Microsoft OEM Briefing
Windows Into The Future

MICROSOFT
TM
WINDOWS
TM

TAIPEI 1993

Plaintiff's Exhibit
5529
Comes V. Microsoft

MS 0104368
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RBC 04409
1993 Far East Briefing
Microsoft OEM
Microsoft Systems Strategy

Paul A. Maritz
Senior Vice President
Microsoft Corporation

Agenda

- Overall objectives
- Windows™ market status
- Windows family overview
- Windows interoperability
- Windows and MS-DOS® futures
- Windows and system design
Microsoft Systems Goals

- Scale to meet broad range of customer needs and to meet broad range of hardware
- Worldwide products
- Protect customer investment
- Interoperate in a heterogeneous world
- Make it cheaper and easier to own and operate Windows-based systems
- Open the way to new functionality in a compatible way
- Continue to be an open platform for hardware and software vendors

Windows Market Status

Windows is now a true standard:
- More than a million new users per month
- 25 million copies of Windows 3.x sold
- 1000+ OEM licenses; 110+ preinstall
- 5000+ commercial Windows-based applications
Graphical Application Momentum

$980 million
Jan. - Nov. 1991
Windows 23%
OS/2® 2%
Mac® 13%
UNIX® 1%
MS-DOS 61%

$1.96 billion
Jan. - Nov. 1992
Windows 39%
OS/2® 2%
Mac 14%
UNIX 2%
MS-DOS 42%

Source: Software Publishers Association

Product Displaying This Logo Is Easy To Use

Answers Research Logo Study - February 1993

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Product Displaying This Logo Is A Safe Buy

Windows™ Family: Scalable Operating System

Consistent and complementary
- User interface
- Development environment
- Application deployment

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Windows Family Framework Summary

- Maintain now and in the future, a family of complementary Windows implementations to meet needs of the key customer segments
- Keep API, UI commonality (where appropriate)

Microsoft® Windows Family Products - 1993

A family! The products are complementary and do NOT replace each other.
Microsoft Committed To Far East Markets

Release of Windows for the Far East

- Windows 3.1: Q2 '93
- Windows for Workgroups: Q3 '93
- Windows NT 3.1 (Japan) - beta: Q2 '93
- Windows NT 3.1 (Japan) - final: Q4 '93
- Windows NT 3.1 (Taiwan, Korea): Q2 '94
- MS-DOS 6: Q4 '93

Windows For Workgroups

- Windows NT
  - Advanced Server
- Windows NT 3.1
- Windows for Workgroups
  - Windows 3.1
  - Modular Windows

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Windows For Workgroups
Makes it easier to work together
- Basic networking built in to Windows
  - File and printer sharing
  - Email and scheduling
  - Network DDE
- Ideal for small office
  - Low cost
  - No dedicated server or network operating system
- Integrates into existing networks

Windows NT And Windows NT
Advanced Server

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Windows NT

The most powerful operating system platform for client-server computing

- Robust: protected, preemptive, recoverable
- Secure
- Scalable: symmetric multitasking
- Integrated networking
- Advanced I/O system
- Manageable
- Compatible with existing hardware and software (MS-DOS, Windows, OS/2, POSIX applications)

Windows NT 3.1

Windows NT 3.1
High-end desktop
- Superset of Windows and Windows for Workgroups 3.1
- Security and robustness
- 32-bit and preemptive multitasking
- Portability

Windows NT 3.1
Advanced Server
High-end server
- Superset of Windows NT
- Centralized administration
- Advanced network security
- Remote access service
- Macintosh^ client support

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Microsoft*
Windows NT Status

- Beta 2 shipped in U.S. in March
- 50,000+ Windows NT SDKs
  - Survey: 62% plan to deliver Windows NT applications
  - 75 development tools available
- 15,000 beta test sites
- Strong corporate interest
- Final U.S. release expected by end of Q2 '93 - Japan in Q4 '93

ISVs Porting To Windows NT

- Business solutions
- Accounting
- Sales/inventory
- Manufacturing
- AS/400®
- Vertical systems
- Retail systems
- Mfg. control

- UNIX
- Technical
  - CAD/CAM
  - Engineering
  - Scientific
- MS-DOS
- Windows
- Traditional productivity
  - Spreadsheets
  - Word processors
- OS/2

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Modular Windows

- Non-PC devices: CD players, hand-holds, office devices, etc.
- Subset of Windows function, different UI

Windows In A Heterogeneous Environment
1. LAN Manager Client-Server Environment

2. Providing Transparent Access To Other Environments:
Windows Open Services Architecture
Windows Open Services Architecture

- Common application services
  - Data access - open database connectivity (ODBC)
  - Messaging - Mail API (MAPI)
  - Licensing - license service API
- Communication services
  - Windows sockets API
  - Windows SNA API
  - Windows RPC
- Vertical market services
  - WOSA extensions for financial services
  - WOSA extensions for real-time market data

Network And System Administration

- Windows NT Advanced Server
  - Unified management of users and servers
- Hermes: Windows system administration package
  - Available in late '93
Windows System Management

SNMP agent part of Windows NT
NetView® services part of SNA Services
Enterprise management connectivity components
Windows NT system management center ("Hermes")
Software distribution Software installation Software hardware inventory Remote control
Managed entities
Windows 3.1 full support Windows NT full support MS-DOS partial support

Future Of Windows And MS-DOS
What Is "Snowball"?

- Successor to Windows for Workgroups 3.1
- Enhancement to Windows 3.1
  - New File Manager, Print Manager
  - Performance: VFAT, 32-bit SCSI drives
  - EFAx
  - RAS
- Fast, flexible network client
- Peer server
- Designed for OEM preinstallation
  - Network adapter may be added later

What Is "Chicago"?

- Successor to Windows, Windows for Workgroups, "Snowball"
  - Targets installed base hardware - minimum 386SX/4 MB
  - Easy upgrade
- Focused on ease of use
  - New UI
  - "Plug and Play"
- Complete operating system: 32-bit internally and externally - will support large subset of Win32™ API
Future Of MS-DOS

- MS-DOS 6 released in U.S. - sales results very successful
- Asian MS-DOS 6 releases in Q3 and Q4 '93
- MS-DOS 7 will be based on technology from Chicago - 32-bit kernel, multiple VDMs

What Is “Cairo”?  

- Successor to Windows NT (will run all Win16 and Win32 applications)
- Enables ease of use and new types of applications, for example:
  > Information access by query
  > Seamless view of network resources
Object Linking And Embedding - OLE

- A key aspect of the Windows strategy
- Each step has value to end-users!

| OLE - 1 (’92): Enables embedding of new data types into any application: voice, video, etc. | OLE - 2 (’93): Enables true compound documents, and application programmability | Cairo (’94): General component (object-oriented) software in an extensible, distributed environment |

“Cairo”

Object technology (compatibly builds off OLE - means OO apps. available)

Distributed systems technology (fully transparent, scalable to very large nets)

Windows NT (upward compatible, leverages Windows NT foundation - portable, secure, etc.)
Windows And System Design Issues

Our Primary Challenge...

