

Web Server Accelerator[®]



Installation and User's Guide

Version 2.0

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Note:

Before using this information and the product it supports, read the information in "Appendix. Notices" on page 27.

First Edition (March 2000)

This edition applies to version 2.0 of Netfinity Web Server Accelerator and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this book

How this book is organized

This book describes the installation and configuration of Netfinity Web Server Accelerator version 2.0. It contains the following chapters and appendix:

- “Chapter 1. Installing Netfinity Web Server Accelerator” on page 1 describes the requirements for Netfinity Web Server Accelerator and installing the software on your server.
- “Chapter 2. Using Netfinity Web Server Accelerator” on page 7 describes how to use Netfinity Web Server Accelerator in a single- or multiple-server configuration.
- “Chapter 3. Planning for Netfinity Web Server Accelerator” on page 9 describes how to obtain the best results from installing Netfinity Web Server Accelerator on your Web server.
- “Chapter 4. Configuring your site using Netfinity Web Server Accelerator” on page 15 describes how to configure Netfinity Web Server Accelerator to cache or distribute requests that are based on defined groups. This chapter describes the process in general terms. To read about specifics regarding default values and ranges refer to the online helps.
- The appendix contains licensing and trademark information.

Who should read this book

This book is intended for network administrators who are responsible for administering site Web services. The book assumes a basic knowledge of networking, Web serving, Web servers, and either Microsoft® Windows NT® or Windows® 2000.

Online versions of this book

Online versions of this book are contained on the product CD in the subdirectory *DOCS*. The files are:

Table 1. Online book files on CD

File name	Contents
USER_GUIDE_EN.PDF	Adobe Acrobat-readable version
USER_GUIDE_EN.HTM Note: When copying the HTML version to a hard drive, you also must copy all fiw0* files.	HTML version

Chapter 1. Installing Netfinity Web Server Accelerator

This chapter describes the requirements for the IBM® Netfinity Web Server Accelerator® and the process for installing the software.

Hardware requirements

Netfinity Web Server Accelerator runs on any IBM PC with the following configuration:

- A minimum of 64 MB of memory.
- A minimum of 10 MB free disk space.
- A minimum of one network interface.
- A maximum of four processors.

For best results, use PCs with faster or multiple processors.

Software requirements

Netfinity Web Server Accelerator runs on any of the following operating systems:

- Windows NT Server 4.0 with service pack 5 (SP5) or later
- Windows NT Workstation 4.0 with service pack 5 (SP5) or later
- Windows NT Enterprise Edition 4.0 with service pack 5 or later
- Windows 2000

Netfinity Web Server Accelerator also requires Microsoft Internet Explorer (IE) 4.0.

Netfinity Web Server Accelerator relies on Microsoft Cluster Services (MSCS) to switch from a failing server to another server.

Web software requirements

Netfinity Web Server Accelerator communicates with Web browsers and Web servers that conform to the Hypertext Transfer Protocol (HTTP) 1.1 specification.

The Web browsers include, but are not limited to:

- Netscape Communicator version 4.5 or later
- Internet Explorer 4.0 or later

Web servers include, but are not limited to:

- Microsoft IIS 4.0 or later
- Apache 1.3 or later on all platforms
- IBM HTTP Server version 1.3.6 or later on all platforms

Network file system

You can configure Netfinity Web Server Accelerator to use a network file system to share content between Netfinity Web Server Accelerator and a back end server. For best results with Netfinity Web Server Accelerator, the network file system must support file-change notification. It is also beneficial for all of the Web servers, that comprise the site, share the same network file system. Sharing ensures that all of the servers have exactly the same set of resources available to them.

Presently, the following network file systems support file-change notification:

- Microsoft LAN Manager file system
- NTFS
- Samba on Linux

Network File System (NFS) does not currently support file-change notification.

Installing the software

Note

To install and run WSA, you must log on with a user ID that has administrator authority.

To install Netfinity Web Server Accelerator on a server:

1. Insert the Netfinity Web Server Accelerator CD into the CD-ROM drive. The CD will automatically start the setup program. If the setup program does not run automatically, do the following:
 - a. Click the Windows **Start** button.
 - b. Click **Browse** and select the letter for the CD-ROM drive.
 - c. Double-click the file *setup.exe*.
 - d. Click **OK**.
2. Click **Accept** to accept the license agreement.
3. Follow the on-screen instructions.

Note: If during installation on Windows 2000, you receive the following message, follow the instructions below.

Setup has detected that uninstallshield is in use. Please close uninstallshield and restart setup. Error 432.

Shut down the system and log on with an ID that has administrator authority. The message is caused by not logging on with administrator authority on Windows 2000.

Important

1. During installation, the software determines if the Microsoft Management Console (MMC) is installed on the local system. If MMC is not installed, then the software prompts you to install it. If you do not install MMC or it is not already installed on the server, you will be unable to run Netfinity Web Server Accelerator until you install MMC.
2. If you install MMC during the Netfinity Web Server Accelerator installation, click **No** when prompted to restart the system at the end of the MMC installation. If you restart the system at this point, the Netfinity Web Server Accelerator installation will not complete successfully.
3. If the installation software detects that *MFC42U.DLL* and *MSVCP60.DLL* are not at the correct level, the software will prompt you to overwrite the files. If the files on the installation CD are newer than the ones installed on this system, click **Yes** to the prompts.

Using Netfinity Web Server Accelerator with Microsoft Cluster Server

Notes:

- The following description assumes two nodes: Node A and Node B.
- See the *Microsoft Cluster Server Administrator's Guide* or the online help for Microsoft Cluster Server for full details about configuring MSCS.

If you are running Netfinity Web Server Accelerator on a Microsoft Cluster Server (MSCS), create a Netfinity Web Server Accelerator resource group for your cluster-enabled Netfinity Web Server Accelerator sites. As part of installing Netfinity Web Server Accelerator on Node A, you need to create a Netfinity Web Server Accelerator resource group:

1. Select **File -> New -> Group** from the **MSCS cluster administrator** window.
2. Type the name and description of the Netfinity Web Server Accelerator resource group in the **New group** window.
3. Specify the preferred owners, and then click **OK**. You will receive a message that the resource group has been created.
4. In the Netfinity Web Server Accelerator resource group, create the following resources:
 - A disk resource. Store Netfinity Web Server Accelerator site content on this shared disk resource.
 - A new IP address resource. This is the IP address the Netfinity Web Server Accelerator virtual site uses.
 - A network name. The network name maps to an IP address, which in turn maps to a physical Netfinity Web Server Accelerator site on each node.
 - A generic resource type. This resource identifies Netfinity Web Server Accelerator as a service.

Creating a disk resource

Notes:

1. If you are using the IBM ServeRAID™ adapter to provide the shared storage, create an IBM ServeRAID Logical disk resource. See *ServeRAID 3H - IBM Netfinity High Availability Cluster Solutions using the IBM ServeRAID-3H Ultra2 SCSI Adapter Installation and User's Guide* for details about setting up MSCS with the IBM ServeRAID Adapter. Do *not* create a physical disk resource.
2. If you are using Netfinity® Fibre Channel, you need to create a disk resource. For details about configuring to use Fibre Channel drives, see *Netfinity Fibre Channel – Storage Manager for Microsoft Windows NT Installation and Support Guide*.

