Desktop Operating Systems Mission Memo

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Executive Summary

This memo provides an overview of the Desktop Operating Systems mission. We see four major challenges in our business:

- Launching Chicago and selling over 30M OEM and retail units in the first twelve months
- Reaching $3B in desktop OS revenue by FY97
- Making the entire line of Windows products: Windows NT, Chicago, At-work and Winpad - as a scalable asset and not a confusing liability
- Keeping middleware such as Notes, Novell and DSOM at bay

The challenges we face, and the efforts required by various groups, are summarized as follows:

	Key Chicago Launch Tasks	Key Target	Key competitive tasks
Product Marketing	• Control PR messages before launch • Broad distribution • Innovative tactics to attack the consumer market	• 20% penetration of the Windows installed base over 24 months	• Hammer home the lack of long term viability for OS/2
OEM	• OEMs shipping Chicago on day one	• $40/PC average at minimum	• Cut off counterfeit • No OEM wins for Personal Netware, DR DOS, PC-DOS or OS/2
Large Account Sales	• Lay early groundwork for positive evaluation	• Chicago wins in 25% of large Windows accounts within 12 months	• Use EMS and Chicago to keep Notes from establishing a foothold
Medium and Small account sales	• Build a Chicago business case for VARs	• VAR channel trained and armed before launch	• Use WfW/Chicago as the foundation of an MS solution against Novell
DRG	• Chicago-exploitive versions of major apps	• 50% of the top 100 apps by 90 days after launch	• Notes • Appware • OS/2
PSS	• Cover 100% of calls at launch	• Quality support support at less than 6% of revenues	• Keep customers happy on electronic forums

In particular, we view Chicago and NT as filling the following market spaces:
- Chicago: High-volume desktop OS in 1994/95; small/fast desktop OS in 1995/96
- NT: High-end, low volume desktop OS in 1994/95; upsell to the high-volume desktop OS in 1995/96

Ultimately, our goal is to merge Chicago and NT and make them different modes of one desktop OS.

Terminology

Follow-on versions of Chicago have been termed "Nashville" (formerly, "Cleveland") and "Memphis". Nashville is a minor upgrade ("1.5") synched with Cairo, while Memphis is the next major upgrade ("2.0").

Market Overview and Revenue Analysis

The analysis on the following page outlines historical and projected PSG revenues, and assumes the One Chicago packaging option.

The analysis makes the following assumptions in projecting future revenues:

- *PC market growth:* As per Joachimk estimates
- *OEM royalties:* Conservatively estimated to increase slightly over the period
- *OEM pentration:* Estimated to increase slightly as we close off naked systems and as Chicago replaces PC-DOS on some IBM PCs
- *Upgrade pricing:* The street price of a Windows Upgrade will increase from today's $49 to $99. Given an expected channel mark-up of 8%-18%, this price translates to $82 revenue to Microsoft
- *Future of the Full Packaged Product:* The FPP exists only to create a price ceiling, and so sales will be modest
- *Windows NT sales:* Projected to accelerate after the release of Cairo in mid-1995
- *Upgrade penetration:* Windows Upgrade unit projections assume an annual upgrade cycle, with major releases in FY95 and FY97 (13% penetration) and a minor release in FY96 (7% penetration)
- *No Frosting or Win NT revenues included:* These are discussed in the "Product Strategy" section.