Making it Easier
Making It Easier:
PCs With Microsoft Windows
Ready-To-Run

♦ Simplify purchase: logos on hardware and software for Windows
♦ Enable optimized PCs with Windows
  > Special hardware and drivers
  > Customizable setup
  > Preinstallation of applications
♦ Improve customer satisfaction
  > First 15 minutes experience
  > Reduce support costs

Making It Easier

♦ Improving usability (location of switches, connectors, etc.)
♦ Improved system feedback
  > Windows™ Printing System
  > Extended capabilities port
“Plug And Play”

- An open initiative to develop standards for automatic hardware/software configuration
- An extensible framework to cover multiple bus standards, and multiple operating systems

Preparing For Plug And Play

- Autoconfiguration for Plug and Play ISA cards
  > Version 0.9 specification available now
- Participate in Plug and Play workshops and design reviews (Email: plugplay@microsoft.com)
- Windows™ Hardware Engineering Conferences
- Tell suppliers that you will require Plug and Play hardware and drivers
Windows Enables Increased Hardware Design Latitude

- VxDs for Windows 3.1
  - Virtual device drivers virtualize hardware, BIOS
- Windows NT HAL and drivers
  - Hardware abstraction layer virtualizes interrupts, DMA, bus architectures, timers and counters, MP startup code, etc.
  - Layered driver model maximizes design flexibility, minimizes cost of ECs
- Enables hardware innovation, differentiation, segmentation, value-add
- Release of Windows will continue this trend

Optimizing The Hardware-Software Fit

- Importance of great device drivers: DDks for Windows, Microsoft porting lab
- Optimize system performance of Windows applications with Systems Measurement Tool (SMT) for Windows
- Hardware Compatibility Tests (HCTs) for Windows and Windows NT
- Windows Hardware Engineering Conference (Sept./Oct. in Asia, Feb./Mar. in U.S.A.)
- Microsoft compatibility lab certification service
- Plug and Play support will be very important
Design For Manageability

- Provide hardware solutions that:
  - Enable management of remote, distributed systems
  - Integrate well with the OS system management solutions
- Support DTMF for system management
- The hottest topic for MIS today

New Market Opportunities

- Windows for Workgroups: build PCs that are network-enabled/Snowball
- Windows NT
  - Corporate workstations
  - Server-class systems (more RAM, disk, better I/O, fault tolerance, MP support)
- Modular Windows: home, hand-held, office markets
- Portables: APM, Flash, Pen; Chicago release provides full complement of services for portables
- Important options: audio, video acceleration, tablets, CD-ROM, etc.
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Microsoft OEM
Microsoft® Windows NT™
Overview

Carl Stork
Director
Windows Platform Definition
Microsoft Corporation

The Windows™
Family Solution

Windows NT
Windows for Workgroups

Common
◆ User interface
◆ Applications
◆ Programming model

Windows NT
Advanced Server

Server and MP
RISC

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Microsoft®

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Windows NT 3.1

"The most powerful operating system platform for client-server computing"

Features and power of an advanced operating system + The ease of use and application support of Windows

Windows NT Design Goals

- Powerful
- Reliable
- Open
- Easy to manage

- Meet corporate, mission-critical computing needs
- Complement Windows/MS-DOS®
Windows NT Design Overview

- Modular, microkernel-based architecture
- Excellent, scalable performance
  - Fully 32-bit, multithreaded, multiprocessor system
- Robust, reliable system
  - Fully protected, preemptive multitasking
- Portable - Intel® x86, MIPS, Alpha
- Comprehensive security model (C2)
- Built-in networking and peer server
- Support for Windows and MS-DOS applications
- OS/2® and POSIX subsystems
- High-performance, high-capacity I/O
- Easy, broad hardware support and adaptation

Windows NT File System (NTFS)

- Supports large disks and files; uses 64 bits for file sizes and offsets
- Crash recovery for large volumes takes seconds not minutes
- Unicode file names
- Files can have both long and 8.3 names
- Security - ACLs on files
- Extensible - can be enhanced without obsoleting volumes
Windows NT - SMP Features

- Multithreaded API for application
- SMP support integral to Windows NT design
  - MP-safe microkernel
  - Entire OS is multithreaded
  - All threads (system and user) scheduled across all processors
- Device drivers MP-ready
- Tested on wide range of MP hardware from COMPAQ SYSTEMPRO® through NCR and Sequent® Symmetry®
- Designed for easy hardware adaptation

