NCD ThinPATH Software™

NCD ThinPATH Load Balancing Startup Guide

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Revision History

December, 1999. NCD ThinPATH Load Balancing Startup Guide, Version 2.07. Rev. A.

Contents

Contents

Featuring Load Balancing

NCD ThinPATH™ Load Balancing has server and desktop components that distribute desktop connections among servers, balancing their loads. Load balancing functionality is described in user documentation.

■ Load balance servers

— You prepare for load balancing by configuring servers in a load balance group identically. Within a group, the recommended practice is to run the same applications on all servers.

— You install load balancing software on the servers.

— You define groups of servers and associate applications with them. All servers in the domain maintain current information about groups, applications, and activity levels.

— You monitor performance using the Microsoft Performance Monitor and adjust your load balance configuration as needed.

■ Desktops (NCD ThinSTAR terminals or PCs)

— You install load balancing software on the user system.

— Users create load balance connections to defined load balance groups and published applications. With the optional NCD ThinPATH Manager, you can distribute the connections to NCD ThinSTAR terminals automatically.

— A user initiates a connection request. A contact server directs the connection to the least active load balance server.

By default, the request is broadcast to the user's domain; the contact server is the first server to respond. A user can have the client broadcast to a different domain or a preferred servers in turn.

With the optional NCD ThinPATH Manager, you can distribute the contact option to terminals automatically.

■ User documentation

The software includes online help and the **Documentation** directory of the product CD has PDF documents that you can view with the Adobe Acrobat Reader (available at **http://www.adobe.com/acrobat**).

Software Installation

This section explains how to install software on Windows Terminal Servers, NCD ThinSTAR terminals, and PCs. Subsequent sections explain how to configure the software and use the services.

Software

Software for NCD ThinPATH Load Balancing is delivered on the following CD-ROM directories:

■ **Server** has the Load Balance Client Services software for Windows Terminal Server.

■ **TSLB** has client software for NCD ThinSTAR terminals. You load this software onto the Windows NT server running NCD ThinSTAR Management Service (TMS); terminals are upgraded when restarted.

■ **PCLB** has load balancing client software for PCs.

The software is installed in the following locations. Detailed steps begin on page 3.
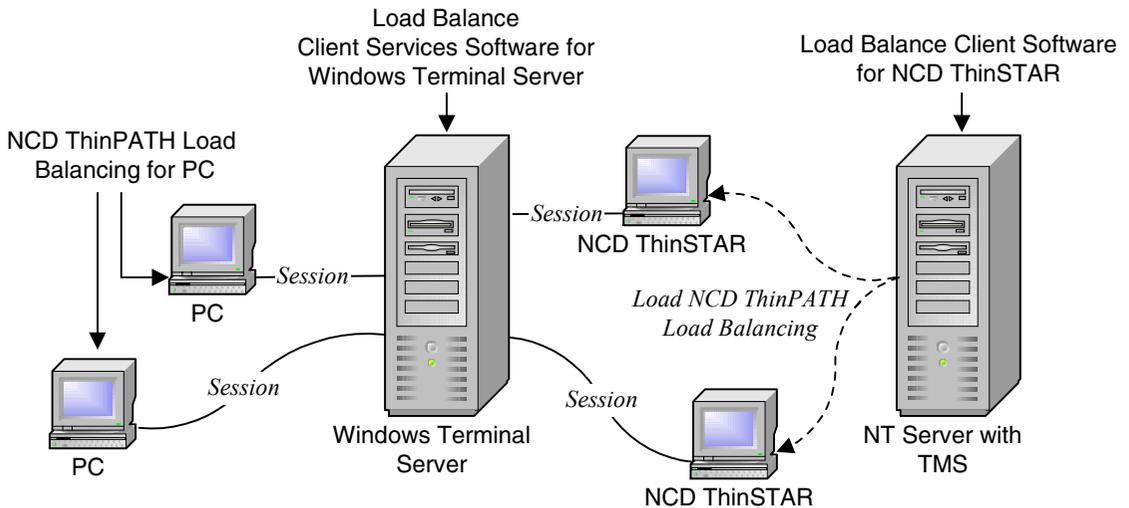
Installing NCD Client Services

The NCD Client Services component for load balancing is in the **Server** directory on the CD. The component install depends on the license keys provided. You must install the load balancing software on every server that is to participate in load balancing.

