



White Paper

Why Use ThinManager to Manage Thin Clients?

White Paper

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Any explanation of ACP's ThinManager software requires an understanding of the underlying technology—Microsoft Terminal Services and the Thin Client model. The items below should be helpful for the ThinManager discussion that follows.

MICROSOFT TERMINAL SERVICES

Terminal Services is a Microsoft® Windows® service that brings centralized computing (the mainframe architecture) to Windows servers. A properly configured terminal server allows many users to login and run independent sessions simultaneously on the server, each with its share of the server resources. Terminal Services can be activated on any Windows 2003 or Windows 2008 Server.

THIN CLIENT - TERMINAL SERVER RELATIONSHIP

Each thin client connects to a terminal server(s) and starts a session(s) via a standard Ethernet network. Keyboard and mouse activity are sent back to the corresponding session on the terminal server. The terminal server then processes the commands and generates the graphic screen update, which is passed back to the client. This makes the terminal server session virtually indistinguishable from a PC session.

If the client is a full-blown PC it is called a “fat client”. Fat clients require a standard operating system, maintenance, security patches and updates.

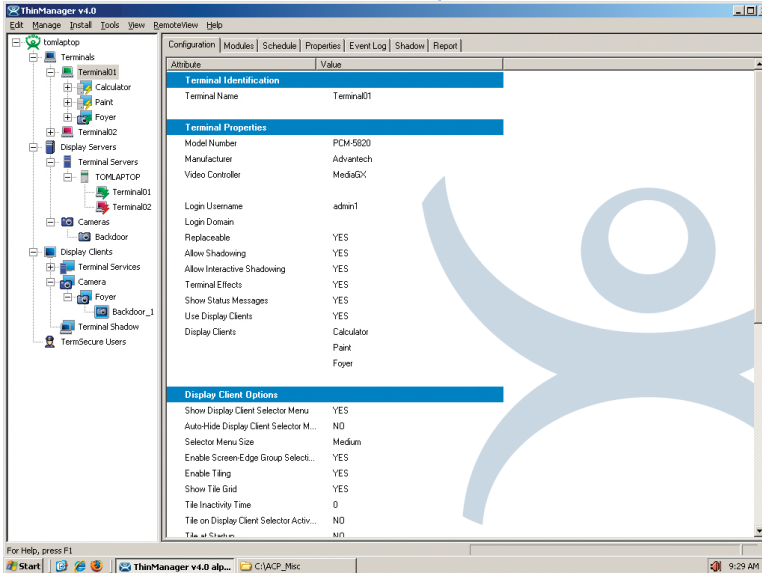
But because the application processing has been split from the user interface, the client could also be a machine with very limited resources. These special display machines, called **Thin Clients**, are “reduced” computer devices that lack a hard drive and don't need the maintenance, patching, and updating that fat clients require.

CENTRALIZED COMPUTING BENEFITS

Terminal Services makes maintenance easier. Because the applications are running on the terminal server and not on the clients it is the terminal server that is maintained, not the clients. Applications are installed once on the server and are available to all the clients. Patches and upgrades are done on the terminal servers and not the clients.

While terminal services simulates a mainframe architecture, it is based on Microsoft's standard operating systems so it is a true Windows environment—users can call up all their familiar applications and have them run as expected.

THINMANAGER — MANAGING ALL THE PIECES



A small Thin Client network can be managed with a small level of difficulty, using the basic tools provided by Microsoft. However once the number of clients and Terminal Servers begins to expand the system can quickly grow out of hand. And for larger systems users typically want much more power, flexibility, security and reliability than can be squeezed from the Windows operating system.

ACP developed our ThinManager® Thin Client management software as an enhancement to Microsoft Terminal Services. It was designed specifically to meet the demanding needs of industrial users who insist on 24-hour uptime, simple and reliable operation, as well as software and hardware that does not become obsolete just a few years after the purchase.

Some of the benefits of running ThinManager alongside Windows Terminal Services are listed below.

Centralized Client Configuration

ThinManager allows compatible clients (ThinManager-Ready Thin Clients) to be configured in a central location instead of individually at each client. ThinManager-Ready Thin Clients do not have an embedded operating system so they do not grow obsolete or require reflashing of firmware.

Centralized Management

ThinManager allows the monitoring of the Thin Client from a central (local or remote) location. ThinManager shows what Thin Clients are active, what terminal servers they are assigned to, whether they are logged in, and even what applications they are running.

