OS/2...*Well Worth The Wait*

In April of 1991, IBM unleashed their marketing blitz for their improved operating system for personal computers. OS/2 2.0 promises to deliver its users into the next generation operating system environment by both untapping the power of 32-bit processors and cleanly supporting various technologies which enable workgroup computing. Today's most popular personal computer operating system, DOS, still a 16 bit operating system, was not designed to exploit the Intel 80386 and i486 class of systems. IBM is betting millions of development dollars that all classes of users - from major corporations to first-time end users - will want to finally take advantage of the performance and systems resources built into their 80386 and 80486 desktop systems. Understand that OS/2 2.0 is nothing like DOS and graphical DOS extenders to which it is frequently compared. In short, OS/2 2.0 is technically superior to any graphical DOS front-ends, and at the same time, it retains compatibility with any applications originally developed for DOS, Windows or earlier versions of OS/2.

Promises Made ... Promises Kept

Smeared across the pages of almost every business and trade publication inside and outside the U.S. has been the story that IBM is late with OS/2 2.0. In fact, IBM is neither late with the release of OS/2 2.0 for major accounts who have committed to OS/2 within production environments, nor have they altered their original development cycle and changed their attack focus. While this statement flies in the face of the front page stories that make "good copy", the facts are as follows: In April of 1991, IBM promised to deliver, by year end, OS/2 2.0 which offers the capability of running DOS applications, either DOS 3.3 or 4.01, better than DOS. IBM also promised that OS/2 2.0 would support any Windows 2.X or Window 3.0 application with the added benefit of multi-tasking, multi-threading and virtual memory support. Furthermore, these Windows applications would be able to run native to OS/2 without having Windows installed. OS/2 2.0 would also remain compatible with any previous releases of OS/2 1.0, 1.1, 1.2, or 1.3 applications. Other promised components of OS/2 2.0 included icon "drop-and-drag", the inclusion of mini-applications ("applets") and an affordable, competitive price compared to rival DOS/Windows operating environments.

For those keeping a scorecard, IBM's latest code release, OS/2 2.0 Level 6F fulfills all of the promises made by IBM way back in April of 1991. Also, for those who say IBM hasn't met their delivery date of December of 1991 should be even more interested in the Level 6F release date. September 1991. Promise made, promise kept.

"What's New In Two..."

But OS/2 2.0 isn't just another pretty face in the crowd of operating systems for personal computers. IBM has engineered OS/2 2.0 to allow personal computers to run "mission critical" applications and communicate with other systems within the enterprise environment. To

accomplish this mission, IBM has had to re-design OS/2 2.0 from the ground-up. So, "what's new in two?" - read on...

Presentation Manager has continued its evolution to the point where there are substantial differences between previous versions of OS/2 and DOS based graphical environments. Gone are the restrictions where users must place icons within specific windows. Within OS/2 2.0, icons rest comfortably anywhere on the desktop. Imagine an operating environment where the most-often used functions - like print, e-mail and delete - appear as icons. Or even better, a group of icons - programs and their associated files - are able to be accessed as a single graphical icon group. These individual icons or icon groups can also be copied multiple times into any existing window or several copies may appear on the desktop itself. "So what", you say? Imagine the benefits of shared network directories appearing as simple folders on users' desktops. For example, an executive, who may be unfamiliar with accessing networked files, is able to simply click on the icon for the sales document, which includes the most recent sales data, and view its current contents. Additionally, because information may be dynamically linked in "real-time" from multiple application sources, when the sales data changes, so too will the information within the document that the executive is viewing. Gone will be the days of users having to launch the correct application, browse their local and networked drives and finally check to be sure that they are viewing the latest sets of files. With OS/2 2.0, its as simple as clicking on an icon.

Understandably, many comparisons will be made between OS/2 2.0 and Windows - both versions 3.0 and Microsoft's soon to be released 3.1. WorkGroup Technologies will be the first to go on record in stating that even Windows 3.1 is no OS/2 2.0. While on the surface, Microsoft Windows 3.1 will probably be a radical improvement over previous versions of Windows, it will not achieve the functionality of the graphical environment present within OS/2 2.0, nor will it offer the advanced operating system kernel which is the cornerstone of OS/2 2.0. Windows 3.0 today, nor Windows 3.1 tomorrow, are able to offer users the benefits of a true 32 bit operating system kernel which supports multiple advanced technologies. One of OS/2 2.0's most important technological advancements is that it is virtually "crash-proof". In other words, if any of the DOS, Windows or OS/2 applications "crashes" or ceases running, only that single application quits, leaving the operating system stable and other applications intact. Try that with any other operating environment. Gone are the days of hitting the "Big Red On/Off Switch".

