配置CSM以對單臂代理模式的SCA群進行負載均衡

目錄

簡介

本檔案將提供安全通訊端層(SSL)流量到安全內容加速器(SCA)群組的內容交換模組(CSM)負載平衡的範例設定。 此配置適用於使用單埠模式連線的非透明代理模式下的SCA。

在非透明模式下，SCA使用SCA IP地址作為到Web伺服器的純文字檔案連線的源。

注意：為SCA和Web伺服器使用兩個不同的VLAN/IP子網；一個子網用於所有SCA，一個獨立的子網用於所有Web伺服器。如果將兩個場放在同一個第2層(L2)域中，則需要源網路地址轉換(NAT)。來源NAT可保證封包傳回CSM，並且Catalyst硬體不會只是L2交換封包。

必要條件

需求

本文件沒有特定需求。

採用元件

本檔案中的資訊是根據以下VLAN/子網：

- 客戶端：虛擬IP(VIP)和上游路由器（多層交換器功能卡[MSFC]）
- 在插槽5中具有CSM的Catalyst 6500/6000
- 伺服器端1:web伺服器
- 伺服器端2:SCA

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設

）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

慣例

如需文件慣例的詳細資訊，請參閱思科技術提示慣例。

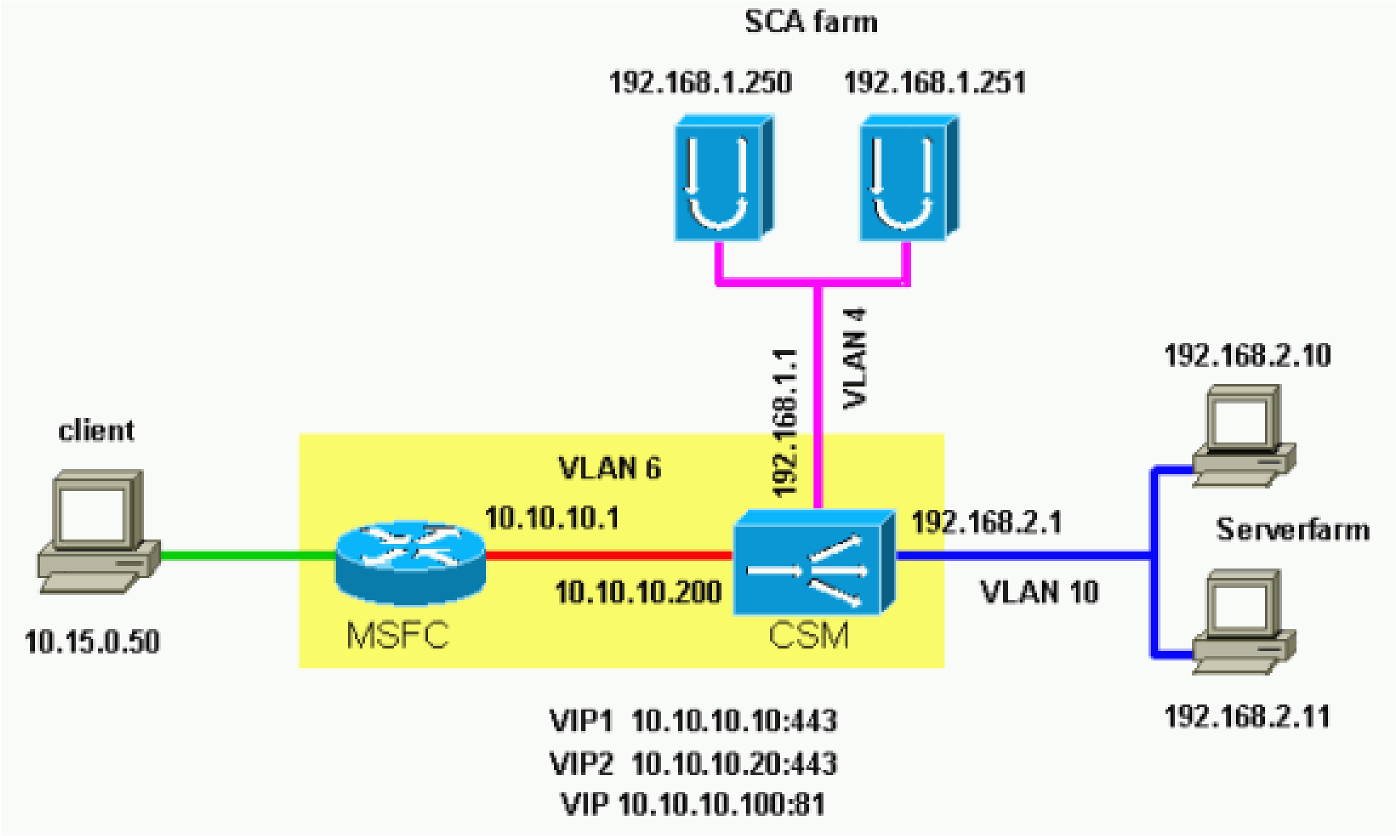
設定

本節提供用於設定本文件中所述功能的資訊。

注意：要查詢有關本文檔中使用的命令的其他資訊，請使用命令查詢工具(僅限註冊客戶)。

網路圖表

本檔案會使用以下網路設定：



組態

本檔案會使用以下設定：

- Catalyst 6000/CSM插槽5
- SCA 1
- SCA 2

Catalyst 6000/CSM插槽5
!--- This is the configuration of nontransparent SSL

```
load balance. Cat6k# show running-config | begin Module
5
module ContentSwitchingModule 5
 vlan 6 client
  ip address 10.10.10.200 255.255.255.0
  gateway 10.10.10.1
!--- This is the CSM IP address on the client side and
!--- CSM upstream gateway (the MSFC). ! vlan 4 server ip
address 192.168.1.1 255.255.255.0 !--- This is the CSM
IP address on the SCA server farm VLAN. !--- SCAs use
this IP address as the default gateway. ! vlan 10 server
ip address 192.168.2.1 255.255.255.0 !--- This is the
CSM IP address on the web server farm VLAN. !--- The web
servers use this IP address as the default gateway. !
static drop real 192.168.2.0 255.255.255.0 !--- This
drops every new connection that the web servers
originate, !--- unless the connection matches a VIP. !
serverfarm SCA443 nat server !--- When connections are
directed to this server farm, !--- the IP address of the
SCA selection replaces !--- the destination IP address.
no nat client real 192.168.1.250 443 inservice real
192.168.1.251 443 inservice !--- The configurations of
both SCAs are such that, !--- with the send of a
connection to this server farm, the destination port !--
- translates to 443. In this example, there is no
translation, as !--- the VIP listens to port 443. !---
This is different in the following server farm, SCA444.