To create a disk resource, do the following:

1. Click **File -> New -> Resource** from the **MSCS cluster administrator** window.
2. Type the name and description in the **New resource** wizard.
3. Type the names of **Possible owners**.
4. From the **Disk Parameters** pull-down menu select a disk.
5. Click **OK**. You will receive a message that the cluster resource was created successfully.
6. Bring the Netfinity Web Server Accelerator resource group online by right-clicking it and selecting **Bring online**.

Creating an IP address resource

To create an IP address resource, do the following:

1. Click **File** → **New** → **Resource** from the **MSCS cluster administrator** window.
2. Type the name and description in the **New resource** wizard.
3. From the **Resource Type** pull-down menu select **IP address**.
4. From the **Group** pull-down menu select **resource group**.
5. Type the names of **Possible owners**.
6. From the **Network to Use** pull-down menu select a network. The menu fills in the subnet mask.
7. Type a unique IP address.
8. Click **OK**. You will receive a message that the cluster resource was created successfully.
9. Bring the IP address online by right-clicking it and selecting **Bring online**.

Creating a network name resource

To create a network name resource, do the following:

1. Click **File** → **New** → **Resource** from the **MSCS cluster administrator** window.
2. Type the name and description in the **New resource** wizard.
3. From the **Resource Type** pull-down menu select **Network name**.
4. From the **Group** pull-down menu select **resource group**.
5. Type the names of **Possible owners**.
6. Make the network name dependent on the IP address.
7. Type the name of the resource in the **Network Name Parameters** field.
8. Click **OK**. You will receive a message that the cluster resource was created successfully.
9. Bring the network name online by right-clicking it and selecting **Bring online**.

After adding the network name, install (see “Installing the software” on page 2) and configure (see “Chapter 4. Configuring your site using Netfinity Web Server Accelerator” on page 15) Netfinity Web Server Accelerator on Node A. When you load and configure this site, note the following:

- Store all site content on the shared disk resource.
- Virtual sites should bind with the IP address you specified when creating the Netfinity Web Server Accelerator group. This action ensures that the IP address of the virtual site will not change if a failing Netfinity Web Server Accelerator is switched to another node.

Creating a generic service resource

To create a generic service resource type, do the following:

1. Click **File** → **New** → **Resource** from the **MSCS cluster administrator** window.
2. Type the name and description in the **New resource** wizard.
3. From the **Resource Type** pull-down menu select **Generic service**.
4. From the **Group** pull-down menu select **resource group**.
5. Type the names of **Possible owners**.
6. Make the generic service resource dependent on the IP address, network name, and disk resource you have already defined.

7. Type AfpaSvc in the **Service Name** field in the **Generic Service Parameters** window.
8. Skip the **Registry Replication** window. This version of Netfinity Web Server Accelerator does not support registry replication.
9. Click **OK**. You will receive a message that the cluster resource was created successfully.
10. Bring the **Generic service** online by right-clicking it and selecting **Bring online**.

The Netfinity Web Server Accelerator installation on Node A is complete. Start the virtual site on Node A. Before installing Netfinity Web Server Accelerator on Node B, you must move the Netfinity Web Server Accelerator resource group you created to Node B. To move the Netfinity Web Server Accelerator resource group, right-click the **Netfinity Web Server Accelerator resource group** and click **Move Group**. After moving the group, install Netfinity Web Server Accelerator on Node B.

Note: You must configure Node B exactly the same as Node A to prevent Netfinity Web Server Accelerator from acting differently on the two Nodes. When you change the configuration of one node, you must duplicate the changes on the other node.

Verifying MSCS recovery of Netfinity Web Server Accelerator

Before allowing access to the Netfinity Web Server Accelerator sites, verify that MSCS will successfully perform recovery of Netfinity Web Server Accelerator. To verify, do the following:

1. Move the Netfinity Web Server Accelerator resource group to Node A and bring the group online.
2. Using a Web browser, connect to the Netfinity Web Server Accelerator virtual Web site and verify that the expected Web page is displayed.
3. Check the Netfinity Web Server Accelerator log on Node A to verify the access.
4. Move the Netfinity Web Server Accelerator group from Node A to Node B.
5. Refresh the Web browser's page on the client you used in step 2.
6. Check the Netfinity Web Server Accelerator log on Node B to verify the access.

Uninstalling the software

To uninstall Netfinity Web Server Accelerator from a server, do the following:

1. Click the Windows **Start** button.
2. Click **Settings→Control Panel→Add/Remove Programs**.
3. Select **Netfinity Web Server Accelerator** from the list of installed programs.
4. Click **Add/Remove**.
5. Click **OK** when prompted.

Chapter 2. Using Netfinity Web Server Accelerator

Netfinity Web Server Accelerator can service requests for a single Web server or multiple Web servers. It services requests for the system on which it is running and can route requests to another Web server on the same system.

Important

To enable Netfinity Web Server Accelerator to provide services for other Web servers, you must configure domain name services (DNS) so that the hostname of the Web site resolves to the IP address of the system or server running Netfinity Web Server Accelerator.

Starting the Netfinity Web Server Accelerator Control Panel

Note

To install and run WSA, you must log on with a user ID that has administrator authority.

To start the Netfinity Web Server Accelerator Control Panel, do the following:

1. Click the **Start** button.
2. Click **Programs→Netfinity→Netfinity Web Server Accelerator**.

The Microsoft Management Console starts.

The Netfinity Web Server Accelerator Control Panel is a folder in the Microsoft Management Console (MMC) window. The MMC lists all the applications it controls in the left pane of the window. The console displays details for each application in the right pane. Figure 4 on page 15 shows an MMC console with Netfinity Web Server Accelerator running.

You must connect to the system on which Netfinity Web Server Accelerator resides. Connect by right-clicking the **Netfinity Web Server Accelerator** folder and selecting **Connect**. When prompted, type either the hostname or the IP address for the local system. The user interface represents the server by a set of folders nested within each other. If this is the first time you are running Netfinity Web Server Accelerator, you must add an accelerator by right-clicking the folder and selecting **Add Accelerator**.

The lowest-level folder under the Netfinity Web Server Accelerator folder in the left pane controls the configuration process. To start the configuration process, right-click the lowest-level folder. “Chapter 4. Configuring your site using Netfinity Web Server Accelerator” on page 15 contains descriptions about configuring Netfinity Web Server Accelerator.

Servicing requests

Netfinity Web Server Accelerator meets incoming HTTP requests by comparing the request to information in its configuration. The way it services the requests depends on whether the Web server resides on the local system or on any number of different systems.

