Microsoft Memo

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FROM: Steve Ballmer

cc: Dave Cutler, Pam Edstrom, Bill Gates, Fred Gray, Adrian King, Jon Lazarus, Mike Murray, Nathan Myhrvold, Darryl Rubin, Steve Shaiman, Jon Shirley, Russ Werner, Lon Willoughby

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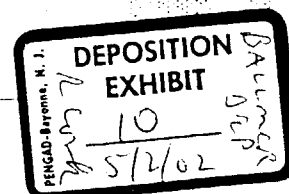SUBJECT: **WINDOWS/OS/2 POSITIONING AND COMDEX EVENTS**

It is now over two weeks since Bill and Jim Cannavino reaffirmed the Microsoft/IBM relationship at Comdex (see attached release). The Press, IBM sales force, Lotus and others have all had a chance to interpret it with many inaccuracies. Let me clarify our positions on a few points. We will work to correct the Press and IBM's understanding of these issues. I have also attached our internal Q&A for you to consult when talking with customers etc.

1. Windows has not been neutered. It is not a dead end. Windows 3 is a major release that we did not redefine one iota. We will do other future releases of Windows ---. Windows 4, 5, 6 etc. They will focus on machines that have 640k - 3 Meg of memory. We will not put threads, long names or 32-bit addressing (all OS features) into DOS/Windows, but we <u>never</u> had plans to do so. We never planned to turn Windows into OS/2.

2. IBM did <u>endorse</u> Windows for systems with 2 MB of memory or less.

3. Microsoft does not tell customers what to buy. We provide planning guidance which should match what is in the Press release. If a customer decides to put OS/2 on a 2 Meg system based on his evaluation, support him. If a customer decides to put Windows on a 4 Meg system, support him. There will be many reasons customers may choose to not follow our planning guidance. Help them do their own intelligent evaluations.

4. We did not mortgage our networking business for IBM's endorsement of Windows. IBM agreed to make a future LAN server release identical to LAN Manager (LAN Manager is the base). We did want IBM to unbundle EE from OS/2 and they did, although that was their sole decision. An unbundled EE may be more competition for SQL Server and Comm Server but it will help OS/2 by reducing the number of different versions (SE, EE).

5. Microsoft will continue to aggressively sell SQL Server and Comm Server. We did not agree to license EE. We will compete with their data and comm products to the best of our abilities.

Please make sure that anyone in your organization who works with customers understands these messages.

IBM AND MICROSOFT EXPAND PARTNERSHIP;
SET FUTURE DOS AND OS/2 DIRECTIONS

LAS VEGAS, Nev., November 13 . . . IBM and Microsoft today broadened the scope of their development partnership and have agreed to develop jointly a consistent, full range of systems software offerings for the 1990s. These software offerings will include enhancements to DOS, OS/2* and local area network products.

This statement of direction will assist customers in choosing the software solution appropriate to their requirements and in planning a smooth transition to the advanced personal computing platforms of the 1990s. Together, IBM and Microsoft described the "platform for the'90s" as hardware systems with Intel 386 and i486** microprocessors, 4 megabytes (MB) of memory and 60MB fixed disk drives with OS/2 and the Presentation Manager graphical user interface.

To reaffirm this, the companies indicated the majority of their application and systems development resources will be applied to OS/2 solutions. Beginning in the second half of 1990, IBM and Microsoft plan to make their graphical applications available first on OS/2.

Specifically, the companies jointly announced:

* The intent to deliver a version of OS/2 that exploits the advanced capabilities of the 386 and i486 in 1990. This version will have advanced features such as demand paging and the ability to run multiple DOS applications concurrently. It also will allow applications to exploit the 32-bit flat memory model. Today's emerging Presentation Manager applications will run unmodified on the new version of OS/2.