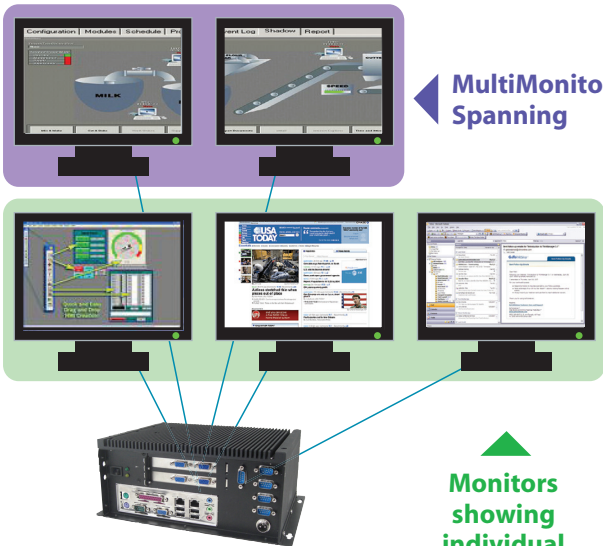
Shadowing

ThinManager allows ThinManager-Ready Thin Clients to be “shadowed” from within ThinManager. This allows the administrator to see exactly what is being run on the Thin Clients. ThinManager also allows the administrator to see what user is logged into a session and what applications and processes they are running. Users can configure most of the Microsoft Server parameters directly from within the ThinManager interface.



MultiMonitor

MultiMonitor allows ThinManager users to display up to five screens on a single Thin Client. While a few other Thin Client companies have started to offer multiple monitors, ACP is the first to allow the client to display a different session on each of the screens.



Special Hardware with five video ports (up to 4096 x 2048 total)

The MultiMonitor feature, combined with one of the MultiMonitor capable clients, can be used to span sessions across monitors or run individual sessions on each monitor. Touch screens are also supported, and if using a keyboard the single keyboard entry follows the mouse focus. "Sliding" the mouse off the edge of one screen moves it onto the adjacent screen.

Users can locate monitors at any location within the virtual space, and can even combine spanning and multiple sessions on a single Thin Client. For instance, two adjacent monitors might be used to span a single session while three other monitors are each used to display sessions running on other servers. ThinManager also includes a wizard for screen configuration.

ThinManager supports up to five monitors at 1920 x 1200 each - spanning is limited to 4096x2048.

Failover

ThinManager allows the Thin Client to be assigned to multiple terminal servers at once. If the terminal server fails, the Thin Client will detect it and switch to a backup terminal server, preventing downtime.

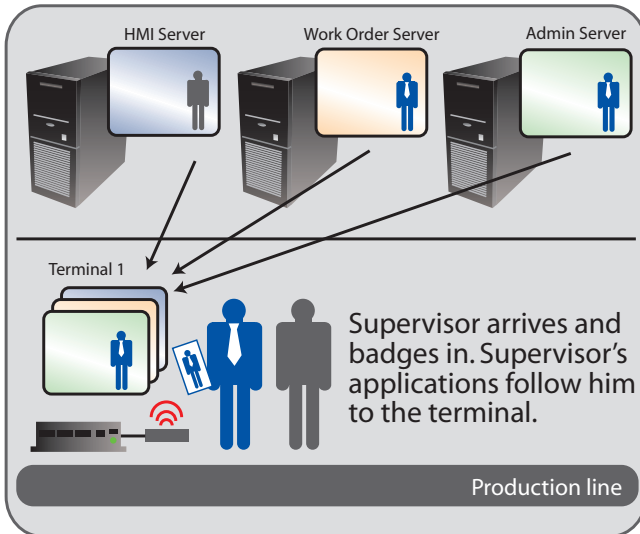
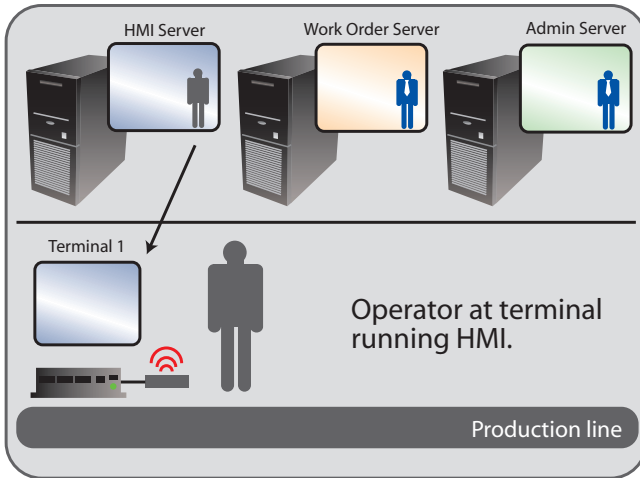
Instant Failover

ThinManager also allows the Thin Client to logon to two terminal servers at once. The primary session will be displayed while the session from the backup terminal server is hidden. If the primary terminal server fails, the Thin Client will simply switch to the backup session, providing immediate failover.



