DFP Agent Subsystem

This document describes the Dynamic Feedback Protocol (DFP) agent subsystem feature in Cisco IOS Release 12.2(14)S. The DFP agent subsystem enables client subsystems other than IOS Server Load Balancing (SLB) to act as DFP agents, sending weights to a DFP manager.

Feature Specifications for the DFP Agent Subsystem Feature

Feature History	
Release	**Modification**
12.1(8a)E	This feature was introduced on the following platforms: • Cisco 7200 series routers • Multilayer Switch Feature Card 2 (MSFC2), Supervisor Engine 1, and Supervisor Engine 2 for Cisco Catalyst 6500 family switches (including the Catalyst 6506, Catalyst 6509, and Catalyst 6513)
12.2(14)S	This feature was integrated into Cisco IOS Release 12.2(14)S. Support for the following platforms was removed: • Multilayer Switch Feature Card 2 (MSFC2), Supervisor Engine 1, and Supervisor Engine 2 for Cisco Catalyst 6500 family switches (including the Catalyst 6506, Catalyst 6509, and Catalyst 6513)
Supported Platforms	
Cisco 7200 series routers	

Determining Platform Support Through Cisco Feature Navigator

Cisco IOS software is packaged in feature sets that are supported on specific platforms. To get updated information regarding platform support for this feature, access Cisco Feature Navigator. Cisco Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Cisco Feature Navigator is a web-based tool that enables you to determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Cisco Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://www.cisco.com/register

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

http://www.cisco.com/go/fn

Availability of Cisco IOS Software Images

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or, if supported, Cisco Feature Navigator.

Contents

Restrictions for the DFP Agent Subsystem

The DFP agent subsystem has the following restrictions:

- The DFP agent requires a delay between hello messages of at least 3 seconds. Therefore, if your DFP manager provides a timeout specification, you must set the timeout to at least 3 seconds.
- The password specified in the DFP manager must match the password specified in the **password** command for the DFP agent.

Information About the DFP Agent Subsystem

To configure the DFP agent subsystem feature, you must understand the following concepts:

IOS SLB

The IOS SLB feature is an IOS-based solution that provides IP server load balancing. Using the IOS SLB feature, you can define a *virtual server* that represents a group of *real servers* in a cluster of network servers known as a *server farm*. In this environment, the clients connect to the IP address of the virtual server. When a client initiates a connection to the virtual server, the IOS SLB function chooses a real server for the connection based on a configured *load-balancing algorithm*.

For more information about IOS SLB, refer to the *IOS Server Load Balancing* feature document for Cisco IOS Release 12.2(14)S.

DFP

DFP is part of the ContentFlow architecture, and the mechanism by which servers provide feedback to IP load-balancing products. DFP enables workload agents in a local load-balancing environment, called *DFP agents*, to collect status information from one or more real host servers, convert the information to relative weights, and report the weights to load-balancing managers, called *DFP managers*, such as IOS SLB devices.

For more information about DFP, refer to the *IOS Server Load Balancing* feature document for Cisco IOS Release 12.2(14)S.

DFP Agents

DFP agents reside on IP server platforms, such as Windows NT, UNIX, and OS/390. When a DFP manager initiates a TCP connection with a DFP agent, the DFP agent begins collecting status information from one or more real host servers. The DFP agent then converts the information to relative weights and reports the weights to the DFP manager.

DFP Managers

DFP managers initiate TCP connections with DFP agents, receive relative weights of real servers from the DFP agents, and factor in those weights when load balancing the real servers.

DFP Agents Other Than IOS SLB

Prior to 12.1(8a)E, the DFP agent was implemented only in IOS SLB. The DFP agent subsystem feature enables client subsystems other than IOS SLB, such as General Packet Radio Service (GPRS), to act as DFP agents.

Multiple DFP Agents

The DFP agent subsystem feature supports the use of multiple DFP agents from different client subsystems (such as IOS SLB and GPRS) at the same time.

How to Configure the DFP Agent Subsystem

This section contains the following procedures:

Defining the Port Number

To define the port number to be used by the DFP manager to connect to the IOS SLB DFP agent to receive DFP reports, enter the following commands.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
1. **ip dfp agent** *subsystem-name*
2. **interval** *seconds*
3. **password** [**0** | **7**] *password* [*timeout*]
4. **port** *port-number*
5. **inservice**

DETAILED STEPS

	Command or Action	Purpose

Step 1	`enable`
	
	Example:
	`Router(config)# enable`
		Enables higher privilege levels, such as privileged EXEC mode.
		• Enter your password if prompted.