* Availability of early development support for this new OS/2 version by year-end 1989 with a common development toolkit. Software developers starting new high performance or server applications targeted toward 386SX/4MB or larger systems should build directly on the advanced APIs of this forthcoming 32-bit version of OS/2.

* The intent to develop OS/2 32-bit technology that is portable, along with its applications, to other hardware instruction sets, e.g., RISC (Reduced Instruction Set Computing architectures).

Today's OS/2 1.2 is recommended for systems with at least 3MB of memory and 30MB fixed disk drives. IBM and Microsoft are committed to continue to expand the range of OS/2 capable systems. As a first step, the companies announced that the over 512 kilobytes (KB) of memory used by the OS/2 "DOS Compatibility Box" also will be usable

by OS/2 applications when the DOS program is inactive. This capability will be available this year. Both companies are making a concerted effort to enable OS/2 for 2MB entry systems. Customers should plan to use Microsoft Windows to implement graphical applications on platforms with less than 2MB of memory.

On systems with 4 MB of memory, customers can take full advantage of advanced system features such as the High Performance File System, expanded LAN client features and advanced applications. OS/2 is currently best suited for customers using or building database applications, needing full multi-application and background processing support or using distributed processing solutions requiring full LAN client support.

OS/2 is also recommended for all server applications. The new 32-bit version of OS/2 will be further enhanced for server requirements. In addition, certain advanced operating system features such as Department of Defense security, full object-oriented capabilities and symmetrical multi-processing, will be available only in future releases of 32-bit OS/2.

DOS and Windows are recommended for systems with 1-2 MB of memory or fixed disk drives smaller than 30 MB. For these customers, Windows is an easy installation upgrade to DOS; allows the user to run existing DOS or Windows applications; enables limited multi-application support; and provides function for a basic LAN client and, as such, is an excellent entry graphical workstation. While Windows will provide the Systems Application Architecture* (SAA) user interface, it is not planned to include the full range of SAA support that OS/2 will provide.

Microsoft stated that Windows is not intended to be used as a server, nor will future releases contain advanced OS/2 features such as distributed processing, the 32-bit flat memory model, threads, or long file names. OS/2 is the recommended operating system environment for new or existing 286/386 systems with 3MB or more of memory.

IBM and Microsoft believe customers with OS/2 capable systems and software developers with Windows applications will want to migrate to OS/2. IBM and Microsoft will provide support through tools, seminars and technical assistance to help with that migration.

IBM and Microsoft recommend that software developers develop for the platform that best meets their application's system requirements. Software developers, other than those with current Windows projects under way, who are targeting both environments, are recommended to start with OS/2.

In addition to these announcements focused on the desktop environments, IBM and Microsoft also announced:

* The two companies will work together to make the Database

Manager, Communications Manager and LAN Requestor and Server
functions of IBM's OS/2 Extended Edition available to all
OS/2 users. These functions of OS/2 Extended Edition
continue to be primary participants in the IBM SAA strategy.

* For local area networks, the two companies intend to
  converge IBM's OS/2 LAN Server and Microsoft's LAN Manager
  to be identical over time. These LAN products will be
  designed to run on the base OS/2 operating system in both
  client and server configurations, like LAN Manager does
  today, and will exploit 386/i486 functions.

In summary, IBM and Microsoft are reaffirming their
commitment to provide a graphical user interface on all platforms
and significantly extending the functions of OS/2 to provide a
consistent systems software base for the hardware platforms of
the '90s.

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* OS/2, Presentation Manager and Systems Application
  Architecture are trademarks of International Business
  Machines Corporation.

** 386 and i486 are trademarks of Intel Corporation.

GENERAL

Q. Why are you doing this? What does this mean for the industry?

A: It means that:

- the industry can continue to look to IBM/MS for leadership and
  stability.
- it means that IBM/MS are in agreement on how to cover the
  entire hardware spectrum with appropriate graphical
  environments - we expect this to speed the adoption of the
  CUA/SAA graphical interface up and down the line.
- it means that IBM/MS are in agreement on how to deal with new
  technologies such as RISC, distributed processing.
- it means that IBM/MS are committed to providing timely,
  consistent, open software solutions to all of the industry.
- it means that the basic model that has worked so well with DOS
  forall the industry, will continue.
- all of this means that IBM/MS systems software products will
  continue to attract share of support and investment from
  software developers and end-users.

