Nexus 5500 CoPP类

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简介

本文档介绍Nexus 5500控制平面保护(CoPP)类以及与每个类匹配的流量类型。

背景信息

CoPP是通过NX-OS版本5.1(3)在Nexus 5500上引入的。 CoPP仅在Nexus 55xx上实施。Nexus 50x0上不提供此功能。

Nexus 5500 CoPP类及其流量类型

与Nexus 7000相比，Nexus 5500对CoPP的控制非常有限。无法完全删除Nexus 5500 CoPP策略。用户可以在三个预定义策略之间进行选择，或者可以创建自定义策略，因为CoPP类无法从策略映射中删除。只能编辑承诺信息速率(CIR)速率/突发大小。也无法定义新的CoPP类映射。

可能的CoPP策略映射包括：

- copp-system-policy-default
- copp-system-policy-scaled-l2
- copp-system-policy-scaled-l3
- copp-system-policy-customize

策略映射名称不言自明。只能一次应用四个策略中的一个。删除任何策略会自动应用默认策略。

只能编辑copp-system-policy-customized。如果尝试编辑前三个策略，则返回错误：

```
Switch(config)# policy-map type control-plane copp-system-policy-scaled-l2
ERROR: Only copp-system-policy-customized can be modified
Switch(config)#
```

CoPP类

所有类映射都使用Match Protocol语句。

运行配置中不显示类映射。运行配置中显示的唯一与CoPP相关的配置是非默认自定义策略映射配置。例如：

```
Switch# sh run copp
!Command: show running-config copp
!Time: Tue Apr 30 20:20:00 2013

version 5.2(1)N1(2)
logging level copp 4
policy-map type control-plane copp-system-policy-customized
 class copp-system-class-arp
   police cir 5000 kbps bc 3600000 bytes
 class copp-system-class-default
   police cir 2048 kbps bc 6400000 bytes
control-plane
 service-policy input copp-system-policy-customized

Switch#
```

可以使用show class-map type control-plane或show policy-map interface control-plane来检查CoPP类映射。每个match语句旁边都提供了说明：

```
Switch# show policy-map interface control-plane | i class-map|match     class-map copp-system-
class-igmp (match-any)
    match protocol igmp  --> Matches on IGMP IP protocol number (2)
  class-map copp-system-class-pim-hello (match-any)
    match protocol pim --> Matches on PIM IP protocol number (103)
  class-map copp-system-class-bridging (match-any)
    match protocol bridging --> Matches on STP BPDUs
  class-map copp-system-class-arp (match-any)
    match protocol arp --> Matches on ARP Ethertype (0x806)
  class-map copp-system-class-dhcp (match-any)
    match protocol dhcp --> Matches on DHCP UDP port number (67, 68)
  class-map copp-system-class-mgmt (match-any)
    match protocol mgmt. --> Matches on Telnet, SSH, HTTP, SNMP, FTP,
    NTP using their well-known ports
  class-map copp-system-class-lacp (match-any)
    match protocol lacp --> Matches LACP BPDU address and Ethertype
    (01-80-C2-00-00-02, 0?8809)
  class-map copp-system-class-lldp (match-any)
    match protocol lldp_dcx --> Matches on LLDP ethertype (0x88CC)
  class-map copp-system-class-udld (match-any)
    match protocol udld --> Matches on UDLD destination address
  class-map copp-system-class-isis (match-any)
    match protocol isis_dce --> Matches on ISIS Ethertype
  class-map copp-system-class-msdp (match-any)
    match protocol msdp --> Matches on MSDP TCP port (639)
  class-map copp-system-class-cdp (match-any)
    match protocol cdp --> Matches on CDP destination address 0100.0ccc.cccc
  class-map copp-system-class-fip (match-any)
    match protocol fip --> Matches on FIP ethertype (0x8914)
  class-map copp-system-class-bgp (match-any)
    match protocol bgp --> Matches on BGP TCP port number (179)
  class-map copp-system-class-eigrp (match-any)
    match protocol eigrp --> Matches on EIGRP IP Protocol number (88)
  class-map copp-system-class-exception (match-any)
    match protocol exception --> IP options, Martian packets (same src and dst addresses)
  class-map copp-system-class-glean (match-any)
    match protocol glean --> Matches on Adjacency lookup miss
```

```
   class-map copp-system-class-hsrp-vrrp (match-any)
     match protocol hsrp_vrrp --> Matches on HSRP & VRRP Destination IP
   class-map copp-system-class-icmp-echo (match-any)
     match protocol icmp_echo --> Matches on ICMP type for echo
   class-map copp-system-class-ospf (match-any)
     match protocol ospf --> Matches on OSPF IP Protocol number (89)
   class-map copp-system-class-pim-register (match-any)
     match protocol reg --> Matches on PIM register packets
   class-map copp-system-class-rip (match-any)
     match protocol rip --> Matches on RIP UDP Port (520)
   class-map copp-system-class-l3dest-miss (match-any)
     match protocol unicast --> Miss in UFIB Lookup
   class-map copp-system-class-mcast-miss (match-any)
     match protocol multicast --> Miss in MFIB Lookup
   class-map copp-system-class-excp-ip-frag (match-any)
     match protocol ip_frag --> Matches on MTU-exceeded traffic
   class-map copp-system-class-excp-same-if (match-any)
     match protocol same-if --> Matches traffic to be sent via same ingress interface
   class-map copp-system-class-excp-ttl (match-any)
     match protocol ttl --> Matches on TTL=0/1
   class-map copp-system-class-default (match-any)
     match protocol default --> Matches packets not matched by previous classes
Switch#
```

版本5.2中增强了CoPP类映射，以匹配IPv6控制数据包对应项：

```
class-map type control-plane match-any copp-system-class-arp
     match protocol nd
class-map type control-plane match-any copp-system-class-eigrp
     match protocol eigrp6
class-map type control-plane match-any copp-system-class-hsrp-vrrp
     match protocol hsrp6
class-map type control-plane match-any copp-system-class-ospf
     match protocol ospf3
```