! serverfarm SCA444 nat server no nat client real
192.168.1.250 444 inservice real 192.168.1.251 444
inservice !--- With the selection of this server farm,
there is a !--- modification of connections that go to
either SCA. !--- The destination IP changes to match the
IP of one of the SCAs !--- (NAT server), and the
destination port becomes 444. ! serverfarm WEBFARM nat
server no nat client real 192.168.2.10 80 inservice real
192.168.2.11 80 !--- Specify port 80 to translate from
port 81 inservice. !--- (The SCA communicates on port
81, according to the SCA setup.) !--- This is a standard
web server farm. ! sticky 10 ssl timeout 60 sticky 20
ssl timeout 60 !--- This creates two distinct sticky
groups with SSL ID as a basis. !--- The timeout is 60
seconds. ! vserver TESTSITE1 virtual 10.10.10.10 tcp
https serverfarm SCA443 sticky 60 group 10 persistent
rebalance inservice !--- The vserver for the first site
(www.testsite1.com) listens !--- to 10.10.10.10 on port
443. !--- Connections go to the SCAs without a change in
the !--- destination port. (See the configuration of
server farm SCA443.) ! vserver TESTSITE2 virtual
10.10.10.20 tcp https serverfarm SCA444 sticky 60 group
20 persistent rebalance inservice !--- The vserver for
the second site (www.testsite2.com) listens !--- to
10.10.10.10 on port 443. !--- Connections go to the SCAs
and change the !--- destination port to 444. (See the
configuration of server farm SCA444.) ! vserver WEB-
DECRYPT virtual 10.10.10.100 tcp 81 serverfarm WEBFARM
persistent rebalance inservice ! !--- This is the
vserver for the plain-text connections. !--- This
vserver receives connections on port 81 from the SCAs.
!--- As the configuration of this vserver does not
specify a VLAN, !--- the vserver can also receive
connections directly !--- from the client side. !--- To
prevent direct client access of this VIP, !--- you can
use the VLAN 4 option. !--- You can also place this VIP
in the SCA subnetwork. In that case, !--- clients do not
```

```
even have a route to that subnetwork. (Clients only !---
have a route if you configure the upstream router !---
with a static route.)
```