Q. What does this mean financially for IBM and MS?

A: If we did not believe it was favorable to both companies we
   would not be announcing, beyond that: No comment.

Q. What are the financial terms?

A: No comment.

Q. How does this impact Microsoft's applications strategy?

A: Microsoft has been moving its investments to OS/2. We are
   shipping Excel for Presentation Manager and have announced and
   demonstrated Word for Presentation Manager which will be
   available soon. Microsoft is likely to be one of the first
   ISV's with a full suite of PM applications. However we are
   continuing to complete our existing projects in the pipeline
   on Windows because that makes the bestt business sense.
   Moreover beginning in the second half of 1990, we will ship
   all new graphical applications on the Presentation Manager
   platform first.

Q. How many units of OS/2 will you sell?

A: While it is very hard to forecast, Bill (Microsoft) has been
   predicting 1 million units in 1990 and we (IBM) have accepted
   that as a goal. Furthermore we expect OS/2 to become the
   dominant platform in the business market in the next 2-3
   years.

Q. What kind of joint promotions will you do?

A: Each company, with either joint or individual programs has
   aggressively been promoting OS/2. Some of the programs that
   were run in 1989 were:
                OS/2|PS/2 Forums around the country,
                co-op advertising for ISV's,
                the OS/2 and memory rebate promotion,
                a large OS/2 advertising campaign.
                a variety of technical and educational seminars.

   We will continue to hold joint promotions for all segments
   particularly developers.

WINDOWS

Q. Why is IBM endorsing Windows? Won't it undermine OS/2?

A: IBM is endorsing Windows because it will help offer a
   consistent graphical environment across the entire hardware
   range. There is a wide range of existing hardware platforms
   today and we want to lower the entry point for enabling a CUA
   graphical user interface. OS/2 today is a good 3MB graphical
   environment and we are making a concerted effort to reduce
   that entry point further. However we don't believe that the
   OS/2 entry point will ever be below 2MB. Thus Windows
   complements OS/2 on the low-end (1-2MB machines) with a common
   look and feel interface. Also we believe a number of
   customers will have a mixed environment with low end desktops
   using Windows and higher end desktops and servers running
   OS/2. These customers will be able to get to get substantial
   benefits from reduced training and support costs because
   applications can have the same look and feel and behavior on
   both platforms. We expect this flexibility to accelerate the
   adoption of graphical environments and as such to strengthen
   OS/2's position.

Q. Is this belated endorsement of Windows by IBM not a fundamental "slap in the face" to ISV's such as Lotus who have focussed only on OS/2?

A: No, our commitment to OS/2 is unchanged. In fact we have enhanced our commitment to OS/2 between both companies by continuing to reduce the entry point of OS/2 and by announcing some of the future technology directions we did today. We expect OS/2 over time to become the dominant platform and we are making the appropriate investments to do that. Windows is an extension to DOS and it complements OS/2 on the low-end with a common look and feel. There are a number of ISV's who have well-entrenched DOS applications. These applications can continue to be run with or without Windows.

Q. To whom will you sell Windows?

A: Customers who need or want an entry graphical desktop system on the appropriate hardware, IBM will recommend they purchase Microsoft Windows. This enables them to gain the benefit of the SAA user interface on many more, lower entry systems. The Windows user interface is almost identical to the OS/2 user interface making it very easy for customers to migrate to OS/2 over time.

Q: Will IBM logo it?

A: IBM sells Windows today to certain special markets such as education. However there is no plan to create a separate IBM 'logoed' version of Windows, at this time.

