Configuring CPU Friendly NetFlow Export

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The CPU Friendly NetFlow Export feature for Cisco IOS Flexible NetFlow provides the capability for the software NetFlow modules to adjust their Central Processing Unit (CPU) utilization based on user-configured CPU utlization thresholds for the supervisor and line cards. NetFlow will lower its CPU consumption when utilization exceeds the configured threshold, and vice versa.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information for CPU Friendly NetFlow Export, page 6.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn . An account on Cisco.com is not required.

Contents

Prerequisites for CPU Friendly NetFlow Export

- You are familiar with the information in the " Cisco IOS Flexible NetFlow Overview " module.
- The networking device must be running a Cisco IOS release that supports Flexible NetFlow. See the " Cisco IOS Flexible NetFlow Features Roadmap " module for a list of Cisco IOS software releases that support Flexible NetFlow.

IPv4 Traffic

- The networking device must be configured for IPv4 routing.
- One of the following must be enabled on your router and on any interfaces on which you want to enable Flexible NetFlow: Cisco Express Forwarding or distributed Cisco Express Forwarding.

IPv6 Traffic

- The networking device must be configured for IPv6 routing.
- One of the following must be enabled on your router and on any interfaces on which you want to enable Flexible NetFlow: Cisco Express Forwarding IPv6 or distributed Cisco Express Forwarding IPv6.

Information About CPU Friendly NetFlow Export

Overview of CPU Friendly NetFlow Export

The number and complexity of flow records to be exported is the prime cause of CPU use in NetFlow. The CPU Friendly NetFlow Export feature (also known as Yielding NetFlow Data Export, or Yielding NDE) monitors CPU use for both the supervisor and line cards according to user-configured thresholds and dynamically adjusts the rate of export as needed.

How to Configure CPU Friendly NetFlow Export

Configuring the CPU Utilization Threshold

To configure the CPU utilization threshold, the threshold above which NetFlow decreases its CPU consumption, perform the following required task.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **flow hardware** [**egress** | **export threshold** *total-cpu-threshold-percentage [* **linecard** *linecard-threshold-percentage]* | **usage notify**{**input** | **output**} [*table-threshold-percentage seconds*]]
4. **end**
5. **show platform flow** [**aging** | {**export** | **usage** | **table-contention** {**aggregate** | **detailed** | **summary**} } [*instance | module]* | {**ip** | **ipv6**} **[** *count | destination | instance | module | multicast | protocol | source*] | {**layer2** | **mpls** } **[** *count | instance | module* **]]**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**flow hardware** [**egress**	**export threshold** *total-cpu-threshold-percentage [* **linecard** *linecard-threshold-percentage]*	**usage notify**{**input**	**output**} [*table-threshold-percentage seconds*]] **Example:** `Router(config)# flow hardware export threshold 25 linecard 25`	Configures the CPU utilization threshold up to which NetFlow export is permitted.
Step 4	**end** **Example:** `Router(config)# end`	Ends the current configuration session and returns to privileged EXEC mode.

	Command or Action	Purpose
Step 5	**show platform flow** [**aging** | {**export** | **usage** | **table-contention** {**aggregate** | **detailed** | **summary**} }[*instance* | *module]* | {**ip** | **ipv6**} **[** *count* | *destination* | *instance* | *module* | *multicast* | *protocol* | *source*] | {**layer2** | **mpls** } **[** *count* | *instance* | *module* **]]** **Example:** `Router# show platform flow export`	Verifies the configuration of the CPU utilization threshold.

Configuration Examples for CPU Friendly NetFlow Export

Example Configuring CPU Utilization Thresholds for NetFlow Export

The following example shows how to configure CPU utilization thresholds for NetFlow export.