Market Overview & Revenue Analysis						
Penetration	FY91	FY92	FY93	FY94E	FY95	FY96	FY97
Total Intel PCs	22,000	25,300	32,200	38,300	45,000	53,000	60,000
Total MS OEM penetration	60%	62%	58%	67%	67%	68%	69%
Units					5,000	2,000	0
OEM - MS-DOS	13,251	15,744	18,800	25,500	25,150	34,040	41,400
OEM - Windows	3,071	5,723	12,600	19,100	250	100	100
Retail - Windows FPP	1,994	3,410	3,937	2,500	300	700	1,300
Retail - All Windows NT	▓▓▓▓			100	250	0	0
Upgrade - MS-DOS	928	2,700	6,126	2,860	6,500	5,261	14,195
Upgrade - Windows	513	1,941	1,209	979			
Revenues					$85,000	$30,000	$0
OEM - MS-DOS	$268,535	$330,166	$330,000	$455,000	$955,700	$1,361,600	$1,656,000
OEM - Windows	$50,660	$102,255	$220,000	$370,000	$37,500	$15,000	$15,000
Retail - Windows FPP	$141,993	$231,937	$246,605	$140,000	$60,000	$105,000	$195,000
Retail - All Windows NT	▓▓▓▓			$25,000	$10,000	$0	$0
Upgrade - MS-DOS	$50,677	$143,293	$263,136	$110,000	$533,000	$431,361	$1,163,965
Upgrade - Windows	$28,396	$91,653	$60,908	$40,000			
Total Revenue	$540,265	$899,303	$1,120,649	$1,140,000	$1,681,200	$1,942,961	$3,029,965
Per unit revenues					$17.00	$15.00	$15.00
OEM - MS-DOS	$20.27	$20.97	$17.55	$17.84	$38.00	$40.00	$40.00
OEM - Windows	$16.49	$17.87	$17.46	$19.25	$200.00	$150.00	$150.00
Retail - All Windows NT	▓▓▓▓			$250.00	$150.00	$150.00	$150.00
Retail - Windows FPP	$71.21	$68.02	$62.64	$56.00	$40.00	$40.00	$40.00
Upgrade - MS-DOS	$54.60	$53.07	$42.95	$38.46	$82.00	$82.00	$82.00
Upgrade - Windows	$55.33	$47.22	$50.39	$40.84			
Non-MS-DOS OEM units							
Naked		4,500	9,000	5,800			
PC-DOS		2,800	3,000	4,000			
OS/2		400	1,000	1,700			
DR DOS		1,500	700	500			
Unix		300	300	300			
Netware, Banyan, etc.		100	200	400			
Windows NT				100			
Assumptions					13.0%	7.0%	13.0%
Upgrade penetration					50,000	75,150	109,190
Windows installed base							

In addition, over the period FY95 - FY97, we project that desktop OS gross margin will increase three to five points based on two assumptions about our retail business:

- *Increased per unit revenue*: The revenue to Microsoft for an OS Upgrade will go from $40 today to over $80 for Chicago
- *Advent of CDs*: CD SKUs will comprise over half of all upgrades over the period as compared to 0% today. CD upgrades cost $6 less to produce than floppy upgrades, which translates to over seven margin points ($6/$82)

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Business Investments

Headcount
Overall Systems Division headcount is expect to remain flat over the next three years. PSG headcount will also remain flat, modulo reorganizations and reallocations of personnel to align along Desktop OS lines.

Alliances, acquisitions and purchased technology
The technologies acquired for Chicago are:
- IME (Far Eastern support): $1.6M already paid for Win 3.1 and NT work; another $1.05M due between now and 4/1/95
- File viewers: Licensed from SCC for $462K plus marketing benefits
- Tape backup support: Licensed from Arcada for $250K plus marketing benefits
- Image color matching technology: Licensed from Kodak for $347K
- System design work: Cypress Software, $135K
- PCMCIA services: Licensed from SystemSoft for $100K
- Other miscellanoues: Includes font rehinting ($42K); replacements for Paintbush ($88K), Terminal ($20K), and MS-DOS Edit ($15K); client backup agent ($75K), a parallel port NDIS driver ($25K), accessibility work ($30K), and other miscellaneous ($50K)
- Outside contractors: Budgeted at $3.4M for Chicago

We expect that Nashville, which is not envisioned as a core technology release, will rely more on licensed technology than Chicago in order to free up development resources for Memphis. Also, PSG has historically not paid royalties and we expect this trend to continue.

