1 MEMO

LOTUS

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To: Distribution
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2 Today

The operating systems environment is currently in chaos, resulting primarily from a major screwup on the part of IBM and Microsoft. As a result, we may have a significant opportunity to affect our own destiny.

3 Situation - DOS/Windows

DOS 4.0 has not been widely accepted as an upgrade. Apparently, the break between IBM and Microsoft that led to the creation of 4.0 and the feud about bugginess, memory use, etc. has confused customers. Most customers remain with DOS 3.3.

Windows is now segmented into Windows/286 and Windows/386. The next generation of Windows is a significant enhancement in function. The scedule has slipped from Summer 89 to late 89. Windows 3.0 is a version of Windows that has significant improvements to some of the O/I features, and somewhat improved printing and ease-of-use, but the main improvement needed (better memory management to break the 640K barrier) is to be available on 386 platforms only.

It is important to note that Windows 3.0 for the 386 does not support "full 32-bit architecture". Technical limitations of compatibility etc. prevent the use of the 32-bit capability of the 386. Thus, Windows 3.0 for the 386 is roughly comparable to OS/2 for the 286, with the following differences:

- W/3/386 supports paged virtual memory, thus potentially performing better in smaller RAM configurations than OS/2 1.1.

- W/3/386 provides multiple virtual 8086/DOS boxes with virtualized screens that can be run concurrently and windowed onto the screen. OS/2 for the 286 provides only one such "compatibilty box", which cannot be windowed, because the 286 does not support interception of hardware screen I/O. Practically any DOS program, including graphics programs that go direct to the hardware, can be supported in this way. Exceptions at this point include programs that are based on DOS Extenders, since they require "virtual 286" or "virtual 386" machines, which are not available (but could be added, with some work, by supporting an interface like VCPI).

- W/3/386 has a significantly more complex programming model, because of its handle-based memory management.

Currently, there is a larger set of GUI applications available for Windows than for OS/2 PM. All of these will "run" on the new Windows 3.0, though they will probably all need more or less extensive modifications due to U/I changes and the need to rewrite large parts of the code to handle the new memory architecture.

4 Situation - OS/2 PM

We all know that OS/2 has been a failure to this point. The main problem is the lack of applications software. The answers to this have been to "improve" the functionality of OS/2 itself. In my humble view, this is not helping. For example, the file system is being totally revamped (with 256 character long file names, and a physical disk layout that makes it impossible to go back to DOS) so that applications vendors and users will have to make midcourse corrections at about the time their applications will come out late this year.

Another problem is that the PR machine at Microsoft, and OEMs like IBM and Compaq are now calling OS/2 for the 286 a "mistake", and pointing to OS/2 for the 386 as the wave of the future. OS/2 for the 386 is still in the planning stages, but what we have seen of it is frightening. First of all, it is getting later. It is now scheduled for developer availability at the end of 89 and general availability probably in mid 90 or late 90. Second, the approach being proposed to preserve application compatibility is to have a dual-API system, with a 16-bit API for compatibility (and perhaps for 286 machines in perpetuity), and a "32-bit API" that provides for "full-32-bit" architecture, when running on the 386/486.

Finally, the "grand plan" to make OS/2 successful as the kernel of a decentralized computing environment has foundered. The networking plan has been a joke, as Microsoft and IBM took leave of their senses and decided to make the system "LAN centric" (no plan to provide X.400 or other point-to-point communication support) and "proprietary" (there is no way to connect to UNIX or other existing file servers easily, and the DBMS plan excludes competition). The word on the street is that Lotus is the largest 3+Open customer, for example, and IBM's EE is viewed as something for true-Blue customers only.

There are no widely known success stories of departmental shared databases being moved to OS/2 networks, and I have not heard of any corporations even planning that move. Presumably this is aided by the lack of applications, but in the UNIX world, customers would "build it themselves".

5 Situation - PC Unix (all varieties)

There is a lot of hope in this community that their favorite environment will soon take off. Certainly the 386/486 hardware platform is great for UNIX. However, as a GUI environment, UNIX is probably still behind PM. The main advantage over OS/2 is

that all those "vanilla Unix/C" apps port over instantly, whereas all those "vanilla DOS apps" do not port over to PM in a nice way.

However, frankly, the Unix folks start off with some major handicaps, too. The desire to have a "least common denominator" user interface leads to "generic interaction techniques" as the GUI style. It is not so easy to design applications that deal with a wide variety of screens and keyboards and yet retain ease-of-use. For example, there is not a standard set of function keys on the Unix keyboard. For that matter, the notion of a color pallette standard (such as the de-facto EGA support in PM) leads to difficulty in building highly usable applications. Why am I going on about this? Because the handicap is the institutional one of trying to please all hardware manufacturers simultaneously, while those mfrs are trying to enhance their own differentiation so that applications developers can build in features that call for a specific mfr's machines.

This systemic contradiction of goals will slow UNIX adoption by users, because there is "no one Unix" that guarantees application availability.

The big advantage of Unix is in the availability of a wide variety of network services, and I expect that Unix will be a wonderful base for the creation of services until there is a better way.

6 Opportunities

There are three emerging opportunities that relate to personal productivity applications that are poorly served by this chaotic systems environment.

First, the "new machines" that Microsoft would have you think its applications are the soul of: 286 and 386 machines.

Second, wide area networking offers a great opportunity to develop real value for users in groups.

Third, the key mechanisms for application integration are wide open to be developed -- protocols for data sharing, compound documents, and user customization.

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