Q. Will Windows be bundled with DOS?

A: DOS will continue to offered as a standalone product.

Q. What happened to PM Lite?

A: There has been a lot of misunderstanding about PM Lite. There was lots of speculation in the press about such a product but there never was any such project or product called PM Lite. However today we did announce a significant reduction in the memory (working set) requirements of OS/2 with the " swappable DOS box" and furthermore a concerted effort to continue to reduce the memory requirements for an entry OS/2 system.

Q. How will you differentiate Windows and OS/2?

A: They are really two very different systems. Windows is an extension to DOS and is for entry graphical workstations such 286 or 386 systems requiring limited multi-application support. Today OS/2 has certain advanced features such as, the High Performance File system, full multi-tasking, full memory management with protection of code and data which just won't ever be technically feasible within the 1-2MB design point targeted for DOS and Windows. This gap in operating system capabilities AND the power of applications exploiting these advanced functions will widen over time. OS/2, with its higher design point, is the platform on which we will innovate (with features such as multiprocessing, security, object oriented support, RISC architectures). This coupled with the enhanced DOS compatibility of 32bit OS/2 makes us confident that OS/2 will be the dominant operating system for the "hardware platform of the '90's", and that platform is described as 386/486 with 4MB of memory and 60 MB hard discs.

Q. Who should buy Windows?

A: Customers who don't yet have OS/2 capable machines and who want to gain the benefits of the SAA graphical user interface and Windows applications. It is also for customers who plan to be in mixed environments with entry systems running Windows and higher end desktops and servers running OS/2. These customers can get the benefits of common applications, common look and feel and thereby get lower training and support costs now.

Q. How does this effect the Apple Lawsuit?

A: The lawsuit is a completely unrelated matter

Q. If IBM sells Windows will Apple sue IBM?

A: We feel it is inappropriate to comment on the intentions of Apple.

Q. Will IBM put OfficeVision on Windows?

A: OfficeVision is an advanced, sophisticated application which is better suited on OS/2 platforms.

Q. What should ISVs develop for, Windows or OS/2?

A: In general ISV's should target OS/2. However if an ISV wishes to target the lower end of the hardware range, they should develop for Windows or develop a Windows companion product for their OS/2 product.

Q. Are you telling ISVs to target the "low volume" OS/2 platform, while MS cleans up on the high volume Windows platform.

A: We expect OS/2 to be the dominant platform in the business market within the next 2-3 years. As we all know the leading edge environments of today are the high volume environments of tomorrow. However each ISV has to make their own judgements and business decision and further if he believes that his application is suited to 1-2MB machines, then he should develop for Windows and accept the functionality constraints. On the other hand not only do we expect OS/2 to gain critical mass soon, it is the platform that will offer best way forward to new functions and other architectures.

Q: What will the respective market shares or volumes of Windows vs. OS/2 be?

A: This depends on number of different factors, such as the relative market shares of low end vs. high end machines, the price of memory, what and applications are available for each platform. Further many corporations may decide to go directly from DOS to OS/2. However it is fair to say that Windows will have a relatively larger share in the short term (because of the factors above) but OS/2 will dominate in the mid to longer term.

Q: When will OS/2 sell more volume in a given year than Windows?

A: We don't know for sure because of the factors above, but in the business market we expect it to be within the next 2 years.

Q: Why hasn't Microsoft been more aggressive developing its own OS/2 applications?

A: We have been aggressively moving to OS/2. We are shipping PM Excel and have announced and demonstrated Word for Presentation Manager which will be available soon. Microsoft is likely to be one of the first ISV's with a full suite of PM applications. Furthermore beginning in the second half of 1990, we will ship all new graphical applications on the PM platform first.