Windows NT Multiprocessing

- Typical design

```
<table>
<thead>
<tr>
<th>CPU</th>
<th>CPU</th>
<th>CPU</th>
<th>CPU</th>
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<tbody>
<tr>
<td>Cache</td>
<td>Cache</td>
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</tbody>
</table>
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System bus

Glue logic
EISA bus

High-performance device

System memory

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Hardware Abstraction Layer (HAL)

- Isolates Windows NT from specific hardware features
  - Allows shrink-wrapped OS on wide range of systems
- Provides uniform model for device drivers
- Loaded and bound by OS loader at boot time
Windows NT Products

<table>
<thead>
<tr>
<th>Windows NT</th>
<th>Windows NT Advanced Server</th>
</tr>
</thead>
</table>
| ♦ High-end PCs
  ▶ Developers
  ▶ Power users
  ♦ Workstations
    ▶ Business (corporate)
    ▶ Technical workstation |
| ♦ File and print server
  ♦ Database server
  ♦ Communications server
  ♦ Messaging server
  ♦ Business application server
  ♦ Workgroup/department/enterprise server |

Windows NT Momentum Overview

♦ 50,000+ Windows NT SDKs sold worldwide in seven months
♦ 500+ applications committed in fall
  Win32™ catalog
♦ Wide availability of tools
  ▶ 70+ development tools already for sale
  ▶ Leading mainframe tool vendors (e.g., CA, D&B, Legent, TI, KnowledgeWare) are porting to Windows NT
  ▶ Leading UNIX® tools and applications moving to Windows NT
Windows NT Momentum Overview

- SDK survey results
  - 62% plan to deliver applications within the next 12 months
  - Over 2000 retail applications
  - 3800 applications by/for corporate users
  - Over 2300 mission-critical applications by ISVs and "in-house"
  - 25% of the applications being ported from UNIX, VMS®, and MVS

ISVs Porting To Windows NT

Business solutions
- Accounting
- Sales/inventory
- Manufacturing

Vertical systems
- Retail systems
- Mfg. control

OS/2
- Traditional productivity
- Spreadsheets
- Word processors

UNIX
- Technical
  - CAD/CAM
  - Engineering
  - Scientific

AS/400®

MS-DOS
- Windows

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Windows NT Open Platform: Hardware

- Latest compatibility numbers
  - Intel/RISC: 864 uniprocessors, 21 multiprocessors, 6 R4000 systems
  - Peripheral devices: 649 printers, 49 SCSI adapters, 26 display adapters, 26 network adapters

- Layered device driver architecture
  - NDIS 3.0, SCSI miniport, video

Corporate Interest
Information Week, 2/15/93
Have you delayed or canceled plans for other systems because of Windows NT? Customer survey
Windows NT Is: Powerful
Get more work done

- Easy to use - it's Windows!
- Runs multiple applications at the same time
  - Preemptive multitasking
- System is always available - responsive

Windows NT Is: Powerful
Scalable power

- Runs on 32-bit and 64-bit Intel and RISC hardware
- Symmetric multiprocessor support
- High-capacity (supports 4 GB RAM and over 17 million TB of storage)
Windows NT Is: Powerful
Powerful integrated networking services

- Integrated consistent access to heterogeneous environment
  - Built-in networking
  - Access to UNIX, DEC®, HP®, SNA, NetWare®, VINES®, NFS, LAN Manager servers
- Integrated Mail and Schedule+

Windows NT Is: Reliable
Stays available

- Keeps running if applications fail
  - Protected Application Subsystems (PASS)
  - Complete memory protection
  - Hardware isolation
- Protects against hardware failure
  - UPS
  - Fault-tolerant file system (NTFS)
Windows NT Is: Reliable
Get back in business

- Fast recovery after hardware failure
  - NTFS transaction tracking
- Accurate recovery of data
  - Integrated back-up
  - Advanced fault tolerance in Windows NT Advanced server
  - RAID 5
  - Disk mirroring and duplexing

Windows NT Is: Reliable
Secure from tampering

- Protects against inadvertent or malicious tampering
  - Government C2 certifiable
  - User-level security with mandatory logon
  - Every object in system is secure
  - Secure file system
Windows NT Is: Reliable
Easy to manage and service

- Integrated system management services
  - Configuration management
  - Performance management
  - Disk management
  - User management
  - Centralized administration with Windows NT Advanced Server

Windows NT Is: Open
Open platform

- Open network support including:
  - NetWare
  - Banyan® VINES
  - LAN Server
  - Pathworks™
  - SNA

- Built-in standard protocols
  - TCP/IP
  - NetBEUI
  - SNMP and NetView®
Windows NT Is: Open

Open platform

- Broad hardware support
  - Hundreds of platforms (desktops and servers)
- Wide variety of PC peripherals supported
- Device driver kits, HAL kits
- Broad ISV support
- Support for MS-DOS, Windows 3.1, Win32, OS/2 and POSIX applications

Windows NT Advanced Server

- Windows NT
- LAN Manager
  - Centralized administration
  - Advanced fault tolerance
- Advanced connectivity services
  - Remote Access Server
  - Services for Macintosh®
### Windows NT Is: Powerful

<table>
<thead>
<tr>
<th>Feature</th>
<th>Windows NT</th>
<th>Advanced Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalable</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Portable</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Huge capacity</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Security</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Integrated networking</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Local system management</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Distributed security model</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Remote Access Service</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Macintosh connectivity</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Central management</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

### Windows NT Is: Reliable

<table>
<thead>
<tr>
<th>Feature</th>
<th>Windows NT</th>
<th>Advanced Server</th>
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</thead>
<tbody>
<tr>
<td>Microkernel</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Protected memory</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Status management tools</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Secure</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Basic fault tolerance (UPS, NTFS)</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Mirroring</td>
<td></td>
<td>x</td>
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<tr>
<td>Duplexing</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>RAID 5</td>
<td></td>
<td>x</td>
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<tr>
<td>Platform for powerful server applications</td>
<td></td>
<td>x</td>
</tr>
</tbody>
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Windows NT Is: Open

<table>
<thead>
<tr>
<th>Windows NT</th>
<th>Windows NT Advanced Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thousands of applications</td>
<td>x</td>
</tr>
<tr>
<td>Hundreds of tools</td>
<td>x</td>
</tr>
<tr>
<td>Hundreds of hardware platforms</td>
<td>x</td>
</tr>
<tr>
<td>Major networks supported (Novell, IBM, Microsoft, Banyan, UNIX)</td>
<td>x</td>
</tr>
<tr>
<td>Supports standards (TCP/IP, SNMP, NetView)</td>
<td>x</td>
</tr>
<tr>
<td>Extensible</td>
<td>x</td>
</tr>
</tbody>
</table>

Windows NT 3.1
Built for manageability

- NetView
- SNMP

Windows NT Management Services

- User management
