

# **IBM PC Total Benefit of Ownership**

# **Business Solution Brief**

Unless your company is in the business of managing PCs, PC management won't make you money. Implementing business functions in a client/server environment can mean increased productivity and improved communications, but at what cost? In many cases, companies find themselves spending too many resources managing PCs, in both dollars and skills, making it difficult to focus on building the business. When an IT department is hobbled by excessive PC management tasks, it cannot fulfill its true information services role: supporting the core business by developing and delivering critical business information to users and customers.

To remain competitive, your company must constantly strive to improve customer service and loyalty, tap new markets for products and services, improve communication with customers, and find new ways to increase company efficiency and speed-to-market. IBM believes the best commercial desktop PCs allow you to concentrate on these universal business goals. IBM commercial desktop PCs and workstations are designed for comprehensive manageability—so you can redirect key resources to better meet your primary business objectives. IBM takes technically innovative products and packages them with superior network management tools, support services and financing options. The result is a higher total benefit of ownership for IBM commercial desktop PC customers.

# Manageability and protection for your PCs—and your investment

The best PCs for your business are the ones designed to let you concentrate on doing business. Designed for manageability, IBM commercial desktop PCs help your company reclaim excessive resources applied to PC management, so they may be redirected to essential business activities. With the latest in security technologies to help protect your systems and data, IBM commercial desktop PCs can also help you avoid the tremendous time and expense associated with theft or accidental corruption of system components and files.

In addition to simplifying physical PC management and protection, IBM commercial desktop PCs help you manage your PC investment. Competitive companies need to be technologically current while limiting their overhead by implementing technology solutions with some degree of longevity. IBM's standards-based innovations and alliances with peer leaders are ways we help companies stay ahead of the technology curve without locking themselves into proprietary solutions.

The IBM/Intel Advanced Manageability Alliance (AMA) is a prime example. In October 1996, IBM and Intel announced an important new agreement to integrate systems management software with intelligent hardware. This initiative is central to IBM's commitment to help you manage and protect your computer investment. The alliance is already yielding dividends for customers, such as the incorporation of IBM's Wake on LAN and Alert on LAN technologies into

the Intel EtherExpress Pro/100+ Management Adapter and LANDesk® Client Manager software. When you apply IT solutions that result from alliances between proven industry leaders, you get more than state-of-the-art technology—you get solutions that offer investment protection through longevity and prescient upgradability.

Whether your company is bogged down by PC management tasks, distracted by chasing evolving technology, or both, IBM has solutions that will let you stay focused on your business. Solutions that provide you with:

- **x** Smarter manageability
- x Better asset protection
- **x** Outstanding value

By applying an IT strategy that addresses these factors, your company can increase IT productivity, spend less time worrying about systems security, and increase its spending efficiency and predictability.

# **Smarter manageability**

How do your customers directly benefit from your company's PCs? They don't. Let's face it, customers benefit from product quality and customer service. If IT initiatives that help provide these customer benefits are relegated to a low priority in favor of PC management, your customers don't benefit. IBM technology and services can help you keep those priorities in order.

IT professionals want to focus on solutions that have a direct relevance to the business—but often there's just not enough time. Administering a LAN full of hard-to-manage PCs demands a significant portion of the manpower your IT group has to offer. By applying IBM's management technologies, a company can transform overwhelming system management functions into what they should be: effective business support function requiring fewer resources.

The remote setup and management features of IBM commercial desktop PCs virtually eliminate the need for technicians to visit individual clients to perform management tasks, keeping your IT group and the users they support more productive. The IT man-hours that can be recouped by automating systems inventory, configuration and upgrade tasks mean more time for your IT group to marshal the critical business information that helps your company provide quality products and services.

#### Remote setup and support reduces overhead of client visitation

Imagine: you need to roll out 200 brand new PCs to a company department. That means performing the same initial setup task 200 times. While you're sweating over this tedious and repetitive task, your top priority sinks to last place—this is hardly the time to concentrate on starting new IT projects that will grow the business. It's maddening—you simply must find a way to streamline these PC setup and support functions.

#### Plug-in-and-go

Look to IBM for the solution—IBM has pioneered a number of technologies that make it easier to set up and deploy your PCs.

Our latest innovation is Asset ID, a unique application of radio-frequency technologies that allows you to inventory and record information on new PCs without even opening their carton.