Q. If I'm an ISV and have Windows apps, how do I get to OS/2? What tools will be there to support me?

A: MS and IBM are commited to make this transition easier. Fortunately Windows and OS/2 derive from the same basic programming model for graphical/window operations and thus porting is a very feasible proposition. Typical application porting effort will range from a several weeks to several months depending on the application. Moreover several tools are in development to aid this

Q. Will you continue to update Windows?

A: Within its design point of 1-2MB, we expect to ensure that Windows remains competitive.

Q. Will you make Windows smaller?

A: Windows is already small, the focus will be on not making it bigger.

Q. Will Windows still be the multimedia platform?

A: We are doing a lot of work in Multimedia in both Windows and OS/2 Presentation Manager. Multimedia will be important in both market segments; the low end consumer markets best addressed by Windows and the higher end business market best addressed by Presentation Manager.

OS/2:

Note: IBM is not going to use the phrase "OS/2 2.0 version" - use "OS/2 32 bit version".

Q. The SDK (software development toolkit) for the 32 bit version of OS/2 When does it ship?

A: What we announced is a pre-release SDK to enable ISV's to start developing applications for the 32 bit version of OS/2. There will be several releases of the SDK as there was with the 1.1 SDK. The initial release will be Dec. 1989.

Q. Will there be one combined SDK?

A: Yes, an identical product will be available from either company.

Q. What will be in the SDK?

A: Everything a developer would need to development applications: OS/2 32 bit version, C, Masm, utilities to build apps, online documentation, sample programs, performance tools and technical support through our normal support channels.

Q. What machines will the SDK support:

A: It will be available for popular machines with 386SX, 386DX, or 486 processors.

Q. What features will the 32 bit version of OS/2 have?

A: The key features will be related to exploitation of the advanced capabilities of the 386/486 architecture...the important ones being: demand paging (more efficient use of memory), flat linear addressing with corresponding "32bit" API's (allowing easier programming for large programs/data), the ability to run multiple DOS applications simultaneously in Presentation Manager windows.

Q. Will OS/2 1.1 and 1.2 apps run on 32 bit version unmodified?

A: Yes

Q. How do you get the SDK?

A: Call MS or call IBM.

Q. Where do you get support?

A: From your source of supply

Q. Who is writing Apps/who will write Apps for the 32 bit version?

A: Since we haven't shipped the SDK yet there isn't any development going on yet. However we expect many ISVs to write 32 bit applications particularly those who need large data structures to improve performance like CAD or desktop publishing apps or ISV's starting new server applications. We also expect ISV's from the UNIX community to be more attracted to port to the 32 bit version of OS/2 as it will be more familiar to them.

Q. When will your respective applications groups start building or shipping 32 bit apps? Will they be more aggressive on 32bit OS/2 than they have been so far?

A: We will be very aggressive in pursuing 32bit versions, but remember the 32 bit version will run existing OS/2 applications unmodified. Since both of our groups are hard at work on OS/2 apps today and it is important for us to complete and make available those products which customers will be able to use effectively on 32 bit OS/2 as well.

Q: When will applications like EE's Data Manager or MS's SQL Server use the 32bit capabilities of OS/2?

A: ISV's writing applications to these systems extensions will be able to take advantage of the 32 bit features of OS/2 and to exploit fully the hardware architecture. We are also hard at work migrating all of our system extensions to take advantage of the 32 bit version but we are not announcing anything at this time.

Q: MS will you bring out more 16 bit applications or will you do 32 bit apps only?

A: Today we announced and demonstrated our second application for today's 16bit OS/2, Word for PM (the first was PM Excel). We will do both.

Q: How will you package your 16 and 32 bit apps? Will you put them both in the same box?

A: Packaging questions like that are not decided yet.

Q. Is the 32 bit version the REAL OS/2?

A: Absolutely not! Todays 16 bit version is a good solution for those users wanting to take advantage of OS/2's advanced applications today on either 286 or 386 machines with 3MB of memory.

Q. What hardware configuration do you need to run the 32 bit version?

A: You need a 386sx, 386 or 486 machine with 4MB of memory and at least a 40MB hard disc.

