

Resolución de Problemas de "Network-receive-error" de SMF CNDP en interfaces eno6/bd0

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Introducción

En este documento se describe cómo identificar el switch de hoja e informática para una plataforma de implementación nativa en la nube (CNDP) de una función de administración de sesiones (SMF) específica y cómo resolver la alerta de "error de recepción de red" que aparece en el entorno de ejecución común (CEE).

Problema

Las alertas de "error de recepción de red" se informan en el rack CEE Opcenter2.

```
[lab0200-smf/labceed22] cee# show alerts active summary
```

```
NAME UID SEVERITY STARTS AT SOURCE SUMMARY
```

```
-----  
network-receive-error 998c77d6a6a0 major 10-26T00:10:31 lab0200-smf-mas Network interface "bd0"  
showing receive errors on hostname lab0200-s...  
network-receive-error ea4217bf9d9e major 10-26T00:10:31 lab0200-smf-mas Network interface "bd0"  
showing receive errors on hostname lab0200-s...  
network-receive-error 97fad40d2a58 major 10-26T00:10:31 lab0200-smf-mas Network interface "eno6"  
showing receive errors on hostname lab0200-...  
network-receive-error b79540eb4e78 major 10-26T00:10:31 lab0200-smf-mas Network interface "eno6"  
showing receive errors on hostname lab0200-...  
network-receive-error e3d163ff4012 major 10-26T00:10:01 lab0200-smf-mas Network interface "bd0"  
showing receive errors on hostname lab0200-s...  
network-receive-error 12a7b5a5c5d5 major 10-26T00:10:01 lab0200-smf-mas Network interface "eno6"  
showing receive errors on hostname lab0200-...
```

Consulte la [Guía de Operaciones de Infraestructura de Microservicios de Suscriptor de Núcleo de Nube Ultra](#) para obtener la descripción de la alerta.

```
Alert: network-receive-errors
Annotations:
Type: Communications Alarm
Summary: Network interface "{{ $labels.device }}" showing receive errors on hostname {{
$labels.hostname }}"
Expression:
|
rate(node_network_receive_errs_total{device!~"veth.+"}[2m]) > 0
For: 2m
Labels:
Severity: major
```

Identificar el origen de las alertas

Inicie sesión en CEE labceed22, verifique los detalles de alerta "network-receive-error" informados en las interfaces bd0 y eno6 para identificar el nodo y el grupo de dispositivos.

```
[lab0200-smf/labceed22] cee# show alerts active summary
NAME                                UID                                SEVERITY  STARTS AT          SOURCE                                SUMMARY
-----
network-receive-error 3b6a0a7ce1a8 major      10-26T21:17:01    lab0200-smf-mas    Network
interface "bd0" showing receive errors on hostname tpc...
network-receive-error 15abab75c8fc major      10-26T21:17:01    lab0200-smf-mas    Network
interface "eno6" showing receive errors on hostname tp...
```

Ejecute **show alerts active detail network-receive-error <UID>** para obtener detalles de la alerta.

En el ejemplo, el origen de ambas alertas es node lab0200-smf-primary-1 pod node-exporter-47xmm.

```
[lab0200-smf/labceed22] cee# show alerts active detail network-receive-error 3b6a0a7ce1a8
alerts active detail network-receive-error 3b6a0a7ce1a8
severity      major
type          "Communications Alarm"
startsAt      2021-10-26T21:17:01.913Z
source        lab0200-smf-primary-1
summary       "Network interface \"bd0\" showing receive errors on hostname lab0200-smf-primary-1\"
labels        [ "alertname: network-receive-errors" "cluster: lab0200-smf_cee-labceed22"
"component: node-exporter" "controller_revision_hash: 75c4cb979f" "device: bd0" "hostname: lab0200-smf-primary-1" "instance: 10.192.1.42:9100" "job: kubernetes-pods" "monitor: prometheus"
"namespace: cee-labceed22" "pod: node-exporter-47xmm" "pod_template_generation: 1" "replica: lab0200-smf_cee-labceed22" "severity: major" ]
annotations [ "summary: Network interface \"bd0\" showing receive errors on hostname lab0200-smf-primary-1\" "type: Communications Alarm" ]
```

```
[lab0200-smf/labceed22] cee# show alerts active detail network-receive-error 15abab75c8fc
alerts active detail network-receive-error 15abab75c8fc
severity      major
type          "Communications Alarm"
startsAt      2021-10-26T21:17:01.913Z
source        lab0200-smf-primary-1
summary       "Network interface \"eno6\" showing receive errors on hostname lab0200-smf-primary-1\"
labels        [ "alertname: network-receive-errors" "cluster: lab0200-smf_cee-labceed22"
```

```
"component: node-exporter" "controller_revision_hash: 75c4cb979f" "device: eno6" "hostname: lab0200-smf-primary-1" "instance: 10.192.1.42:9100" "job: kubernetes-pods" "monitor: prometheus" "namespace: cee-labceed22" "pod: node-exporter-47xmm" "pod_template_generation: 1" "replica: lab0200-smf_cee-labceed22" "severity: major" ]
  annotations [ "summary: Network interface \"eno6\" showing receive errors on hostname lab0200-smf-primary-1\" \"type: Communications Alarm" ]
```