Using a handheld unit,<sup>1</sup> you can designate the end user for each PC and define their software requirements on a nonvolatile EEPROM located within each system.

Then, once each system is plugged into a power outlet and LAN jack, the rest of the setup and configuration can be done automatically over your network. Some time later, at your convenience, each system can be started automatically by the server, flashed with your company's standard BIOS/CMOS, loaded with the new users' specific software images, and shut down—all without a technician on-site. This Plug-in-and-Go implementation is accomplished using Asset ID, IBM's Wake On LAN technology, a new boot sequence (first the floppy drive, then the LAN and then the hard disk), and IBM's LANClient Control Manager (LCCM) software, which can be downloaded from the web at no additional charge (www.ibm.com/pc/desktop/lccm).

#### Simplified remote troubleshooting

Systems support can be another major time-sink for IT technicians. When a user calls the corporate helpdesk with a software problem, technicians usually begin the long task of explaining to the user how to resolve the problem. In many cases, the IT technician ends up having to visit the system to resolve the problem, disrupting their own productivity and that of the user. With the advanced remote support features of IBM PCs, the technician can take control of the user's systems remotely via LAN, Internet or modem connections to fix many software problems.

IBM Client Services for Netfinity Manager, Intel LANDesk Client Manager, CoSession Remote and QA Plus or PC-Doctor diagnostic software are included with all IBM PCs and IntelliStations. These packages can be used by in-house support staff, outside service providers, or IBM HelpCenter technicians to take control of a system as if they were sitting at the machine, so they can diagnose and repair system files remotely.

IBM PCs also include Artisoft ConfigSafe software, which keeps a log of changes to system files, and provides a tool for comparing versions, so support personnel can quickly determine what has been changed on a malfunctioning system (down to the system file and registry level). ConfigSafe can also be used to easily restore a user's system to a working configuration in minutes. Used in conjunction with the remote support tools described above, your help desk can use ConfigSafe to restore a client's configuration remotely over the network.

With remote setup and support capabilities, IT professionals can reclaim many of the hours they spend on these tasks and use the time to address core business information needs. IT groups that employ these technologies have learned how to convert time saved in PC setup and support into time for creating new and effective information services that will increase product quality and customer satisfaction.

## Advanced management keeps everyone productive

IBM offers leading hardware and software solutions that can help your company's IT group spend less time and money resolving users' system problems. In an elegant symbiosis of PC management technologies, our hardware solutions are tightly integrated with software solutions to provide state-of-the-art systems management capabilities.

#### Flash over LAN

The Flash over LAN capabilities of IBM LCCM software allow LAN administrators to ensure the right level of BIOS and drivers are loaded onto each system enterprise-wide. Your IT group can realize a dramatic decrease in system problems simply by ensuring that all PCs are using the correct level of BIOS and the latest drivers. By enabling administrators to automatically update system configurations over the LAN, you can ensure that connected PCs are operating with common and up-to-date configurations without having to devote costly IT resources to the

project. The result—more users are up and running more of the time. (For more information, see the IBM LANClient Control Manager Information Brief.)

## **Advanced DMI support**

In creating our management-enabled commercial desktop PCs, IBM has employed advanced DMI (Desktop Management Interface) instrumentation so that IT professionals can monitor system components to predict certain potential problems. IBM Client Services for Netfinity Manager and Intel's LANDesk Client Manager software, two innovative systems management tools included with IBM commercial desktop PCs and IntelliStations, both support the DMI standard. DMI is important because it defines the components of a PC and provides tools that permit management applications access to this information. As a result, DMI allows system administrators to monitor many aspects of a PC's functionality, so problems are avoided and users stay productive.

#### **Automated hardware and software inventory**

If PC inventory management meant simply counting the PCs your company owns, one person with a notepad, a pencil and a lot of time could handle it in most companies. But it's not that simple. When planning a major software upgrade, you need to know the hardware configuration and the software installed on each machine. Add the fact that any one of these variables could change at any time, and you've got a full-blown PC inventory project on your hands—a potentially time-consuming and costly exercise.