Q: When will IBM (or other OEM's) ship machines with 4MB standard?

A: There isn't any questions that as memory production goes up and memory prices go down and larger system configurations are required, we will continue to increase the standard memory configuration as we have over the past several years.

Q. How much will 32 bit OS/2 cost? Will there be an upgrade price?

A: As we have not announced theh product yet we have not announced a price for it. However there will be an upgrade path for OS/2 users.

Q. Will you continue to support 1.1 and 1.2?

A: Yes, however overtime we expect to phase out support for 1.1 as it is superceded by 1.2.

Q: will there be another update for 16 bit systems?

A: 16bit OS/2 will continue to have a role as an entry level OS/2 system - we will seek to reduce the entry point to a 2MB configuration, and to ensure it is a good LAN client. However we plan to make the 32bit version a superset in many areas such as enhanced server functions, DOD security and the full object oriented capabilities.

Q. What device drivers will be supported in 32 bit OS/2?

A: same as on 16 bit OS/2

Q. Is the 32 bit version of OS/2 really a "32-bit system". I hear parts of it are still 16-bit?

A: The 32 bit version of OS/2 is in every sense a full 386/486 system - it exploits all the features of the chip: 32bit addresses, paging, virtual 86 mode. It will be a great 386/486 system. Some parts of the system are in 16-bit code to enhance the systems ability to run existing 16bit OS/2 applications, and to allow device drivers to be shared between 16bit and 32bit versions of OS/2.

Q: Why are you talking about doing RISC?

A: We want our customers and ISVs to know that an investment in 32bit OS/2 today will enable them to target an even broader set of hardware architectures in addition to the dominant desktop Intel x86 architecture. To the extent that RISC instruction sets become important, we will have OS/2 technology ready to meet it. We do not expect it to have any other day to day operational impact on our customers at this time.

Q. Will my 32 bit OS/2 applications run on the RISC version unmodified?

A: There will be a simple migration for OS/2 applications. By definition RISC means a different instruction set - thus RISC OS/2 will be "source compatible" with 32 bit version. If the application is written in C it will likely only need to be re-compiled for the different instruction set of the processor.

Q: Does this mean that 16bit applications won't be easily portable to RISC?

A: No, the process of moving a 16bit application to RISC will be exactly the same as moving it to the 32bit API's of the 32 bit version of OS/2 with the added step of recompiling.

Q. Which RISC chip will OS/2 support? Will you pick only one?

A: We have not yet decided which is the most appropriate initial new instruction sets to support. we are looking at several different options. We have not decided whether it will be one or more. This is primarily a technology investment that IBM/MS are under taking, not a product announcement.

Q: Will you introduce new function on the RISC system?

A: In general we expect OS/2 to acquire new function over time - such as multiprocessing capabilities, enhanced security, POSIX compatibility. These functions will over time be available for all platforms on which OS/2 is available. In what precise order these functions will appear, is not something that we can comment on at this point.

Q. Will you implement POSIX? When?

A: We are working on it - no announce date at this time.

Q. Is the x86 (including the '586) dead?

A: Aboslutely not. We expect the x86 architecture to still be the dominant desktop architecture for a long time. The 486 is a fine processor that is competitive with current RISC processors. We expect Intel to continue to enhance the x86 line. This investment combined with the wealth of ready to run software for the x86 will ensure that it remains very attractive.

Q. Who is doing what part of the development?

A: All of the OS/2 work discussed today will be covered by the Joint Development Agreement between IBM and Microsoft. As such it is done by both parties. We do not comment further.

Q. Why so many versions of OS/2? This is confusing.

A: We have a market of over 30 million installed machines with an incredible breadth of applications and needs. We want OS/2 to fit as many of these as appropriate. ISV's have to make their business decisions about which platforms to target. Furthermore the key point is from the end-users perspective these releases are essentially identical as OS/2 provides a binary standard within a processor family (e.g. 286, 386, 486). For instance, this means that ALL apps written to 1.0, 1.1, or 1.2 will run unmodified on the 32 bit version. This provides customers with a safe and orderly migration path to advanced features.