Step 2	`configure terminal`
	
	Example:
	`Router(config)# configure terminal`
		Enters global configuration mode.

Step 3	`ip dfp agent` *subsystem-name* **Example:** `Router(config)# ip dfp agent slb`	Identifies a DFP agent subsystem and enters DFP agent configuration mode.
Step 4	`interval` *seconds* **Example:** `Router(config-dfp)# interval 11`	(Optional) Configures a DFP agent weight recalculation interval.
Step 5	`password` [`0` | `7`] *password* [*timeout*] **Example:** `Router(config-dfp)# password Password1 180`	(Optional) Configures a DFP agent password for Message Digest Algorithm Version 5 (MD5) authentication.

	Command or Action	Purpose
Step 6	**port** *port-number* **Example:** `Router(config-dfp)# port 2221`	Defines the port number to be used by the DFP manager to connect to the DFP agent.
Step 7	**inservice** **Example:** `Router(config-dfp)# inservice`	Enables the DFP agent for communication with a DFP manager. A DFP agent is inactive until both of the following conditions are met: • The DFP agent has been enabled using the **inservice** command in DFP agent configuration mode. • The client subsystem has changed the DFP agent's state to ACTIVE.

Displaying Information About DFP Agents

To obtain and display runtime information about DFP agents, enter the following commands.

SUMMARY STEPS

1. **enable**
2. **show** ip dfp [agent *subsystem-name*] [detail]

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router(config)# enable`	Enables higher privilege levels, such as privileged EXEC mode. • Enter your password if prompted.
Step 2	**show ip dfp** [**agent** *subsystem-name*] [**detail**] **Example:** `Router# show ip dfp agent slb detail`	Displays information about DFP agents.

Displaying Information About DFP and DFP Agents

To obtain and display runtime information about DFP and DFP agents, enter the following commands.

SUMMARY STEPS

1. **enable**
2. **show ip slb dfp** [**agent** *agent-ip-address port-number* | **manager** *manager-ip-address* | **detail** | **weights**]

DETAILED STEPS

	Command or Action	Purpose

Step 1	`enable`
	
	Example:
	`Router(config)# enable`
		Enables higher privilege levels, such as privileged EXEC mode.
		• Enter your password if prompted.

Step 2	`show ip slb dfp [agent agent-ip-address port-number | manager manager-ip-address | detail | weights]`
	
	Example:
	`Router# show ip slb dfp weights`
		Displays information about DFP and DFP agents, and about the weights assigned to real servers.

Configuration Examples for the DFP Agent Subsystem

This section provides the following configuration example:

- DFP Agent Subsystem Example, page 6

DFP Agent Subsystem Example

The following example shows the commands used to configure the DFP agent subsystem. Use these commands to accomplish the following tasks:

- Identify DFP agent subsystem *slb* and change the CLI to DFP agent configuration mode.
- Set the DFP agent weight recalculation interval to 11 seconds.
- Set the unencrypted DFP agent password to Password1 (to match the DFP manager's password) and the timeout to 180 seconds.
- Set the DFP communication port number for to 2221.
- Enable the DFP agent for communication with the DFP manager.

```
Router(config)# ip dfp agent slb
Router(config-dfp)# interval 11
Router(config-dfp)# password Password1 180
Router(config-dfp)# port 2221
Router(config-dfp)# inservice
```

Additional References

For additional information related to the DFP agent subsystem, refer to the following references:

Related Documents

Related Topic	Document Title
IP configuration instructions	*Cisco IOS IP Configuration Guide, Release 12.2*
IP configuration commands	*Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services, Release 12.2T*
Dynamic Feedback Protocol (DFP)	*Dynamic Feedback Protocol Support in Distributed Director*
IOS Server Load Balancing (IOS SLB)	*IOS Server Load Balancing* feature document for Cisco IOS Release 12.2(14)S

Standards

Standards[1]	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

1. Not all supported standards are listed.

MIBs

MIBs[1]	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL: http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

1. Not all supported MIBs are listed.

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

http://tools.cisco.com/ITDIT/MIBS/servlet/index

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://www.cisco.com/register

RFCs

RFCs[1]	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

1. Not all supported RFCs are listed.

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, tools, and lots more. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/public/support/tac/home.shtml

Command Reference

This section documents new and modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2T command reference publications.