Security with TermSecure™

Customers such as pharmaceutical labs, power plants or chemical weapons disposal facilities require the highest security possible, and only ThinManager-Ready Thin Clients fit their functions. TermSecure adds an additional layer of security that prevents application execution or even network connectivity unless a user is validated. Once on the network,



TermSecure users do not have access to any Windows Usernames or passwords, and a lost or stolen ThinManager-Ready Thin Client contains no user data of any kind.

Authorized users still need quick access to their applications. As a user moves from client to client, TermSecure could be used to log them in and instantly connect them to the existing Terminal Server sessions. Programs and applications follow them and appear on screen served up and ready to use as they approach. Walk away and applications will close.

This also works with different levels of management. For instance in a pharmaceutical lab, a manager will have a higher level of authorization than a technician. The manager can walk up to the technician's work station, log in with TermSecure, and see their own authorized applications. Walk away and their applications will close.

There are several devices that can be used to identify a user at a TermSecure enabled thin client:

- RFID proximity card (short or long range)
- USB flash key
- Manual login

Use a combination of these authentications methods to greatly increase security.

SmartSession (Load Balancing)

ThinManager allows Thin Clients to connect to groups of terminal servers. ThinManager will poll the servers and determine their load based on CPU usage, memory usage and number of sessions. The Thin Client will then connect to the terminal server with the lightest load.

Thin Clients can also be queued up during a system restart. This allows a server to start the sessions one at a time to keep the server from being overwhelmed.

Multiple Session Support

ThinManager allows ThinManager-Ready Thin Clients to connect to multiple terminal servers and run multiple sessions - called MultiSession. These sessions are cascaded on the Thin Client and can be accessed with a hot key or a selector bar.

AppLink (Application Publishing)

ThinManager allows terminal servers to be configured so that only one application runs in the session. This can be used as a security tool to limit access to unwanted programs. AppLink, in combination with the MultiSession functionality, allows a ThinManager-Ready Thin Client to connect to sessions, each of which is a specific application. This simplifies the terminal server configuration. Instead of installing every application on every terminal server, terminal servers can be configured to concentrate on running fewer applications, reducing complexity and limiting conflicts between programs.

E-mail Event Notification

ThinManager can be configured to send e-mails or a local message to a designated operator's console when any of a number of specified events occur.

Quick Replacement

ThinManager-Ready Thin Clients can be replaced with a single click of the mouse, with the new unit assuming the old unit's identity and displaying the old unit's session. Configuration of the new unit (configuring IP addresses, adjusting serial drivers, etc.) is automatic.

Share Keyboard and Mouse

ThinManager allows a single keyboard and mouse to be shared among as many as 5 Thin Clients. The user is then able to slide the mouse off the screen of one client and have it move onto the screen of another, saving desk space.



THINMANAGER 4.1 (RELEASE SCHEDULED FOR MARCH 2011)

What's new in this version?

- Virtualization management
- iOS—iPhone/iPad support
- 64-bit processing

OPTIONS FOR THINMANAGER-READY THIN CLIENTS

ThinManager-Ready Dedicated Hardware

ThinManager-Ready Thin Clients are available from a number of manufacturers and every unit is able to connect to ThinManager right out of the box. All ThinManager-Ready Thin Clients are interchangeable so the customer is not limited to a single hardware provider.

ThinManager-Ready Thin Clients do not have an embedded operating system so they do not grow obsolete and require firmware updates via reflashing. To update a thin client, one updates the firmware in ThinManager and reboots. As long as the hardware continues to run it will remain a viable client.

ThinManager-Ready Thin Clients are also more reliable due to the lack of a hard drive or other moving parts.



ThinManager version 5.0 XLi, slated for release in June 2011, will support many more models of thin client hardware from companies like HP, Wyse, Lenovo and others. You can check the ThinManager list of compatible hardware at <http://www.thinmanager.com/compatibilitylist/>. The XLi version also incorporates MultiMonitor, TermSecure and WinTMC into the core ThinManager product.

WinTMC - ThinManager Windows Client

ACP's Windows client for installation on PCs allows the PC to become a fat client. This Windows client can be configured to make the PC look just like dedicated ThinManager-Ready hardware, and supports ThinManager features such as failover, SmartSession, and AppLink.

LICENSING MODES

ThinManager has two licensing models. The Standard model is a per connection license and is available in 5, 10, and 25-packs.

The Enterprise model is an unlimited connection license and is available in Server and Site. The cost per connection using Enterprise licenses becomes lower and lower as more units are installed.

The Enterprise Server License allows unlimited connections to two ThinManager Servers, a primary and a backup. The Enterprise Site License allows any number of ThinManager Servers to be installed on one customer site. This is useful where different departments each want control over their own ThinManager servers.



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