



**BRINGING THE WINDOWS NT
EXPERIENCE TO
DESKTOPS THAT CAN'T RUN
WINDOWS TODAY**

This new server provides thin-client support by displaying Windows-based applications on desktop machines without any downloading. With this new technology, people can use Windows applications on almost any kind of desktop machine—even those that could not otherwise run Windows..

The Terminal Server Edition delivers the Windows® operating system experience to users with computers that cannot run the latest version of Windows today and enables a new generation of Windows-based applications for terminal users. This availability means that a new segment of users, previously unable to access off-the shelf Windows-based applications, will be able to gain the ease of use that Windows-based PC users have enjoyed for years. The Terminal Server Edition provides a thin-client solution in which applications are executed on the server and remotely displayed on the client. In addition, Microsoft announced broad industry support for the product and commitments from early adopter customers to deploy Terminal Server at their organizations.

Packaging and Pricing

Windows NT Server 4.0 Terminal Server Edition will be priced the same as the standard edition of Windows NT Server 4.0. Clients using the Terminal Server Edition will also require a Windows NT Workstation 4.0 license and a Windows NT Server 4.0 File and Print Client Access License (CAL) for each desktop. Windows NT Server 4.0 Terminal Server Edition is priced at \$1,129, which includes 10 Windows NT Server 4.0 File and Print CALs. Additional Windows NT Server 4.0 File and Print CALs can be purchased at \$39.95 each. Windows NT Workstation 4.0 licenses are priced at \$269. In addition, customers participating in the Microsoft Open License Program (MOLP) can purchase Terminal Server Edition licenses for a reduced, volume-discounted rate of \$627 for the Windows NT Server 4.0 Terminal Server Edition license, \$238 for the Windows NT Workstation 4.0 license, and \$31 for each Windows NT Server 4.0 File and Print CAL.

MICROSOFT'S THIN CLIENT STRATEGY - SIMPLICITY AND CHOICE

Microsoft customers are asking for ways to apply the flexibility and functionality of traditional 32-bit Windows®-based PCs to legacy desktops and terminals. Microsoft's goal is to deliver a full range of computing solutions, scalable throughout an organization, that meet organization users' needs while at the same time support a wide variety of usage scenarios and provide the lowest total cost of ownership. Our ongoing efforts have been validated by analysts and customers, who have found that a well managed PC running Microsoft® Windows NT® Workstation provides the **greatest functionality** and the **lowest total cost of ownership**.

Microsoft's scalable family of thin client solutions includes:

- **Windows-based Terminal (with Microsoft Windows Terminal Server).** Provides the ultimate thin client—all of the processing and storage occurs at the server. A Windows-based Terminal is typically a sub \$500 device running the Independent Computing Architecture (ICA) or Remote Desktop Protocol (RDP) stored in ROM. Lowers TCO by as much as 37 percent.
- **Personal Computer (with Microsoft Windows Terminal Server).** Provides the benefits of centralized computing and the benefits of a low-cost intelligent client with local processing capability. This machine can run all of its applications locally, or run some applications locally (such as Microsoft Office) and some applications remotely from a Windows Terminal Server (such as a frequently updated line of business application). PCs being used as thin clients typically retail for under \$1000 and offer additional flexibility that Windows-based Terminals do not provide.
- **Personal Computer or Network PC (Net PC) with Zero Administration Kit (ZAK).** Provides a full function PC able to use productivity applications within an administrator-controlled environment. This machine can run all of its applications locally or remotely. It provides an administrator determined application suite or subset of operating system functionality. Lowers TCO as much as 35

percent.

COMMON USAGE SCENARIOS AND RECOMMENDED CLIENTS

The scenario below is based on telesales workers in a hotel reservations call center. It illustrates how Microsoft Windows-based thin clients meet the various enterprise needs.