An IT group should be able to handle system configuration inventory and software inventory from a single console in the IT department. With IBM technology, that vision becomes reality. IBM commercial desktop PCs allow you to centralize and automate hardware and software inventory tasks that could take hours, even days, if done manually. Because IBM employs advanced management technologies like Wake on LAN, DMI instrumentation, IBM Client Services for Netfinity Manager, Intel LANDesk Client Manager and LCCM software, you can automatically poll systems to read and determine each system's BIOS and take inventory of processors, memory, hard drive size and available hard drive space. This can all be scheduled to be done at night when user productivity won't be disturbed. Then, while drinking that first cup of coffee the next morning, you can quickly determine system upgrade requirements for new solutions you intend to roll out.

IBM PCs add extra levels of information—and protection—to your electronic inventory efforts with the Enhanced Asset Information Area, which records specific component information. The Enhanced Asset Information Area consists of an EEPROM on the system board, an EEPROM located on each memory DIMM, and hard disk drive. The system EEPROM includes five blank fields that you can record with customized information, such as your asset tag numbers, department and user assignments, a lease end date, and the like. This information can be read by any DMI-compliant management software, producing a much richer electronic inventory that would otherwise have to be gathered in several time-consuming steps. And since this information is stored on nonvolatile EEPROMs, it is protected from system battery and hard disk failures. IBM's Enhanced Asset Information Area enables network administrators to conveniently perform detailed, dynamic electronic inventories and manage the customized system information required to efficiently track the increasing number of PCs within your enterprise.

On select IBM PCs, Asset ID further helps make periodic physical inventories of your PCs a breeze. Asset ID uses radio-frequency technology enable you to read the system EEPROM with a small, handheld device, without searching for a label or bar code. Unlike bar code technology, Asset ID gives you an accurate inventory of components inside the box, because they are automatically registered on the system EEPROM. And Asset ID also gives you a more complete inventory because it can read the fields you recorded on the EEPROM, such as the user's ID and department. (For more information, see the Asset ID Information Brief.)

#### **Simplified physical PC maintenance**

The benefits of over-the-wire PC management are clear, but IBM has also been concentrating on ways to make hands-on, physical PC maintenance easier and more reliable. The IBM PC 300PL and PC 300GL models with Pentium® II processor were designed from the inside out to speed installation of new components.

The NLX system board and new chassis design in these systems eliminate extra steps and allow you to save time and money when servicing and upgrading IBM commercial desktop PCs. The inside of the box is a marvel of simplicity, with all replaceable and upgradable components clearly visible and readily accessible. The system's motherboard docks into a separate riser card that holds all adapter cards and the few remaining cables. As a result, the motherboard can be removed in seconds by releasing a latch and sliding it out.

Taking ease of service and upgrades one step further, IBM had added several features to its new chassis that are not included in the NLX specification. No tools are needed to remove the cover—simply unsnap two easy-lift tabs, and it slides right off. The new chassis design also features a pivoting hard drive and CD-ROM cage that flips up and out for fast, easy access. IBM commercial desktop PCs are now even easier to service and upgrade. (For more information, see the NLX Motherboard and Advanced Chassis Design Information Brief.)

# **Better asset protection—IBM AssetCare**

To stay competitive today, companies rely on their IT departments to develop customer and market data that facilitates product enhancement and quality service. But when the IT group is saddled with problems such as data integrity and security, component theft and system security, focusing on new business solutions is next to impossible. IBM PCs implement Asset-Care technologies to help relieve these security worries. (For more information, see the IBM AssetCare Information Brief.)

# IBM PCs help secure your data

Customer satisfaction helped earn your business its reputation for quality products and services—you've implemented your business processes with customer satisfaction as the singular goal. But what fuels your business processes? The answer: critical business information and communication provided by your company's PCs. Without effective control over your company's data, vital business processes can fail, and ultimately, customers will suffer. Thus, a primary concern in protecting your corporate computing resources is not only securing the PCs themselves, but also the data they hold.