Assumptions: Technology/Platforms

The gating hardware for a desktop operating system release is the installed base, although not all of it; data from past operating systems upgrades indicates that almost 90% of purchases were made by customers who had purchased PCs within the last three years. Using this data, we set the minimum configuration as the "sweetspot" PC three years before the release date, and set the recommended configuration as the "sweetspot" PC on the release date. The chart below outlines these hardware targets as well as new technologies the operating system will need to exploit over time:

Release	Release Date	Minimum configuration	Recommended configuration	Other exlpoited hardware and new technologies
Chicago	H2, 1994	386DX, 4MB, VGA	486, 8MB, SVGA	Net card, CD-ROM, sound, modem, Pen, tape drive, PnP, multimedia, Internet
Nashville	H2, 1995	486, 4MB, SVGA	Pentium, 8MB, SVGA	DSP, MM video hardware support, video conferencing, ISDN, PDA's
Memphis	H2, 1996	486, 8MB, SVGA	Pentium, 16MB, SVGA	ATM, more cool MM

We should note that "minimum configuration" as used here is a realistic minimum, and that users with the minimum configuration will find product performance acceptable.

Product Strategy
The product release plans for PSG over the next three years are as follows:

Product	CY 1994	CY 1995	CY 1996

Win NT version	Daytona - Q2 • Performance • WOW • OpenGL	Cairo - Mid-year • Server emphasis • OFS • DFS, DS, Directory • OLE-based shell	Memphis NT - H1 • OFS • OLE/VB customizable UI
Chicago-based version	• Chicago - H2 • Ease of use, PnP • 32-bit OS, API's; OLE2 • Improved connectivity • Mobile support	Nashville - Mid-year • Cairo client-side support • Features cut from Chicago • Improved MM support • Improved connectivity, mobile	Memphis - H1 • Same as Memphis NT

Product packaging strategy

In considering packaging and pricing options to close this gap, we followed these guidelines:
* Maintain or grow OEM market share without lowering price
* Seed the Win32 API as broadly as possible
* Have a simple and compelling Chicago message
* Rationalize today's multiple client OS offerings

A "Base/Premium" packaging strategy was considered at length but ultimately rejected. This strategy would have defined two versions of Windows: Base, a subset of Chicago sold to OEM's, and Premium, the full set of Chicago capabilites targeted at the retail customer, and available to the OEM at a premium price. We rejected the Base/Premium strategy because:
* Creating two versions of Windows would have caused mass confusion
* The Chicago feature set cannot be divided into two products each with a legitimate positioning

Our final Chicago packaging strategy defines only one version of Windows; OEM and retail Chicago are the same bits. We are also creating a "Frosting" product which is simply an add-on to Chicago, separately sold, and positioned as an add-on. A sample pricing matrix is as follows:

Chicago	$40 (Price to OEM)
Chicago Upgrade	$82 (Price to channel)
Chicago Frosting	$40 (Price to channel)

This alternative also generates two additional sources of revenue:
* *OEM*: OEMs pay an additional $10 to license Frosting or smaller amounts to license individual components. We estimate that 10% of PCs would ship with Frosting
* *Retail*: We estimate 20% of retail Upgraders would purchase Frosting, and 5% of OEM Chicago customers would buy Frosting at retail.

This plan is estimated to generate an additonal $200M in FY97 revenue. We view this plan as having manageable risk.

Windows NT packaging

Our ultimate goal is to have as much commonality between desktop and NT Windows over time, and end the duality between them. Ultimately we plan to package the two as different modes of the same high-volume, desktop product (much like Standard and Enhanced Mode in Windows 3.0/3.1).

Even though Windows NT has much higher resource requirements than Chicago, and will for the foreseeable future, it could be packaged as a mode of Windows were it not for hardware/software compatibility and device support issues. Once NT has a higher level of compatibility, it will more tightly linked to the high volume desktop product. We see this happening in the Cairo/Memphis timeframe.