This sample starts in global configuration mode.

```
!
flow hardware export threshold 25
flow hardware export threshold 25 linecard 25
end
!
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
Overview of Flexible NetFlow	"Cisco IOS Flexible NetFlow Overview"
Flexible NetFlow Feature Roadmap	"Cisco IOS Flexible NetFlow Features Roadmap"
Emulating original NetFlow with Flexible NetFlow	"Getting Started with Configuring Cisco IOS Flexible NetFlow"
Configuring flow exporters to export Flexible NetFlow data.	"Configuring Data Export for Cisco IOS Flexible NetFlow with Flow Exporters"
Customizing Flexible NetFlow	"Customizing Cisco IOS Flexible NetFlow Flow Records and Flow Monitors"

Related Topic	Document Title
Configuring Flexible NetFlow using predefined records	"Configuring Cisco IOS Flexible NetFlow with Predefined Records"
Using Flexible NetFlow Top N Talkers to analyze network traffic	"Using Cisco IOS Flexible NetFlow Top N Talkers to Analyze Network Traffic"
Configuring IPv4 multicast statistics support for Flexible NetFlow	"Configuring IPv4 Multicast Statistics Support for Cisco IOS Flexible NetFlow"
Configuration commands for Flexible NetFlow	Cisco IOS Flexible NetFlow Command Reference

Standards

Standard	Title
No new or modified standards are supported, and support for existing standards has not been modified.	--

MIBs

MIB	MIBs Link
No new or modified MIBs are supported.	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
No new or modified RFCs are supported , and support for existing standards has not been modified.	--

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for CPU Friendly NetFlow Export

GUID-99360C0D-E056-42C8-B66C-4FA2E2463DCAF lists the release history for this feature.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn . An account on Cisco.com is not required.

Note GUID-99360C0D-E056-42C8-B66C-4FA2E2463DCAF lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 1   *Feature Information for CPU Friendly NetFlow Export*

Feature Name	Releases	Feature Information
Flexible NetFlow	12.2(33)SRC 12.2(50)SY 12.4(9)T 15.0(1)SY	Flexible NetFlow is introduced. Support for this feature was added for Cisco 7200 series routers in Cisco IOS Release 12.2(33)SRC. Information about the Flexible NetFlow feature is included in the following sections: The following commands were introduced or modified: **cache** (Flexible NetFlow), **clear flow exporter**, **clear flow monitor, clear sampler**, **collect counter**, **collect flow**, **collect interface**, **collect ipv4, collect ipv4 destination, collect ipv4 fragmentation, collect ipv4 section, collect ipv4 source**, **collect ipv4 total-length, collect ipv4 ttl**, **collect routing, collect timestamp sys-uptime**, **collect transport, collect transport icmp ipv4, collect transport tcp**, **collect transport udp, debug flow exporter, debug flow monitor, debug flow record**, **debug sampler, description** (Flexible NetFlow), **destination**, **dscp** (Flexible NetFlow), **exporter, flow exporter, flow monitor, flow platform, flow record, ip flow monitor, match flow, match interface** (Flexible NetFlow), **match ipv4, match ipv4 destination, match ipv4 fragmentation, match ipv4 section, match ipv4 source, match ipv4 total-length, match ipv4 ttl, match routing, match transport, match transport icmp ipv4, match transport tcp, match transport udp, mode** (Flexible NetFlow), **option** (Flexible NetFlow), **record, sampler, show flow exporter**, **show flow interface, show flow**

Feature Name	Releases	Feature Information
		monitor, **show flow record**, **show sampler**, **source** (Flexible NetFlow), **statistics packet**, **template data timeout**, **transport** (Flexible NetFlow).
CPU Friendly NetFlow Export	12.2(50)SY 15.0(1)SY	The CPU Friendly NetFlow Export feature provides the capability for the software NetFlow modules to adjust their Central Processing Unit (CPU) utilization based on user configured CPU thresholds for the supervisor and line cards, so that when the total CPU utilization is above the configured threshold, NetFlow decreases its CPU consumption, and vice versa. Information about the CPU Friendly NetFlow Export feature is included in the following sections: The following commands were introduced or modified: **flow hardware, show platform flow.**