Validar estado de puertos, POD y nodo

Validación de nodo y POD desde VIP principal

Inicie sesión en K8s Primary VIP of the Rack2 para validar el estado del nodo de origen y el grupo de dispositivos.

En el ejemplo, ambos están en buen estado: Listo y en ejecución.

```
cloud-user@lab0200-smf-primary-1:~$ kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
lab0200-smf-primary-1	Ready	control-plane	105d	v1.21.0
lab0200-smf-primary-2	Ready	control-plane	105d	v1.21.0
lab0200-smf-primary-3	Ready	control-plane	105d	v1.21.0
lab0200-smf-worker-1	Ready	<none>	105d	v1.21.0
lab0200-smf-worker-2	Ready	<none>	105d	v1.21.0
lab0200-smf-worker-3	Ready	<none>	105d	v1.21.0
lab0200-smf-worker-4	Ready	<none>	105d	v1.21.0
lab0200-smf-worker-5	Ready	<none>	105d	v1.21.0

```
cloud-user@lab0200-smf-primary-1:~$ kubectl get pods -A -o wide | grep node-exporter--47xmm
cee-labceed22      node-exporter-47xmm                                1/1      Running    0
                  18d      10.192.1.44      lab0200-smf-primary-1  <none>      <none>
```

Validaciones de puertos del VIP principal de K8

Validar que las interfaces bd0 y eno6 estén en funcionamiento con **dirección IP | grep eno6 e ip addr | grep bd0**.

Nota: Cuando el filtro se aplica para bd0, el eno6 se muestra en la salida. El motivo es que eno5 y eno6 están configurados como interfaces vinculadas en bd0, que se pueden validar en el SMI Cluster Deployer.

```
cloud-user@lab0200-smf-primary-1:~$ ip addr | grep eno6
```

```
3: eno6: <BROADCAST,MULTICAST,SECONDARY,UP,LOWER_UP> mtu 1500 qdisc mq primary bd0 state UP
group default qlen 1000
```

```
cloud-user@lab0200-smf-primary-1:~$ ip addr | grep bd0
```

```
2: eno5: <BROADCAST,MULTICAST,SECONDARY,UP,LOWER_UP> mtu 1500 qdisc mq primary bd0 state UP
group default qlen 1000
3: eno6: <BROADCAST,MULTICAST,SECONDARY,UP,LOWER_UP> mtu 1500 qdisc mq primary bd0 state UP
group default qlen 1000
12: bd0: <BROADCAST,MULTICAST,PRIMARY,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
qlen 1000
13: vlan111@bd0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
qlen 1000
14: vlan112@bd0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
qlen 1000
```

```
182: cali7a166bd093d@if4: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1440 qdisc noqueue state UP
group default
```

Validaciones de puertos desde SMI Cluster Deployer

Inicie sesión en **Cluster Manager VIP** y luego acceda ssh a Operations (Ops) Center ops-center-smi-cluster-deployment.