When a hard drive fails, there is significant risk of losing the data on the drive and of having a user who cannot be productive until the hard drive is repaired. Thanks to industry-standard Self-Monitoring and Reporting Technology (S.M.A.R.T.)—standard on all hard drives from IBM—a majority of hard drive failures can be predicted before they occur. But a S.M.A.R.T. alert alone is often insufficient to protect your data and prevent disruptions of user productivity. IBM has addressed this problem with SMART Reaction<sup>2</sup> software, a client/server software application that can automatically back up data whenever a S.M.A.R.T. alert occurs and enable the end user to continue to work safely until the hard drive is repaired. SMART Reaction can integrate seamlessly with your existing industry-standard backup software, including IBM ASDM, Seagate and Cheyenne, or operate as a robust stand-alone backup program. It protects your vital business data with:

- 1 Automatic backup of a user's entire drive contents to a designated file server whenever a S.M.A.R.T. alert indicates a potential hard drive failure.
- 2 Periodic mirroring of file changes on the user's hard drive to enable them to continue working without the risk of losing their data.
- 3 Remote restoration of the hard drive contents following drive repair or replacement.
- 4 Continuous or scheduled mirroring of your most critical business data on any client hard drives to prevent its loss in the event of system theft or unpredictable drive failures.

(For more information, see the Self-Monitoring, Analysis and Reporting Technology and the SMART Reaction Information Briefs.)

Additionally, IBM AntiVirus software, included with all IBM commercial desktop PCs, helps protect data from corruption due to system viruses, which is especially important for today's users who download software from the Internet. And most IBM commercial desktop PCs are equipped with locking covers that inhibit unauthorized access to the inside of the system.

# Early warning of system tampering or theft

To address the issue of physical component security, IBM has integrated DMI instrumentation, the Intel Manageability Chip, IBM Client Services for Netfinity Manager software and Intel LANDesk Client Manager software to provide a mechanism that alerts system administrators remotely if a PC chassis is opened. Without a way to detect system tampering, component theft could go unnoticed, as the only evidence of the theft would be a degradation in system performance. This gives thieves the opportunity to systematically take memory from many PCs before anyone catches on. Detecting system intrusion early can mean the difference between recovering the stolen component or purchasing a replacement.

Taking early detection a step further, IBM has incorporated a new hardware and software technology, Alert on LAN, into select IBM PCs. Alert on LAN was developed under the auspices of the IBM/ Intel Advanced Manageability Alliance to respond to the rising costs of computer thefts. A PC equipped with Alert on LAN acts as its own security guard. When someone unplugs the system from its power supply or network or opens its chassis, an alert is instantly generated to a network administrator, to building security, or to other designated people. Alert on LAN is the first technology able to transmit an alert from a DMI-compliant manageability chip even when the system is powered off.

## Serial number registration: Deter theft and help recover stolen assets

To further protect valuable systems and components, IBM customers are encouraged to register their systems with Retainagroup Ltd. (www.retainagroup.com), which maintains an international database of serial numbers and their owners. Registration with Retainagroup can deter potential thieves, because each protected system is marked with a prominent label warning that the system and each of its components is registered. In the event that a system or its components are stolen, the registration proves lawful ownership, which improves the chances of recovering the assets and aids in the prosecution of offenders.

# **Outstanding value**

When you consider the quality and technological innovation evident in every IBM PC, you might expect these systems to be budget-busters. Nothing could be further from the truth. The full line of IBM desktop PCs is available at surprisingly affordable and highly competitive prices.

Whether you select from our wide array of pre-configured models, or choose a customized configuration through IBM's Authorized Assembler Program, you will be able to find a combination of price and performance that will fit your business needs, and your budget.

Think about how much time and money your company spends tracking commercial desktop industry advancements to ensure technological currency. Don't forget to add up the man-hours it takes to analyze and decipher the myriad suggestions offered by consultants and trade publications regarding industry trends and innovations. Relying on IBM's commitment to innovative application of industry standards is one way you can avoid the costly game of chasing transient PC technology, but it's not the only way. By actively managing your company's technology investment, always implementing PC options and peripherals that are compatible with your current systems, and relying on a solid service and support network to keep your systems running properly, your company can stay on the right technology track. And your IT group can concentrate on business projects that make the company more efficient.

## **Options by IBM**

Options by IBM is a program designed to help protect your investment in commercial desktop PC technology. IBM works with leading industry vendors to provide a full line of quality memory, adapters, storage and more—each is designed and tested for use with IBM commercial desktop PCs. With Options by IBM, you can have the power and flexibility to address your needs, both today and tomorrow. In addition, IBM gives you worldwide access to accurate, up-to-date compatibility information on our Compatibility Report Web pages.

# IBM SystemXtra

IBM SystemXtra is the next logical step in IBM's tradition of helping you maximize the total benefits of ownership from your information technology investment. Offered exclusively through your IBM Business Partner, this customizable offering can help you free up IT staff, skills and budget, with more-advanced technologies, broader services and affordable, flexible financing. SystemXtra technologies and services work in concert to help you focus on strategic opportunities, speed up system rollouts, improve end-user service, decrease the need for on-site technician visits, increase system security, and keep better track of your technology assets.

