连结7000 ：了解" 硬件ip汇集throttle"功能

Contents

[Introduction](#)
[Prerequisites](#)
[Requirements](#)
[Components Used](#)
[背景信息](#)
[实验室测试](#)
[Related Information](#)

Introduction

本文描述**硬件ip汇集节流孔**功能如何运作与示例和此功能的目的。

Prerequisites

Requirements

Cisco建议您有连结7000系列交换机配置基础知识。

Components Used

本文档中的信息基于以下软件和硬件版本：

- 与版本6.2.x的连结7000和以后
- F2e系列线卡

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, make sure that you understand the potential impact of any command.

背景信息

当您转发在线卡时的一个流入的IP信息包，如果下一跳的地址解析协议(ARP)请求不是解决的，线卡转发信息包到Supervisor为了生成ARP请求。一旦ARP请求回应Supervisor，解决下一跳的MAC地址并且编程硬件。

如果Supervisor不能解决ARP条目，则线路卡发送所有信息包被注定到该地址对Supervisor。Supervisor无限地生成ARP请求，直到ARP条目是解决的。有被放置的硬件费率防幅器被呼叫的汇集为了保护Supervisor处理器(CPU)免受额外数据流。

能出现的问题是单个目的地IP丢弃网络由于维护或硬件问题，并且所有数据流被注定对它突然被发送到CPU。 因为费率防幅器到位， CPU不上升，但是此单个目的地IP能消耗整个费率防幅器和不提供对CPU的其他合法IP访问。是为此方案**硬件ip汇集节流孔**被创建了。

使用**硬件ip汇集节流孔**配置，每个未知的目的地IP的路由数据流到达ARP解决方法的CPU过帐硬件费率防幅器(HWRL)动作。不可得到的目的地将导致在硬件方面将创建的/32丢弃邻接。这防止对同样下一跳IP地址将转发的另外的信息包到Supervisor。当此丢弃邻接被添加时，后续信息包被丢弃，Supervisor继续生成ARP请求，直到下个跳跃是解决的。一段时间里安装丢弃邻接，是可配置的。一旦计时器到期，一个信息包再被发送到CPU和进程重复。用这种方式安装条目的默认情况下的数量被限制到1000，但是可配置的对大数希望。这是为了限制对路由信息库(RIB)表大小的影响。

实验室测试

在这种情况下，您有一个服务器， 172.28.191.200，是在于下硬件故障，并且是目前不可用的服务数据流。

Note:没有主机的ARP条目，并且邻接没有被创建。

```
N7K# show ip route vrf VRF_ABC 172.28.191.200
IP Route Table for VRF "VRF_ABC"
'*' denotes best ucast next-hop
'**' denotes best mcast next-hop
'[x/y]' denotes [preference/metric]
'%<string>' in via output denotes VRF <string>

172.28.191.192/28, ubest/mbest: 1/0, attached >>> There is no /32 entry
   *via 172.28.191.195, Vlan1601, [0/0], 02:01:17, direct
```

数据流被发送到Supervisor为了生成ARP请求：

```
N7K# show system internal forwarding vrf VRF_ABC ipv4 route 172.28.191.200 detail
slot  1
=======
 RPF Flags legend:
          S - Directly attached route (S_Star)
          V - RPF valid
          M - SMAC IP check enabled
          G - SGT valid
          E - RPF External table valid
        172.28.191.192/28  ,  sup-eth2
        Dev: 0 , Idx: 0x65fb  , Prio: 0x8487  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x5a   , LIFB: 0   , LIF: sup-eth2    (0x1fe1  ), DI: 0xc01
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
        172.28.191.192/28  ,  sup-eth2
        Dev: 1 , Idx: 0x65fb  , Prio: 0x8487  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x5a   , LIFB: 0   , LIF: sup-eth2    (0x1fe1  ), DI: 0xc01
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
        172.28.191.192/28  ,  sup-eth2
        Dev: 2 , Idx: 0x65fb  , Prio: 0x8487  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x5a   , LIFB: 0   , LIF: sup-eth2    (0x1fe1  ), DI: 0xc01
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
        172.28.191.192/28  ,  sup-eth2
        Dev: 5 , Idx: 0x65f1  , Prio: 0x84f2  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x5a   , LIFB: 0   , LIF: sup-eth2    (0x1fe1  ), DI: 0xc01
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
```