- **debug ip dfp agent**
- **inservice (DFP agent)**
- **interval (DFP agent)**
- **ip dfp agent**
- **password**
- **port (DFP agent)**
- **show ip dfp**

Obsolete and Replaced Commands

Table 1 lists those commands that have been replaced since Cisco IOS Release 12.1(8a)E:

Table 1 Replaced DFP Agent Subsystem Commands

Command in Cisco IOS Release 12.1(8a)E	Replacement Commands in Cisco IOS Release 12.2(14)S
manager	The **manager** command has been replaced with the following set of commands: • **ip dfp agent** *subsystem-name* (see the **ip dfp agent** command) • **interval** *seconds* (see the **interval (DFP agent)** command) • **password** [**0** | **7**] *password* [*timeout*] (see the **password** command) • **port** *port-number* (see the **port (DFP agent)** command) • **inservice** (see the **inservice (DFP agent)** command)

debug ip dfp agent

To display debugging messages for the Dynamic Feedback Protocol (DFP) agent subsystem, use the **debug ip dfp agent** command in user EXEC or privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug ip dfp agent

no debug ip dfp agent

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC or privileged EXEC mode

Command History

Release	Modification
12.1(8a)E	This command was introduced.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Usage Guidelines

This command displays debugging messages for the DFP agent subsystem.

Caution Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use **debug** commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use **debug** commands during periods of lower network flows and fewer users. Debugging during these periods reduces the effect these commands have on other users on the system.

Examples

The following example configures a DFP agent debugging session:

```
Router# debug ip dfp agent
DFP debugging is on
Router#
```

The following example stops all debugging:

```
Router# no debug all
All possible debugging has been turned off
Router#
```

inservice (DFP agent)

To enable the Dynamic Feedback Protocol (DFP) agent for communication with a DFP manager, use the **inservice** command in DFP agent configuration mode. To remove the DFP agent from service, use the **no** form of this command.

inservice

no inservice

Syntax Description

This command has no arguments or keywords.

Defaults

The DFP agent is disabled and inactive.

Command Modes

DFP agent configuration

Command History

Release	Modification
12.1(8a)E	This command was introduced.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Usage Guidelines

A DFP agent is inactive until both of the following conditions are met:

- The DFP agent has been enabled using the **inservice** command in DFP agent configuration mode.
- The client subsystem has changed the DFP agent's state to ACTIVE.

When you use the **no** form of this command to remove a DFP agent from service, the DFP agent closes all open connections, and no new connections are assigned.

Examples

In the following example, the DFP agent is enabled for communication with a DFP manager:

```
Router(config)# ip dfp agent slb
Router(config-dfp)# inservice
```

Related Commands

Command	Description
agent	Identifies a DFP agent to which IOS SLB can connect.
ip dfp agent	Identifies a DFP agent subsystem and enters DFP agent configuration mode.
ip slb dfp	Configures DFP, supplies an optional password, and enters DFP configuration mode.

interval (DFP agent)

To configure a Dynamic Feedback Protocol (DFP) agent weight recalculation interval, use the **interval** command in DFP agent configuration mode. To restore the default setting, use the **no** form of this command.

interval *seconds*

no interval *seconds*

Syntax Description

seconds	Number of seconds to wait before recalculating weights for the DFP manager. Valid values range from 5 to 65535 seconds. The default interval is 10 seconds.

Defaults

The default **interval** value is 10 seconds.

Command Modes

DFP agent configuration

Command History

Release	Modification
12.1(8a)E	This command was introduced.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Usage Guidelines

The DFP agent sends the new weight to the DFP manager only if the new weight is different from the old weight. If the new weight is the same as the old weight, it is not sent to the DFP manager.

Examples

The following example configures the DFP agent to recalculate weights every 11 seconds:

```
Router(config)# ip dfp agent slb
Router(config-dfp)# interval 11
```

Related Commands

Command	Description
agent	Identifies a DFP agent to which IOS SLB can connect.
ip dfp agent	Identifies a DFP agent subsystem and enters DFP agent configuration mode.
ip slb dfp	Configures DFP, supplies an optional password, and enters DFP configuration mode.

ip dfp agent

To identify a Dynamic Feedback Protocol (DFP) agent subsystem and enter DFP agent configuration mode, use the **ip dfp agent** command in global configuration mode. To remove the DFP agent identification, use the **no** form of this command.

ip dfp agent *subsystem-name*

no ip dfp agent *subsystem-name*

Syntax Description

subsystem-name	Character string used to identify the DFP agent subsystem, such as **slb** for IOS SLB. The subsystem name enables the subsystem to send weights to a DFP manager. The subsystem name is limited to 15 characters.