IBM's SystemXtra program offers you a creative way to avoid the costly game of chasing evolving PC technology. SystemXtra makes it possible for you to actively manage your company's technology investment, facilitates implementation of PC options and peripherals that are compatible with your current systems, and provides a solid service and support network to keep your systems running properly. With IBM SystemXtra, your company can stay on the right technology track with a predictable budget, freeing up your IT group so it can concentrate on business projects and turn your IT investment into a business advantage.

#### **Technology**

At the heart of SystemXtra is IBM's industry-leading set of manageability and technology solutions for networked PC environments:

- **x** The remote manageability, monitoring, security and investment protection technologies built into many new IBM PC, ThinkPad, IntelliStation, Network Station, IBM Netfinity and IBM PC Server and Network Hardware Division products.
- **x** The Advanced System Management Adapter, IBM LANClient Control Manager, IBM Client Services for Netfinity Manager and Intel's LANDesk Client Manager—the asset management tools included with many IBM Personal System Group products.
- **x** The broad compatibility and easy upgradability built into IBM PC, ThinkPad, Network Station, Network Hardware, IntelliStation, IBM Netfinity and IBM PC Server products.

#### **Designed for investment protection**

IBM is committed to providing truly open and integrated business systems that give you flexibility in choosing the solutions you want and protection for your investment. Today's IBM systems are designed with:

- x Processor upgrade flexibility and scalability designed into selected IBM commercial desktop and server systems
- **x** Broad cross-model option compatibility, plus new "tool free" chassis designs that make option installation easier than ever on selected commercial desktop and server systems
- x A family of 2210 routers, offering easy network expansion for a cost-effective solution for small- and medium-sized offices, whether local or remote
- **x** A family of 8274 routeswitches that support a wide variety of switching, allowing you to easily migrate to the network of your choice

Plus much more . . .

#### **Services**

IBM SystemXtra has been developed to strengthen the synergy between your Authorized IBM Business Partner and IBM so that, together, we can bring you a robust set of remote management solutions for your networked computing environment, a broad range of enhanced support services, an innovative way to keep your software up to date, and flexible education offerings. Your IBM Business Partner can customize a SystemXtra solution that combines local support with IBM offerings to help you:

- **x** Minimize system down time and increase application availability
- x Get new systems up and running quickly and smoothly
- **x** Free up key skills and resources to focus on strategic opportunities
- **x** Maintain software currency and reduce the cost of operating system migration across your enterprise
- x Increase your levels of system support without increasing support staff
- **x** Offer your staff the training they need to maximize your investment in software and systems

#### **Financing**

IBM SystemXtra can help you reduce the risk of technology obsolescence and acquire the hardware and software you need for your business while preserving capital dollars. This means you can use your capital budgets for acquisitions that support your core business—equipment or staff, for example—while you expense the cost of your technology infrastructure. Provided by IBM Credit Corporation, this innovative financing package has several alternatives to deliver your entire SystemXtra custom configuration—IBM and non-IBM hardware, software, services and training—for a single, predictable monthly payment. Leasing and financing are available on

as little as \$5,000 worth of IBM hardware. Acquiring IBM technology through the SystemXtra Technology Exchange Option<sup>3</sup> allows you to:

- **x** Plan for more frequent technology updates
- **x** Transfer the risk of obsolescence
- x Improve asset tracking
- **x** Reduce administrative burdens
- x Manage and control costs

To find out about IBM SystemXtra and how it can help make your technology work better for you, visit the SystemXtra Web site at www.ibm.com/pc/us/SystemXtra.

# IBM PCs help you concentrate on doing business

At IBM, we understand what it takes to help make your business a success. An ongoing effort to improve customer service and product quality is paramount, so you constantly seek ways to improve communication with your customers. Agility in the market and a vigilant eye on emerging opportunities allow you to find new customers and new ways to increase your company's efficiency and speed-to-market. The information technology your company has implemented plays a vital role in all of these efforts, but if your IT group is bogged down by PC management tasks, this technology may actually hamper initiatives that provide critical business information.