特定模块的汇集费率防幅器抑制数据流对100个信息包每秒，每个模块。您能看到某些信息包被撤销。

```
N7K# show hardware rate-limiter
Units for Config: packets per second
Allowed, Dropped & Total: aggregated since last clear counters
rl-1: STP and Fabricpath-ISIS
rl-2: L3-ISIS and OTV-ISIS
rl-3: UDLD, LACP, CDP and LLDP
rl-4: Q-in-Q and ARP request
rl-5: IGMP, NTP, DHCP-Snoop, Port-Security, Mgmt and Copy traffic

Module: 1
 R-L Class           Config           Allowed         Dropped            Total
 +-----------------+--------+--------------+---------------+-----------------+
 L3 mtu                 500              0               0                 0
 L3 ttl                 500              0               0                 0
 L3 control           10000              0               0                 0
  L3 glean              100           3326            3190              6516
 L3 mcast dirconn      3000              0               0                 0
 L3 mcast loc-grp      3000              0               0                 0
 L3 mcast rpf-leak      500              0               0                 0
 L2 storm-ctrl       Disable
 access-list-log        100              0               0                 0
 copy                 30000           1877               0              1877
 receive              30000            318               0               318
```

当配置**硬件ip汇集节流孔**命令：

```
N7K# show hardware rate-limiter
Units for Config: packets per second
Allowed, Dropped & Total: aggregated since last clear counters
rl-1: STP and Fabricpath-ISIS
rl-2: L3-ISIS and OTV-ISIS
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Module: 1
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 L3 mtu                 500              0               0                 0
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  L3 glean              100           3326            3190              6516
 L3 mcast dirconn      3000              0               0                 0
 L3 mcast loc-grp      3000              0               0                 0
 L3 mcast rpf-leak      500              0               0                 0
 L2 storm-ctrl       Disable
 access-list-log        100              0               0                 0
 copy                 30000           1877               0              1877
 receive              30000            318               0               318
```

邻接在RIB上安装：

```
N7K# show hardware rate-limiter
Units for Config: packets per second
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```

```
rl-3: UDLD, LACP, CDP and LLDP
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 L3 mtu                 500              0               0                 0
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 L3 control           10000              0               0                 0
  L3 glean              100           3326            3190              6516
 L3 mcast dirconn      3000              0               0                 0
 L3 mcast loc-grp      3000              0               0                 0
 L3 mcast rpf-leak      500              0               0                 0
 L2 storm-ctrl      Disable
 access-list-log        100              0               0                 0
 copy                 30000           1877               0              1877
 receive              30000            318               0               318
```

当您查看编程时的硬件，安装丢弃索引：

```
N7K# show system internal forwarding vrf VRF_ABC ipv4 route 172.28.191.200 detail

slot  1
=======

 RPF Flags legend:
          S - Directly attached route (S_Star)
          V - RPF valid
          M - SMAC IP check enabled
          G - SGT valid
          E - RPF External table valid
        172.28.191.200/32  ,  Drop
        Dev: 0 , Idx: 0x1a5   , Prio: 0x8b61  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x8913 , LIFB: 0   , LIF: Drop        (0x0     ), DI: 0x0
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
        172.28.191.200/32  ,  Drop
        Dev: 1 , Idx: 0x1a5   , Prio: 0x8b61  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x8913 , LIFB: 0   , LIF: Drop        (0x0     ), DI: 0x0
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
        172.28.191.200/32  ,  Drop
        Dev: 2 , Idx: 0x1a5   , Prio: 0x8b61  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x8913 , LIFB: 0   , LIF: Drop        (0x0     ), DI: 0x0
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
        172.28.191.200/32  ,  Drop
        Dev: 5 , Idx: 0x1e1   , Prio: 0x88ee  , RPF Flags: VS    , DGT: 0 , VPN: 9
        RPF_Intf_5:   Vlan1601    (0x19    )
        AdjIdx: 0x8914 , LIFB: 0   , LIF: Drop        (0x0     ), DI: 0x0
        DMAC: 0000.0000.0000 SMAC: 0000.0000.0000
```

您能当前看到硬件费率防幅器看不到所有丢包。

```
N7K# show hardware rate-limiter

Units for Config: packets per second
Allowed, Dropped & Total: aggregated since last clear counters
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rl-4: Q-in-Q and ARP request
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Module: 1
 R-L Class           Config           Allowed         Dropped             Total
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 L3 control           10000               0               0                 0
 L3 glean               100               0               0                 0
 L3 mcast dirconn      3000               0               0                 0
 L3 mcast loc-grp      3000               0               0                 0
 L3 mcast rpf-leak      500               0               0                 0
 L2 storm-ctrl      Disable
 access-list-log        100               0               0                 0
 copy                 30000            1877               0              1877
 receive              30000             318               0               318
```

Related Information

- 配置IP汇集节流
- Technical Support & Documentation - Cisco Systems