```
cloud-user@lab-deployer-cm-primary:~$ kubectl get svc -n smi-cm
NAME                                TYPE             CLUSTER-IP          EXTERNAL-IP
PORT(S)                             AGE
cluster-files-offline-smi-cluster-deployer ClusterIP        10.102.53.184       <none>
8080/TCP                             110d
iso-host-cluster-files-smi-cluster-deployer ClusterIP        10.102.38.70       172.16.1.102
80/TCP                                110d
iso-host-ops-center-smi-cluster-deployer ClusterIP        10.102.83.54       172.16.1.102
3001/TCP                              110d
netconf-ops-center-smi-cluster-deployer ClusterIP        10.102.196.125     10.241.206.65
3022/TCP,22/TCP                      110d
ops-center-smi-cluster-deployer      ClusterIP        10.102.12.170      <none>
8008/TCP,2024/TCP,2022/TCP,7681/TCP,3000/TCP,3001/TCP 110d
squid-proxy-node-port                NodePort         10.102.72.168      <none>
3128:32572/TCP                      110d
```

```
cloud-user@lab-deployer-cm-primary:~$ ssh -p 2024 admin@10.102.12.170
admin@10.102.12.170's password:
Welcome to the Cisco SMI Cluster Deployer on lab-deployer-cm-primary
Copyright © 2016-2020, Cisco Systems, Inc.
All rights reserved.
admin connected from 172.16.1.100 using ssh on ops-center-smi-cluster-deployer-5cdc5f94db-bnxqt
[lab-deployer-cm-primary] SMI Cluster Deployer#
```

Verifique el modo cluster, node-defaults, interfaces y parameters para el nodo. En el ejemplo, el **lab0200-smf**.

```
[lab-deployer-cm-primary] SMI Cluster Deployer# show running-config clusters
clusters lab0200-smf
  environment lab0200-smf-deployer_1
...
  node-defaults initial-boot netplan ethernet eno5
    dhcp4 false
    dhcp6 false
  exit
  node-defaults initial-boot netplan ethernet eno6
    dhcp4 false
    dhcp6 false
  exit
  node-defaults initial-boot netplan ethernet enp216s0f0
    dhcp4 false
    dhcp6 false
  exit
  node-defaults initial-boot netplan ethernet enp216s0f1
    dhcp4 false
    dhcp6 false
  exit
  node-defaults initial-boot netplan ethernet enp94s0f0
    dhcp4 false
    dhcp6 false
```

```

exit
node-defaults initial-boot netplan ethernet enp94s0f1
dhcp4 false
dhcp6 false
exit
node-defaults initial-boot netplan bonds bd0
dhcp4      false
dhcp6      false
optional   true
interfaces [ eno5 eno6 ]
parameters mode      active-backup
parameters mii-monitor-interval 100
parameters fail-over-mac-policy active
exit

```

En el VIP Primario, valide errores y/o caídas en las interfaces bd0 y eno6.

Cuando ambas interfaces tienen caídas, se debe comprobar el hardware del switch UCS o Leaf para detectar cualquier problema de hardware.

```

cloud-user@lab0200-smf-primary-1:~$ ifconfig bd0
bd0: flags=5187<UP,BROADCAST,RUNNING,PRIMARY,MULTICAST> mtu 1500
    inet6 fe80::8e94:1fff:fef6:53cd prefixlen 64 scopeid 0x20<link>
    ether 8c:94:1f:f6:53:cd txqueuelen 1000 (Ethernet)
    RX packets 47035763777 bytes 19038286946282 (19.0 TB)
    RX errors 49541 dropped 845484 overruns 0 frame 49541
    TX packets 53797663096 bytes 32320571418654 (32.3 TB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

```

cloud-user@lab0200-smf-primary-1:~$ ifconfig eno6
eno6: flags=6211<UP,BROADCAST,RUNNING,SECONDARY,MULTICAST> mtu 1500
    ether 8c:94:1f:f6:53:cd txqueuelen 1000 (Ethernet)
    RX packets 47035402290 bytes 19038274391478 (19.0 TB)
    RX errors 49541 dropped 845484 overruns 0 frame 49541
    TX packets 53797735337 bytes 32320609021235 (32.3 TB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

Identificación del servidor UCS

Validación de servidor UCS desde SMI Cluster Deployer

Ejecute `show running-config clusters <cluster name> nodes <node name>` en SMI Cluster Deployer para averiguar la dirección IP CIMC del servidor UCS.