Servicing requests for a Web server on the local system

If Netfinity Web Server Accelerator determines that an incoming request is for a resource on the local system, the software examines the configuration to see if the requested resource is cached. If the resource is in the cache, the software returns the resource copy in the cache. If the requested resource should be cached, but is not currently in the cache, the software requests a copy of the resource from the local system's file system. Figure 1 on page 12 shows how Netfinity Web Server Accelerator services an inbound request for a single server on the same system when the resource is not in cache.

Servicing requests for other Web servers

Netfinity Web Server Accelerator also services incoming requests for Web servers in a Web server farm by using its configuration to determine the group of servers from which to satisfy the request. The software compares the request to its configuration and uses the result to determine the correct server group. (See "Understanding how server weight affects request distribution" on page 11.) Figures 2 and 3 on page 12 show how the software services the request for multiple Web servers.

Configuring Netfinity Web Server Accelerator to filter the various paths and file extensions correctly can make your site appear as multiple Web sites to the requester. "Chapter 4. Configuring your site using Netfinity Web Server Accelerator" on page 15 describes how to configure the software to filter incoming requests for the various topologies supported by Netfinity Web Server Accelerator.

Chapter 3. Planning for Netfinity Web Server Accelerator

Netfinity Web Server Accelerator runs on a Netfinity server and enables you to control request traffic on your Web site. Netfinity Web Server Accelerator receives a Hypertext Transfer Protocol (HTTP) request and will either service the request with a cached copy of information or direct the request to an appropriate server in the site. The target Web server can also be the system on which you have installed Netfinity Web Server Accelerator. The way Netfinity Web Server Accelerator responds to requests depends on its configuration. This chapter describes the various topologies you can use with Netfinity Web Server Accelerator and the various policies you can set for caching or distributing services.

Understanding Netfinity Web Server Accelerator

Netfinity Web Server Accelerator examines HTTP requests that come to it to determine how best to service the request. The software compares the request with configured policies to determine whether it can use cache to satisfy the request or if it needs to distribute the request to a configured Web server group. The following sections describe how the software satisfies requests and how the configuration affects software services.

Understanding content groups

A *content group* is a collection of file extensions that use a specific MIME type. Use content groups to filter requests for similar types of Web content to servers dedicated for that purpose. For example, a content group named *pictures* might contain the file extensions .JPG, .JPEG, and .GIF. Files with these MIME types might all exist on server *picture_server*, so you would configure Netfinity Web Server Accelerator to route requests coming into the site for those MIME types to *picture_server*.

Understanding server groups

You can configure Netfinity Web Server Accelerator to distribute requests to groups of servers by defining server groups. Configuring server groups enables the software to route requests for similar resources directly to the group of servers that is best equipped to satisfy the request. The servers could be in physically separate locations, but Netfinity Web Server Accelerator treats them as a single entity. The configuration can also balance the load across the different servers within the server group. (See “Understanding how server weight affects request distribution” on page 11.)

Understanding virtual sites

A *virtual site* enables Netfinity Web Server Accelerator to map requests for specific hostnames to a specific IP address. The benefit of this feature is that it enables different requesters to use a different, easily remembered, URL to connect to the same IP address. A domain name server resolves the different URLs to the IP address on which Netfinity Web Server Accelerator is running and sends the request to the Netfinity Web Server Accelerator site. Netfinity Web Server Accelerator then directs the requests to the appropriate IP address. Thus, you can reduce the number of IP addresses required by your Web site.

A virtual site also defines the policies for how Netfinity Web Server Accelerator serves requests for content that enter the site. Using URL path names, content

groups, and server groups, Netfinity Web Server Accelerator determines whether the local system can satisfy the request or if the request must be sent to a specific group of servers for completion.

Satisfying requests from cache

When a request comes in to Netfinity Web Server Accelerator, it examines the request and determines whether the requested resource should be in cache. If the configuration indicates that the resource is cached, the software examines the cache to determine whether the resource is still available. The resource might not be available either because this is the first request for the resource or because the resource aged out of the cache.

To maximize the efficiency with which Netfinity Web Server Accelerator serves cached content, Netfinity Web Server Accelerator processes requests by first searching for a matching item in the cache and then consulting the content-based routing rules to determine how the request should be processed. Netfinity Web Server Accelerator consults the content-based routing rules only if no matching item is found in the cache.

Usually, this approach enforces the content-based routing rules because items are loaded into the cache only if they are configured to be cached according to the content-based routing rules. There is one notable exception to this approach. Because loading the entire working set of a virtual site from disk may take a long time, Netfinity Web Server Accelerator does not automatically flush the cache when you change the definition of a content group. Removing one or more MIME types from a content group that is referenced by the configuration for a started site results in items residing in the cache that would not be cached according to the current configuration. Remedy this situation by stopping and starting the virtual site. This action causes the cache for the site (and all sites with the same IP address and port) to be flushed.

If the resource is in cache, Netfinity Web Server Accelerator serves it from there. If the resource is not in cache, Netfinity Web Server Accelerator performs three procedures:

1. Netfinity Web Server Accelerator locates the directory in which the resource resides, on the file system attached to this system.
2. The resource is copied into cache.
3. Netfinity Web Server Accelerator responds to the request with the copy now in cache.

When the network file system notifies Netfinity Web Server Accelerator that a resource has changed, the software replaces the copy in cache with the updated copy. This action ensures that the requester always receives the most current copy of a resource.

Distributing requests to Web servers

Not all resources reside on the local system. In these cases, Netfinity Web Server Accelerator examines its configuration to determine which servers can satisfy a request and distributes the request to the appropriate server. The distribution to the servers depends on the way you configure the paths and extensions to each group and on the weighting of the specific servers.

Understanding how paths and extensions affect request distribution

Netfinity Web Server Accelerator can service requests that are based on the URL path that is specified in the request, or the URL path and the file extension in the request. This feature is known as *content-based routing*. Use the following definitions as you read the description of content-based routing.

- path** The portion of the URL that begins immediately after the first forward slash (/) that follows the host name and ends before the forward slash preceding the filename. Examples of paths are:
- /
 - /products
 - /catalog/automotive/tires
- extension** The portion of the URL that begins immediately after the final period of the URL. Examples of extensions include: *wav*, *gif*, and *html*.

The ability to specify path and extensions as configuration criteria, enables you to configure Netfinity Web Server Accelerator to service a request for a specific path from cache, or distribute a request for a specific extension to a server group. For example, Netfinity Web Server Accelerator receives a request that contains *http://www.somecompany.com/press-releases/today.html*. The Netfinity Web Server Accelerator configuration states that all requests for *www.somecompany.com* with a path */press-releases* are serviced by cache.

As another example, suppose that Netfinity Web Server Accelerator receives a request for *http://www.somecompany.com/press-releases/news.mov*. The Netfinity Web Server Accelerator configuration contains a content-group *video* that contains the *mov* extension. The configuration states that the software will route any requests for content group *video* to server group *mycompanyvideos*. The result is that a server in the *mycompanyvideos* server group will service the request.