To install software on the server, you need:

- Microsoft Windows NT Server 4.0, Terminal Server Edition

- Administrative rights to install or configure the software

- Domain administrator rights to configure the software

To install NCD Client Services:

1. Log onto the server as the administrator.

2. Insert the CD and go to the **Server** directory and run **Setup**.

3. Select Install or Update NCD Client Services and click **Next**.

4. Enter licensing information, then click **Next**.

   New installation. Find the license key on a label on the CD case. Type the 22-character license key, including the dashes (-), in the **License installation**. The existing license key is displayed. An upgrade uses the existing key.

5. Select the components you want to install, then click **Next** to complete the installation.

6. If asked to restart the system, select **Restart** to restart your computer now, and click **Finish**. The new installation does not take effect until your computer is restarted.

To upgrade a license key:

1. Log onto the server as the administrator.

2. Select **Start > Programs > Administrative Tools (Common) > NCD License Manager**.

3. Enter the new license keys. These replace the current keys.

Installing Software on an NCD ThinSTAR

Load balancing software is installed on NCD ThinSTAR terminals through NCD ThinSTAR Management Service (TMS), which is part of the NCD ThinSTAR Operating Software.

Note   For more information about TMS, see the *NCD ThinSTAR System Administrator's Guide*.

To install load balancing on an NCD ThinSTAR terminal, you must have:

■ NCD ThinSTAR terminal with 8 MB RAM (16 MB recommended)

■ NCD ThinSTAR Management Service (TMS) installed on a server running NT 3.51 or better

To install the software:

1. Insert the CD on the server that has TMS installed and go to the **TSLB** directory.

2. Run **Setup**.

3. Restart the NCD ThinSTAR to upgrade its software.

Installing Software on the PC

To install load balancing on a PC, you must have:

■ A PC with Windows 95, Windows 98, or Windows NT 4.0

■ Microsoft TCP/IP networking properly configured

■ An RDP or ICA client installed on the PC

■ An account on a Windows Terminal Server that has the RDP or ICA client (or both) installed

To install the software:

1. Insert the CD in the PC and go to the **PCLB** directory.

2. Run **Setup** and follow the instructions on the screen.

Options and Procedures

This section describes options for configuring load balance servers and procedures for creating load balance connections for NCD ThinSTAR terminals and PCs.

Configuring and Using the Load Balance Service

You configure load balance servers by defining groups and assigning servers to a group. As an option, you can associate applications with groups.

Tips for Setting up Groups

In setting up groups, consider the following:

■ Each server can be a member of only one group.

■ You can drag a server between manageable load balance groups and unassigned load balance servers.

■ An initial application can be associated with the group. It overrides any application assignments a user makes.

■ Connections can have different connection types (RDP or ICA, for example) if the types exist on all members of a load balance group and on the client.

■ Load balancing uses TCP/IP port number 2683.

Tips for Setting up Groups using Multiple Domains

Load balancing occurs within a group and in a typical group, all servers are in the same domain. For multiple domains, consider the following:

■   You can move a group from a different domain to **Other Known Load Balance Groups** in your domain.

   The group's original domain is added to the beginning of the group name with a colon. If the group already exists, a number is added to make the name unique.

   The same process is used for published applications in the group.

■   You cannot drag servers from one domain to another. However, you can use the menu to add a server from another domain to your domain. To do this, right click the group name in your domain and select **Add Load Balance Server**. If the server is not running or the service is not running, the server name has a slashed red circle to indicate that it is not available. If you have registry write access to the server, you can manage it in your domain and it is updated with the domain's group information.

■   Unexpected results may occur when load balancing servers on one subnet are from different administrative domains.

■   If a domain crosses subnet boundaries, we recommend that you configure WINS so servers are listed on the network.

Configuring Groups of Servers

This section has basic procedures for defining groups of Windows Terminal Servers and assigning servers to the groups. As you configure servers, you can right click for more options, and you can get additional information in online help.

You can configure all groups of servers for a domain from one server. Initially, all of the servers are unassigned. You define manageable groups, then drag and drop unassigned servers into them. When you click **Apply** or **OK**, the group information goes to all load balance servers (including unassigned ones). The following is an example.

The graphical user interface is similar to Windows Explorer.

- **Manageable Load Balance Groups** are groups you have defined. You drag and drop servers from the **Unassigned Load Balance Servers** onto your groups.

- **Published Applications** are applications users can connect to.

- **Other Known Load Balance Groups** (groups in other domains) are known in this domain, so users can connect to them. Group information is not updated across domains.