Device Type	Example Usage Scenario	Recommended Client
Display device with Host connection to specialized application	Telesales, Hotel Reservations Agent making hotel bookings on mainframe-based travel system. This is the only application the agent uses.	Windows-based Terminal
Combination display device and Internet browser	Telesales, Hotel Reservations Agent making hotel bookings on mainframe-based travel system. Agent also needs access to Internet-based hotel pricing and e-mail for sending confirmations.	PC with Windows Terminal Server
Processing device with Windows-based applications	Telesales agent now uses locally cached data (for better performance) and uses the company's new browser-based reservation system. Application performance is a critical factor.	PC with Windows Terminal Server
Restricted function device	Telesales application upgraded to integrate with Microsoft Office for correspondence (Microsoft Word) daily exchange rates (Microsoft Excel) and agent training (Microsoft PowerPoint*). Device lockdown is critical factor.	Net PC and ZAK

WHY THIN CLIENTS?

A number of factors drive the demand for thin clients today. The definition of what a thin client is varies from person to person. However, after visiting over 500 customers, Microsoft found four common factors driving the demand for thin clients.

1. **The need for a lower cost device.** This need comes primarily from organizations seeking to upgrade terminals and purchase a sub \$500 device.
2. **Lower management costs for devices.** This comes primarily from corporate customers deploying devices more broadly throughout their organizations to users whom would be best served with a lower device cost. For example, these users include receptionists and order entry workers.
3. **New application requirements.** Examples of this include Kiosk style solutions in public areas and in-room systems at hotels.
4. **New user requirements.** These users need the benefits of a Windows-based environment, but not the complete power and flexibility of a PC.

What is striking about these factors is that few, if any, customers indicated that they plan to replace full function PCs with Network Computers (NCs). However, this is in line with the latest analyst studies showing that Network Computers are only appropriate as single function devices.

There are three principal scenarios that organizations usually evaluate thin clients for:

- Web browsing
- Java-based applications
- Terminal emulation or line of business applications.

After thoroughly evaluating the range of thin client solutions available, it is apparent that a Windows-based approach provides the best solutions for these scenarios:

- Web browsers for the NC, such as Navio Navigator, Sun's Hot Java Views, or IBM's Netstation Browser, lag behind popular Windows-based browsers, such as Microsoft Internet Explorer 4.0 and Netscape Navigator 4.0, in both performance and functionality. For example, the Navio browser does not include support for HTML 3.2/4.0, Dynamic HTML, ECMA-262 scripting (the JavaScript standard), and the usability enhancements such as toolbar customization.
- For the second year in a row, PC Magazine has awarded their Editor's Choice Award to the Microsoft Java Virtual Machine as the client with the best Java support (<http://www.zdnet.com/pcmag/features/java98/290323.html>).
- The most mature terminal emulation packages with the richest functionality are developed for the Windows platform.

COMPARING THIN CLIENTS

	Windows-based Terminals	PC with Terminal Server	Network Computer	PC	Net PC
Processor	Many types	X86	Several types	X86	X86
RAM	4-8MB	16-32MB	16-64MB	16-32MB	16-32MB
Peripherals	Remote	Local/Remote	Remote	Local/Remote	Local/Remote
ISA Expansion	N/A	Yes	N/A	Yes	No
Hardware Detection	N/A	Optional	N/A	Optional	Yes
Sealed Case	Yes	No	Yes	No	Yes
Power Management	No	Optional	No	Optional	Yes
Windows Execution	Remote	Local	N/A	Local	Local
Application Execution	Remote	Local/Remote	Remote	Local	Local
Java Execution	Remote	Local/Remote	Local	Local	Local
Browser	Remote	Local	Local	Local	Local

Data Storage	Remote	Remote	Remote	Both	Remote
Cache	RAM	Disk	RAM	Disk	Disk
Centralized Management	Yes	Yes	Yes	Yes	Yes
Remote S/W Installation	No	Optional	No	No	Yes
Remote Boot	No	Optional	Yes	No	Yes

CONCLUSION

Organizations considering thin clients today will find their needs best met by well managed PCs and Windows-based Terminals which provide the lowest TCO, greatest functionality and flexibility, most current Java and HTML support, and the best user experience. Simply put, Windows offers organizations the benefits of centralized management with the power of distributed computing.

FOR MORE INFORMATION

[Well Managed Windows-Based Solutions Offer the Lowest TCO](#)

[Microsoft Reaffirms Commitment to Zero Administration Initiative](#)

[Lowering TCO with Microsoft Products](#)

[Gartner Group Research Note "TCO: New Technologies, New Benchmarks"](#)