Understanding how server weight affects request distribution

Weighting a server is the process of specifying how frequently a specific server in a server group should handle requests that are directed to the group. This feature enables you to balance incoming requests for a server group such that the fastest servers service a larger number of requests than the slower servers. For example, in server group A there are three servers: *fast1*, *normal1*, and *normal2*. *Fast1* is a 1000-MHz, two-processor system while *normal1* and *normal2* are single-processor 250-MHz systems.

Assuming that the mix of resources on each server is the same, the best way to balance the load in this group would be to have the fastest systems service the most requests. When configuring server group A, assign a weight of four to *fast1* and a weight of one to *normal1* and *normal2*. When Netfinity Web Server Accelerator distributes requests to server group A, *fast1* will service four requests, *normal1* will service one request, and then *normal2* will satisfy the next request.

Understanding Netfinity Web Server Accelerator topologies

Netfinity Web Server Accelerator unifies your Web sites into a single high-performance site. As a front end to your servers, Netfinity Web Server Accelerator either responds to requests or distributes requests for resources based on its configuration. The Web servers that Netfinity Web Server Accelerator manages can be on the same system, on other systems or any combination.

Figures 1, 2, and 3 show the various topologies that Netfinity Web Server Accelerator supports.

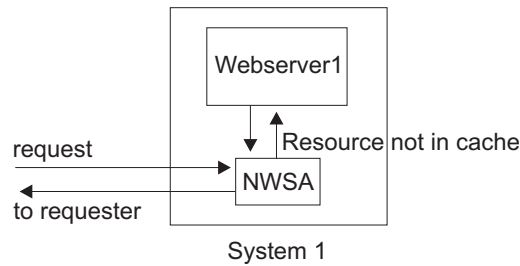


Figure 1. Netfinity Web Server Accelerator supporting a server on the same system

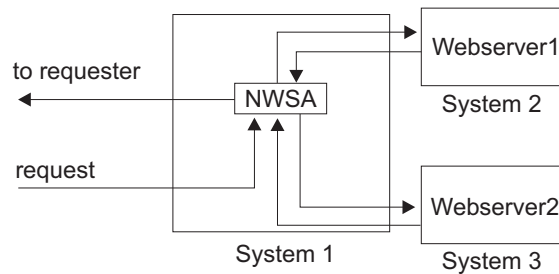


Figure 2. Netfinity Web Server Accelerator supporting multiple servers on different systems

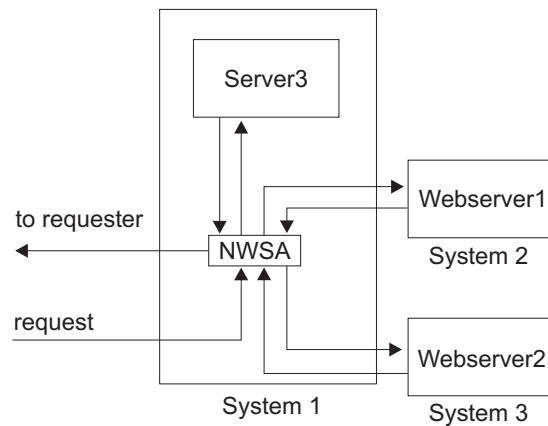


Figure 3. Netfinity Web Server Accelerator supporting a server on the same system and multiple servers on different systems

Designing your site using Netfinity Web Server Accelerator

This section describes one example of how to design a site using Netfinity Web Server Accelerator. Although this is not the only way to design the site, it might help you set up your Netfinity Web Server Accelerator software to meet your needs. This is only an outline of how to configure a specific scenario. The details on how to configure Netfinity Web Server Accelerator are in “Chapter 4. Configuring your site using Netfinity Web Server Accelerator” on page 15.

The design in this example must meet the following requirements:

1. Present the requester with multiple URLs for the *us* company that resolve into a single IP address, 9.22.88.15. All requests for resources with those URLs should be distributed to the one address.
2. Send requests for site-supported audio files to server *audioserv*.
3. Cache the newest movie trailers on the site.
4. Send all requests for resources in path */pictures/cartoons* to server *toonserve*.

To achieve these requirements, do the following:

1. Configure a virtual site so that hostnames *www.usworks.com*, *www.usleisure.com*, and *www.usarts.com* resolve to IP address 9.22.88.15. See “Configuring virtual sites” on page 18. Add URL paths */*, */movietrailer/new*, and */pictures/cartoons* to the virtual site configuration.
2. Add a content group to route the requests to *audioserv*. To do this, follow these steps:
 - a. Define a content group that contains the extensions that Netfinity Web Server Accelerator will distribute. For this example, the group contains MIME types *ai*, *au*, and *wav*. See “Configuring content groups” on page 16.
 - b. Add server *audioserv* through the **Add Server Group** panel. *Audioserv* has an IP address of 9.22.88.18.
 - c. Select the virtual site you created previously, and then click **Routing**.
 - d. Select the */* path, and then click **Edit**.
 - e. Select the content group created in step 2a and add it to the distributed content group list. “Configuring caching and request distribution” on page 19 describes how to configure the content group.
 - f. Click **Properties**, select *audioserv* from the server group list, and then click **OK**.
3. Configure a content group so that the files in path */movietrailer/new* with the extension *mov* are kept in cache. To do this, follow these steps:
 - a. Create a content group called *newmovie* and add the extension *mov* to it.
 - b. Select the virtual site you created previously and click **Routing**.
 - c. Select the */movietrailer/new* path and click **Edit**.
 - d. Select *newmovie* from the content group list and click **Add to Cached List**.
 - e. Complete the configuration as described in “Configuring caching and request distribution” on page 19.
4. Configure a content group and server group to distribute files in path */pictures/cartoons* to server group *toonserve*. To do this, follow these steps:
 - a. Create a content group named *All* that contains all of the MIME types. (See “Configuring content groups” on page 16.)
 - b. Select the **Server Groups** tab from the Netfinity Web Server Accelerator properties panel and click **Add**. The **Add/Edit Server Group** window opens.
 - c. Click **Add**, and then type the name (*toonserve*), IP address, port, routing, weight, and hostname for each server in the group. See “Configuring server groups” on page 17.
 - d. Select the virtual site you created previously, and then click **Routing**.
 - e. Select */pictures/cartoons* in the **URL Path Properties** list, and then click **OK**.
 - f. Select the content group you created in step 4a and add it to the distributed content group list.
 - g. Click **Properties**, select the *toonserve* group from the server group list, and then click **OK**.

The number of configurations are limited only by the resources available and the number of different resources your site delivers. The above is one example of the granularity you can develop to distribute requests to various servers.

Chapter 4. Configuring your site using Netfinity Web Server Accelerator

The more accurately you describe your policies for caching and distributing, the more efficiently Netfinity Web Server Accelerator manages requests.

To start the configuration process, right-click the bottom folder in the Netfinity Web Server Accelerator hierarchy and select the **Properties** menu item as shown in Figure 4.

Important

To enable Netfinity Web Server Accelerator to provide services for other Web servers, you must configure domain name services (DNS) so that the hostname of the Web site resolves to the IP address of the system or server running Netfinity Web Server Accelerator.

