To: Terry Rogers, Don Casey, David Reed, Christine Noonan, Phil London, Eileen Rudden, Stephen Turner, Ed McNierney, Amy Epstein, Alex Morrow, Jim M Wilson, Mike Vassilopoulos, Steve Manousos, Dave Love, Andy Connolly, Debbie Stolper, J.B. Royal, Chris McGrath, William Claff, Susan Esher, Peter Wilkins, Julie Kim
cc:
From: Barry Briggs
Date: 06/24/91 11:16:31 AM
Subject: Windows 3.1 Seminar: Trip Report

Quotes of the Week:

"It's fair to say there's tension between Microsoft and IBM."

"People love the idea that they can work with multiple applications that *work together.*"

-- Steve Ballmer,
Senior Vice President, Microsoft

This email outlines the highlights (and some lowlights) of my trip to Microsoft, on June 20 and 21, to attend a seminar on Windows 3.1. I've organized my writing here into two parts: the first is of general interest, and outlines Microsoft's near and long term strategies, as well as some (admittedly) gossip; and the second part at the bit level will be enjoyed primarily by technical personnel. But managers please at least skim the second part as there's useful information there as well -- particularly the stuff on how Microsoft does QA.

I brought back LOTS of documentation including conference handouts, the draft Windows Style Guide, and the Beta SDK. Recipients of this email are *of course welcome to peruse and/or Xerox but NOT borrow never to return.*

Windows 3.0: Latest Microsoft Propaganda

Every Microsoft presentation I go to lately begins with a brag session on how well Windows is doing these days. Well, here's the latest (most of which taken from Steve Ballmer's talk):

- o More than 4,000,000 copies sold, ho hum...
- o Percentage of copies bundled with hardware ramped up "dramatically"
- o 1400 people at Microsoft are in some way working on Windows
- o Chinese (Taiwan) and Korean versions shipping
- o Revenues from Windows apps passed Mac apps in January (aggregate application volume)
- o They're not sure what to do with Real Mode Windows ... the Windows team would like it to go away but they still want to be on entry (home) machines
- o 70% of Windows machines are '386's
- o Marketing of 3.1 planned to be aggressive
- o Microsoft recommends vendors to ship pieces of 3.1 now, including OLE and new DDE library

Ballmer trashed IBM's announced intention to ship a "better Windows than

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Exhibit No. 16
LISA A. MOREIRA

Plaintiff's Exhibit
5303
Comes V. Microsoft

Windows": "...personally I'm skeptical...this is one not even I would've tried to bite off...all IBM's done so far is to get Windows running in real mode." (The tone was VERY sarcastic.)

Windows 3.1: What is it?
========= === ==== == ==

Windows 3.1 will be an incremental update to the existing release. Its two most important goals are greatly improved stability and the introduction of scalable font technology, that is, TrueType.

First, stability. Microsoft has spent a lot of development time to eliminate UAE's (Unexpected Application Error, for those of you who haven't run Rockport lately). They've added or will add a lot of parameter checking into the Windows API, fixed numerous bugs, made the network operation smoother, and made printing easier and more reliable. In addition (get this) because of clone hardware problems they're also going to ship something called Microsoft System Diagnostics (MSD) which is intended to report on configuration information (anyone remember CHK123 written for precisely the same reason? ... and if you do do you remember the author?) They are also actually going to SHIP to customers a post mortem dump program called Dr.Watson (very similar to our own Quincy tool) and will accept dumps from customers (and will presumably point fingers at offending applications).

TrueType scalable font technology is the major new feature being introduced in Windows 3.1. It will ship with 13 font outlines and the type manager is integrated in the Windows core as part of GDI. It will not interfere with other type managers but other type managers will be treated as second class citizens (see below). It supports scaling, downloads dynamically to laser printers, but not support character rotation except by 90 degrees. My own subjective opinion is that it looks sharp and very fast.

Also, a lot of work has gone into improving Windows performance. This work may be characterized as not so much architectural rework as just simple low-level optimizations across the board, very much of the sort we've been doing in Rockport.

The Windows Help facility is being dramatically improved. It will be possible to call a DLL from within Help for example, raising the possibilities of in-help tutorials, etc.

Also discussed was application integration: contrary to one of the trade rags there is no OLE 2.0 spec out; to the contrary they're soliciting ideas here. Better DDE support will be provided with the DDE Manager Library (DDEML). Also some very limited drag 'n' drop will be supported (from the File Manager you can drag a file to a properly configured app, let go and the app will come up and load/print the file).

MS is providing some of its own test tools to ISV's for QA'ing their own apps; some look reasonably useful (I've given the disk to our QA folks).

There are lots of other small improvements which will be discussed in the techie section.

But NB: Rockport is NOT currently compatible with Windows 3.1! Startup screen with TrueType does not display properly and main program hangs on invocation.

Windows 4.0: What is it?

Also discussed at some length (and briefly demoed) in this seminar was Windows 4.0, also known as Windows/NT or Win32. Windows 4 (Beta October/November, ship mid '92) is a major release featuring full 32-bit support, preemptive multitasking and threads, symmetric multiprocessing, and portability (runs on '386/'486 and MIPS RISC processors). (This is the project being technically directed by Dave Cutler of RSX/VMS fame.)