Q. Can you run Windows apps in OS/2 32 bit version?

A: Yes with the increased memory available in the DOS compatability box you can run Windows apps very well.

Q. Come on, what about the ability to run Win 3.0 binaries that we has been rumoured in the press?

A: This not something that we have or are announcing. However because there are obvious benefits, we have been experimenting with some advanced technology in this area. Furthermore we are interested in working with ISV's who are willing to experiment with us but again, we have no firm announcements at this time.

Q. When will we have a full complement of OS/2 PM applications?

A: There a more and more apps being introduced and announced every day. Key OS/2 apps are being shipped now - Excel, Pagemaker, AutoCAD, Describe, etc. The investment by the industry in OS/2 apps is enormous - 28 of top 30 ISV's are developing for OS/2. We are very confident that by mid 1990 that most of today's leading DOS apps will have PM versions available, providing the kind of choices on OS/2 PM that customers of come to expect in the desktop market. And is not going to be very long before you see a new generation of applications that exploit the unique advantages of OS/2.

Q. Will OS/2 support multiprocessing?

A: OS/2 has demonstrated its abiliity to take advantage of "application accelerators" which offload function on to a second processor. Further in the future we expect to enhance and expand that capability to do full symmetrical multiprocessing, but we are not announcing a time yet.

Q. Will IBM OfficeVision run on a 3 or 4 MB configuration?

A: The amount of memory needed is not just a function of OS/2, but of the applications. OfficeVision is an application that happens to provide advanced functions that require more memory than 3MB.

Q. What is the typical memory needed then for applications?

A: Basic functions (wordprocessing, spreadsheets) can be done on 3MB systems. As more applications, or larger applications are added, more memory maybe needed.

Q. Will LAN configurations require more memory?

A: If all features of the LAN system (such as remote administration, full client/server computing) are used, more memory maybe needed. For basic file/print services, this can be done on 3MB systems.

Q. What is this "swappable DOS Box"?

A: On earlier versions of OS/2, if the user selected the ability
to run DOS applications, then approx 500KB of memory would be
pre-allocated for this, and this memory would not be available
at all to regular OS/2 applications. IBM/MS have announced
that they will ship an update (this year) to OS/2 1.2 that
will allow this 500KB of memory to be available to OS/2
applications when the user is not actively using a DOS
application (ie. the Application running in the DOS BOX will
be swapped out to disk).

Q. What about other OEMs, are they shipping 1.2, will they ship
the version with the Swappable DOS BOX?

A: 15 OEMs are demonstrating OS/2 1.2 (with the swappable DOS
box) here at Comdex. We expect them to ship soon.

Q. When will the scalable font technology that you (MS) announced
with Apple be available?

A: It is in development, we are not in a position to commit to a
precise date.

Q. What about printer drivers? What about the famed "generic
driver" that you (MS) announced?

A: MS/IBM are currently supplying with OS/2 1.2 drivers for IBM
printers, Epson printers, and Postscript printer. We expect to
release a driver for the HP PCL IV line of printers shortly
(within next 2 months). Beyond that MS is continuing to
develop the technology that will allow us to address multiple
matrix printers with a common basic driver - this should be
available next year.

Q: Why hasn't OS/2 done better to date? and how is this going to
help?

A: The keys are availability of applications and the cost of
memory. Both of these factors to took longer to turn in OS/2's
favour than we predicted.However, they are now both strongly
turning in its favour.

Q: If 32bit OS/2 is going to be a superset of 16bit OS/2 why don't you kill 16bit OS/2 and just replace it with Windows and focus on 32 bit OS/2? Wasn't it a mistake to do OS/2 for the 286?