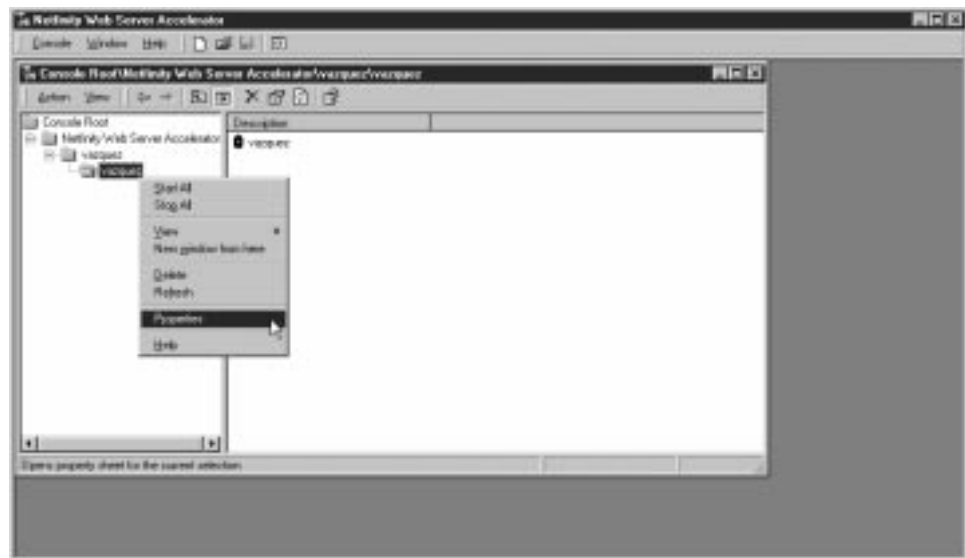


Figure 4. Beginning Netfinity Web Server Accelerator configuration

Netfinity Web Server Accelerator starts the configuration window open to the **Virtual Sites** tab.

Use the following steps to configure your site:

1. Configure content groups (see "Configuring content groups" on page 16). Define groups that enable you to specify caching or distributing that optimizes your resources. Generally, keep file extensions for similar MIME types in the same group.
2. Configure the server groups (see "Configuring server groups" on page 17). This configuration puts the servers that Netfinity Web Server Accelerator supports into groups that Netfinity Web Server Accelerator uses to distribute requests to other servers.
3. Configure the virtual sites (see "Configuring virtual sites" on page 18). This configuration maps URLs to the various IP addresses that Netfinity Web Server

Accelerator services. This level of configuration is for single IP addresses and gives Netfinity Web Server Accelerator the flexibility to route requests to specific systems or to cache resources on the local system.

4. Configure the virtual sites to cache or distribute requests for the content groups (see “Configuring caching and request distribution” on page 19).

Configuring content groups

Content groups combine file extensions into a single entity. This feature enables you to simplify what you specify when you configure Netfinity Web Server Accelerator. The feature is especially useful when dealing with multiple file extensions that are associated with a single MIME type. The feature also simplifies maintenance because when your site needs to service requests for new file extensions, you simply add the new extensions into existing content groups.

Note

There must be at least one content group configured.

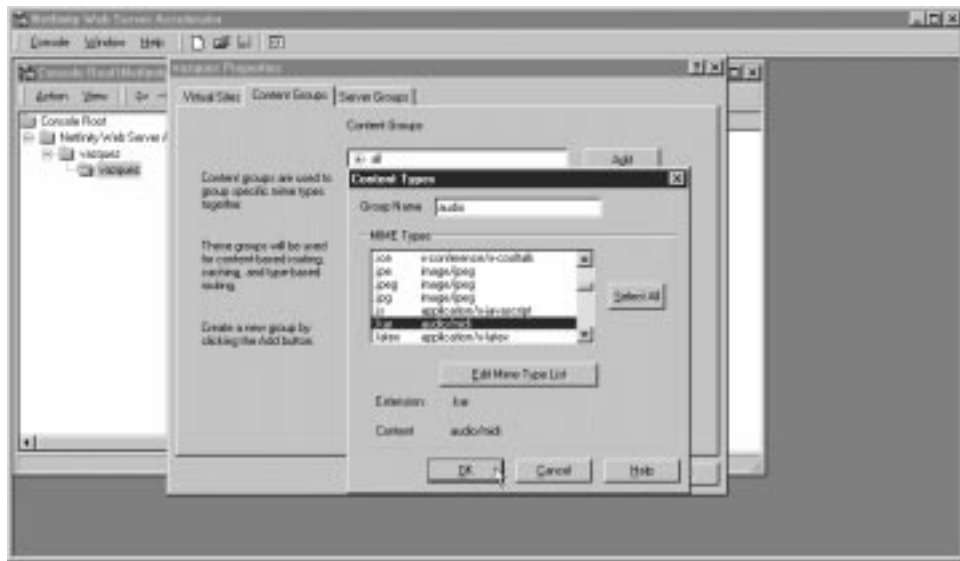


Figure 5. Content group configuration page

To configure a content group, do the following:

1. Click the **Content Groups** tab in the Netfinity Web Server Accelerator configuration panel, and then click **Add**.
2. Type a group name in the **Group Name** field.
3. Select the extensions for this group from the list. Use the MIME group “None” to define how to serve requests for files that do not have file extensions. If you do not specify “None,” make sure the back end server is configured correctly to serve the request. Use the MIME group “Other” to define how to serve requests for files that have file extensions that do not match any of the extensions currently defined for this group.
4. Click **OK**.
5. Repeat steps 1 through 4 until you have configured all the content groups you need.

Use these groups when you configure caching and request distribution.

Note

If you need to configure MIME types that are not currently in the list, update the MIME type list by clicking **Edit Mime Type List** and either adding a new entry (click **Add**) or deleting a highlighted entry (click **Remove**). You cannot remove the None or Other entries from the list.

Configuring server groups

A server group is a collection of servers to which Netfinity Web Server Accelerator can distribute a request for a resource. Configure server groups in the **Server Groups** panel.

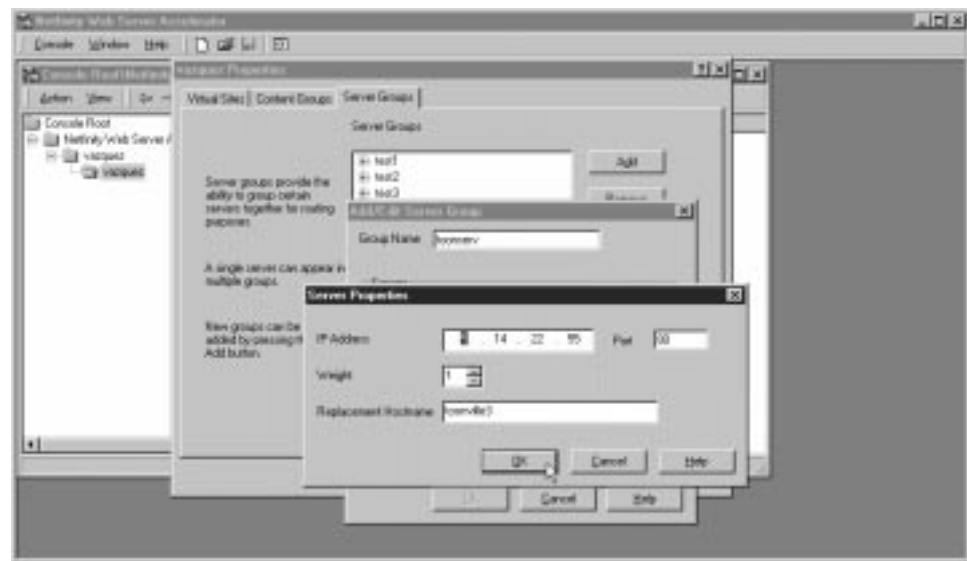


Figure 6. Server group configuration page. Configure or change server groups from this page.