Win32 includes numerous OS-level enhancements, including a rewritten GDI, support for memory-mapped files, various network extensions, full support for Unicode (double byte characters), and removal of .INI files (a "registration database" replaces them). Many of these improvements, I would smugly point out, were suggested by us at a meeting with Microsoft last April.)

MS has purchased emulation technology for running 80286 DOS applications on the MIPS machine.

DPMI .9 will be supported in the first release. (Or DPMI 1.0 will be supported in the first release, depending on who you ask.)

The WINMEM32 interface will NOT be carried forward into Win32.

Packaging of Win32 has not yet been determined.

Pen Windows

Pen Windows was demonstrated as well. The Pen SDK (version 2) is included with the 3.1 SDK.

To enable the pen as a direct manipulation device (i.e. a mouse requires very simple modifications to the product. The pen handling code itself in Windows is a modular extension (as is the multimedia stuff) so that compatibility is more or less assured. The pen interface is also being exposed to DOS apps running under Windows.

The "recognition engine" is to be sold separately and other vendors are encouraged to write their own.

Technical Details:

This is a more or less disorganized dump of my notes. If it's totally unclear please give me a call and I'll attempt to clarify.

- MS is adding lots of parameter checking for calls into Windows. They believe that 40% of all UAE's occur in applications and 60% result from passing invalid parameters to the system.

o MS wants a very simple install for 3.1. Having just installed the beta on my system I'd say they have a LONG way to go.

o MS is adding a "continue after fault" feature, which allows an app to continue after a UAE. They claim that their own research indicates that most faults are "benign and continuable." I claim that allowing a user to decide whether or not to continue is potentially catastrophic. Allowing the app to gracefully abort on the other hand (e.g. save files before terminating) would be a nice enhancement but MS doesn't see it this way. We should work with them on this.

o Freed allocated memory will have a signature byte (FD I think) written to it (Rockport already does this).

o Errors found by parameter validation code will be reported in English.

o Little change to USER and GDI modules but menu resources now moved to global memory freeing up Windows resource space.

o Attempt made to clean up heap after app UAE's

o Debug versions of USER and GDI tag objects such that with Toolhelp you can look and see what you left

o Installable drivers

o Universal printer driver (a la Allways)

o Fonts. EnumerateFonts returns (get this) all device independent fonts as mixed case strings, e.g. "ITC Barcelona Book". All device dependent fonts are returned as upper case e.g. "HELV".

Here's the catch. Only TrueType fonts are considered device dependent! The fonts are enumerated through GDI which understands TrueType. So ATM fonts will be enumerated all in upper case. So ATM fonts are thus second class citizens.

Font API vastly improved. TrueType fonts may be distinguished by the bit currently used to signify vector fonts. Can have outline or bitmap scaled or unscaled returned to app.

As you might expect all point sizes now available but UI does not really reflect this.

TrueType fonts have 18 new DTP characters.

Helv and TmsRmn have been renamed "MS Sans Serif" and "MS Serif" (my guess is) because these names sound better.

The standard font dialog is a WYSBYGI box i.e. it displays samples of the selected font.

o Windows 3.1 WinHelp is, frankly, cool. You can have secondary windows; jump across multiple help files; keep a history log (as a user you can keep track of the topics you've looking at and with a click go back); call a DLL from within Help (just imagine the tutorials we could write); include metafiles and bitmaps; and lots of other neat things. They did a good job here. Also they have a HotSpot editor (mark hotspots in a graphic, say a map of Europe which was the demo); and a Multiresolution

Bitmap Compiler for supported different display resolutions.

WinHelp 3.1 can ship with existing apps as it will be completed before Win 3.1 ships (tho not ready now).

o Other UI enhancements: standard Save, Save As, Print, Print Setup, and Font dialogs.

These new standard dialogs are available now and can be shipped now with the app.

o QA tools. MS has a suite of automated test tools which are supplied but not supported. These are called WATT (Windows Automated Test Tools). These are analogous to what we use but also support UAE trapping.

Interesting note: in the QA of Visual Basic there were:

- o 1/2 the number of QA as developers
- o They wrote between 6000-7000 automated tests
- o There is more code in test harnesses than in the VB product itself (specifically: 120MB source code) ... the MB was not a typo
- o QA had 40 machines running automation 24 hours a day

o Drag and drop. You can now drag a file from the file manager over a registered app's icon and the program will be invoked and load the indicated file. The "extensions" block of WIN.INI is being replaced with a "registration database" which associates extensions with programs and optionally gives Windows either a command line (e.g. 123W Myfile.wk3) or sends a DDE string to the program on startup.

You can also drag a file to the print manager. What happens here is that the program is loaded and commanded to print the indicated file. MS expects that programs will have a /P command line switch (we would use DDE).

In general MS wants to get rid of .INI files and will be promoting the use of the registration database as a replacements. NT will not support .INI files at all. However if you use GetPrivateProfileString and the rest of that API you won't notice (until you go to edit the .INI file which if you're like me you do all the time).

o Windows profiler from MS shipped last week

o Windows now runs at Ring 3. I/O trapping and CLI/STI behavior the same. Hardware interrupt handlers in Ring 0.

o DPMI is still .9 BUT math coprocessor part of DPMI v1.0 spec implemented. DPMI 1.0 will be in Win32.

o On critical error handling in Windows: "Yeah, my bug." (Senior Windows developer).

o Brand new VGA virtual display device; can run graphical dos apps in a window.