- **Unassigned Load Balance Servers** have load balance software installed and running, but are not assigned to any group.

- **Other domains** are listed. You can copy groups from these domains into **Other Known Load Balance Groups** in your domain. This lets users make connections to groups that may not be available in your domain.

NCD ThinPATH Load Balancing Startup Guide   **7**
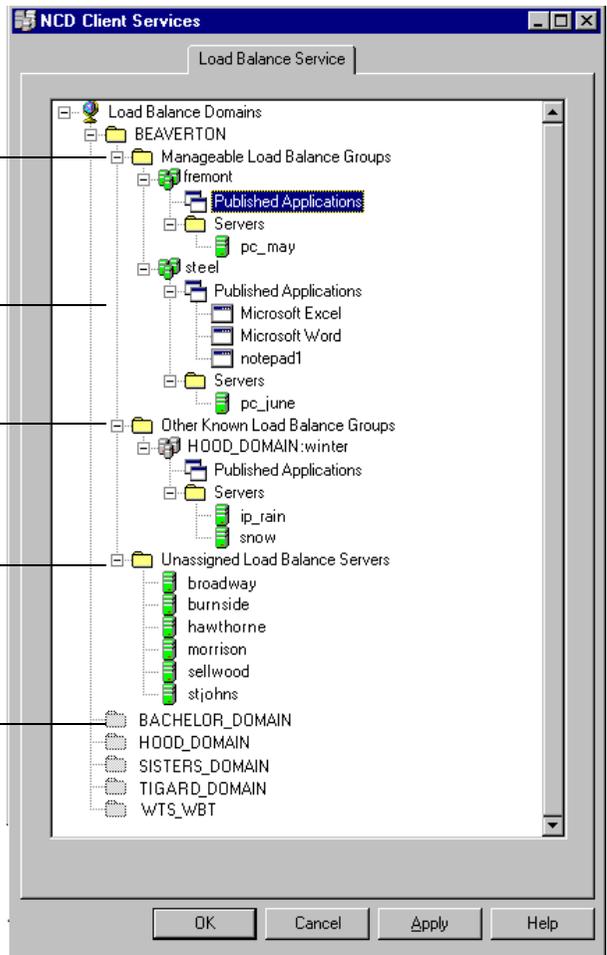
To define groups:

1. Select **Start > Programs > Administrative Tools (Common) > NCD Client Services**, then select the **Load Balance Service** tab.

2. Right click on **Manageable Load Balance Groups** to add groups in this domain or right click on **Other Known Load Balance Groups** to add groups in domains outside this domain.

To assign a server to a group:

1. As needed, drag and drop servers between the **Manageable Load Balance Groups** and **Unassigned Load Balance Servers**.

2. If a server is not listed with **Unassigned Load Balance Servers**, you can add it to a **Manageable Load Balance Group** in the same domain. To do this, right click the **Group** icon and select **Add Load Balance Server**, then specify the server's name or IP address.

3. Click **Apply** to distribute information to other servers in the domain.

Connection Options

You can organize load balancing so that users can connect to:

■ Dedicated applications

■ Published applications

■ Desktops

■ Load balance servers in other domains

■ Load balance servers on a remote subnet

This section discusses these connection options, using order processing and shipping as examples of applications.

Dedicated Application

You can create a group that provides one application (here, order processing), then every connection to the group starts that application.

By default, when the user asks to connect to the group, the client broadcasts for a server on the local network. All servers in the domain know the activity levels of all servers, and the first server to respond directs the connection to the least active server. The connection starts up the dedicated application (here, order processing).
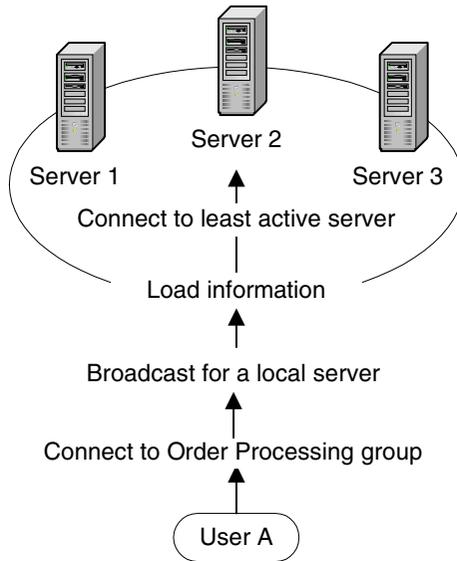
Published Application