- Security management
- Data management
- Performance/fault mgmt.
- Configuration management

- User Manager
- Server Manager
- Backup
- Performance Monitor
- System
- Event Viewer
- Disk Manager
- Time Zone

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Windows NT Advanced Services Platform

Microsoft SQL Server
For Windows NT

- Focus is on integration, performance and scalability
- 100% 32-bit and Win32
- Fully interoperable with SQL Server 4.2 for OS/2
- Compatible with latest Sybase versions
- Complete support for existing applications
SQL Server For Windows NT
What's new at a glance

- Fully integrated with Windows NT
  - Performance Monitor
  - Event Logger
  - Control services
- Thread level multiprocessor support
- Configurable protocols
- UNIX interoperability
- Portable to RISC
- New 32-bit Windows administration tools

SNA Server For Windows NT
Integration With SNA Systems

- Intelligent client-server SNA gateway
- Supports full set of SNA APIs
  (EHLLAPI, APPC) and applications
- Runs over standard connections (TR, SDLC, X.25, DFT)
- Load balancing and automatic link recovery
- Supports 3270, 5250, and other emulators from leading vendors

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LAN Manager
Client-server computing for the enterprise

Windows NT Platform In NetWare Environments

NetWare 3.11 server

- Windows NT clients can access Novell servers
- Novell supplies NetWare client redirector for Windows NT
- Windows NT Advanced Server acts as an "application server" on Novell networks
- Windows NT systems support IPX/SPX, TCP/IP, and NetBEUI protocols

Windows 3.1
Windows for Workgroups
Windows NT

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Windows NT Platform In UNIX Environments

- Windows NT competes with and interoperates with UNIX systems
- Windows NT includes built-in UNIX interoperability services
  - TCP/IP, DCE RPCs and POSIX subsystem
  - Easy to port UNIX 32-bit applications to Win32 APIs
- Third-party products
  - NFS, X-Windows, UNIX applications ported to Windows NT

Windows NT Advanced Server

LAN Manager for UNIX server

UNIX workstations

Windows for Workgroups

Windows NT

Windows 3.1

IBM Advanced Platform In Mainframes

IBM AS/400

Windows NT Advanced Server

Windows NT SNA Server provides gateway to IBM host systems

Windows NT platform supports IBM protocols (SNA, NetBEUI, etc.)

Windows NT has built-in IBM NetView support

Windows NT clients can access IBM servers and hosts

OS/2-based LAN Manager

IBM LAN Server

Windows 3.1

Windows for Workgroups

Windows NT
Windows NT And Windows NT Advanced Server Timetable

- Win32 SDK 7/92
- Beta 1 10/92
- Beta 2 3/93
- Shipment Q2

Ship "when it's great!" - target Q2

- Japanese Q4 '93
- Chinese, Korean Q2 '94

Windows NT Platform Timetable

- SQL Server SDK Q1
- SNA Server beta Q1
- Hermes beta Q2
- SQL Server ship Q3
- SNA Server ship Q3
- Hermes ship Q4

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Future Of Windows™

Tim Breidigan
Product Manager
Personal Systems
Microsoft Corporation

Coming Attractions
For Windows

- "Snowball"
- "Chicago"
- Plug and Play initiative
- Implications for OEMs
Windows For Workgroups

- Basic networking built into Windows
  - File and printer sharing
  - Email and scheduling
  - Network DDE
- Ideal for small office
  - Low cost
  - No dedicated server or network operating system
- Integrates into existing networks

Windows Family - Future Releases

- MS-DOS 5
- Windows 3.1
- Windows NT 3.1

1992

1993

MS-DOS 6
"Snowball"
Windows for Workgroups
Windows NT 3.1

1994

Preemptive multitasking and threading
Common
- UI model
- Win32c API
- OLE 2.0
New storage model and distributed systems features
"Chicago"
"Cairo"
Windows For Workgroups
Positive technical reviews

- NSTL highest "overall evaluation" rating among Windows peer-to-peer LAN OSs
- PC Magazine technical excellence
- PC/Computing MVP
- BYTE Award of Excellence
- Best of show at COMDEX '92

Next Release: "Snowball"
(Windows for Workgroups 3.11)

- Natural upgrade to Windows
- Faster, easier, better, stand-alone Windows
- Improved network client
- Improved peer server
Snowball
Faster, easier, better Windows

- New 32-bit file system, drivers
- Improved File Manager and Print Manager
- Schedule+, fax support, point-to-point serial communication
- Additional utilities

Snowball
Improved network client

- Windows 3.1 network client options
- 32-bit network access
  - LAN Manager, Windows NT redirector
  - IPX, NetBEU1 transports
  - Net card drivers
- TCP/IP, DLC support
  - Real mode at ship, protect mode by year-end
- Remote Access Services
Snowball
Improved peer server

- Choice of print and/or file sharing
- New administration and security options
- Small MS-DOS redirector and peer server
- IPX transport
- ODI net card drivers

Snowball
Demonstration
Snowball
Great choice for OEM preinstallation

- Faster, easier, better Windows 3.1
- Improved network client
- Improved peer server
- Network adapter and software can be added by customer when ready
- Available Q3 '93

Windows “Chicago”

- Chicago overview
- Windows mobile services
- Plug and Play
Chicago Mission

- For customers
  - Makes using PCs easy for everyone
- For the industry
  - A no-compromise standard for PCs

Chicago Overview

PC market situation

- PC use has proliferated
  - Standardized, cost-effective
  - But not most powerful or easiest
- PCs are still too hard to use
  - Poor hardware/software integration
  - Big learning curves, support burden
  - Limits new uses - CD-ROM, fax, email
- Potential for growth still high
  - Easier to use, better integrated products
  - Enable new uses, new customers

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What Is “Chicago”?  
- Successor to Windows, Windows for Workgroups, “Snowball”  
  - Targets installed base hardware - minimum 386SX/4 MB  
  - Easy upgrade  
- Focused on ease of use  
  - New UI  
  - “Plug and Play”  
- Complete operating system: 32-bit internally and externally - will support large subset of Win32™ API

Chicago Potential Impact
- For customers  
  - New users: no more mystery, broad appeal  
  - New uses: communications, network access, multimedia, pen... and more  
- For the industry  
  - Increased growth  
  - Framework for hardware innovation  
  - A better way for the industry to work together
Chicago Benefits Summary

- Easy to use
- Plug and Play
- Modern operating system design
- Network and remote services
- Will be a compelling upgrade

Easy To Use

- Improved shell
  - Merged Program/File/Print Manager
  - Drag-and-drop feature of desktop objects
  - OLE 2.0 enabled
  - File Viewer technology
- Improved interface
  - Printing
  - MS-DOS-based applications
Plug And Play

- Easy hardware installation
  - Help user install current class of hardware
  - Automatically install new class of hardware
- Easy system configuration
  - Property sheets
  - Control Panel folder

Modern Operating System Design

- Integrated protect-mode kernel
  - Preemptive multitasking
  - Multithreading
- 32-bit components
  - Device drivers
  - File system with long file names
  - Communications
  - Networking
  - Printing
- 32-bit API
Network And Remote Services

◆ Chicago base
  ➢ Universal network client
  ➢ Built-in email and EFAx

◆ Chicago networking services
  ➢ Windows-based and MS-DOS-based peer server
  ➢ Post office and administrative utilities