```

[lab-deployer-cm-primary] SMI Cluster Deployer# show running-config clusters lab0200-smf nodes primary-1
clusters lab0200-smf
nodes primary-1
maintenance false
host-profile cp-data-r2-sysctl
k8s node-type      primary
k8s ssh-ip         10.192.1.42
k8s sshd-bind-to-ssh-ip true
k8s node-ip       10.192.1.42
k8s node-labels smi.cisco.com/node-type oam
exit
k8s node-labels smi.cisco.com/node-type-1 proto

```

```
exit
ucs-server cimc user admin
...
ucs-server cimc ip-address 172.16.1.62
...
exit
```

SSH en la dirección IP CIMC 172.16.1.62 a través del CM activo y valide el nombre del servidor.

En el ejemplo, el nombre del servidor es LAB0200-Server8-02.

```
cloud-user@lab-deployer-cm-primary:~$ ssh admin@172.16.1.62
Warning: Permanently added '172.16.1.62' (RSA) to the list of known hosts.
admin@172.16.1.62's password:
LAB0200-Server8-02#
```

Nota: Valide el nombre del servidor en el Customer Information Questionnaire (CIQ), si el CIQ está disponible.

Asignar los puertos VIP principales y las interfaces de red UCS

En Primary VIP, verifique los nombres de la interfaz física para eno6 con el comando **ls -la /sys/class/net**. En el ejemplo, cuando se utiliza **lspci** para identificar el dispositivo eno6, se debe utilizar el puerto **1d:00.1** para identificar **eno6**.

```
cloud-user@lab0200-smf-primary-1:~$ ls -la /sys/class/net
total 0
drwxr-xr-x  2 root root    0 Oct 12 06:18 .
drwxr-xr-x 87 root root    0 Oct 12 06:18 ..
lrwxrwxrwx  1 root root    0 Oct 12 06:18 bd0 -> ../../devices/virtual/net/bd0
lrwxrwxrwx  1 root root    0 Oct 12 06:18 bd1 -> ../../devices/virtual/net/bd1
...
lrwxrwxrwx  1 root root    0 Oct 12 06:18 eno5 ->
../../devices/pci0000:17/0000:17:00.0/0000:18:00.0/0000:19:01.0/0000:1b:00.0/0000:1c:00.0/0000:1d:00.0/net/eno5
lrwxrwxrwx  1 root root    0 Oct 12 06:18 eno6 ->
../../devices/pci0000:17/0000:17:00.0/0000:18:00.0/0000:19:01.0/0000:1b:00.0/0000:1c:00.0/0000:1d:00.1/net/eno6
```

Nota: El **lspci** muestra información sobre todos los dispositivos del servidor UCS, como MLOM, SLOM, PCI, etc. La información del dispositivo se puede utilizar para mapear con los nombres de las interfaces en la salida del comando **ls -la /sys/class/net**.

En el ejemplo, el puerto 1d:00.1 pertenece a la interfaz **MLOM** y **eno6**. El **eno5** es un puerto MLOM 1d:00.0.

```
cloud-user@lab0200-smf-primary-1:~$ lspci
.....
1d:00.0 Ethernet controller: Cisco Systems Inc VIC Ethernet NIC (rev a2)
1d:00.1 Ethernet controller: Cisco Systems Inc VIC Ethernet NIC (rev a2)
3b:00.0 Ethernet controller: Intel Corporation Ethernet Controller 10G X550T (rev 01)
```

```
3b:00.1 Ethernet controller: Intel Corporation Ethernet Controller 10G X550T (rev 01)
5e:00.0 Ethernet controller: Intel Corporation Ethernet Controller XL710 for 40GbE QSFP+ (rev 02)
5e:00.1 Ethernet controller: Intel Corporation Ethernet Controller XL710 for 40GbE QSFP+ (rev 02)
d8:00.0 Ethernet controller: Intel Corporation Ethernet Controller XL710 for 40GbE QSFP+ (rev 02)
d8:00.1 Ethernet controller: Intel Corporation Ethernet Controller XL710 for 40GbE QSFP+ (rev 02)
```

En la GUI de CIMC, haga coincidir la dirección MAC de MLOM que se ve en la salida de **ifconfig** del VIP primario.

