

Date: 3/21/89

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**Microsoft**

March 17, 1989

James Cannavino  
President  
Entry Systems Division  
IBM Corporation  
44 South Broadway  
White Plains, NY 10601

Dear Jim,

Nearly four years have elapsed since the initiation of our Joint Development Agreement. We have both made significant investments in development. We have designed, coded, tested and shipped massive amounts of software. Now, we need to focus on building momentum in the marketplace.

It is critical that we develop and articulate a strategy to establish OS/2 as the dominant workstation standard. We must communicate a single message to our respective organizations, independent software developers and customers.

Conflict over the basic vision of what is needed for OS/2 to be the dominant workstation operating system in the 1990s has led us to be less effective than we could be. We have not been as effective as we need to be in setting goals and managing the on-going trade-offs.

Customers and independent software vendors (ISVs) remain confused about the position that OS/2 occupies within the spectrum of personal computing. We must be clear about the relative importance of UNIX and offerings such as Windows, Metaphor and the Next user interfaces.

At the same time, competitors (notably Apple and Sun) have turned this confusion to their advantage. Each has developed an aggressive marketing stance which stresses the importance of state-of-the-art, networked, graphical user interface workstations within the office computing environment. This is to the detriment of both OS/2 and IBM's position within this market.

OS/2 will never be a success just because we proclaim that it is the successor to DOS. For us to succeed, OS/2 has to appeal to millions of users - potential customers must see real benefits over DOS and competing offerings, and understand how it matches their needs.

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Microsoft believes that OS/2 needs to be:

- the best performing, easiest to use, graphically oriented workstation operating system,
- the best LAN oriented, distributed operating system,
- the foundation for workgroup productivity by offering OS/2 server based services,
- supported at the low-end by a robust and complementary DOS/Windows offering to feed up users and applications.

To accomplish all of these goals we need to create a much more streamlined process for getting closure on objectives, getting the details behind them worked out, and then driving responsibility down by allowing managers to have maximum ownership in meeting their goals.

We should be working together in five areas of systems software:

1. Standard Edition and Networking
2. Database, Communications and Workgroup Services
3. Portable OS/2
4. DOS and Windows
5. Tools and Languages

Our success in each area depends on our ability to deliver in a timely fashion technically superior products that satisfy user needs, and that are produced economically. In general, we need to pay attention to:

Requirements / Architecture:

We are building systems software for a very broad range of users which makes the requirements management process particularly challenging. Our products must meet the needs of the standalone user and the novice, as well as the advanced user who is running multiple sophisticated applications and wants to connect to a variety of external nodes.

We need to concentrate on those features that will sell millions of operating systems.

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The requirements for individual products must be managed by a small technically competent group that knows the market well enough to make the tradeoffs between richness and simplicity as perceived by the end user. The group must be sensitive to issues of size, speed, complexity and cost of development. We need an efficient process to ensure that our teams have a common set of goals, and have the ownership and authority to make the necessary trade-off decisions quickly and effectively.

In the fast moving PC market (with increasing competition from UNIX platforms and the Macintosh), we must not allow the requirements process to be bureaucratic. Nor can we afford to let the list of requirements become so lengthy that our base platform becomes overburdened.

#### Development:

Improving our existing products and keeping pace with the market require that we use our respective development skills and experience where they will yield the greatest return. We need to increase the efficiency of our development to get costs down to a sensible level. We must establish clear ownership for subsystems by teams of reasonable size, avoiding multi-site development wherever possible.

#### Packaging:

We must restructure our systems software offerings so that the customer can purchase only the components appropriate to his needs. We must be certain that buying decisions are understandable. The user must be able to easily install components, and the memory and disk requirements must be reasonable for his application.

It is our proposal that we pursue the opportunities for OS/2 and DOS as follows.

#### Standard Edition

The standard edition must appeal to millions of users. The easy to use graphical interface and ability to conveniently run multiple applications are key advantages. But its ease of use must not be compromised by adding too much complexity. The contents of the base SKU should be limited to the needs of the standalone user. It should be architected to readily support peer-to-peer networking. Features of interest to smaller subsets of the OS/2 users should be provided in add-on SKUs.

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We strongly believe that personal computing will be dominated by workgroups consisting of desktop machines and local servers, tightly coupled by LAN technology. *Client/Server computing* allows a set of server based services to be shared by workstation applications. Both the UNIX vendors and Apple Macintosh offerings are strongly stressing the ease-of-use and power of their offerings in a LAN environment. We need to and can take a leadership position in this area.