◆ Chicago remote services
  ➢ Remote network access, email
  ➢ File synchronization

Compelling Upgrade

◆ Runs on mainstream PC platform
◆ Compatible with Windows-based and MS-DOS-based applications and drivers
◆ Safe, simple setup process
Windows Mobile Services: Trends And Issues

- Mobile: fastest growing hardware segment
- Apple rapidly gaining share
- Usage changing from desktop replacement to second machine
The Chicago Mobile Machine

- Great industrial design
- Tight software/hardware integration
- Easy-to-use, tightly integrated remote networking
- Explicitly recognize that user may have a desktop machine
- Complete APM implementation
- Convertible - integrated pen (desirable)

Range Of Hardware

<table>
<thead>
<tr>
<th>Full-featured primary machine notebooks</th>
<th>Companion machine (Optimized for portability)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>Characteristics</td>
</tr>
<tr>
<td>&gt; Integrated pointing device</td>
<td>&gt; 3.5V, &lt; 3 pounds</td>
</tr>
<tr>
<td>&gt; Color</td>
<td>&gt; Great display</td>
</tr>
<tr>
<td>&gt; Better industrial design</td>
<td>&gt; Keyboard and pen</td>
</tr>
<tr>
<td>&gt; Better docking</td>
<td>&gt; Grid approach</td>
</tr>
<tr>
<td></td>
<td>&gt; Dauphin approach</td>
</tr>
<tr>
<td></td>
<td>&gt; 486</td>
</tr>
<tr>
<td></td>
<td>&gt; 4MB DRAM</td>
</tr>
<tr>
<td></td>
<td>&gt; PCMCIA</td>
</tr>
<tr>
<td></td>
<td>&gt; Minimal storage (Use ROM)</td>
</tr>
</tbody>
</table>

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Remote Network Access

- Server and client integrated into Chicago
- WOSA architecture: MAPI, ODBC, etc.
- IPX and NetBEUI
- Peer-to-peer capability
- ARA as the target
- Node and OS passthru security (MIS control)

Chicago Mobile Software

- Remote Network Access
- Terminal, Fax, Mail, Schedule+
- File synchronization
- Deferred I/O: printing, fax, email
- Pens
- Power management

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Pens

- User model
  - Enhanced gesture set
  - Ink
- System support for non-pen apps.
  - Transparent ink OLE object
  - Lens
- Recognition
  - Substantially enhanced print
  - Kanji
  - Working on cursive

Plug And Play

Problem

- Customers can't install hardware
  - Must know IRQ, port, base I/O, DMA, etc.
  - Even experts fail
- No technical framework today
  - Hardware can't resolve conflicts
  - Software has no idea what's in the system
- Need framework for integrating hardware and software, today and tomorrow

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Plug And Play
Results of problem

- Difficult configuration => high support costs
  - OEMs, ISVs
  - Corporations
- User frustration, dissatisfaction => lost sales
  - 80% of PC owners would like a CD-ROM*, but only 10% feel capable of installing themselves
- Limits industry growth

* Source: Microsoft survey

Plug And Play

- An open initiative to develop standards for automatic hardware/software configuration
- An extensible framework to cover multiple bus standards, and multiple operating systems
Plug And Play
Solution framework

**Objectives**
- Install and configure new devices automatically
- Dynamically change configuration
- Be OS- and hardware-independent

**Requirements**
- Compatibility with installed base
- Inexpensive for OEMs, IHVs

Plug And Play Requirements

- Be able to identify all hardware components in the system
- Get resource requirements and assign resources (program device if necessary)
- Locate, load, and unload drivers
- All devices software programmable
- Backward compatibility
- Address new hardware (PCI, PCMCIA, etc.)
- Inexpensive implementation
Plug And Play Universe

- Traditional buses and devices
  (ISA, EISA, microchannel)
- Local buses (PCI, VL, etc.)
- PCMCIA
- SDSI
- Monitors
- Printers
- Input devices

Plug And Play Software Components

- Device enumeration
- Resource arbitration
- Configuration management
- Device drivers
- Dynamic events
Plug And Play
ISA specific proposal

◆ Current ISA cards cannot be reliably identified
◆ Plug and Play ISA support requires hardware and software enhancement
◆ Proposal introduced at WinHEC
◆ We would like your feedback
> Email plugplay@microsoft.com

Preparing For Plug And Play

◆ Autoconfiguration for Plug and Play ISA cards
  > Version 0.9 specification available now
◆ Participate in Plug and Play workshops and design reviews
  (e-mail: plugplay@microsoft.com)
◆ Windows™ Hardware Engineering Conferences
◆ Tell suppliers that you will require Plug and Play hardware and drivers
Summary
Recommendations for OEMs
- Preinstall Snowball
- Optimize systems for Chicago
  - CD-ROM, fax modem, sound
  - Flat Frame buffer local bus video
  - ECP, 16550 UART
  - Removable media detection
  - Hot docking integration
- Use Plug and Play components
- Optimal mobile systems
  - Companion and full-feature
Windows™ Sound System

Blake Irving
Product Manager
Windows Sound System
Microsoft Corporation

Customer Research
Windows Sound System

- "PC audio" perceived as a compelling technology by all business sectors
  - Small business to "Fortune 500"
  - Insurance to manufacturing
- Hardware technology perceived as stable and mature
  - High quality available at low cost today
  - Multitude of differentiated features
**Customer Research**

Windows Sound System

- Customers believe a wide variety of hardware solutions are available
  - New PCs with integrated audio
  - Add-in cards for installed base of PCs
- Supported by mainstream graphical environments
  - Windows™ 3.1, Mac®, UNIX®

---

**PC Audio Momentum**

Windows Sound System

- These factors are fueling growth...
  - Over 8 million audio boards projected in 1994
  - Over 4 million integrated audio PCs projected in 1994

...but

Sources: Inmos, PC Week, Microsoft
Customer Requirements
Windows Sound System

- For mainstream use, customers have insisted that the industry deliver clear benefits
  - Must improve productivity
  - Must improve communication
  - Must integrate seamlessly
  - Must be easy to use

Windows Sound System

- A powerful compliment of software and hardware for Windows 3.1 users

  Integrates audio seamlessly into Windows
  - Voice annotation of documents and mail
  - Audible proofing of spread sheets
  - Voice command and control of Windows
  - Improved management of audio data
  - Increased enjoyment of the PC
Receiving High Marks
Windows Sound System

"An excellent combination... easy-to-use utilities makes working with sound painless... Working with sound has never been easier"
Windows Magazine, December 1992

"The Windows Sound System is bound to set new price performance standards for the industry and redefine the market for PC audio..." 
InfoWorld, November 30, 1992

"Puts high-quality business audio within reach of any Windows 3.1 user. It could even change the way you work... it isn't PC Sound as we know it" 
PC Computing, December 1992

- PC/Computing MVP award nominee
- Windows Magazine "Top 100 Products"
- PC Magazine "Top 100 Products"

Windows Sound System

- Demonstration of capabilities
  > Quick Recorder
  > Voice annotating documents
  > ProofReader
  > Audible proofing of spreadsheets
  > Voice Pilot
  > Command and control of Windows 3.1
  > Other Windows Sound System utilities
  > Make audio enjoyable and manageable
Retail Product
Windows Sound System

- Windows Sound System
  - ISA Sound Board
  - Microphone
  - Headphones
  - Windows Sound System software