```
cloud-user@lab0200-smf-primary-1:~$ ifconfig bd0
bd0: flags=5187<UP,BROADCAST,RUNNING,PRIMARY,MULTICAST> mtu 1500
    inet6 fe80::8e94:1fff:fef6:53cd prefixlen 64 scopeid 0x20<link>
    ether 8c:94:1f:f6:53:cd txqueuelen 1000 (Ethernet)
    RX packets 47035763777 bytes 19038286946282 (19.0 TB)
    RX errors 49541 dropped 845484 overruns 0 frame 49541
    TX packets 53797663096 bytes 32320571418654 (32.3 TB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
cloud-user@lab0200-smf-primary-1:~$ ifconfig eno6
eno6: flags=6211<UP,BROADCAST,RUNNING,SECONDARY,MULTICAST> mtu 1500
    ether 8c:94:1f:f6:53:cd txqueuelen 1000 (Ethernet)
    RX packets 47035402290 bytes 19038274391478 (19.0 TB)
    RX errors 49541 dropped 845484 overruns 0 frame 49541
    TX packets 53797735337 bytes 32320609021235 (32.3 TB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

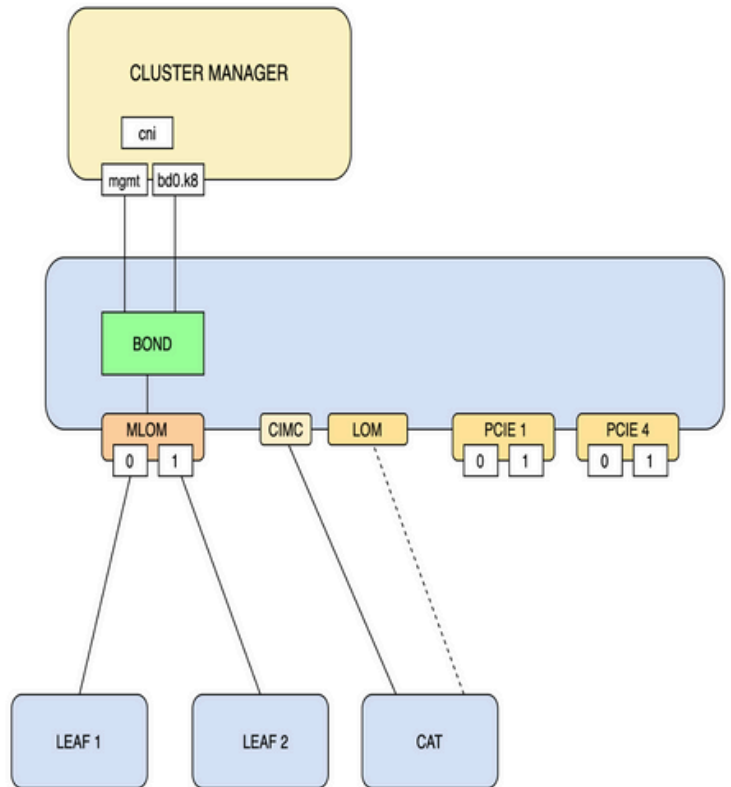
Identificación del switch de hoja

En la red del Administrador de clústeres, como se muestra en la imagen, la **MLOM (eno5/eno6)** se conecta a las hojas 1 y 2.

Nota: Validar deja los nombres de host en CIQ, si el CIQ está disponible.

CM Networking Design

- Management Port (CIMC)– this port is connected to the Management network.
- External provisioner accesses CIMC and mounts vMedia with initial boot configuration
- Initial boot
 - MLOM port 1 and 2 bonded
 - Management VLAN (with IP)
- Additional networking added post boot
 - Internal VLAN attached to MLOM Bond
 - LAN1 is activated and attached to the CIMC network



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Inicie sesión en Leaves y escriba el nombre del servidor.