Technology is meant to help people focus on their business, not distract them from it. IBM commercial desktop PCs meet that challenge head-on. Standards-based innovation, unprecedented manageability, rich asset and investment management features, and unparalleled service and support make IBM PCs the business computing solution that lets you concentrate on what's important: doing business.

	PC 300GL	PC 300 GL w/Pentium II	PC 300PL
Advanced Manageability			
Wired for Management compliant	Υ	Υ	Υ
Wake on LAN	enabled <sup>1</sup>	enabled <sup>1</sup>	Υ
Asset ID	_	_	Υ
Plug-In-and-Go LCCM support 10/100 Ethernet with WOL Flash over LAN Setup over LAN Software Distribution Shut-down over LAN	Y Y <sup>2</sup> enabled <sup>1</sup> enabled <sup>1</sup> enabled <sup>1</sup>	Y N enabled <sup>1</sup> enabled <sup>1</sup> enabled <sup>1</sup>	Y Y Y Y Y
IBM Client Services for Netfinity Manager	Υ	Υ	Υ
Intel LANDesk Client Manager	Υ	Υ	Υ
DMI compliant	Υ	Υ	Υ
Remote Monitoring/Diagnosis	Υ	Υ	Υ
Remote Support (CoSession)	Υ	Υ	Υ
NLX system board	_	Υ	Υ
New chassis design	_	Υ	Υ
Tamper-resistant sealed models CID enabled (OS/2)	Y Y	_ Y	_ Y
IBM AssetCare	'	1	'
Alert on LAN	_	_	Υ
Retainagroup registration	Υ	Υ	Υ
Locking covers	Υ	_	Υ
Manageability Chip (fan, voltage and temperature monitor; chassis intrusion alerts)	: <del></del>	_	Υ
Enhanced Asset Information Area (EEPROM)	_	Υ	Υ
IBM AntiVirus software	Υ	Υ	Υ
ConfigSafe software	Υ	Υ	Υ
S.M.A.R.T. Hard Drives	Υ	Υ	Υ
SMART Reaction software	_	Υ	Υ
Password protection	Υ	Υ	Υ
Productivity Software & Tools			
Lotus SmartSuite license	Υ	Υ	Υ
IBM HomePage Creator	Υ	_	_
ViaVoice <sup>4</sup>	_	_	Υ
Ready to configure CD-ROM	Υ	Υ	Υ

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<sup>&</sup>lt;sup>1</sup> Requires Wake on LAN-enabled network adapter card <sup>2</sup> Select models include integrated 10BaseT Ethernet with WOL; sealed models include 10/100 Ethernet with WOL. <sup>3</sup> Does not monitor fan speed <sup>4</sup> Windows 95 preload only

## For more information

For information via the World Wide Web

In Canada

AssetCare Web site

SystemXtra Web site

Asset ID Web site
Alert on LAN Web site

SMART Reaction Web site

LANClient Control Manager Web site

For product and dealer location information

To access the IBM Personal Systems Group Bulletin Board

For product information sent directly to your fax machine

IBM PC Information Directory **Doc# 11018** 

SMART Reaction Information Brief

AssetCare Information Brief

IBM SystemXtra Business Solution Brief

www.ibm.com/pc/us/desktop

www.ibm.com/pc/ca

www.ibm.com/pc/us/desktop/asset

www.ibm.com/pc/us/systemxtra www.ibm.com/pc/us/desktop/assetid

www.ibm.com/pc/us/desktop/assetid www.ibm.com/pc/us/desktop/alertonlan

www.ibm.com/pc/us/desktop/sr www.ibm.com/pc/desktop/lccm

1 800 426-7255, ext. 4750

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Self-Monitoring, Analysis and Reporting Technology Information Brief Doc# 14915

Doc# 14852 Doc# 14953

Doc# 15966

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IBM Personal Systems Group

U.S.A.

<sup>&</sup>lt;sup>1</sup>Asset ID allows your computer to be scanned by various radio-frequency devices supplied by third-party companies. These scanning devices are planned to be available in 2H98. Availability subject to change without notice.

<sup>&</sup>lt;sup>2</sup>Planned availability 2Q98 via Internet download for select models. Availability subject to change without notice.

<sup>&</sup>lt;sup>3</sup> Eligibility for the Technology Exchange is based on total IBM PC hardware acquisition commitment for a 12-month period; minimum qualifying levels apply.