    - Proofreader
    - Voice Pilot
    - Quick Recorder
    - All other Windows Sound System utilities
    - MS-DOS® games YXD for SoundBlaster® compatibility

OEM Products
Windows Sound System

- Developers Assistance Kit (DAK)
  - "How to" guide for audio hardware
    - Available now and free of charge
- OEM Distribution Kit (ODK)
  - OEM software for DAK-compliant hardware*
    - Available now with license
- MS-DOS Developers Kit
  - Game developers kit for Windows Sound System compatibility available now
    - Available now and free of charge

*Also supports the ESS-MK Audio Driver

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Microsoft

MS 0104438
CONFIDENTIAL

RBC 04479
OEM Products
Windows Sound System

- Hardware is available to OEMs from Microsoft
  - Windows Sound System ISA Board
  - Microphones
  - Headphones
- Special products for OEMs buying PCs or system boards with integrated audio
  - A “no board” package for small OEMs and assemblers

Future Product Direction
Windows Sound System

- Extensible software architecture for a myriad of hardware solutions
  - From lowest-cost 8-bit CODECs to high-end DSP-enabled solutions
- Improve on award winning features
  - Improve compression for communications
  - Further simplify user interface
  - Improve voice input and output capabilities
Pointing Devices - Products Update

Karl Empey
Product Manager
Mouse Marketing
Microsoft Corporation

Introduction

- Market overview
- Future trends
- Microsoft’s response to changing times
  - New products
  - Improved support
- Summary
Market Overview -
A Hardware Perspective

- Mouse packaging is standard with almost all new major brand PCs
- Potential retail market shrinking
- Low cost - low-quality mice in abundance
- PC manufacturers finding it difficult to differentiate themselves from their competitors
- OEM suppliers developing new and innovative products
- Increasing awareness of office ergonomics. Users interact with three key elements:
  - Mouse
  - Keyboard
  - Monitor

State Of The Mouse Market

- Moving to OEM
- Upgrade/replacement trends
- 17-18 million pointing devices sold annually
- 50 million installed
- Few technological changes
- Mouse is the standard pointing device
Future Trends

- PC manufacturers strive to keep costs low while adding new features - focusing on:
  - Ergonomics
  - Brand awareness
  - Cost
  - Innovative technology to differentiate themselves from competitors
- By offering with their systems a mouse which is highly successful in the retail market, OEMs add value to their own products

Microsoft’s Response To Market Demands

- New products
- Improved service and distribution of OEM product
The Microsoft® Mouse
Version 2.0!

"The ultimate Microsoft Windows™ pointing device offering the best in
comfort and accuracy while setting
the ergonomic standard for the
industry."
Why A New Mouse?

- Improve ergonomics and comfort
- Increase software/hardware interaction efficiency
- Added value and differentiation for OEMs
- Reduce cost while increasing perceived quality

What Does Ergonomics Mean To The Customer?

- Comfortable in hand - "Just feels good"
- Safe from a repetitive stress standpoint
- Organic shape looks modern and pleasing to the eye
Increased Efficiency

- Mouse designed to not only increase comfort and ease of use, but to maximize efficiency under the Windows environment
  - Weight
  - Optimum grip architecture
  - Ball location
- Software designed to complement these features

New And Improved Features
Gives A New Meaning To Mouse Software

- Extra points
  - Magnify
  - Snap-to
  - Screen wrap
  - Locate

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Highest Quality At Competitive Prices

- Microsoft adheres to the highest quality standards while striving for the lowest cost possible.
- Develops products which target different segments of the market:
  > High-end, Mouse 2.0  April, '93
  > Price-sensitive  Q4 '93

Product Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>MS Mouse 2.0</th>
<th>Low-cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPI</td>
<td>400</td>
<td>3-400</td>
</tr>
<tr>
<td>I/O</td>
<td>Serial PS/2</td>
<td>Serial</td>
</tr>
<tr>
<td></td>
<td>Combi, bus</td>
<td>PS/2</td>
</tr>
<tr>
<td>Shape</td>
<td>Mouse 2.0</td>
<td>Mouse 2.0</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>Light grey</td>
</tr>
<tr>
<td>Finish</td>
<td>Gloss</td>
<td>Light texture</td>
</tr>
<tr>
<td>Logo</td>
<td>MS</td>
<td>MS</td>
</tr>
<tr>
<td>Software</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Cable</td>
<td>7.5'</td>
<td>6'</td>
</tr>
<tr>
<td>Cable color</td>
<td>Green</td>
<td>Grey</td>
</tr>
<tr>
<td>Life</td>
<td>100 miles</td>
<td>100 miles</td>
</tr>
</tbody>
</table>

1993 Far East Briefing - Microsoft OEM

Microsoft

CONFIDENTIAL

RBC 04487
The Most Comfortable And Easy To Use Portable Pointing Device

- New ergonomic shape
- Many design improvements
- New attaching mechanism
- Available in September (PS/2®, QuickPort™)
Why A New Ballpoint Mouse?

- Integrated pointing devices do not currently satisfy heavy PC laptop users needs
- Meet ergonomic needs
- Design improvements

OEM Product Roadmap

- Premium OEM products
  - White Mouse
    - PS2, Serial, Combi Bus
  - Mouse 3.0 (6.0 software)
    - PS2, Serial, Combi Bus
- Value OEM products
  - Ballpoint 2.0
    - (PS/2 and Serial)
  - Mouse, LC
    - (PS/2 software) Serial
  - Mouse, LC
    - PS/2 and PS-2
Improved Customer Service
And Support

- Increased involvement by local subsidiaries
- Improved communication between the hardware group and our customers

New Distribution Procedures

- For very high-volume manufacturers
  > Customers place orders to local sub. and mouse vendor drop ships to the customer
  > Customers place orders to local sub. and product is made available at the mouse vendor’s site - commences July, 1993

- For medium to small OEM
  > Product made available to Microsoft’s regional MED program - commences July, 1993
Summary

- Mouse software complements the hardware perfectly
- Quality mouse at affordable price making it the most attractive solution for OEM customers
- Renewed commitment to OEM customers through
  - Improved service and support for OEM customers
  - Increased flexibility, more options
Intel® PC Industry Perspective

Joachim Kempin
Vice President
OEM Sales
Microsoft Corporation

Topics

- Market observations
- Industry health factors
- User acceptance of Windows™
- Technology trends
Market Observations

- Market size
- Small versus big
- Manufacturing trends

Source: Microsoft reports and research
Years: all in Microsoft fiscal year (July 1 to June 30)
Consumption: local country and own research
### Worldwide Market Size

Units of Intel PCs (in millions of units)

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
<th>Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Worldwide Processor Mix

<table>
<thead>
<tr>
<th></th>
<th>FY '93</th>
<th>FY '94</th>
</tr>
</thead>
<tbody>
<tr>
<td>286/8086</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>386</td>
<td>46%</td>
<td>25%</td>
</tr>
<tr>
<td>486/Pentium</td>
<td>50%</td>
<td>74%</td>
</tr>
</tbody>
</table>
## Consumption Analysis

<table>
<thead>
<tr>
<th>Region</th>
<th>FY '93</th>
<th>FY '94</th>
<th>Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>9.62</td>
<td>10.60</td>
<td>10.2</td>
</tr>
<tr>
<td>Far East</td>
<td>3.80</td>
