NBI.PPT

Present: 13 min

The Future of Windows™
NBI Annual Meeting
July 30th, 1994

Amer Samie
Windows Hardware Programs
Microsoft Corporation

I will talk about today's PC platform, and what Microsoft, together with the hardware industry, is doing to improve it for tomorrow.

Today's PC Platform

- **Extremely successful by any measure**
  - **120 million MS-DOS systems, 60 million Windows**
- **Success driven by open PC architecture**
  - **Enabled a great deal of innovation**
- **Open architecture has led to problems**
  - **Configuration difficulties**
  - **High support costs for industry**
  - **New markets/technology not anticipated**
  - **Adding cards and peripherals is scary**

1a. Today's PC platform has been extremely successful by any measure.

1b. Windows shipments are exceeding 1.5 MU/mth.

1c. Out of a total of 120 million installed base of MS-DOS-based PC's, 60 million units are windows based.

2a. This success is driven by the open PC architecture, which enable a great deal of innovation.

2b. Such innovations, like CD-ROM, sound, full-motion video devices, & other peripherals, have further enhanced the potential of PCs, both in the office & at home.

3a. However, this open architecture led to some problems.

3b. Lack of standards have caused many users difficulties configuring their systems.

3c. The industry's support costs are high - as much as 50% of support calls to OS & hardware vendors result from installation & configuration problems.

3d. Many new markets, like novice users, portable computing, and multimedia, to name a few, have not been anticipated.

3e. And finally, many users, including trained technicians, find it difficult and frustrating to configure PC systems and add-ons.

The Old Way: Plug and Pray

1. This graphic, showing anger and frustration when adding new peripherals, is, unfortunately, familiar to most of us.

2. With the growing use of laptops, this problem is even compounded because users typically need to change their configurations on a more frequent basis.

3. Whether configuring a laptop, or simply adding a CD-ROM or other device to an existing desktop, these problems have resulted in lower customer satisfaction & increased support costs.

4. With Plug and Play, the old way is gone

Plug and Play Vision

Adding (or removing) a device, whether permanently or dynamically, should require nothing more than *taking it out of the box and plugging it in.*

The systems, drivers, and applications *seamlessly adjust to the "new reality".*

1. Plug and Play is an effort supported by a broad base of companies within the PC industry - OEMs, IHVs, software companies, BIOS vendors, SIGs, etc.

2. The vision of Plug and Play is: "adding or removing a device should ONLY require TAKING IT OUT OF THE BOX AND PLUGGING IT IN".

3. Then, all the components (OS, hardware, drivers, applications, BIOS, etc.) should "SEAMLESSLY ADJUST".

Industry-Wide Benefits Of Plug And Play

- **Easier for end users**
  - **Better hardware/software integration**
  - **Auto configuration**
- **Reduced industry support costs**
  - **Product support**
  - **OEM manufacturing**
- **Growth for the PC industry**
  - **New market segments**

1. The benefits of Plug and Play are industry-wide:

1a. For end-users, it makes it easier for them thru better HW/SW integration and auto-configuration.

1b. For PC manufacturers, it reduces costs associated with supporting the product support and manufacturing groups.

1c. And for the PC industry as a whole, it provides new market opportunities with potential for more profit.

PC'95 Requirements

- **Systems**
  - **Plug and Play BIOS 1.0a**
  - **APM 1.1 for mobile systems**
  - **Others ... (see PC'95 Hardware Design Guide)**
- **Cards and Peripherals**
  - **Meet bus-specific PnP specifications**
  - **Class-specific requirements (see PC'95 Hardware Design Guide)**
- ◊ Must meet PC'95 requirements to get Chiron logo

1. In order to make it easier for end-users in their experience with the PC, Microsoft has worked with hardware vendors in establishing the hardware requirements of PC's and subsystems to be fully Plug and Play.

2a. Among the features for PC systems, Plug and Play BIOS 1.0a is the major one (with APM1.1 enable for mobile PCs).

2b. The other features are briefly listed in the Logo Write-up that is being distributed today (for the complete detailed HW design requirements, please consult the PC'95 HW Design Guide).

2c. [80386, 4MB RAM, Option ROMs, Icons, 640x480x8bpp color VGA, Audio **, FD controller **, IDE/SCSI controller **, Standard parallel port, Standard serial port, Standard keyboard port, Pointing device port or integrated pointing device, Networking **, and Expansion cards (Chi compatible driver)].

3a. The major PC'95 requirement for PC sub-systems is that the device must meet its bus-specific Plug and Play specifications.

3b. These specifications, which include those for ISA, SCSI, Parallel Port, and External COM, are posted on Compuserve under the PlugPlay forum.