To configure a server group, do the following:

1. Click **Add** in the **Server Groups** window.
2. Click **Add** in the **Add/Edit Server Group** window.
3. Type the IP address, port number, and weight for the server you are defining. To change the hostname in the request that Netfinity Web Server Accelerator sends to the Web server, enter a hostname in the hostname field. This hostname will replace the original hostname in the IP header and is known as the *replacement hostname*.

The replacement hostname gives you the flexibility of being able to change the hostname of a server without updating the entire configuration for the Web server. For example, suppose you initially configured Netfinity Web Server Accelerator to cache and distribute content for a server named. Later, you acquire a different hostname, *www.shortname.com*. Instead of changing the entire configuration, you only have to add a replacement hostname to the server configuration in the server groups in which *www.mylongsitename.com* is configured.

4. Click **OK**.

- Repeat steps 2 through 4 on page 17 until you have added all the servers for this group.
- Repeat steps 1 on page 17 through 5 until you have added all the groups you need.
- Click **OK**.

Configuring virtual sites

A virtual site is the basis for configuration in Netfinity Web Server Accelerator. The virtual site configuration defines which Web sites Netfinity Web Server Accelerator is hosting. You cache resources and route requests to the different servers through the Virtual Sites Panel (see Figure 7). Netfinity Web Server Accelerator displays every configured IP address and its associated hostnames on this page. The rest of this section describes how to configure a single IP address as a virtual site.

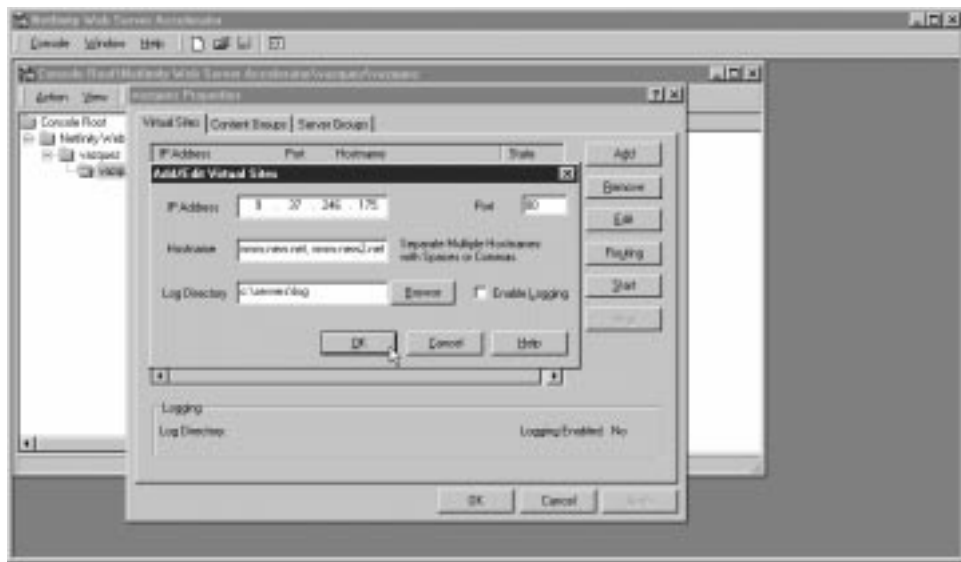


Figure 7. Virtual site configuration page. Configure hostnames to single IP addresses from this page.

To configure virtual sites, do the following:

- Click **Add**, in the **Virtual Sites** window.
- Type the IP address, port number, and hostnames in the next dialog.

Notes

- a. Typing an IP address in the hostnames field enables this virtual site to redirect requests for the IP address. This enables a user to specify an IP address in a browser and then Netfinity Web Server Accelerator will route the request to an appropriate server.
- b. You can enter the Microsoft loopback IP address (127.0.0.1) in the IP address field rather than the actual IP address of the system.
- c. Leaving the IP address and hostname fields blank and clicking **OK** creates a virtual site that redirects requests for all IP addresses and hostnames with the same port number that enter this system. Defining a virtual site this way enables Netfinity Web Server Accelerator to redirect requests that do not match the other configured virtual sites.
- d. You can enter multiple hostnames in the hostname field separated by commas. Each hostname can be up to 255 characters.

3. If there is a requirement to track requests for cached content, enter the directory for logging and check the **Enable Logging** box. Logging keeps only a record of requests that are satisfied from the cache.

Notes

- a. To prevent system problems, do not place the log directory on the same drive as the pagefile.
- b. If the log file does not exist, it will be created when the site is started.
- c. If the log file fills, Netfinity Web Server Accelerator disables logging. To clear the log, stop the virtual site and delete the log file.
- d. Depending on utilization, the log file can grow quickly. For example, a server handling 2000 clients over 18 hours creates a log file of 8.3 GB. Monitor and clear the log file frequently on busy servers.

4. Click **OK**.
5. Repeat steps 1 through 4 until you have added all the virtual sites you need.

The window closes and the software updates the list with the new site. Initially, the status of new sites is stopped. You can configure any routing for this site as described in "Configuring caching and request distribution".

Configuring caching and request distribution

Configuring caching and request distribution is the final step in configuring Netfinity Web Server Accelerator. This process determines whether requests for paths and file types will be cached or routed to specific server groups. Careful configuration of these features enables your Netfinity Web Server Accelerator site to service requests as rapidly as possible.

To configure caching and request distribution:

1. Select an IP address from the Virtual Sites window, and then click **Routing**. The **URL Directory Path Prefixes** window opens.
2. Click **Add** to configure the URL Path Prefix.
3. Enter the path in the **URL Directory Path Prefix** entry box. To apply the configuration to all subdirectories, mark the **Apply to All Subdirectories**

checkbox (see Figure 8). Applying to all subdirectories specifies that the policies in this configuration will match requests that come into Netfinity Web Server Accelerator for resources in all directories below the currently configured one. For example, if you configure a cached content group named multimedia that contains the MIME type *cbt* in URL Directory */media* and you checked **Apply to All Subdirectories**, a request that comes for */media/oldstuff/test.cbt* would be subject to this policy.

