Configuring Active Latency Monitoring

This chapter contains the following sections:

Active Latency Monitoring Overview

Active Latency Monitoring provides a real-time view of the latency that is incurred by the packets while traveling through the switch on a per port basis. The latency measurement is FIFO measurement. Functionally, as soon as the packet enters the switch, the ASIC adds a timestamp to it. When it is scheduled to go out of the egress port, the egress port calculates the latency for each packet that is going out of that port based on current time and the ingress timestamp on the packet.

Note Active latency monitoring is currently not available for Cisco Nexus N3548 Series switches. This feature is only supported for Cisco Nexus N3548-X Series switches.

Each egress port maintains the information in the frame count and the latency register, along with the minimum and maximum latency on that port. The software periodically reads the frame count (default 3 seconds) and the total latency to calculate the average latency per port. Based on per port latency information, the software calculates the average switch latency.

Active Latency Monitoring Guidelines and Limitations

Active Latency Monitoring has the following limitations and guidelines:

- Disabling the latency monitor does not clear the existing latency monitor data.
- Clear the latency monitor data before enabling the latency monitor.
- The latency monitor data is lost when the sampling interval is modified.

- The latency monitor data is not maintained across a switch reload.

Configuring Active Latency Monitoring

To configure active latency monitoring, complete the following steps:

Note The average or maximum latency threshold is in nanoseconds. The software sampling interval value is between 1 to 30 seconds. The default values for the parameters are:

- Sampling = 3 seconds
- Threshold-avg = 1000000 nanoseconds
- Threshold-max = 2000000 nanoseconds

Procedure

	Command or Action	Purpose
Step 1	**clear hardware profile latency monitor**	Clears the latency monitor data.
Step 2	**[no] hardware profile latency monitor**	Enables or disables latency monitoring.
Step 3	**hardware profile latency monitor threshold-avg <value>**	(Optional) Sets the average threshold for syslog generation.
Step 4	**hardware profile latency monitor threshold-max <value>**	(Optional) Sets the maximum threshold for syslog generation.
Step 5	**hardware profile latency monitor sampling <value>**	(Optional) Sets the sampling interval in seconds.
Step 6	**exit**	Updates the configuration and exits the configuration mode.
Step 7	**show hardware profile latency monitor summary**	(Optional) Displays the latency values on the packets.

Show Examples for Active Latency Monitoring

See the following examples that provide a real-time view of the latency incurred by the packets:

```
switch# show hardware profile latency monitor summary

10/13/2015 06:55:58
Device instance 0

Total Switch
```

```
============
                    3s              30s             1hr             All Time

Min Latency (ns)    390             375             n/a             369

Max Latency (ns)    775             1844            n/a             1950

Avg Latency (ns)    612             721             n/a             754

Std Deviation       205.24          117.23          n/a             69.17


Ethernet1/1
===========
                    3s              30s             1hr             All Time

Min Latency (ns)    775             762             n/a             762

Max Latency (ns)    775             1757            n/a             1950

Avg Latency (ns)    775             838             n/a             870

Std Deviation       n/a             83.87           n/a             100.93

<snip>

Ethernet1/13
============
                    3s              30s             1hr             All Time

Min Latency (ns)    671             646             n/a             644

Max Latency (ns)    671             1844            n/a             1844

Avg Latency (ns)    671             736             n/a             740

Std Deviation       n/a             100.16          n/a             93.76
```

```
switch# show hardware profile latency monitor summary detail

10/13/2015 06:57:00
Device instance 0
Format:
        timestamp
        ifindex
        fcnt
        min_latency
        max_latency
        avg_latency
10/13/2015 06:56:58
Ethernet1/1
fcnt          2
min_latency   565
max_latency   571
avg_latency   568
10/13/2015 06:56:55
Ethernet1/1
fcnt          1
min_latency   576
max_latency   576
avg_latency   576
10/13/2015 06:56:52

<snip>

Ethernet1/2
fcnt          0
min_latency   4294967295
max_latency   0
avg_latency   0
10/13/2015 06:56:55
Ethernet1/2
```

```
fcnt          0
min_latency   4294967295
max_latency   0
avg_latency   0
10/13/2015 06:56:52


switch# # show hardware profile latency monitor summary clear-timestamp

10/13/2015 06:56:31
Device instance 0

Egress Port             Last Clear Timestamp
=========================================

Total Switch            10/13/2015 06:54:35

Ethernet1/1             10/13/2015 06:54:35

Ethernet1/2             10/13/2015 06:54:35

<snip>

Ethernet1/47            10/13/2015 06:54:35

Ethernet1/48            10/13/2015 06:54:35


switch# show hardware profile latency monitor summary brief

10/13/2015 06:57:27
Device instance 0

Egress Port             Avg Latency (ns)
=======================================

Total Switch            769

Ethernet1/1             874

Ethernet1/2             1682

<snip>

Ethernet1/47            n/a

Ethernet1/48            n/a


switch# show hardware profile latency monitor summary sort
10/13/2015 06:57:34
Device instance 0

Egress Port             Avg Latency (ns)
=======================================

Ethernet1/2             1682

Ethernet1/5             1664

Ethernet1/1             871

Ethernet1/13            765

Ethernet1/6             507

Ethernet1/3             n/a


switch# show hardware profile latency monitor summary top

10/13/2015 06:57:44
```

```
Device instance 0

Egress Port             Avg Latency (ns)
========================================

Ethernet1/2             1682

Ethernet1/5             1664

<snip>

Ethernet1/6             500

Ethernet1/3             n/a
```