Defaults

No DFP agent subsystems are identified.

Command Modes

Global configuration

Command History

Release	Modification
12.1(8a)E	This command was introduced.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Usage Guidelines

To discover the subsystem names that are available in your environment, enter the **ip dfp agent ?** command.

Examples

The following example identifies a DFP agent subsystem named slb and enters DFP agent configuration mode:

```
Router(config)# ip dfp agent slb
```

Related Commands

Command	Description
agent	Identifies a DFP agent to which IOS SLB can connect.
ip slb dfp	Configures DFP, supplies an optional password, and enters DFP configuration mode.

password

To configure a Dynamic Feedback Protocol (DFP) agent password for Message Digest Algorithm Version 5 (MD5) authentication, use the **password** command in DFP agent configuration mode. To remove the DFP agent password, use the **no** form of this command.

password [**0** | **7**] *password* [*timeout*]

no password

Syntax Description

0	(Optional) Indicates that the password is unencrypted. This is the default setting.
7	(Optional) Indicates that the password is encrypted.
password	Password value for MD5 authentication. This password must match the password configured on the host agent.
timeout	(Optional) Delay period, in seconds, during which both the old password and the new password are accepted. The valid range is 0 to 65535 seconds. The default value is 180 seconds.

Defaults

The password encryption default is 0 (unencrypted).
The password timeout default is 180 seconds.

Command Modes

DFP agent configuration

Command History

Release	Modification
12.1(8a)E	This command was introduced.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Usage Guidelines

The password specified in this command must match the password specified for the DFP manager.

The timeout option allows you to change the password without stopping messages between the DFP agent and its manager. The default value is 180 seconds.

During the timeout, the agent sends packets with the old password (or null, if there is no old password), and receives packets with either the old or new password. After the timeout expires, the agent sends and receives packets only with the new password; received packets that use the old password are discarded.

If you are changing the password for an entire load-balanced environment, set a longer timeout. Setting a longer timeout allows enough time for you to update the password on all agents and servers before the timeout expires. It also prevents mismatches between agents and servers that have begun running the new password and agents, and servers on which you have not yet changed the old password.

Examples

The following example sets the DFP agent password (unencrypted by default) to Password1 and the timeout to 360 seconds:

```
Router(config)# ip dfp agent slb
Router(config-dfp)# password Password1 360
```

Related Commands

Command	Description
agent	Identifies a DFP agent to which IOS SLB can connect.
ip dfp agent	Identifies a DFP agent subsystem and enters DFP agent configuration mode.
ip slb dfp	Configures DFP, supplies an optional password, and enters DFP configuration mode.
replicate casa (firewall farm)	Configures a stateful backup of IOS SLB decision tables to a backup switch.
replicate casa (virtual server)	Configures a stateful backup of IOS SLB decision tables to a backup switch.

port (DFP agent)

To define the port number to be used by the Dynamic Feedback Protocol (DFP) manager to connect to the DFP agent, use the **port** command in DFP agent configuration mode. To disable the port number definition and remove existing connections, use the **no** form of this command.

port *port-number*

no port *port-number*

Syntax Description

port-number	Port number used by the DFP manager to connect to the DFP agent. The valid range is 1 to 65535.

Defaults

No port number is defined.

Command Modes

DFP agent configuration

Command History

Release	Modification
12.1(8a)E	This command was introduced.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Examples

In the following example, the DFP manager is enabled to connect to the DFP agent using port number 2221:

```
Router(config)# ip dfp agent slb
Router(config-dfp)# port 2221
```

Related Commands

Command	Description
agent	Identifies a DFP agent to which IOS SLB can connect.
ip dfp agent	Identifies a DFP agent subsystem and enters DFP agent configuration mode.
ip slb dfp	Configures DFP, supplies an optional password, and enters DFP configuration mode.

show ip dfp

To display information about Dynamic Feedback Protocol (DFP) agents, use the **show ip dfp** command in privileged EXEC mode.

show ip dfp [**agent** *subsystem-name*] [**detail**]

Syntax Description

agent *subsystem-name*	(Optional) Displays information about the specified DFP agent, such as **slb** for IOS SLB.
detail	(Optional) Displays detailed DFP agent information.

Defaults

If no options are specified, the command displays basic output for all DFP agents identified by **ip dfp agent** commands, regardless of whether those agents are currently in service (**Inservice: yes**) or active (**AppActive: yes**).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(8a)E	This command was introduced.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Usage Guidelines

Detailed output for the **show ip dfp** command includes information about all DFP agents identified by **ip slb agent** commands, regardless of whether those agents are currently in service (**Inservice: yes**) or active (**AppActive: yes**).