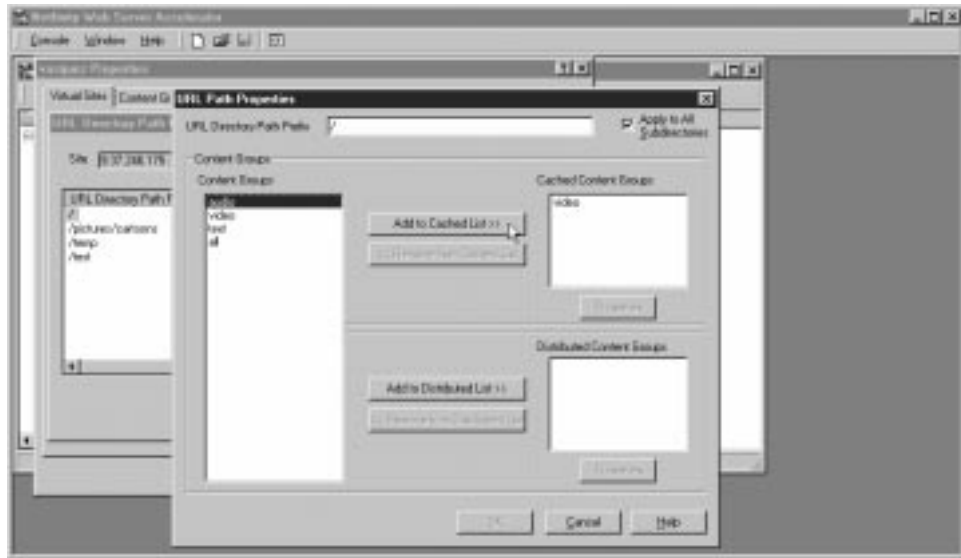


Figure 8. URL Path Properties window

4. Select a content group from the Content Groups list. See “Understanding content groups” on page 9. The content group defines which MIME types will match to determine whether Netfinity Web Server Accelerator caches or distributes requests.
5. Click **Add to Cached List** to add the content group to the **Cached Content Group** list or **Add to Distributed List** to add the content group to the **Distributed Content Group** list.

Note:

For a single-directory path, you can only add a content group to either the cached content group or the distributed content group.

6. Complete the content group configuration. For cached content groups, select the content group from the **Cached Content Groups** list, and then do the following:
 - a. Click **Properties**.
 - b. Click **Browse** next to the **Source Directory** entry box and select the directory from which content is copied to the cache. Alternatively, type the full path.
 - c. Enter the name of the file Netfinity Web Server Accelerator will use when it receives a non-specific request (see Figure 9 on page 21). A non-specific request ends with a slash (/).

Important

To ensure that the default file is always served, add the MIME type "NONE" to at least one content group in a configuration. Do not delete "NONE" from your content group.

For distributed content groups, select the content group from the **Distributed**

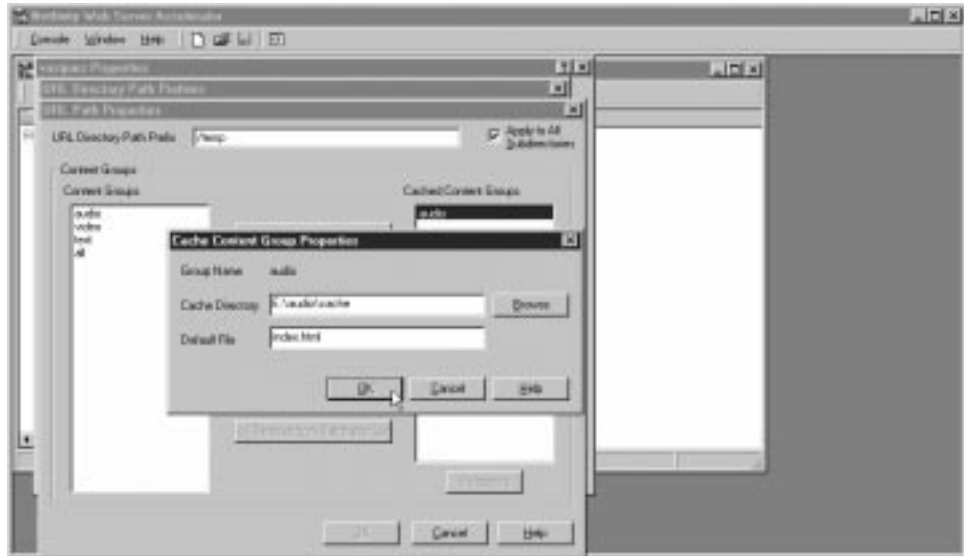


Figure 9. Caching a content group

Content Groups list and then do the following:

- a. Click **Properties**.
- b. Select **Route requests from the same client IP address to the same backend server** checkbox, if you want to route requests this way. This feature directs second requests from a specific client for a specific content group to the same target Web server.
- c. Select a server group from the **Server Groups** list, and then click **OK** (see Figure 10 on page 22). All requests for the configured content group will be sent to the servers defined in the server group. Make sure that the resource you are configuring exists on that server group.

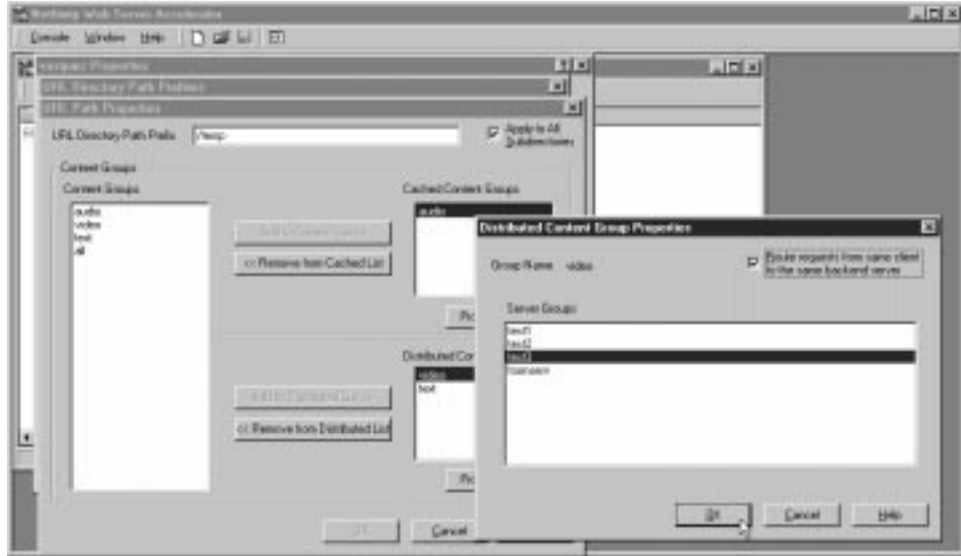


Figure 10. Distributing a content group

7. Repeat steps 4 through 6 on page 20 for all content groups for this particular URL directory path prefix.
8. Click **OK**.
9. Repeat steps 1 through 8 for each server and URL path for the Netfinity Web Server Accelerator site.

