre-emptive multitasking	Pre-emptive multitasking
Protection	Protection	Protection
Segmented Memory	Paged Memory	Paged Memory
Network Server	Network Server	Network Server
DOS apps	DOS apps	DOS apps
Mission critical apps	Windows apps Mission critical apps	Windows apps Mission critical apps POSIX apps Security
		Multiprocessor support

As a recap, OS/2 remains what it has been now for three years; a very important piece of our strategy designed to bring mission critical computing to the PC. We no longer see it as a replacement for DOS, but rather as a compliment for DOS. It will have twenty, thirty, whatever percent of the market goes into mission critical computing. It's essential for network servers, and it's essential to Microsoft that we make it succeed, so we will.

Windows everywhere

Now I'm talking about Windows but I'm sure by now you understand that every time I say a good thing about Windows I'm telling you something good about OS/2.

Today Windows is a great thing on the individual PC. Our challenge with Windows is to broaden its appeal, to if you will, put Windows everywhere. To put Windows on portable machines. To make it even better for desktop productivity PCs. To make it a vital part of multimedia PCs, stylus PCs, high-end PCs, and to put Windows in printers. We want to take Windows and make it an absolutely essential part of a wide variety of hardware that you will build.

Windows 3.0 took just the first steps. There's even more coming though that I think will be

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very exciting.

For portables we need to take Windows and make it ROMable. We will do that in our Windows 3.1 release. For multimedia we need to extend Windows so that it understands rich audio and video, and add extensions for real time control. For handwriting there's a set of extensions that are required to support stylus type devices so that you can do handwriting under Windows. For desktop productivity PCs, there's a set of extensions we think would be absolutely great to build into Windows to make it better and better for networking or connected environments.

We've got a project under way where we're trying to put Windows into printers. Our TrueImage team is working with the printer folks inside your companies. TrueImage is Postscript compatible product. The key value added Microsoft will bring to the printer business is allowing Windows applications to print great to printers that have Windows built in along with TrueImage. This involves taking Windows rendering code and putting it along side TrueImage in printers.

On the high-end or power platforms, we are putting Windows on OS/2. When we bring Windows to OS/2 3.0, we need also to make it 32-bits, since OS/2 3.0 is 32-bits [and most of the RISC architectures don't even have a 16-bit programming model]. The Windows 32-bit interface will be a logical set of upwardly compatible extensions to the current Windows. In this way we can leverage the current base of Windows applications as quickly as possible to support OS/2 3.0, our high-end power operating system.

In order to give ISVs a consistent target across DOS and OS/2, we will also provide a set of libraries that let you host a 32-bit Windows application on top of DOS with DOS Windows. Those tool kits to build 32-bit Windows applications will be available in 1991. The goal here is to make Windows an integral part of high-end PCs while providing one API (application programming interface) for ISVs to target.

One of our most significant competitors is a company called Sun Microsystems. Scott McNeely who is the chairman of Sun came up with an expression to describe their move. They used to have three architectures, the 8086 and 68000 and SPARC and now they are all focused on SPARC. And he talked about the great need at Sun to get all of their wood focused behind a single arrow to really hone down. We are learning something from our number one competitor. We are getting all of our energy behind Windows. We'll then leverage Windows back to DOS and to OS/2, but everything's focused there -- our spreadsheet, word processor, presentations package, our project management package. We're bringing our first game package on top Windows. Within the next year we'll bring out a database package, our low-end Works product with multimedia extensions, mail, and network administration utilities -- all Windows based. We'll also have a version of BASIC that really exploits Windows. Our C Compiler development environment will be based around Windows.

Not only Microsoft is focused on Windows. Every application vendor's number one priority is Windows. At Lotus priority number one is their Windows version. At Borland priority number one are Windows versions of their products. At Ashton-Tate priority number one is

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Windows. Word Perfect, Windows. Software Publishing, Windows. It really is the backbone of what we are all doing. It's where all of our energy will go, and then we'll leverage that.

I hope you get a sense from the picture that there's a lot of work to do with Windows and a lot of opportunity for us and for you to leverage the excitement and the momentum that we're building behind Windows in a variety of different hardware markets.

Message to end users

So what are we telling end-users? We're telling end-users to get on with it, to use Windows, and we're trying to give them some experience with the product. We'll spend over seventeen million dollars this fiscal year world-wide promoting Windows. We will advertise Windows. We will run seminars on Windows. We have a campaign now in the U.S. where customers can get a free working model of Windows so they can get some experience on their systems with Windows and then go decide to go buy a full copy. Basically the message is, the time is now, go out there, take a look at Windows and we're sure you will become as enthusiastic as we are. The message to ISVs is, write to Windows. Use the software migration kit and binary compatibility layers to get your Windows applications hosted on top of OS/2, but get on with it. Make the Windows applications happen. Make them as network aware as you can. Plan for 32-bits, but lets get those Windows applications shipping and available for both DOS Windows and OS/2.

Message to MIS

Our message to the MIS guy is, now is the time for graphical user interface applications. You can have Windows on DOS, or you can have Windows on OS/2. The key thing is to get moving now to graphical user interface. Later in the day we'll talk about the studies we've done that show just how much of a performance and productivity improvement people get from graphical user interface. We're telling MIS people that you can decide to put DOS or OS/2 down on the client depending upon whether you need the mission critical features of OS/2. If so, install OS/2. Certainly install OS/2 on all of your network servers because network servers require the pre-emption, the protection, the multithreading capabilities. On the client we are telling them to go graphical; Windows on DOS or Windows on OS/2.