<td>4.20</td>
<td>10.5</td>
</tr>
<tr>
<td>Intercontinental</td>
<td>4.63</td>
<td>5.70</td>
<td>23.1</td>
</tr>
<tr>
<td>U.S.</td>
<td>9.85</td>
<td>11.90</td>
<td>11.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>27.90</td>
<td>31.50</td>
<td>12.9</td>
</tr>
</tbody>
</table>

## Small Versus Big

Big "6" (alphabetically):
- AST
- Compaq
- Dell
- Gateway 2000
- IBM
- Packard Bell

Small manufacturer: <30,000 units/year
### Small Versus Big

<table>
<thead>
<tr>
<th></th>
<th>FY '91</th>
<th>FY '92</th>
<th>FY '93</th>
<th>FY '94</th>
<th>Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big “6”</td>
<td>4.9</td>
<td>6.1</td>
<td>9.5</td>
<td>13.0</td>
<td>37.0</td>
</tr>
<tr>
<td>All others</td>
<td>10.8</td>
<td>10.1</td>
<td>9.4</td>
<td>8.7</td>
<td>-8.0</td>
</tr>
<tr>
<td>Small manufacturers</td>
<td>6.5</td>
<td>8.2</td>
<td>9.1</td>
<td>9.8</td>
<td>9.0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>22.2</td>
<td>24.4</td>
<td>27.9</td>
<td>31.5</td>
<td>12.9</td>
</tr>
</tbody>
</table>

### Small Versus Big
Percent of marketshare

<table>
<thead>
<tr>
<th></th>
<th>FY '91</th>
<th>FY '92</th>
<th>FY '93</th>
<th>FY '94</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big “6”</td>
<td>22</td>
<td>25</td>
<td>34</td>
<td>41</td>
</tr>
<tr>
<td>All others</td>
<td>49</td>
<td>42</td>
<td>34</td>
<td>28</td>
</tr>
<tr>
<td>Small manufacturers</td>
<td>29</td>
<td>43</td>
<td>32</td>
<td>31</td>
</tr>
</tbody>
</table>
### PC Manufacturers By Area Sales

(Millions of units)

<table>
<thead>
<tr>
<th></th>
<th>FY '91</th>
<th>FY '92</th>
<th>FY '93</th>
<th>FY '94</th>
<th>Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>4.3</td>
<td>4.6</td>
<td>5.1</td>
<td>5.8</td>
<td>14.8</td>
</tr>
<tr>
<td>Far East</td>
<td>6.9</td>
<td>6.1</td>
<td>5.3</td>
<td>5.6</td>
<td>4.7</td>
</tr>
<tr>
<td>Intercontinental</td>
<td>.5</td>
<td>1.2</td>
<td>1.9</td>
<td>2.1</td>
<td>10.9</td>
</tr>
<tr>
<td>U.S.*</td>
<td>10.6</td>
<td>12.5</td>
<td>15.6</td>
<td>18.0</td>
<td>15.4</td>
</tr>
<tr>
<td>Total</td>
<td>22.2</td>
<td>24.4</td>
<td>27.9</td>
<td>31.5</td>
<td>12.9</td>
</tr>
</tbody>
</table>

*IBM part of U.S.

### PC Manufacturers By Area

Percent market share

<table>
<thead>
<tr>
<th></th>
<th>FY '91</th>
<th>FY '92</th>
<th>FY '93</th>
<th>FY '94</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>19</td>
<td>19</td>
<td>18</td>
<td>18</td>
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<tr>
<td>Far East</td>
<td>31</td>
<td>25</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>Intercontinental</td>
<td>2</td>
<td>5</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>U.S.*</td>
<td>48</td>
<td>51</td>
<td>56</td>
<td>57</td>
</tr>
</tbody>
</table>

*IBM part of U.S.
Market Observations

Price of differential

- Small manufacturers 10-15%
- Big "6" brand names

Industry Health Factors

- Low overhead
- Outsourcing
- Unique distribution
- Value-added products
Industry Health Factors

- Low overhead
  - Administration
  - Executive pay
  - Research and Development (R&D)

Industry Health Factors

- Outsourcing
  - Design companies versus internal R&D.
  - In-house manufacturing versus "OEM"-ing
  - Buying components versus making your own
Industry Health Factors

- Unique distribution
  - Explore all avenues?
  - Understand country specific buying behavior
  - Fastest growing segment
    - Direct mail
    - Mass merchant/superstores
    - Price clubs

Industry Health Factors

- Value added products
  - Know trends/be first!
  - Some trends
    - CD-ROM-based PCs
    - MP servers
    - Smart notebooks/docking stations
    - High-end graphical workstations
    - Plug and Play PCs
User Acceptance Of Microsoft® Windows

- Windows penetration
- Windows software sales
- Windows logo success

Microsoft Windows PC Forecast
(Millions of units)

<table>
<thead>
<tr>
<th></th>
<th>FY '93</th>
<th>FY '94</th>
<th>Growth %</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCs with Windows Penetration</td>
<td>14.0</td>
<td>20.0</td>
<td>43.3</td>
</tr>
<tr>
<td>Penetration</td>
<td>50%</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>Total PCs</td>
<td>27.9</td>
<td>31.5</td>
<td>12.9</td>
</tr>
</tbody>
</table>
### Windows Software Sales

#### In Europe

(Millions of dollars)

<table>
<thead>
<tr>
<th></th>
<th>1991</th>
<th>1992</th>
<th>% Change</th>
<th>% Marketshare</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-DOS®</td>
<td>624</td>
<td>446</td>
<td>-29</td>
<td>35</td>
</tr>
<tr>
<td>Windows</td>
<td>323</td>
<td>700</td>
<td>117</td>
<td>56</td>
</tr>
<tr>
<td>MacIntosh®</td>
<td>85</td>
<td>103</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>OS/2®</td>
<td>12.8</td>
<td>14.2</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1050</strong></td>
<td><strong>1271</strong></td>
<td><strong>21</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Windows Software Sales

Growth By Country Between CY '91-'92

- **Germany**: 125%
- **France**: 63%
- **U.K.**: 170%
- **U.S.**: 95%
Windows Logo Success
Logo recognition

Windows Logo Success
"Safe" buy

1993 Far East Briefing - Microsoft OEM
Technology Trends

- Consumer PC - fastest growing segment
- Medium to small business is second
- Corporate market some saturation
- 20-30% of all PCs sold are replacing older PCs

Technology Trends

- Windows enables increased hardware design latitude
  - Virtual device drivers (hardware, BIOS)
  - Hardware abstraction layer of Windows NT™ (virtual interrupts, DMA, bus architectures, etc.)
Technology Trends

Next releases of Windows will continue this trend to meet our primary challenge: Making it easier

- Hardware innovation
- Differentiation
- Segmentation
- Value add

Consumer PCs

- Plug and Play
- CD-ROM
- Sound/entertainment
- Consumer applications
Business PCs

♦ High-end workstations
♦ Smart docking stations
♦ MP servers
♦ Office equipment integration

PC Industry Perspective

The more we both focus on the architecture of Windows, the more we win.

And why not tell the world that we are focused?
中文作業環境里程碑 - Microsoft Windows 3.1 中文版
Microsoft Windows 3.1
中文版

产品目标
- 開放的中文作業環境
- 增加中文顯示與列印速度
- 增強中文作業環境的支援
- 增強作業系統穩定性
- 承續 Windows 3.1 英文版的優點
- 維持 Windows 3.0 中文版相容性
Microsoft Windows 3.1 中文版
中文作業系統架構圖

<table>
<thead>
<tr>
<th>中英文應用軟體</th>
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<tr>
<th>應用程式介面</th>
<th>Windows API (含遠東地區共同應用程式介面 FECAPI)</th>
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<tr>
<td>Windows 3.1 系統的</td>
<td>DBCS Windows Core (GDI, USER, KERNEL)</td>
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<table>
<thead>
<tr>
<th>中文作業環境</th>
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<tbody>
<tr>
<td>中文對印</td>
<td>中文顯示</td>
<td>中文存形</td>
<td>中文輸入</td>
<td>網際支援</td>
</tr>
</tbody>
</table>

1993 Far East Briefing - Microsoft OEM  

Microsoft: MS 0104468  CONFIDENTIAL  

RBC 04509
Microsoft Windows 3.1
中文版的開放性

• 開放的中文顯示介面
• 開放的中文列印介面
• 開放的中文字形環境
• 開放的中文輸入環境
• 開放的網路介面
• 開放的應用程式介面

完整的中文作業環境
支援最新的顯示卡

支援豐富的印表機

TrueType
中文字形

豐富的中文輸入法
支援最新的顯示卡

支援 Windows 3.1
英文版所支援的顯示驅動程式

VGA
SVGA
> 新增驅動程式：ET 4000, Trident 8900C/8900CL, WD 90C1

Hercules

支援豐富的印表機
除了 Windows 3.1 英文版支援的印表機外

HP : HP LaserJet 4L, HP LaserJet IV
Canon : LBP III Plus, LBP 8 Plus

HP : HP DJ 500, HP DJ500C, HP DJ 550C
Canon : BJ 200

NEC : PRN9C, PRN100 C, PRN9MC, CPH
CP71, P2200, P1 Plus, P1XLC
PL, P1, P120A, P1200
P1XLC, P2120, P2300, P2300
