Configure Jumbo MTU on Nexus 5000 and 7000 Series

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Introduction

This document describes issues caused when a Jumbo Maximum Transmission Unit (MTU) packet is configured in a Nexus 5000 Series Switch.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on these series of Nexus switches:

- Nexus 5020
- NX-OS version 4.1(3)N2(1a)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Conventions

Refer to the Cisco Technical Tips Conventions for more information on document conventions.

Background Information

This document describes the issues that arise when you need to use Jumbo Packet in a Nexus 5000 Series

Switch. The scenario described can occur when you try to transfer jumbo packets between Nexus 5000 and/or Nexus 7000 switches.

Configure

The packet loss can happen between two Nexus 5000 switches or between a Nexus 5000 switch and Nexus 7000 switch.

When you ping a host with the packet size of 9216 bytes, you can see packet loss of 50 percent.

```
<#root>

Nexus-5000#

ping 172.16.0.1 packet-size 9216 count 20

PING 172.16.0.1 (172.16.0.1): 9216 data bytes
9224 bytes from 172.16.0.1: icmp_seq=0 ttl=254 time=6.094 ms
Request 1 timed out
9224 bytes from 172.16.0.1: icmp_seq=2 ttl=254 time=5.507 ms
Request 3 timed out
9224 bytes from 172.16.0.1: icmp_seq=4 ttl=254 time=5.529 ms
Request 5 timed out
9224 bytes from 172.16.0.1: icmp_seq=6 ttl=254 time=10.09 ms
Request 7 timed out
9224 bytes from 172.16.0.1: icmp_seq=8 ttl=254 time=5.597 ms
Request 9 timed out
9224 bytes from 172.16.0.1: icmp_seq=10 ttl=254 time=5.497 ms
Request 11 timed out
9224 bytes from 172.16.0.1: icmp_seq=12 ttl=254 time=5.491 ms
Request 13 timed out
9224 bytes from 172.16.0.1: icmp_seq=14 ttl=254 time=5.555 ms
Request 15 timed out
9224 bytes from 172.16.0.1: icmp_seq=16 ttl=254 time=6.021 ms
Request 17 timed out
9224 bytes from 172.16.0.1: icmp_seq=18 ttl=254 time=5.51 ms

--- 172.16.0.1 ping statistics ---
20 packets transmitted, 10 packets received, 50.00% packet loss
round-trip min/avg/max = 5.491/6.089/10.09 ms
```

Configurations

If a Jumbo packet has to traverse a Nexus 5020 and a Nexus 7010, configure the **Policy-map** in Nexus 5020 and set the system jumbomtu *size* in the Nexus 7010 Series Switch.

Complete these steps in order to configure the Policy-map in Nexus 5020:

Nexus-5020
<#root> *!--- You can enable the Jumbo MTU for the whole switch by setting the MTU to its maximum size (9216 byt* *!--- in the policy map for the default Ethernet system class (class-default).*

```
switch(config)#
policy-map type network-qos jumbo
switch(config-pmap-nq)#
class type network-qos class-default
switch(config-pmap-c-nq)#
mtu 9216
switch(config-pmap-c-nq)#
exit
switch(config-pmap-nq)#
exit
switch(config)#
system qos
switch(config-sys-qos)#
service-policy type network-qos jumbo
```

Refer to Cisco Nexus 5000 Series NX-OS Layer 2 Switching Configuration Guide, Release 4.2(1)N1(1) for more information.

Complete these steps in order to set the jumbo frame in a Nexus 7010 Switch:

Nexus-7010

```
<#root>
!--- Set the MTU to its maximum size (9216 bytes) in order to enable the Jumbo MTU for the whole switch

switch(config)#
system jumbomtu 9216


!--- Set the MTU specification for an interface.
switch(config)#
interface ethernet x/x


!--- By default, Cisco NX-OS configures Layer 3 parameters. In order to configure Layer 2 parameters, u
switch(config-if)#
switchport
switch(config-if)#
mtu 9216
```

```
switch(config-if)#
exit
```

Verify

In order to verify, you can ping with a packet size of more than 1500 bytes: `Ping -l 9000 x.x.x.x .`

You can also issue the show interface ethernet port/slot command in order to verify if the Jumbo frame is set.

On the Nexus 5000, enter the show queuing interface ethernet 1/1 command:

```
<#root>

Nexus5000#

show queuing interface ethernet 1/1

Ethernet1/1 queuing information:
  TX Queuing
    qos-group  sched-type  oper-bandwidth
        0       WRR             50
        1       WRR             50
  RX Queuing
    qos-group 0
    q-size: 243200, HW

MTU: 9280 (9216 configured)
```

On the Nexus 7000, enter the show interface ethernet 1/9 command:

```
<#root>

Nexus-7010#

show interface ethernet 1/9

Ethernet1/9 is up
  Hardware: 10000 Ethernet, address: 0000.0000.0000 (bia 0000.0000.0000)


MTU 9216 bytes

, BW 10000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA
  Port mode is access
  full-duplex, 10 Gb/s, media type is 10g
  Beacon is turned off
  Auto-Negotiation is turned off
  Input flow-control is off, output flow-control is off
  Rate mode is dedicated
  Switchport monitor is off
  Last link flapped 00:57:24
  Last clearing of "show interface" counters 00:56:14
  30 seconds input rate 0 bits/sec, 0 packets/sec
```

```
  30 seconds output rate 360 bits/sec, 0 packets/sec
  Load-Interval #2: 5 minute (300 seconds)
    input rate 0 bps, 0 pps; output rate 448 bps, 0 pps
  RX
    5894254 unicast packets  0 multicast packets  0 broadcast packets
    5894254 input packets  29108950332 bytes


0 jumbo packets

  0 storm suppression packets
    0 runts  0 giants  0 CRC  0 no buffer
    0 input error  0 short frame  0 overrun   0 underrun  0 ignored
    0 watchdog  0 bad etype drop  0 bad proto drop  0 if down drop
    0 input with dribble  0 input discard
    0 Rx pause
  TX
    5894228 unicast packets  2225 multicast packets  0 broadcast packets
    5896453 output packets  29109001641 bytes


0 jumbo packets

    0 output error  0 collision  0 deferred  0 late collision
    0 lost carrier  0 no carrier  0 babble
    0 Tx pause
  0 interface resets
```

Note: The Jumbo counter on Nexus 7000 series is not supported and the Tx and Rx frames show null value, but if you note the MTU size it displays the configured Jumbo frame.

Related Information

- **Cisco Nexus 5000 Series Switches**
- **Cisco Nexus 7000 Series Switches Support Page**
- **Cisco Technical Support & Downloads**