Windows™ "Chicago"

- **Plug and Play architecture**
  - **Fully integrated into Chicago**
- **Designed for dynamic configuration**
  - **Hot docking/plugging**
  - **Dynamically loadable drivers**
- **Support for multiple buses**
  - **ISA, PCMCIA, PCI, LPT, COM, SCSI, IDE, ...**
- **Support for legacy devices**

1. To realize the goals of PnP, Microsoft has improved the Windows OS product to take full advantage of PnP with the next major release code-named Chicago.

2a. PnP is fully integrated into Chicago's architecture, which includes the Config Mgr, the HW tree, Bus Enumerators, and Resource Arbitrators.

2b. These Chicago components work with the BIOS and PnP device to i) identify the device, ii) determine device resource requirements, iii) eliminate resource conflicts, iv) load drivers, and v) notify user of configuration changes.

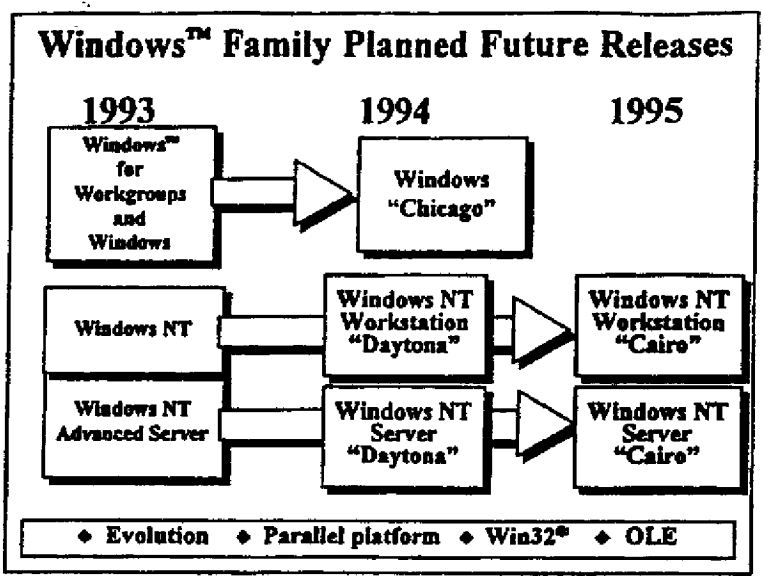
3. Examples of such dynamic configuration include:

3a. Hot docking or plugging a laptop into a docking station, and

3b. Dynamically loading drivers when a device (like a sound card or CD-ROM) is added to the PC.

4. The bus enumerator allows Chicago to support multiple buses, including ISA, PCMCIA, PCI, SCSI, IDE, LPT, COM, etc.

5. And finally, Chicago also supports legacy devices, but it's not as clean to end-users as having PnP devices.



1a. Chicago Beta-1 has shipped last month, with Beta-2 planned for late summer, and final product shipment expected 2H94.

1b. It will simultaneously ship in six languages (other languages within 90 days including Japanese)

1c. It is a successor to Win3.1 and WfW3.11.

2a. Today, WfW3.11 is the best-selling version of Windows, with improved performance and integrated networking & messaging.

2b. WfW3.11 is definitely on the road to Chicago, with its i) 32-bit file system, ii) networking & TCP/IP support, and iii) and support for Microsoft At Work™ technology.

3. If you require either i) portability to non-x86 processors, or ii) SMP, or iii) C2 level security, then you need Windows NT (workstation or server, depending on your needs).

MX 2194407
CONFIDENTIAL

CMS 00026063

RBC 05124

"Chicago" Mission

- **Customers**
  - **End-users: Make using PC's easier for everyone**
  - **IS Managers: Reduce cost of PC deployment**
- **Industry Partners**
  - **OEMs: Create a no excuses standard for PC hardware**
  - **ISVs: Enable great new applications on a mainstream platform**

◊ Mainstream, leadership operating on desktop and portable

1. When Chicago was designed, there were 4 missions in mind.

2a. The first 2 relate to customers.

2b. For the end-user customer, Microsoft focused on making the WHOLE PC (not just applications or system components like file manager or program manager) EASIER, for EVERYONE (even non-PC users) - e.g. no more ini files.

2c. For the MIS customer, Microsoft focused on reducing the cost of PC deployment thru improvements in i) installation, ii) configuration, iii) training, iv) maintenance, and v) network mgmt.

3a. The other 2 missions relate to the PC industry partners.

3b. For the OEM partner, Microsoft focused on creating a no compromise standard for hardware, so that users will not have to go after other workstations for more power, or after mac for ease-of-use.

3c. And finall for the ISV partner, Microsoft focused on 32-bit Win32 applications that perform better, are more reliable, and offer new value-added features.

Chicago Customer Benefits

- **Easier**
  - **To learn and use (new user interface)**
  - **To install and configure ("Plug and Play")**
- **More powerful**
  - **Win32® API, 32-bit OLE 2.0**
  - **Preemptive multitasking base**
- **More connected**
  - **Integrated protocol- independent**
  - **Management ready**

And Fully compatible!