P9000, P900
Panasonic : KS-P14AC, KS-P15AC, KS-P16AC, KS-P161AC
KX-F14AC, KX-F16AC
UX-2425HT, UX-25

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豐富的中文字輸入法

- 基本的四種輸入法：注音、倉頡、簡易、內碼
- 新增兩種輸入法：大易、行列
- 增加 Soft Keyboard，可依需要變換注音、倉頡、簡易、內碼、大易
- 新增利用 Soft Keyboard 輸入中文標點符號
- 開放式的中文輸入法管理架構，可隨時加入新的輸入法

TrueType 與 WIFE 中文字形

- 系統提供一套 TrueType 細明體，共有 13,092 個可隨意放大縮小，並保持高品質的中文字形。另外有 408 個特殊符號供使用者選擇
- TrueType 本身是開放的架構，客戶將可享受到更多來自各個字型廠家優美的中文字集
- WIFE (Windows Intelligent Font Environment) 視窗開放字形環境下，客戶已經可以加掛自行購買的具備 WIFE 驅動程式中文字集，例如：華表金蝶卡，文鼎字集，紫墨字集

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TrueType 中文字形

- 所視即所得（WYSIWYG）
- 開放架構（Open Font File Specification）
- Rasterizer in Windows GDI, Don't Need drivers anymore
- Far East TrueType Extension

增加中文顯示與列印速度

- Windows 3.1 顯示驅動程式
- Smart Driver
- Write Cache
- TrueType Rasterizer
- DDI Support in GDI
- New Spooler in Windows 3.1
- Enhanced HIMEM
- DBCS enhancement for Font Cache
Windows 3.1 Memory Management

• Longer and Bigger Beta Testing Program:
  - 4 Months for Beta I, Beta II, and RC
  - 400 sites for Beta I
  - 500 sites for Beta II
• Better Memory Leak than Windows 3.1 US version

承継 Windows 3.1 英文版的優點

• More Reliable
• Better Performance
• Support TrueType Font
• Built-in Multimedia support
• Better File Manager
• More User Friendly, e.g. Drag and Drop
維持與 Windows 3.0
中文版的相容性

- WIFE Environment Support
- Support 秀未體

時程表

- RTM: 4/30
- Launch: 5/26
- OAK RTM: 5/15
- SDKE RTM: 5/15
- DDKE RTM: 5/15
Demo

Microsoft 提供整體中文環境

- 本土化應用軟體，例如
  視算表(Excel)，文書處理
  （CWP）
- 中文 Group Computing
  視窗環境
- 中文 Client-Server 視窗環境
中文 Windows For Workgroup 環境

中文電郵
中文 FAX
中文 Chat

中文應用程式跨網路整合
Network DDE

中文檔案資料共享
中文印表機資源共享

中文 DBCS 視窗環境

DBCS

Lan Manager
Windows Advance Server

Microsoft SQL Server

Microsoft

Microsoft

Microsoft

Microsoft

1993 Far East Briefing - Microsoft OEM
Microsoft OEM Briefing
Windows Into The Future

Executive Supplement

1992
Microsoft Corporate Strategy

Steven A. Ballmer
Executive Vice President
Sales And Support
Microsoft Corporation.

Microsoft Corporate Strategy

Grow the market for Windows™-based Linux

Making It Easier

OEM Briefing 1992
Making It Easier To...

- Begin computing
- Use PCs
- Get help
- Work with other people
- Solve business problems
- Learn
- Take advantage of technology

Microsoft® Windows 3.1:
A New User Every Five Seconds

OEM Briefing 1992
Our Partnership
Jointly acting to:
- Match Windows to the PC
- Optimize performance
- Make Windows-based computing easier
- Communicate to customers to grow the market and our respective shares

Components Of Perceived PC Value

<table>
<thead>
<tr>
<th>1987</th>
<th>1992</th>
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</thead>
<tbody>
<tr>
<td>1. Brand name</td>
<td>1. Performance</td>
</tr>
<tr>
<td>2. Compatibility</td>
<td>2. Features</td>
</tr>
<tr>
<td>3. Features</td>
<td>3. Price</td>
</tr>
<tr>
<td>5. Price</td>
<td>5. Brand name</td>
</tr>
</tbody>
</table>
PC Hardware Costs Down And More Powerful Equipment

- March 1991 *PC Week*
  - 386SX-20
  - 2 MB RAM
  - 60 MB hard disk
  - $4399

- September 1992 *PC Week*
  - 486DX-33
  - 4 MB RAM
  - 120 MB hard disk
  - $2274

- Intel® P5
- MIPS RISC (R4000)
- DEC® Alpha

Average Purchase Price By User

- PC bought by Windows "power user"
- Typical Windows user
- Character applications user

*OEM Briefing 1992*
Windows: An Open Platform

- Hardware innovation
- Software innovation
- Network service innovation
- Open process for innovation

Making It Easier
To begin computing with Windows

- Evaluation
- Purchase
- The first 15 minutes
Helping Users Get Started

- Windows logos for hardware and software
- Improved and customizable setup
- Windows Ready-to-Run program

Making It Easier

To use Windows-based PCs

- Usability Lab research
- Windows Style Guide
- OLE: object linking and embedding
- Great Microsoft applications
  - Wizards, Macro language, custom menus, toolbars...
- New technologies
  - New input devices, voice, audio, video
- Information At Your Fingertips

OEM Briefing 1992
Usability

- User interface consistency
- Optimizing common tasks
- High-quality learning tools
- Performance
- File compatibility with popular apps
- Transparent networking
- Minimal user-transition on upgrade

Making It Easier

To get help...

- Microsoft Product Support Services
- Windows Resource Kits
- Windows Technical Workshops
- Electronic services
  - Online, CompuServe®, bulletin boards
- Microsoft Developer Network

OEM Briefing 1992

Microsoft

RS 0104486
CONFIDENTIAL

RBC 04525
Investment In Support

- One in five Microsoft employees involved in support
- 30,000 support responses/day
- Evaluating 24-hour support
- Education (MSU)
- Consulting (MCS)
- Helping customers support themselves

The Key To Offering Help

- Register the Windows user!
- Communicate with the Windows user
- Microsoft now offers registered user services to customers of OEMs
  > Tips, techniques, information
  > Upgrade, new product, add-on notification

OEM Briefing 1992
Making It Easier

To work with other people...

- Review, delegate, consolidate, route work, search...
- Communicate
- Schedule meetings and events

Raising Group Productivity

- Integrated networking
- Powerful system groupware facilities
- Workgroup applications: conferencing, workflow, distribution
- Multiplatform applications

OEM Briefing 1992
To solve business problems...

- Demanding powerful and secure systems
- Requiring rich development and database tools
- Calling for intuitive productivity applications
- Involving changes in methods and processes
Building Windows-Based Solutions

- Rich productivity applications
- Microsoft Visual Basic™, macro languages
- SQL Server, SNA Services
- SDKs
- Robust operating systems and networks

Making It Easier

To learn...

- Making the PC a great tool for interactive, multifaceted learning
  > Simpler, faster access to information
  > More intuitive, fun ways of learning
  > More engaging, vivid communication

OEM Briefing 1992
Learning With Windows

- Content-based applications
- Multimedia tutorials
- Published information
- Taking advantage of graphics, audio, video, CD-ROM

Making It Easier

To take advantage of technology...

- New hardware
  - Smaller form factors
  - New input methods
  - Video technology
  - New devices
- Software
  - Distributed systems and applications
  - New problem-solving tools
  - Objects
Microsoft Strategy

Customer requirements
- Leverage investments
- Competitive advantage
- Integrated solutions
- Reduced administration costs
- Clear migration pathway to the future
- Take advantage of new technology

Technology requirements
- Scalability
- Networking/integration with existing environment
- Innovative applications
- Extensible to new technologies
- Audio, full motion video

Helping Make It Easier...

- For users to get started
  - Pre-install Windows and drivers
  - Communicate with Windows logo
- To use Windows PCs
  - Incorporate audio, CD-ROM, video
  - Optimize Windows and your PCs
- To get help
  - Offer Windows user registration

OEM Briefing 1992
Helping Make It Easier...

- To work with other people
  - Integrate networking
- To solve business problems
  - Support Microsoft foundation and tools
  - Leverage Windows Open Services Architecture
- To learn
  - Offer targeted systems
- To take advantage of technology
  - Pursue opportunities enabled by Windows