En el ejemplo, las interfaces LAB0200-Server8-02 MLOM y MLOM están conectadas a las interfaces **Eth1/49** en Leaf1 y Leaf2.

```
Leaf1# sh int description | inc LAB0200-Server8-02
Eth1/10      eth      40G      PCIE-01-2-LAB0200-Server8-02
Eth1/30      eth      40G      PCIE-02-2-LAB0200-Server8-02
Eth1/49      eth      40G      LAB0200-Server8-02 MLOM-P2
```

```
Leaf2# sh int description | inc LAB0200-Server8-02
Eth1/10      eth      40G      PCIE-01-1-LAB0200-Server8-02
Eth1/30      eth      40G      PCIE-02-1-LAB0200-Server8-02
Eth1/49      eth      40G      LAB0200-Server8-02 MLOM-P1
```

Solución

Importante: Cada problema necesita su propio análisis. En caso de que no se encuentren errores en el lado de Nexus, compruebe las interfaces del servidor UCS para ver si hay errores.

En el escenario, el problema está relacionado con la falla del link en Leaf1 int **eth1/49** que está conectado con LAB0200-Server8-02 MLOM eno6.

El servidor UCS se ha validado y no se ha encontrado ningún problema de hardware. La MLOM y los puertos se encontraban en buen estado.

Leaf1 mostró errores de salida TX:


```

Leaf1# sh int Eth1/49
Ethernet1/49 is up
admin state is up, Dedicated Interface
Hardware: 10000/40000/100000 Ethernet, address: e8eb.3437.48ca (bia e8eb.3437.48ca)
Description: LAB0200-Server8-02 MLOM-P2
MTU 9216 bytes, BW 40000000 Kbit , DLY 10 usec
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, medium is broadcast
Port mode is trunk
full-duplex, 40 Gb/s, media type is 40G
Beacon is turned off
Auto-Negotiation is turned on FEC mode is Auto
Input flow-control is off, output flow-control is off
Auto-mdix is turned off
Rate mode is dedicated
Switchport monitor is off
EtherType is 0x8100
EEE (efficient-ethernet) : n/a
  admin fec state is auto, oper fec state is off
Last link flapped 5week(s) 6day(s)
Last clearing of "show interface" counters never
12 interface resets
Load-Interval #1: 30 seconds
  30 seconds input rate 162942488 bits/sec, 26648 packets/sec
  30 seconds output rate 35757024 bits/sec, 16477 packets/sec
  input rate 162.94 Mbps, 26.65 Kpps; output rate 35.76 Mbps, 16.48 Kpps
Load-Interval #2: 5 minute (300 seconds)
  300 seconds input rate 120872496 bits/sec, 22926 packets/sec
  300 seconds output rate 54245920 bits/sec, 17880 packets/sec
  input rate 120.87 Mbps, 22.93 Kpps; output rate 54.24 Mbps, 17.88 Kpps
RX
  85973263325 unicast packets  6318912 multicast packets  55152 broadcast packets
  85979637389 input packets  50020924423841 bytes
  230406880 jumbo packets  0 storm suppression bytes
  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
  76542979816 unicast packets  88726302 multicast packets  789768 broadcast packets
  76632574981 output packets  29932747104403 bytes
  3089287610 jumbo packets
79095 output error  0 collision  0 deferred  0 late collision
  0 lost carrier  0 no carrier  0 babble  0 output discard
  0 Tx pause

```

La alerta "network-receive-error" se resolvió con el reemplazo de cable en int eth1/49 Leaf1.

La última falla de link de interfaz fue informada justo antes del reemplazo del cable.

```

2021 Nov 17 07:36:48 TPLF0201 %BFD-5-SESSION_STATE_DOWN: BFD session 1090519112 to neighbor
10.22.101.1 on interface Vlan2201 has gone down. Reason: Control
Detection Time Expired.
2021 Nov 17 07:37:30 TPLF0201 %BFD-5-SESSION_STATE_DOWN: BFD session 1090519107 to neighbor
10.22.101.2 on interface Vlan2201 has gone down. Reason: Control
Detection Time Expired.
2021 Nov 18 05:09:12 TPLF0201 %ETHPORT-5-IF_DOWN_LINK_FAILURE: Interface Ethernet1/48 is down
(Link failure)

```

Las alertas se borran en eno6/bd0 de labceed22 después del reemplazo del cable.

[lab0200-smf/labceed22] cee# **show alerts active summary**

NAME UID SEVERITY STARTS AT SOURCE SUMMARY

watchdog a62f59201ba8 minor 11-02T05:57:18 System This is an alert meant to ensure that the entire alerting pipeline is functional. This ale...

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