Competitive Product Issues

Chicago is not a Notes killer: Chicago will help MS compete against Notes, but competing directly against Notes is part of WGA's strategy and not Chicago/Desktop OS

Competitive advantages vs. OS/2
- Installed base / brand name: Most Windows users would never consider OS/2 an upgrade path
- Hardware and software compatibility: Advantage today, becomes even bigger if Win32 applications become prevalent. We have much better device coverage and sustainable because Chicago supports existing real-mode drivers.
- Performance and lower resource requirements: Unlikely that OS/2 will ever run properly on 4MB or outperform Chicago on 8MB
- PnP; ease of setup and configuration: OS/2 is difficult to configure. OS/2 is likely to have some limited form of PnP, which may reduce Chicago's advantage.
- Ease of use: Workplace Shell is unusable by novices
- Better connectivity and manageability: OS/2 has no built-in networking today. Chicago will have clients, peer, mail, desktop management, backup, great Novell support, great NT AS support, etc.
- Better support for notebook PC's: In addition to size advantages, Chicago will have great docking station support, remote network access, fax, remote mail, file synch.
- Win32 and OLE2 -32: OS/2 won't have it. OS/2 is a dead-end for new Windows API's.

Competitive disadvantages vs. OS/2
- Marketing budget: OS/2 marketing is a priority at IBM. We estimate OS/2's FY94 U.S. marketing budget at $25M as opposed to $6M for all of PSG (MS-DOS and Windows); IBM spent an estimated $2M on the Fiesta Bowl alone.
- Sales force focus: IBM's corporate sales force is pusing OS/2 in every corporate account
- Development focus: All IBM development focus is on OS/2, while we have split efforts between Chicago and Cairo which is very expensive and requires huge internal coordination efforts
- Robustness: OS/2 runs Win16 apps in separate VMs, giving it a perceptual robustness advantage. We can address reality of robustness in Chicago, but not the perception until Nashville.
- Pre-emption: Similar to above; we can address by doing some form of Win16 pre-emption in Nashville
- Multimedia: Preemption and threads give OS/2 the advantage. Should be addressed in Nashville.

Competitive advantages vs. Mac
- Price/performance: This advantage could be lost if Power PC and PPC-specific apps deliver as promised
- Range of available software and hardware: ISV and IHV momentum are with Windows
- Development tools: Neither of the two major tools vendors develops for the Mac
- Multitasking
- Modern look: The Mac UI has become dated; expect Apple to remedy this problem
- Connectivity. Still a weak area for Apple if you want to connect to the corporate net. Novell's upcoming Mac client will help this problem a lot

Competitive disadvantages vs. Mac
- Ease of hardware configuration: Chicago should diminish this advantage substantially
- Ease of software configuration: App uninstall would help here
- General OS ease of use. Apple will still be ahead in some areas but the gap will have been significantly closed. Apple is very worried.
- OS multimedia services: Quicktime is considered better than Windows MM. Not expected to change until Nashville.
- DTP. Apple stays ahead in DTP and the high-end graphics arts realm.
- 2D/3D graphics and multimedia tools: Selection of tools for Mac is much wider than for Windows.

- Mobile support. Apple was ahead with Powerbook and ARA. Chicago should catch up and hopefully surpass the Mac.

Marketing Strategy

Short Term (pre-Chicago)

Desktop OS marketing strategies before Chicago ships are:
- WfW: Position as a speed upgrade to Windows, which has been done with notable success in Canada and the U.K. Worldwide sell-through for the WfW Upgrade in December 93 was 200K
- Windows NT: As a desktop OS, position towards the high-end, workstation market as a Unix-like competitor
- MS-DOS 6.2 Upgrade: Being used in the U.S. to test broad-reach, consumer marketing tactics in preparation for Chicago