To do this, the base operating system has to become a *distributed operating system* and allow the user AND his applications to make maximum, transparent, and fast use of resources that are local or on a peer server. Services such as distributed filing systems, remote procedure calls and distributed security all have major design implications on the base operating system. For this reason, we believe that it would be very artificial and ultimately damaging to OS/2, for IBM and Microsoft not to include LAN support for OS/2 under the "JDA".

Users, however, are not impressed by operating system features. Users are only interested in applications that exploit the environment. Thus these capabilities need to be complemented by a set of workgroup oriented services that workstation application vendors can rely on.

Ensuring that OS/2 is a successful distributed operating system is related to, but distinct from, the wider goals of providing SAA connectivity. This is not to say that we should not integrate well with non-OS/2 SAA hosts, but that we must be competitive with other LAN solutions. SAA (SNA) as an architecture has much wider requirements, and is built on older, mainframe oriented foundations. Basing all peer-to-peer OS/2 LAN operation on SNA technologies will jeopardize the above goals of performance, ease-of-use, and flexibility.

#### Packaging:

SKU for 286

SKU for 386

SKU for networking (supplementary to the base SKUs) providing server function and transports, OS/2 and DOS workstation transports and redirectors.

#### Requirements Management:

A new joint architecture group that decides common product content and which has direct authority for conflict resolution (very small number of experts from each company).

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Development:

Joint work on kernel and presentation manager  
Microsoft responsible for peer-to-peer OS/2 (and DOS) networking  
(IBM responsible for wide-area/heterogeneous connectivity - see below)

Business:

Two way royalty for base SKUs  
Royalty to Microsoft for networking

Database, Communications and Workgroup Services

Microsoft believes that IBM should repackage the components of Extended Edition, and offer them separately from the base operating system. Microsoft believes the separate offerings should be:

- a Database (SQL) server package for OS/2 servers
- a Communications package (key SAA and OSI protocols and Interfaces) for OS/2 servers
- a Communications package for OS/2 workstations
- a Mail Store and Forward package for OS/2 servers

The above server packages should allow access from both OS/2 and DOS clients. They should be well integrated with the facilities offered by OS/2 LAN support.

Microsoft would like to license the above offerings from IBM, to actively promote them and encourage ISVs to support them with workstation applications. We must, however, ensure that our offerings are competitive in terms of size and performance.

Microsoft believes that IBM should separate out the "front-end" or "tools" pieces of Extended Edition into one or more separate offerings, and offer them separately from the above offerings. Microsoft would not license these front-end pieces:

Microsoft also believes that OS/2 and DOS clients need LAN connectivity to UNIX-based servers (such as AIX), for those environments where UNIX is required on the server. Microsoft has an active program to provide LAN Manager services on a UNIX platform (LM/X). Microsoft believes IBM should cooperate on this support for AIX. In addition, there is an opportunity to offer the above server packages (Database, Mail and Communications) on UNIX platforms. Microsoft would license and actively promote these packages in connection with LM/X.

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Requirements.

Jointly defined

Development

- Database, Mail and Communications packages; IBM leads and does development
- LM/X; Microsoft leads and does development

Business

- SKUs for Database, Mail and Communications packages; Microsoft pays IBM royalty
- SKU for front-end tools; Microsoft does not license
- SKU for LM/X; IBM pays Microsoft royalty

PORTABLE OS/2

ISVs and customers will be more willing to invest in OS/2 if they see that it has life beyond the present Intel family of x86 processors. Early announcement and shipment of OS/2 for the i860 is the best way to demonstrate our direction for portability.

Packaging:

SKU for i860 workstations with equivalent function to OS/2 Standard Edition

Development:

Joint development in Redmond. Microsoft has been working closely with Intel on the specification of the i860 and has a development team in place. IBM should send a few people to Redmond to join this high powered team with the objective of shipping an SKU for i860 workstations in 1990.

Business:

Same as Standard Edition

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DOS / Windows

DOS will continue to play an important role in expanding the low end of the market and in supporting the tens of millions of machines that are out there today that do not have sufficient power to handle OS/2. We can shape DOS so that it is complementary to OS/2. Microsoft believes that it would be beneficial to merge DOS and Windows. This would bring much needed ease-of-use to DOS and would educate millions of users on CUA and create a demand for graphical PM applications.

It is also important to allow DOS machines to participate on a network with OS/2 nodes boosting the demand for OS/2 based servers. The DOS/Windows merge will be the base for home computing as we drive multi-media down into extremely low cost machines for the home and for education.