A: We don't think it was a mistake to develop OS/2 for the 286. 16bit OS/2 provides a convenient and completely upwardly compatible entry point for OS/2. It gives OS/2 a breadth of coverage that other systems such as UNIX do not have.

Q: Does this mean everyone should wait for 32bit OS/2?

A: No, buy 16bit OS/2. All your investment, learning, and applications, will beprotected.

Q: Will 32 bit take off as slow as 16bit OS/2 did?

A: No, because it directly inherits all of 16bit OS/2 applications and device drivers.. It is a superset.

Q. What about the RT?

A: The RT is one of the RISC instruction sets that we will consider.

Q. What about Jobs' stuff? Will IBM market it on OS/2?

A: No plans to do this.

Q. Will IBM remain a member of OSF? If so why?

A: Yes. This announcement does not affect IBM's commitment to provide AIX solutions.

Q. What font standard for IBM?

A: No further comment at this point.

Q: Why haven't you (IBM) announced it yet? what is taking so long if the Apple stuff is superior like MS says?

A: We are evaluating it - again no further comment.

NETWORKING

Q: Why does Compaq have more advanced LAN solutions announced than IBM ?

A: IBM expects to be aggressive in bring new LAN function to market.

Q. Will LAN Manager and LAN Server be the same product?

A: Yes, in future they will converge. They share a lot today and with the releases of future IBM version of LAN Server and LAN Manager, the differences will close.

Q. When will this happen?

A: You will see more convergence in 1990.

Q. Which product will be the basis?

A: LAN Server 1.2 will be introduce more compatibility.

Q. What happens to Novell?

A: The convergence will strengthen LAN Manager/LAN Servers attractiveness to applications developers. However IBM/MS will continue to ensure that Novell has access to OS/2 technology.

Q. Will all LM OEMs get the converged product?

A: Yes

Q. Will LM apps have to be changed?

A: No

Q. Will IBM support NDIS clients?

A: Yes

Q. Will you support Unix clients?

A: We have not announced this, although this is technically possible. However we have announced and recently shipped support for Unix servers with our LM/X product. (OS/2 and DOS clients can connect to Unix servers in the same manner they connect to OS/2 servers.)

Q. How does this effect LAN Manager/Unix?

A: No effect

Q: Will IBM be marketing LM/X?

A: no plans at this point

Q. Why don't you just add networking to OS/2?

A: Currently we have decided that it is not worth packaging networking in with every copy of OS/2 - this could change in future.

Q. Will additional security features be added to the joint product?

A: Administratively, networks of servers can now be administered as a single system - a user's permissions to access resources need only be entered and controlled at a single central source. Also, more options to selectively control access to the server - such as allowing users to only log on at certain times of the day.

EXTENDED EDITION

Q. Will EE be made available to other OEMs?

A: No - only announcing that it will run with OS/2 shipped from other OEMs.

Q. Who will make it available to other OEMs?

A: IBM - channels have not been decided yet.

Q. Will MS provide it to OEMs?

A: See above.

Q. What happens to MS's products, SQL Server and Comm Server?

A: They continue to be viable complementary alternatives to EE.

Q. What happens to ISVs?

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A: No change, other than the market for EE will be expanded.

Q. What happens to Ashton-Tate?

A: No change, other than EE will now be more widely available.

Q. What happens to DCA?

   " " "

Q. Will Data Manager and SQL Server be merged?

A: No plans to do this.

Q. What happens to corporations that have committed to EE?

A: They will now have the option of using EE functions on a
   broader range of OS/2 platforms, otherwise no change.

Q. Who will support the unbundled product?

A: IBM.

Q. When will this take effect?

A: During 1990.

Q. What will the unbundled products cost?

A: Not announced at this point. We are providing directional
   information.

Q. Will the unbundled products support server configurations?

A: Yes.

Q. Will Data Manager support DOS clients?

A: Yes.