An efficiently designed Netfinity Web Server Accelerator site will respond to requests and locate resources across multiple Web servers quickly.

Configuring caching from a network drive

To cache files that reside on network drives, the Netfinity Web Server Accelerator service (*afpasvc*) must have authorization to access the network drives. By default, the Netfinity Web Server Accelerator service runs under the System account, which might not be authorized to access the network drives. To change the account to one that has access, do the following:

1. Click **Start** → **Settings** → **Control Panel** → **Services**.
2. Select *afpasvc* from the list of services.
3. Click **Startup**.
4. Click the **This Account** button under **Log On As** and specify the account name and password that has access to the network drives.

General configuration tips

While configuring Netfinity Web Server Accelerator, keep the following considerations in mind:

- To update the configuration without leaving the current window, click **Apply**. This facility is available on the **Virtual Sites**, **Content Groups**, and **Server Groups** configuration windows.
- Netfinity Web Server Accelerator uses the most specific configuration when determining how to service a request. For example, if a request comes in for `http://www.thissite.com/somestuff/find.txt` and the configuration contains a URL

path of / and a URL path of /somestuff for www.thissite.com, Netfinity Web Server Accelerator looks in the configuration of the /somestuff path for a match for the request.

- The configuration software does not allow the same MIME type to have conflicting configurations for the same virtual site. If a rule already exists on the virtual site for a MIME type that you are configuring, you will receive an error when you configure the MIME type.
- If you remove a content group from the cached or distributed lists and later add it back in, you will need to redefine the properties.
- When using a Web server other than Netfinity Web Server Accelerator on the local system to service requests, configure Netfinity Web Server Accelerator for the port to which the requests will come in and the Web server to some other port. Use Netfinity Web Server Accelerator to redirect the requests to the current IP address and the other port. For example, Netfinity Web Server Accelerator has an IP address of 9.28.44.15 port 80 and the Web server on this system has an IP address of 9.28.44.14 port 81. The Netfinity Web Server Accelerator will then contain a server group with IP address 9.28.44.14 and port 81. You would then configure content groups to redirect incoming HTTP requests for this system to the Web server defined in the content group.

Important

You will not receive a warning if you remove a virtual site. If you remove a virtual site, you will lose the entire configuration for the site. Do not remove a virtual site unless you no longer need it.

Balancing Netfinity Web Server Accelerator load on a multiprocessor server

Netfinity Web Server Accelerator performs much of its processing in the form of deferred procedure calls (DPCs), also known as software interrupts, or deferred interrupts. By default, Windows NT, specifically Network Driver Interface Standard (NDIS), assigns DPCs associated with a given network interface card (NIC) to a given processor. This default configuration limits Netfinity Web Server Accelerator ability to effectively exploit multiple processors.

The NDIS processor affinity mask determines how DPCs are assigned to processors. The Windows NT registry maintains the mask in the registry key `HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\NDIS\Parameters\ProcessorAffinityMask`.

ProcessorAffinityMask is a 32-bit value; each bit corresponds to a processor. The highest bit represents processor 32; the lowest bit represents processor 1. If a given bit in the mask is 1, the specified processor, assuming it is present in the system, is associated with one or more NICs so that all DPCs associated with the NIC or NICs are serviced by that same processor. If a given bit is 0 the corresponding processor is not assigned to a specific DPC and can service all DPCs of any particular NIC.

When NDIS initializes, it enumerates the NICs in the system and assigns each to a processor by checking the processor affinity mask. If the mask is not 0, NDIS assigns NICs to specific processors. NDIS assigns the first NIC to the highest numbered processor. Each subsequent NIC is assigned to the next processor in descending numeric order. If there are more NICs than processors, assignment

begins again at the highest numbered processor after NDIS assigns processor 0. Thus a processor may have no, one, or more NICs assigned to it, if the processor affinity mask is non-zero.

If the processor affinity mask is 0, NDIS does not assign each NIC to a specific processor. Instead, the processor that serviced the hardware interrupt that generated the DPC services the DPCs associated with a given NIC. Setting the affinity mask to 0 is useful for platforms that distribute interrupts among processors.

When Netfinity Web Server Accelerator runs in a multiprocessor server with multiple processors, you might notice that the workload is significantly unbalanced among the processors. By changing the NDIS processor affinity mask, you can balance the workload. To change the mask, run *DISABLE_NDIS_AFFINITY.REG* by locating the file and double-clicking it. This file is located in the directory that you installed Netfinity Web Server Accelerator. After running the file, you will see the following message:

```
Information in z:\NWSA\DISABL~1.REG has been successfully entered into the registry
```

You will have to restart the system for the changes to take affect. You can also run the file by entering the file name at a command prompt.

If you want to revert the mask to its original value, run *ENABLE_NDIS_AFFINITY.REG* located in the same directory.

You might not want to disable NDIS processor affinity in certain cases. For example, when you run a dual processor system with two NICs and each NIC receives approximately the same amount of traffic, disabling processor affinity is unnecessary. Only disable affinity when you detect significantly unbalanced CPU utilization.

Applying and starting caching and distribution

After configuring Netfinity Web Server Accelerator, you must:

1. Click **Apply** to apply the configuration to the virtual site.
2. Start the virtual sites. Start the virtual site by selecting the IP address of the site, and then clicking **Start**. The virtual site is now ready to start caching and distributing requests. You start this through the MMC console, at the lowest level folder. The right pane of the MMC console displays each server connected to Netfinity Web Server Accelerator on this system. To start caching and distributing requests for all configured virtual sites, right-click the connection and click **Start All**. The icon next to the connection turns green. To stop caching and distributing requests, right-click the connection and click **Stop All**. The icon next to the connection turns red.

If you receive a message about Netfinity Web Server Accelerator possibly running out of proxy connections when attempting to start a virtual site, make certain the registry entry

```
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters\MaxUserPort exists and is set to X'FFFE' (65534). If this registry entry is missing, or set to a lower value, Netfinity Web Server Accelerator may not be able to allocate a sufficient number of connections or proxy connections.
```

To maximize performance, Netfinity Web Server Accelerator preallocates resources used when processing requests. These resources include connection end points (connections) used to communicate with client browsers, and proxy connections used to communicate with back-end servers. By default, Netfinity Web Server Accelerator allocates 5000 connections and 5000 proxy

connections for all virtual sites with the same IP address and port (an instance). This allocation allows each instance to handle up to 5000 simultaneous connections from client browsers and to establish up to 5000 simultaneous connections to back-end servers.

You can override the number of connections and proxy connections that Netfinity Web Server Accelerator allocates by editing the registry entries `HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\AfpSvc\Configurations\[HostName]\MaxConnections` and `HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\AfpSvc\Configurations\[HostName]\MaxProxyConnections`, respectively. By default, these entries are set to 0 which causes Netfinity Web Server Accelerator to use the default value of 5000 for both connections and proxy connections.

Note

Only start the virtual sites after you have completed configuring the Netfinity Web Server Accelerator.

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