Packaging:

SKU for DOS  
SKU for DOS / Windows merge

Requirements Management:

Microsoft leads. Microsoft has much experience dealing with DOS and Windows ISVs and OEMs and has been active in requirements for multimedia.  
IBM provides input.

Development:

IBM enhances DOS if needed  
Microsoft develops Windows

Business:

Present structure for DOS Releases  
IBM pays Microsoft royalty for Windows SKU

TOOLKITS

IBM and Microsoft should market an identical toolkit that provides the basic set of tools (debuggers, utilities) needed to develop applications for the standard edition. We should also market the same assembler and a C compiler that are designed to work well with that set of tools.

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In addition there are numerous add-on tools that deserve separate packages (Dialog Manager, SAA Languages, Multimedia, etc.). Microsoft would promote those tools that implement aspects of SAA if that would be important to IBM. Libraries used by applications are best placed in toolkits, not in the base operating system. The tools business is low volume without large profit potential. Joint development and duplicate manufacturing cannot be justified.

Packaging:

SKU for basic toolset  
 SKU for Assembler \*  
 SKU for C Compiler  
 Additional SKUs as required \_\_\_\_\_

Requirements, Development, Business

Microsoft leads requirements and does development and manufacturing of basic set, assembler and C-Compiler--IBM pays Microsoft royalty.  
 IBM leads requirements and does development and manufacturing of add-on tools--Microsoft pays IBM royalty.

For all of the above mentioned SKUs, it is necessary for both parties to have access to all source code and to have the right to do derivative works. It must be possible to easily adapt these packages to OEM systems and to test them for correct operation.

Conclusion

Our joint efforts in the early eighties ignited the PC explosion. We set an open standard that won the support of thousands of developers and millions of users. We seemed to have the right formula for promoting openness while retaining sufficient control to advance our individual business interests. We can repeat that performance with OS/2 if we can present to the market a consistent and clear strategy. There is a lot of hard work required to achieve this. The market that we have created is complex and innovative and contains many clever and aggressive competitors. This market also contains many companies that will give us their total support in establishing OS/2 as the next standard in personal computing. If we can harness this support with a series of great products and great marketing, OS/2 will win.

Sincerely,

*Bill Gates*

William H. Gates  
 Chairman

cc: R.B.Hanrahan

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Product Area	Packaging	Requirements	Development	Business
<b>OS/2 Standard Edition</b> The standard edition should include: <ul style="list-style-type: none"> <li>• the base operating system</li> <li>• the user interface</li> <li>• architecture for distributed, peer-to-peer operation</li> </ul>	SKU for 286 SKU for 316 SKU for Net Server	New joint marketing group	Joint work on kernel and presentation manager MS: peer-to-peer networking	Two way royalty for base SKUs Networking: Royalty to MS
<b>Communications, Data Base and Client Add-ons</b> Microsoft believes that IBM should package the components of Extended Edition, and offer: <ul style="list-style-type: none"> <li>• a Database (SQL) server package for OS/2 servers.</li> <li>• a Communications package for OS/2 workstations.</li> <li>• Lan Manager for UNIX.</li> </ul>	SKUs for Database, Communications, and Mail SKUs for front-end tools SKU for UNIX	Joint team	IBM Microsoft	Royalty to IBM Royalty to Microsoft
<b>Portable OS/2</b> IBM and customers will be more willing to invest in OS/2 if they see that it has life beyond the present Intel family of x86 processors. Standard Edition OS/2 for the i860 is the best way to demonstrate our direction for portability.	SKU for i860 workstations		Joint development in Portland, IBM to add to Microsoft team.	As for Standard Edition
<b>DOS and Windows</b> We can shape DOS so that it is complementary to OS/2. Microsoft believes that it would be beneficial to merge DOS and WINDOWS. This would bring much needed ease of use to DOS and would educate millions of users on CUA and create a demand for graphical PUI applications. It is also important to allow DOS machines to participate on a network with OS/2 nodes boosting the demand for OS/2 based servers.	SKU for DOS SKU for DOS/Windows merge	Microsoft leads	IBM: DOS MS: Windows	Royalty to MS for Windows
<b>Tools and Languages</b> There should be a single primary toolkit that provides the basic set of tools (debuggers, utilities) needed to develop applications for the standard edition. In addition there are numerous tools that deserve separate packages (Languages, Dialog Manager, Multimedia, etc.).	a) SKUs with base set of tools, Assembler, C Compiler b) Additional SKUs as required	a) Microsoft leads b) IBM leads	a) Microsoft b) IBM	a) Royalty to MS b) Royalty to IBM

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