Chicago time-frame

Customers

The principal customer segments are:
- Opinion leaders: Press and highly influential users, such as beta or early experience testers, and those active on electronic forums
- First Wave: Defined as users who typically upgrade their operating system; about 20% of all users
- Next Wave: Defined as users who buy software or have purchase influence but typically do not upgrade their operating system; about 40% of all users
- Small and medium organizations: Any organization that has a "one-to-many" buying pattern but does not have direct contact with the MS field sales force
- Large organizations: Those companies, governments and universities in direct contact with the MS field sales force
- VARs: Especially good customer for Chicago due to improved connectivity and manageability
- OEMs: Any manufacturer whose business model necessitates bundling Windows
- ISVs: Commerical vendors and in-house authors of Windows applications

Communication Methods

- Positioning: The Chicago positioning, although not final, is expected to rest heavily on ease, being a powerful platform for the future, and communications
- PR: As always, PR will be the most important communications tactic for all customer segments, and we plan to communicate through both trade and extended-reach PR vehicles. However, while PR alone is sufficient for First Wave communications, it is not sufficient for any other segment.
- Advertising: Unnecessary for the First Wave, although expected to be tested in a larger and more expensive role in Second Wave communications
- Other communication methods (Direct mail, collateral, point of sale, etc.): Not expected to play a major role except in specific targeted marketing efforts

Marketing Spending

PSG marketing efforts have always relied heavily on PR. Consequently, the percentage of retail revenue spent on PSG marketing has traditionally been low, and as low as 3% in the case of the MS-DOS 6 Upgrade.

The biggest potential change in the PSG marketing model is a shift to a more intensive appeal to the Next Wave. Market research indicates that awareness is a huge problem in the Next Wave, and we have failed to date to devise an inexpensive yet effective way to speak to them. Should we decide to use tactics such as advertising and event marketing, the cost of marketing would increase.

Support

Major support issues are:
- Support restrictions: We are considering moving to 30-day support to Chicago from the current 90-day U.S. model. In addition, we are unlikely to provide any free support on high-support components such as TCP/IP, peer, manageability, network install, etc.
- Launch staffing levels: The lesson from MS-DOS 6 is that packed PSS lines fuel the perception of product problems and create frustrated, vocal customers. The old PSS model of staffing to 80% of peak demand is too risky with high-volume, high-visibility products. In the future we will staff to 100% of peak demand.
- Launch resources: Inital forecasts indicate that Chicago may require as many as 800 additional technicians in the U.S.; flexible outsourcing of product support is an inevitability. Obviously, lots of creative thought needed here.
- Third party support: Solution providers and other third party support providers will be trained to support future releases

Sales Strategy

- Opinion leaders: Use tradtional PR tactics and new information highway-based tactics to create a buzz and build pre-launch momentum
- First Wave: Create a sense of "coolness" through pre-launch coverage in the trade press
- Next Wave: Use non-traditional vehicles, channels, bundles and big ideas to reach deep into the installed base of Windows users
- Small and medium organizations: Attack through SP's and jumpstart evaluation through massive early experience programs
- Large organizations: Remove barriers for mass adoption
- OEMs: Get early committments to ship Chicago
- VARs: Train and demonstrate how they can make money on Chicago
- ISVs: Smother with information, create a sense of inevitability of success, and provide clear direction on how best to exploit new services in Windows

Distribution Strategy

- Breadth: Target Chicago breadth is 20K outlets in the U.S. as compared to the MS-DOS 6 Upgrade, which hit a Microsoft-record 13K outlets at launch. Potential channels include supermarkets (unlikely, however, at $99), video and record stores
- International: Spend more time helping the subs increase distribution
- Leverage: Use partners to create inexpensive, incremental breadth. Example: DOS for Dummies got us a new channel (bookstores) and resulted in 1,000 incremental outlets in the U.S. at almost no cost
- CD: Chicago is first test of distributing encrypted bits on CD
- OEM: Use OEM's as a vehicle for distributing the CD containing encrypted bits
- On-line: Could be used to deliver patches and small step-up products