Testing the true multi-tasking capability within OS/2 2.0 is easy, and the benefits go far beyond the following example. Under DOS and DOS based graphical environments, installing new application software requires dedicated machine time. For example, when a user installs a Windows application, they are not able to put the installation "in background" and continue with other work sessions. Within OS/2 2.0, application installations may be swapped into background and the user is able to continue with other work sessions. Imagine a computing environment that works better than the way people work...running several tasks at once, but none of them are paused when interrupted. OS/2 2.0 delivers this potential.

Delivering the Power of Applications - Any Applications

Imagine a single operating system that provides the same application capability as 240 individual DOS based personal computers. Since OS/2 2.0 supports Virtual DOS Machines (VDMs), a single OS/2 2.0 system can actually run 240 independent DOS sessions. Since the OS/2 kernel provides the Basic Input/Output System, each one of these DOS applications has more memory available to it (up to 640KB) than if it were running on a dedicated DOS machine. Additional memory resources are also made available since the OS/2 2.0 kernel handles the device drivers and DOS software extensions. So what does all of this mean?

Simply stated, OS/2 2.0 picks up where the older DOS architecture left off. Not only is a single OS/2 system capable of concurrently running 240 DOS applications, but even better, those application sessions can to be integrated with native OS/2 and Windows 2.X and 3.0 applications within Presentation Manager's Workplace Shell. If the application was originally written for DOS, Windows 2.X, Windows 3.0, OS/2 1.X or OS/2 2.0, then the information from any of these environments can be seamlessly shared. Since each of these applications appear in their own scalable window (including Windows applications which no longer require Full Screen Mode), any text or objects can be "Cut and Pasted" into other windows. Try that with any other graphical environment.

In accordance with the market explosion to share information from networked personal computers, IBM is also keeping pace with other OS/2 based technologies. For example, WorkGroup Technologies' market research indicates that while there were 690,000 LAN database users worldwide in 1989, there will be 3.9 million users of LAN based databases by year-end 1992. At the same time, the size of the workgroup accessing the networked database is nearly doubling each year, from an average of seven users in 1989 to an average workgroup size of 53 users by year end 1992. Since the LAN database appears to be a major strategic application for most companies, IBM is bolstering several technologies within LAN Server 2.0 for robust, secure support of a distributed database. LAN Server 2.0 supports several key technologies such as continuous fault monitoring, disk mirroring, disk duplexing and dynamic error correction. Coupled with the roll-forward recovery feature expected within OS/2 2.0's relational database, secure information may be developed and maintained within the LAN environment. Simply stated, no other non-proprietary, production client and server operating system is able to make the same claim. Not DOS, not Windows, not Macintosh, not any.

The OS/2 Challenge

To make OS/2 live up to its potential, IBM must overshadow not only Microsoft's continued Windows blitz, but also take on a number of smaller rivals as well. In late January, 1992, NeXT Computer announced NeXTStep for Intel 80486 computers, SunSoft has announced Solaris, and the members of the ACE Initiative are still rallying around Windows-NT. Do these pose a threat to OS/2? Looking at each of these announced alternatives, the answer is a resounding "NO". The NeXT operating system will run all of the applications that have been written for

the NeXT systems - the NeXT Cube and NeXT Stations. The reality is, however, there are only a handful of applications for NeXT that would interest non-technical users. The second major problem is that the NeXT operating system - to run just a few applications - costs more then 8 times the price of OS/2, or just under U.S. $1000 - a lofty price to pay for incompatibility with existing end-user applications, even if you could buy it today. The NeXT operating system will not be available until fourth quarter 1992.

SunSoft has entered the fray with Solaris, an operating system which will run on both Sun SPARC and Intel 32 bit. Unfortunately, Sun has delayed their introduction and we do not expect this operating system will be available until later this year. Additionally, Solaris' targeted audience is the Independent Software Vendors who are searching for an operating system which will allow them to develop for both the SPARC RISC and 32 bit Intel CISC platforms. Until these new applications are committed and developed, typically one to two years, end-users will have few applications to work with. The bottom line is that Solaris does not offer the protection of compatibility with existing applications as supported within OS/2 2.0.