You can define published applications for a group, then users can define connections to the applications they need.
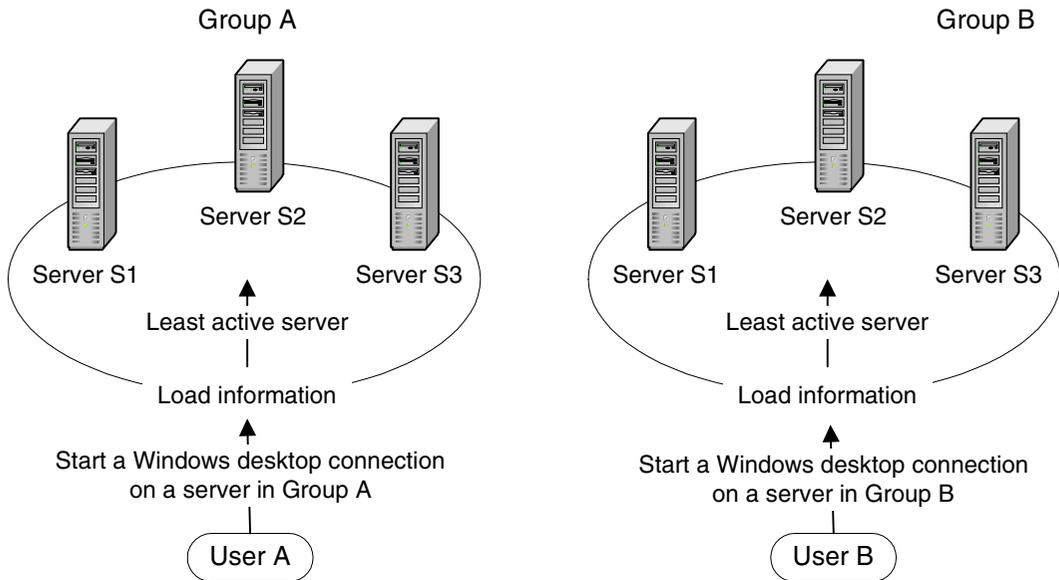
The following group has three servers with order processing and shipping as published applications. User A has defined a connection to order processing and User B has defined a connection to shipping.
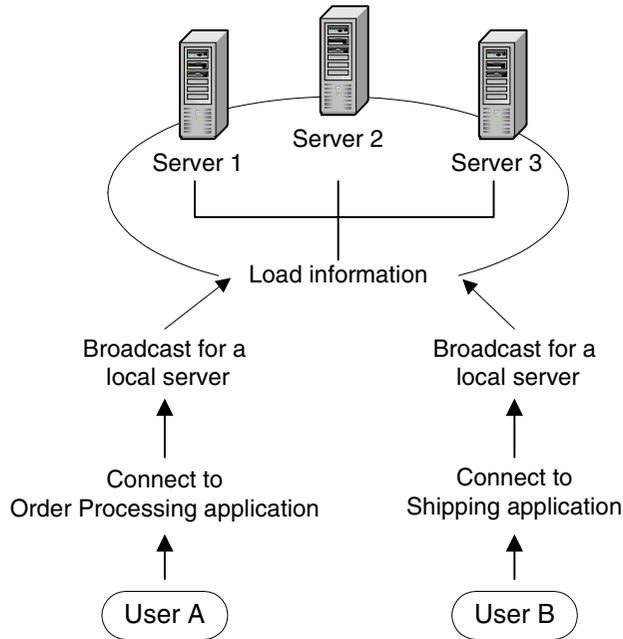
Desktop Connection