Product release roadmap

What is the roadmap for the next two years? Early in 1991 we'll introduce DOS 5.0, Windows 3.1, and OS/2 1.3. We and IBM will try to release OS/2 1.3 pretty much concurrently. We're just not sure what the exact release date will be with OS/2 2.0, but it will be sometime during 1991. The 32-bit Windows software development kit will come out later in '91, and then in '92 we'll be back with the DOS 6.0. Also in 1992 will be a Windows 3.2, and of course, there will be OS/2 3.0.

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Microsoft's new crusade: Information at your fingertips

Our crusade for 1980's was graphical user interface. Our second crusade for the 1990s we're calling "information at your fingertips". We think that the next quantum leap forward, in terms of making personal computers more valuable to our customers, is to make them much richer devices for finding, browsing and accessing information throughout their companies.

Today, after all, life is pretty primitive. You've got to sit there and say, "Hmm, do I know the name of the file that's got the personnel database in it. Where is that stored?" If there are two copies, which is the latest version? Life is too difficult, and if we really want to drive the next level of PC penetration, PCs have to become the device that everybody uses as the standard medium for transmitting and receiving information, not for just sitting and pounding out letters and calculating numbers. It's really got to be the information browsing vehicle. There's a lot of work we have to do in all of our system software products to let us drive PCs to that next level of penetration where we really get to a PC on every desktop.

When I was getting ready for this speech today, do you realize how hard it was for me to find my notes from last year? I had to stop and think what was the name of that file? Where did I keep it? Is it on my PC? Is it out on a server? I'd like to be able to just sit down and right there in Windows say, "Give me the latest notes that I did for last years OEM briefing." I should be able to ask the operating system questions in that way and get back the right information. I ought to be able to find more than just files. I ought to be able to find documents, drawings, mail information. I ought to be able to find calendars and database information. I ought to be able to find the information whether it's in its own file or whether it's embedded in another document someplace. I ought to be able to find all of this stuff very simply. I can't do that on PCs today.

Steps toward "Information at your fingertips"

Today I can get a little bit of the sense of information at my fingertips. We are using products like Excel and DataEase to access database information (not just files) regardless of whether the database is on SQL Server or out on DB 2 on the mainframe. Different front-ends can share the same data so I can pick the tool I want. This first step toward information at your fingertips will allow us to sell the heck out of what we can do today with Windows, OS/2, and LAN Manager. However, there's tremendous room to move forward. The amount of user training and effort that's going into delivering these scenarios today is too big.

In 1990, I'd say we took our first baby step towards information at your fingertips. We have to build information browsing and retrieval capabilities into the base operating system if we are really going to take the next step forward. We'll continue to make incremental progress but by 1993 / 1994, I expect us to really take great strides.

The next generation of Windows let me browse and retrieve information right at my fingertips. It will provide the right level of application integration to make that happen. It will provide the right level of connectivity. The file system will get richer so I can find things that much

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easier and simpler. The file system will essentially become an object-oriented database. The operating system needs to become object-oriented as well. The user interface will have to improve while maintaining the fundamental characteristics that are important today. The great challenge here is to do this while still keeping the PC "personal". Furthermore, we are going to have to provide bridges so that you can access information that is stored on other kinds of systems, that is systems that aren't running DOS or OS/2.

Why Microsoft is in the business of "Information at your fingertips"?

Microsoft, why are we in this business? Well, the challenge of broadening out personal computer usage by providing rich information access is at the heart of what we do well. It leverages our experience with networking, operating systems, and windowing systems. We think we are in a fairly unique position to blend all of the technical disciplines needed to enable information at your fingertips. We are going to have to work with many other software vendors and hardware vendors to really make the thing happen. But we think we have some unique capabilities to bring to bear on the problem.

We also think that our marketing talents are important for this opportunity because it will require a new generation of applications to get a hundred percent of the new benefits. We think we are in a good position in the industry to help be the standard bearer and really do the evangelism for new application types.

Our retail networking product allows us to start to build the infrastructure for information at your fingertips. That will involve developing a capability for Microsoft to help sell and support networking solutions to large accounts. So it requires one new capability that we don't have today and so it's important for us to develop that.

Conclusion

We all worked together on the initial PC phenomenon. If we're really going to get a computer on every desk and in every home we have to continue working together to make graphical user interface happen. And, we must begin to work together to put the pieces in place that let the personal computer be at the center of information access in corporations -- to implement "information at your fingertips." We need OS/2 on the server. We have to work together on gateways and multiplatform connectivity.

We think these two things, graphical user interface and information at your fingertips, will really open up a number of new opportunities for you. Network servers. Portable machines. Multimedia. The number of new hardware technologies that we will need to exploit to really drive PCs to the next level of penetration is enormous and I think that implies enormous opportunity for you to penetrate new hardware markets.

In the short term, there are some things we think you ought to do. We want you to work aggressively with us to ship DOS 5.0 quickly. We are going to keep trying to convince you that it really will help your hardware business if you bundle Windows version 3.0. We are going to encourage you to ship OS/2 1.x and 2.x as quickly as you possible can because I

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think there will be a lot of accounts over the next year who start to deploy their OS/2 mission critical systems.

We are going to talk to you a little bit later about our distribution strategy on LAN Manager. We think there are a number of ways in which we can work with you to enhance our mutual position in the networking arena, but I'm going to leave that to Mike Murray.

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