Packaging/Licensing Model

In addtion the the alternatives dicussed in the "Product Stategy":
- CD-only sku: Options are a CD-only sku or including a CD in all floppy sku's. CD-only sku's have not done well to date. However, since the cogs savings are so large, our goal is to make the CD sku so appealing that no CD-ROM drive owner will buy the floppy sku. For example, the CD-only sku would include printed documentation, come in the same size package as the floppy sku, and include extra bits. Another alternative is to charge more for the floppy sku.
- "Highest and best use": We are currently exploring the best use for the remaining space on the CD sku: Encrypted MS products such as Consumer or Office, multimedia clips to encourage purchase of the CD sku, renting out space to other ISV's, on-line documentation, catalogue selling, etc.
- Resource Kit: Maybe used to offload corporate features to save on cogs in the floppy sku

Programs and Initiatives

Aside from marketing and PR, the major programs under consideration include:

- Early evaluators: Seed huge numbers (250K in the U.S.) of final beta units to build momentum and squelch the perception of a .0 release
- Information highway marketing: Use the information highway to create a building buzz on Chicago

Competitive Marketing Strategies

OS/2
- Push, Push, Push OEMs to ship Chicago and not just license it
- Position as a Windows utility and a dead-end
- Focus, focus, focus on driving ISVs to Win32
- Conduct thorough technical analysis of all OS/2 product releases
- Aggressively publicize product incompatibilites, present and future, and other shortcomings via IR and the information highway

Novell
- Provide great Microsoft Netware client to keep Novell client off the desktops and demonstrate to customers that we want to work with Netware.
- Positon Personal Netware as not adding any value over the Netware 4.0 client
- Position DR DOS as "as incompatible as ever"
- Conduct thorough technical analysis of all product releases
- Aggressively publicize product incompatibilites, present and future, and other shortcomings via PR and the information highway

Apple
- Position Mac System as an OS past its prime and losing ISV momentum
- Neutralize Apple's remaining ease-of-use advantage - "They still do some things easier, but unlike the past, now we do some things easier." Highlight the button as an ease-of-use innovation.
- However, avoid getting into an ease-of-use battle with Apple

Dependencies and shared objectives

- Microsoft Applications: The most important ISV of all. Relying on delivery of great Chicago-exploitive apps at or near launch to make our "Win32 everywhere" strategy credible
- DRG: Relying on to drive ISVs to deliver great Chicago-exploitive, Win32/OLE2 apps
- OLE2: Many components of product depend on OLE2-32.
- WGA: Delivering information center and mail technology for Chicago. Goal is that positioning of Capone/Local Message Store/EMS (the "Information Center") will be one positioning leg or sub-leg of Chicago
- MOS: Delivering information highway connectivity, including Internet connectivity, for Chicago. Dependent on Chicago to seed the MOS client
- Cairo: Building key technology for Nashville and Memphis releases
- At-work: Delivering fax and TAPI. Dependent on Chicago to building an installed base of At-work-compatible fax clients
- Winpad: Delivering PIM for Chicago. Dependent on Chicago to seed Winpad-compatible PIM
- External: Dependent on OEMs to license and ship Chicago
- External: Dependent on great Win32 apps, PnP hardware and PnP PCs for future success
- External: Dependent on Intel to keep us price/performance competitive vs. System 7 and the Workplace OS on the Power PC

Key success factors

- A Chicago that delivers performance, stability, compatibility, and features that work as promised
- OEM's adopt Chicago quickly
- Chicago-exploitive software and hardware
- Positive PR and reviews, positive word of mouth from beta testers and corporate evaluators.

Risks

- Bad PR: Chicago not perceived as rock solid, shortcomings, missing features, or the press turns on Chicago
- OEMs stall on migrating to Chicago
- IBM successfully clones Win32 or OLE2
- ISVs stall on Win16
- OS/2 2.2 runs well on 4MB or outperforms Chicago on 8MB
- The combination of Power PC and PPC-specific Mac apps creates an overwhelming price/performance advantage vs. the combination of the Pentium, Chicago and Win32 apps