For users who have more general application needs, you can create groups and let users create connections that bring up a Windows desktop.
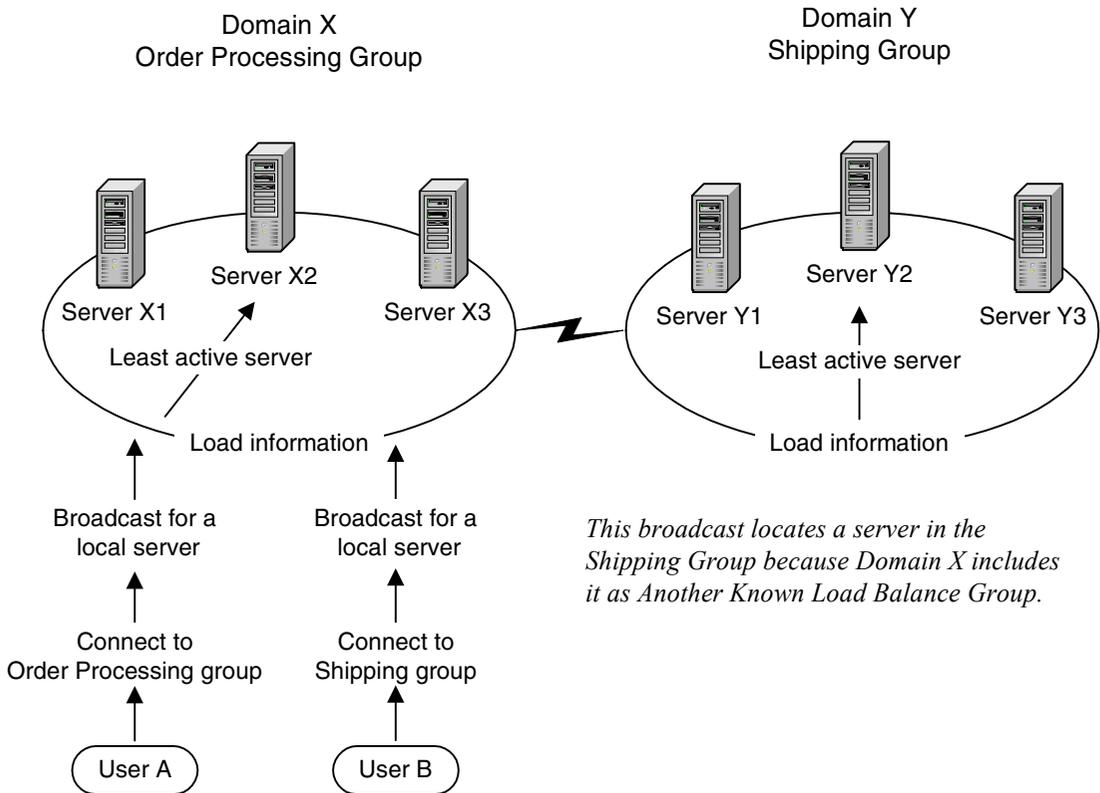
The following example shows two load balance groups, A and B, both in the same domain. Each group has three servers with order processing and shipping as published applications. A connection to the group starts up a Windows desktop, then the user starts an application from the desktop.

Group A   Group B

Server S2   Server S2

Server S1   Server S3   Server S1   Server S3

Least active server   Least active server

Load information   Load information

Start a Windows desktop connection   Start a Windows desktop connection
on a server in Group A   on a server in Group B

User A   User B

### Load Balance Server in Another Domain

You can give users access to applications in groups of other domains by including them in a category called Other Known Load Balance Groups.

In the following example, User A and User B normally start connections to the order processing application, which is on all of the servers in the Order Processing Group in Domain X. However, they also have access to the shipping application, which is on the servers in the Shipping Group in Domain Y.

Domain X
Order Processing Group

Domain Y
Shipping Group

Server X2

Server X1   Server X3

Least active server

Load information

Broadcast for a
local server

Broadcast for a
local server

Connect to
Order Processing group

Connect to
Shipping group

User A

User B

Server Y2

Server Y1   Server Y3

Least active server

Load information

This broadcast locates a server in the Shipping Group because Domain X includes it as Another Known Load Balance Group.