Examples

The following example shows basic information for DFP agent slb:

```
Router# show ip dfp agent slb

Unexpected errors: 0

DFP Agent for service: SLB
      Port: 666 Interval: 10
      Current passwd: <none> Pending passwd: <none>
      Passwd timeout: 0
      Inservice: yes  AppActive: yes

      Manager IP Address   Timeout
      ------------------   -------
      172.18.45.27         0
```

The following example shows detailed information for DFP agent slb:

```
Router# show ip dfp agent slb detail

Unexpected errors: 0

DFP Agent for service: SLB
      Port: 666 Interval: 10
      Current passwd: <none> Pending passwd: <none>
      Passwd timeout: 0
      Inservice: yes  AppActive: yes

      Manager IP Address   Timeout
      ------------------   -------
      172.18.45.27         0

Weight Table Report for Agent SLB

      Weights for Port: 80  Protocol: TCP

          IP Address        Bind ID  Weight
          ---------------   -------  -------
          1.1.1.1           0        65535

      Weights for Port: 0 (wildcard)  Protocol: 0 (wildcard)

          IP Address        Bind ID  Weight
          ---------------   -------  -------
          0.0.0.0           65534    0

Bind ID Table Report for Agent SLB

      Bind IDs for Port: 80  Protocol: TCP

          Bind ID   Client IP        Client Mask
          -------   ---------------  ---------------
          0         0.0.0.0          0.0.0.0
```

Table 2 show ip dfp Field Descriptions

Field	Description
Port	TCP port number of the agent.
Interval	Number of seconds to wait before recalculating weights.
Current passwd	Current DFP password for Message Digest Algorithm Version 5 (MD5) authentication.
Pending passwd	Pending new DFP password for MD5 authentication.
Passwd timeout	Delay period, in seconds, during which both the current password and the new password are accepted.
Inservice	Indicates whether the DFP agent is enabled for communication with a DFP manager.
AppActive	Indicates whether the DFP agent is active.
Manager IP Address	IP address of the manager to which weights are being sent.
Timeout	Time period, in seconds, during which the DFP manager must receive an update from the DFP agent. A value of 0 means there is no timeout.

Table 2 show ip dfp Field Descriptions (continued)

Weights for Port	Port for which the following weights are reported. 0 indicates a wildcard value.
Protocol	Protocol used for the port. 0 indicates a wildcard value.
IP Address	IP address for which weight is reported.
Bind ID	Bind ID associated with the IP address.
Weight	Weight calculated for the IP address.
Bind IDs for Port	Port for which the following bind IDs are reported.
Protocol	Protocol used for the port.
Bind ID	Bind ID of this instance of the real server.
Client IP	IP address of client using the virtual server.
Client Mask	IP network mask of client using the virtual server.

Related Commands

Command	Description
agent	Identifies a DFP agent to which IOS SLB can connect.
ip dfp agent	Identifies a DFP agent subsystem and enters DFP agent configuration mode.
ip slb dfp	Configures DFP, supplies an optional password, and enters DFP configuration mode.

Glossary

Note Refer to the *Internetworking Terms and Acronyms* for terms not included in this glossary.

client subsystem—Users of the DFP agent function, such as IOS SLB.

DFP—Dynamic Feedback Protocol. Allows host agents to dynamically report the change in status of the host systems providing a virtual service. The status reported is a relative weight that specifies a host server's capacity to perform work.

DFP agent—Object in a load-balanced environment that dynamically reports changes in status of the host systems that provide a virtual service. The status reported is a relative weight that specifies a host server's capacity to perform work. See also *DFP manager.*

DFP manager—Object in a load-balanced environment that collects status reports from DFP agents. See also *DFP agent*.

Dynamic Feedback Protocol—See *DFP.*

IOS SLB—IOS Server Load Balancing. Load-balancing function in which the network administrator defines a virtual server that represents a group of real servers in a cluster of network servers known as a server farm. When a client initiates a connection to the virtual server, IOS SLB chooses a real server for the connection based on a configured load-balancing algorithm.

Server Load Balancing—See *IOS SLB.*

services manager—Functionality built into IOS SLB that makes load-balancing decisions based on application availability, server capacity, and load distribution algorithms such as weighted round robin or weighted least connections, or the DFP. The services manager determines a real server for the packet flow using load balancing and server/application feedback.

SLB—See *IOS SLB.*