1. The key Chicago features that meet those missions can be broken down into 3 categories.

2a. The first feature-set makes Chicago easier -
2b. Easier to learn & use (thru the new user interface), and
2c. Easier to install and configure (thru the PnP architecture).

3a. The second feature-set makes Chicago more powerful -
3b. More powerful applications (thru 32-bit API and OLE), and
3c. More powerful multitasking.

4. Finally, the third feature-set makes Chicago more connected thru its integrated protocol-independent and management-ready features.

5. And, on top of that, Chicago is fully compatible with MS-DOS and Windows applications, and existing device drivers.

Chicago Demo

1. Novice UI

1a. Start/Present.doc

1b. Start/doc/MRU/Sales.xls

1c. Copy/paste

1e. Tool bar click/minimize/close X

1f. Start/Help/Disp/Back/Wallpaper/Clouds

2. Intermediate UI

2a. My Computer/C: drive/Personal Files folder

2b. Change file to LFN

2c. DnD Letters to Mom

3. Expert UI

3a. Start/Explorer

3b. Cursor to each drive

3c, Drag files between C: and A:

3d. Change views

3e. R mouse on C: (in Explorer)/Properties (also on other files)

3f. Short-cut / Link

3g. Start/Prog Mgr

4. PnP: Add PCMCIA hard disk

5. MS-DOS Performance

5a. Start/Fox

5b. Copy/Paste to Excel

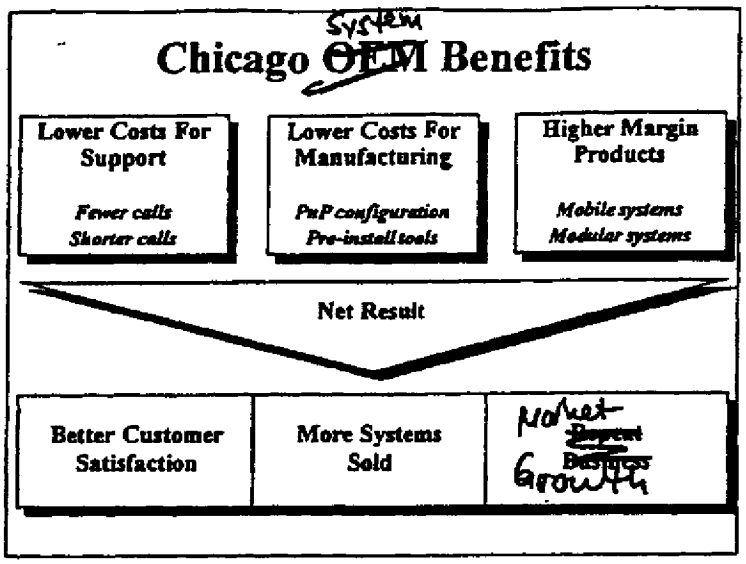
6. 32-bit Apps: Start/Picture Publisher/open 4 images & rotate

7. Multitasking

7a. Start/Winnbez (2 threads)

7b. Start/Find/Present.doc (print)

7c. Start/Docs MRU/Cartoon.avi



1. To recap on the benefits of Chicago (and PnP) to OEMs.

2. One, it will lower cost of the support group by having less calls and shorter calls.

3. Two, it will lower cost of the manufacturing group by having PC's pre-installed with Chicago, and having PnP configured hardware.

4. And third, it will provide an opportunity for making higher margin products, like mobile and modular systems.

5. The net result of all this will be better customer satisfaction, more systems sold, and repeat business.

Chicago and PC'95 Hardware
An Incredible Combination!

Chicago

with integrated Plug and Play architecture

and

PC'95 Hardware

based on Plug and Play specifications

both "make using PCs easier for everyone"

1. The Chicago you have just seen, together with PC'95 hardware, makes for an incredible combination - both make using PC's easier for everyone.

2. As a consequence of making the PC easier for everyone and having great HW & SW available, Chicago and PC'95 hardware will help broaden the market for PC computing.

3. This is critical to maintaining a healthy industry that can continue to deliver high quality, cost effective products with dramatic new benefits for customers.

The Road to Chicago!

- **Install Windows for Workgroups today**
  - **Smoothest transition via shared components**
- **Design and build PC'95 hardware**
  - **Get and follow the Hardware Design Guide**
  - **Write great 32-bit protect-mode drivers**
  - **Test and pass HCTs included in Chicago Betas**
- **Take advantage of co-marketing**
  - **Demo Plug and Play hardware at conferences**
  - **Apply for logo certification**

1. To help the industry in these efforts, here is what we ask of you.

Questions?

The Future of Windows™
NBI Annual Meeting
July 30th, 1994

Amer Samie
Windows Hardware Programs
Microsoft Corporation

I will talk about today's PC platform, and what Microsoft, together with the hardware industry, is doing to improve it for tomorrow.