Server on a Remote Subnet

A user can connect to a group or application in another domain (one outside other known load balance groups). To do this, the user sets a connection wizard option to query a server in the domain for available groups and applications. The option is in **Options > Load Balance Servers**.
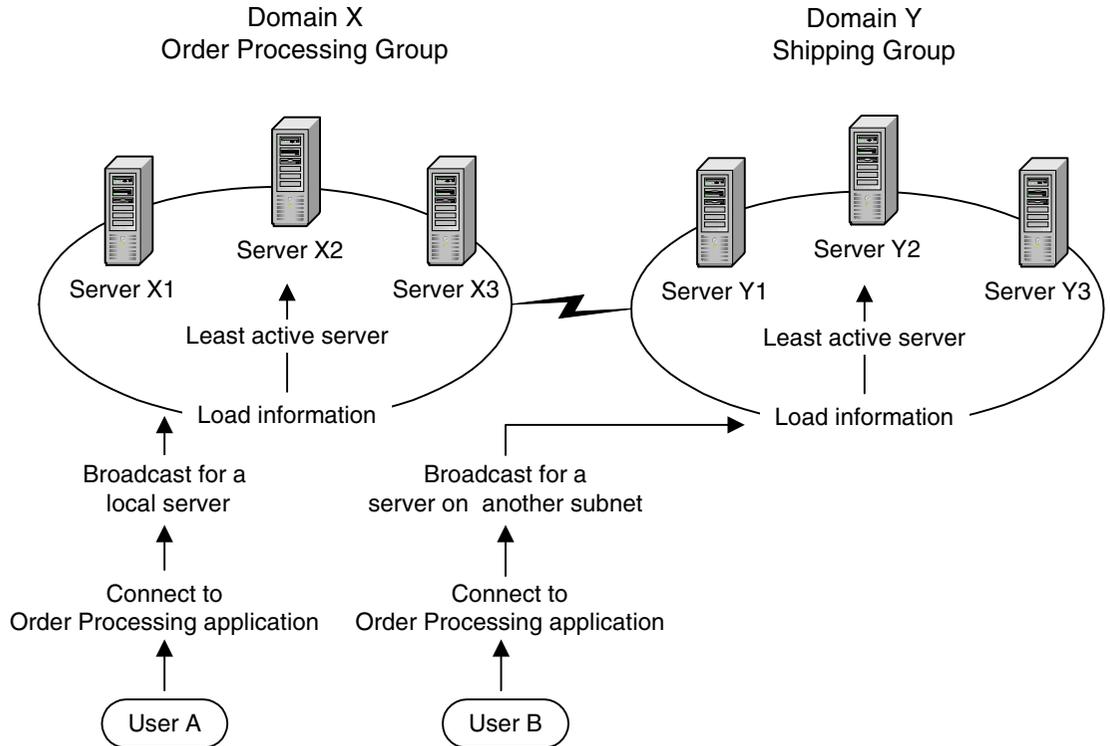
Disabling Load Balancing During Server Maintenance

When you want to take a server down for maintenance, select **Start > Settings > Control Panel > Services > NCD Client Services Service** and stop the service to prevent having user sessions assigned to it. Restart the service when maintenance is complete.

Measuring Performance

Extensions to the Microsoft Performance Monitor provide information that you can use to monitor your load balance services.

To obtain performance data:

1. Select **Start > Programs > Administrative Tools (Common) > Performance Monitor**.

2. Click the + icon.

3. Select **NCD Client Services** as the object.

For example:
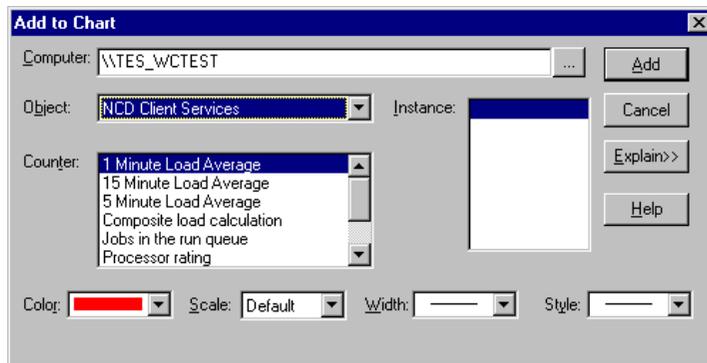
4. Select any or all of the counters shown to monitor a system's load factors. For a description of a counter, click on it to highlight it, then click **Explain**.

Load Balancing from an NCD ThinSTAR

Once load balance software is installed on an NCD ThinSTAR and load balance groups are available on the network, a user can create a load balance connection. The connection specifies a load balance server group or a published application rather than a specific server.

The connection also specifies a client type and the information needed for it. A connection can specify a startup application unless one is defined for the load balance group.

Creating a Load Balance Connection

To create a new load balance connection from an NCD ThinSTAR terminal:

1. With the NCD ThinSTAR terminal running, press **Ctrl+Alt+End** to go to the Connection Manager (if it is not already visible), select the **Configure** tab, and click **Add**.

2. Select **NCD Load Balanced Terminal Server Client** and click **OK** to display the load balance connection wizard.

3. Select an available group or published application and click **Next**.

4. Select a connection type from those listed and click **Next**. A type (ICA or RDP—Terminal Server Client) is available if it is supported by the group and is installed on the NCD ThinSTAR.

5. Enter a name for the connection and click **Next**.

6. Make selections for the connection type chosen, then click **Next**.

    — For **RDP**, you can select a Low Speed Connection.

    — For **ICA**, you can select the connection type, window colors, and performance options.