The third alternative, the ACE Initiative with Windows-NT and SCO, could have posed a formidable threat to OS/2, but Digital Equipment has all but stalled the forward progression of this group. When Digital announced that their own internally developed Alpha/RISC architecture would displace their VAX systems of the future, most of Digital's two thousand Independent Software Developers turned from evaluating Windows-NT to OSF/1. The strategic operating system for Digital and Digital's customers, it turns out, is not ACE and Windows-NT, but the Alpha/RISC architecture with OSF/1. The bottom line impact to the ACE Initiate is that the flagship vendor has abandoned the ship and smaller ACE members are scurrying to evaluate alternative operating systems.

Even with the compatibility of existing applications within the OS/2 environment, IBM must convince the ISVs to author shrink-wrapped applications for OS/2 2.0. Interestingly, several major vendors have pledged support. These include well known suppliers such as Micrograpix, Borland, DeScribe and a number of lesser known software vendors. But IBM must convince other major software vendors to follow and establish the infrastructure necessary to support these ISVs in their development efforts. To expedite these efforts, IBM is offering "porting centers" where ISVs walk in with DOS and/or Windows applications and walk out with OS/2 2.0 applications. The typical amount of time it takes to port from DOS or Windows has been an average of three weeks. Not three months, not three years - just three weeks.

Finally, IBM has continued to educate a different audience altogether - the small business and end-user community. In so doing, IBM has shattered the stigma associated with earlier versions of OS/2 - that OS/2 as an IBM operating system for an IBM system network. The message that is beginning to become understood by the industry at large is that, if you have a 32 bit CPU, or you write applications that could benefit from 32 performance, then you will want to support OS/2 2.0.

WorkGroup Technologies' Analysis

Microsoft seems to be positioning the future success of its DOS/Windows 3.0 environment on the exploitation of a wave of confusion and misinformation about OS/2 2.0 capabilities. Recently, even Bill Gates publicly admitted that OS/2 2.0 will be successful within "niche markets". Frankly, we agree with Bill - OS/2 2.0 will be successful in a "niche". However, we disagree with Microsoft with how big that "niche" might be. We believe the OS/2 2.0 potential to be as large as the population of installed 80386 and 80486 systems - which will be over 23 million 32 bit Intel personal computers worldwide by year end 1992. This is a big "niche". Even if IBM is successful penetrating only ten percent of this installed base in 1992, it provides independent software developers with a substantial base of OS/2 users for which to write native OS/2 applications.

Additionally, Microsoft has taken no action to clear the confusion surrounding comparisons with OS/2 2.0 and their developmental efforts with Win-32 (the 32-bit version of Windows) and Windows NT. However, we believe that neither of these operating system environments will offer the full library of application compatibility supported within OS/2 2.0. For example, it is doubtful if either Win-32 or Windows NT will support OS/2 1.X, OS/2 2.0, or even Windows 2.X applications. These confinements should be worrisome to potential users and poses a financial risk for MIS decision makers who will have to re-write their applications to strictly conform to these new Microsoft operating systems.

Overall, WorkGroup Technologies is a firm Windows 3.0 supporter for users within the constraints of a DOS environment. This is due to the quantum advance users are able to enjoy over earlier character-based DOS systems. However, for all of its thunder and fury, Windows 3.0 remains a DOS shell. So why is there so much excitement over Windows? Simply from the fact that it is the first time many DOS users have used a GUI and, with the new ease of use Windows 3.0 provides over character-based systems, it gives the impression that "this must be what the future is like". Unfortunately, as users become more familiar with Windows, they begin to stretch its limitations by asking it to do more than what it is capable of - and thereby begin to experience many of the limitations imposed by its DOS underpinnings. What Microsoft hasn't acknowledged is that they are actually the company that is seeding the success of OS/2 2.0. Corporate workers, small businesses and individual end users alike, frustrated with Window's limitations, should be drawn instinctively to OS/2. It already delivers the capabilities that Microsoft is just now beginning to acknowledge are important ... a true 32 bit operating system that works the way individuals work with the applications in which they have already invested.