7. If the connection is to a group and no initial application is specified for the group, you can specify whether the startup program for the connection is a Windows desktop or an application.

8. Click **Finish** to save the new connection. The name now appears on the connection list, with NCDLB (NCD load balancing) as the type.

Distributing Connections Automatically

If you have the optional NCD ThinPATH Manager, you can distribute load balance connections to NCD ThinSTAR terminals automatically.

To add a connection for automatic distribution:

1. Start the NCD ThinPATH Manager Configuration Tool, then select **Connections > Configure.**
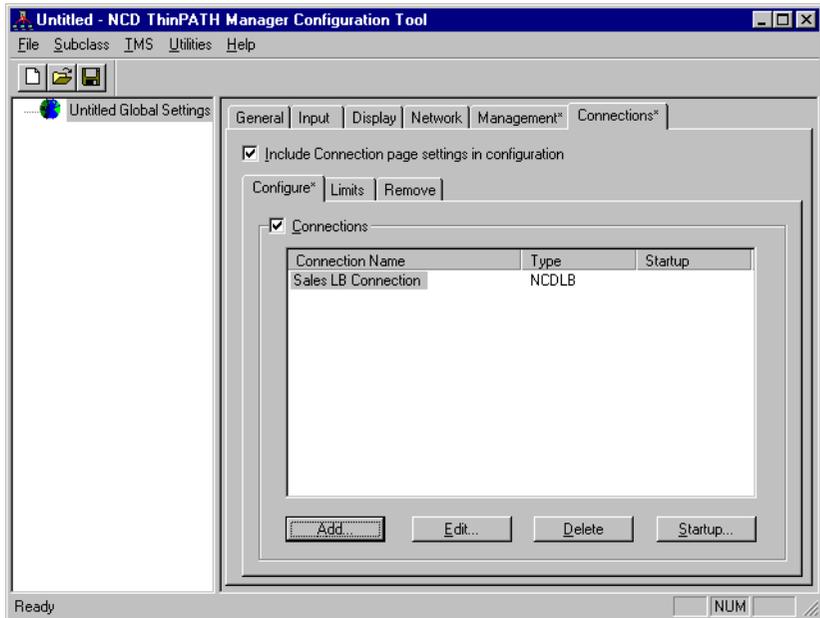
2. With the **Include** and **Connections** options selected, click **Add**, choose **NCD Load Balance Client** as the type of connection, and follow instructions on the screen.

3. Restart the terminals to update them.

Starting a Load Balance Connection

To start a load balance connection from an NCD ThinSTAR terminal:

1. Press **Ctrl+Alt+End** to go to the Connection Manager (if it is not already visible).

2. Select the **Connections** tab.

3. Highlight the connection.

4. Click **Connect**.

Editing or Deleting a Load Balance Connection

To edit or delete a load balance connection for an NCD ThinSTAR terminal:

1. Press **Ctrl+Alt+End** to go to the Connection Manager, if it is not already visible.

2. Select the **Configure** tab and highlight the connection.

3. To edit, click **Edit** and change information as needed. (You cannot change the protocol.) To delete, click **Delete** and confirm that you want to delete the connection.

Specifying a Contact Server

By default, a request for servers is broadcast on the local subnet and the first load balance server that responds handles the request. However, you may want to create a list of preferred servers or specify a broadcast address to a different subnet.

To specify a contact server:

1. Press **Ctrl+Alt+End** to go to the Connection Manager (if it is not already visible).

2. Press **F2** to display Terminal Properties, then select the **Management** tab.

3. In the client configuration section, select **NCD Load Balanced Terminal Server Client** and click **Configure**.

4. Enter a list of preferred servers or an address, then click **OK**.

## Distributing Contact Server Information Automatically

If you have the optional NCD ThinPATH Manager, you can distribute load balance connections to NCD ThinSTAR terminals automatically.

To distribute contact server information automatically:

1. Using the Configuration Tool, select **Management > Clients > Configure**.
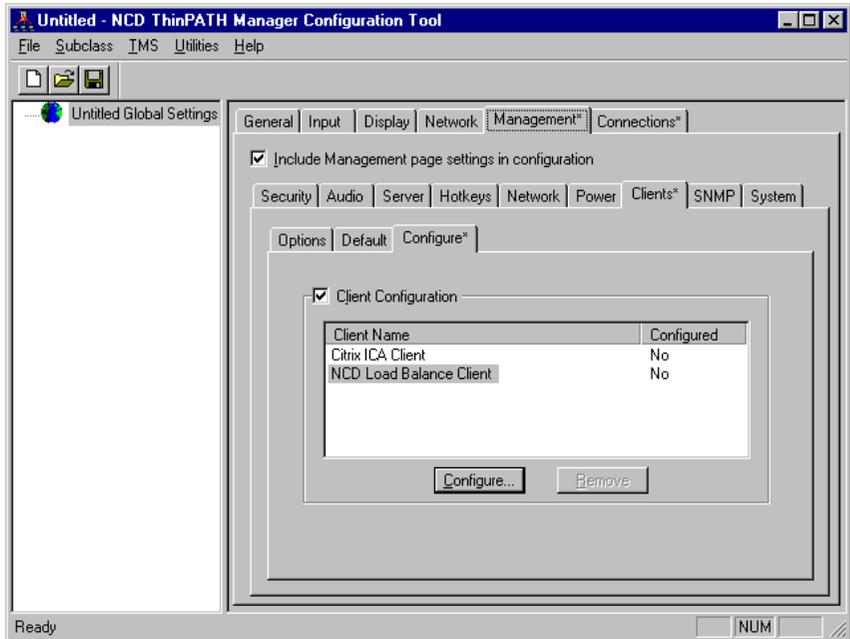
2. Select **NCD Load Balance Client**, then click **Configure**. Complete the following screen to configure load balance server characteristics for your NCD ThinSTAR terminals, then click **OK**.
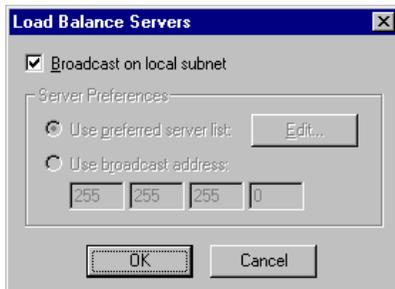
Load Balancing from a PC

Once load balance software is installed on a PC and load balance groups are available on the network, it is possible to create a load balance connection on the PC. The connection specifies a load balance server group or a published application rather than a specific server.

The connection also specifies a client type and the information needed for it. It can also specify a startup application unless one is defined for the load balance group.

Creating a Load Balance Connection from a PC

To create a new Load Balance connection from a PC:

1. Start the PC, then select **Start > Programs > NCD Software > NCD Load Balancing** to start the Connection Manager.

2. Click **Add** to start the connection wizard, or right click on the desktop icon for any NCD ThinPATH Load Balance connection, then select **Add NCD Load Balance Connection**.

3. Select a group or published application and click **Next**.

4. Select a protocol that the group and the PC support (ICA or RDP—Terminal Server Client) and click **Next**.

5. Enter a description for the connection and click **Next**.

6. Make selections for the connection type chosen, then click **Next**.

   — For **RDP**, you can select a low speed connection and the window size.

   — For **ICA**, you can select the connection type, a low speed connection, the window size, and performance options.

7. If the connection is to a group without an initial application, you can have the connection start a Windows desktop or an application.

8. Select a program group (NCD Load Balance Connections, by default) and an icon.

9. Click **Finish** to save the new connection. The name now appears on the connection list, along with the protocol type.

Starting a Load Balance Connection from a PC

To start a load balance connection from a PC:

1. Select **Start > Programs > NCD Software > NCD Load Balancing** to start the Connection Manager.

2. Highlight the connection and click **Start**.

Modifying a Load Balance Connection from a PC

To edit a load balance connection:

1. Select **Start > Programs > NCD Software > NCD Load Balancing** to start the Connection Manager, then highlight the connection, and click **Edit**. Or, as a shortcut, right click on a desktop icon for a load balance connection, then select **Edit NCD Load Balance Connection**.

2. Change information as needed. (You cannot change the protocol.)

To delete a load balance connection:

1. Select **Start > Programs > NCD Software > NCD Load Balancing** to start the Connection Manager.

2. Highlight the connection, click **Delete**, and confirm that you want to delete the connection.

Specifying Preferred Servers or an Address

By default, a request for servers is broadcast on the local subnet and the first load balance server that responds handles the request. However, you may want to create a list of preferred servers or specify a broadcast address.

To specify a list of preferred servers or a specific address:

1. Select **Start > Programs > NCD Software > NCD Load Balancing** to start the Connection Manager.

2. In the **Options** menu, select **Load Balanced Servers**.

3. Enter a list of preferred servers or an address, then click **OK**.

Index

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