SCA 1

```


!--- This configures SCA in one-port, nontransparent
mode. sca1# show run
#
# Cisco CSCA Device Configuration File
#
# Written:      Sun Feb  6 01:46:35 2106
# Inxcfg:       version 2.3 build 200108071342
# Device Type:  CSS-SCA
# Device Id:    S/N 119cd6
# Device OS:    MaxOS version 2.5.1 build 200108071341
by Dan L. Reading

### Device ###

mode one-port
ip address 192.168.1.250 netmask 255.255.255.0
hostname sca1
password enable
"2431245A572441713173717748626D734B35516B794F64336A51652
F"
no ip domain-name
no rdate-server
timezone "MST7MDT"
no rip
ip route 0.0.0.0 0.0.0.0 192.168.1.1 metric 1

### Interfaces ###

interface network
  auto
end
interface server
  auto
end

### Remote Management ###

no remote-management access-list
remote-management enable

### SNMP Subsystem ###

no snmp
telnet enable
no telnet access-list
web-mgmt enable
no web-mgmt access-list

### SSL Subsystem ###

ssl
  server test1 create
    ip address 10.10.10.100
    sslport 443
    remoteport 81
    key default
    cert default
    secpolicy default
    cachesize 20
    no transparent
  end
  server test2 create
    ip address 10.10.10.100
    sslport 444
    remoteport 81
    key default
    cert default
    secpolicy default
    cachesize 20
    no transparent
  end
end
sca1#
```

SCA 2

```


!--- This configures SCA in one-port, nontransparent
mode. sca2# sca2# show run
#
# Cisco CSCA Device Configuration File
#
# Written:      Fri Feb 13 21:18:29 1970
# Inxcfg:       version 2.3 build 200108071342
# Device Type:  CSS-SCA
# Device Id:    S/N 119ca2
# Device OS:    MaxOS version 2.5.1 build 200108071341
by Dan L. Reading

### Device ###

mode one-port
ip address 192.168.1.251 netmask 255.255.255.0
hostname sca2
password enable
"2431245A5724417131737177486 26D734B35516B794F64336A51652
F"
no ip domain-name
no rdate-server
timezone "MST7MDT"
no rip
ip route 0.0.0.0 0.0.0.0 192.168.1.1 metric 1

### Interfaces ###

interface network
  auto
end
interface server
  auto
end

### Remote Management ###

no remote-management access-list
remote-management enable

### SNMP Subsystem ###
```

```
no snmp
telnet enable
no telnet access-list
web-mgmt enable
no web-mgmt access-list

### SSL Subsystem ###

ssl
  server test1 create
    ip address 10.10.10.100
    sslport 443
    remoteport 81
    key default
    cert default
    secpolicy default
    cachesize 20
    no transparent
  end
  server test2 create
    ip address 10.10.10.100
    sslport 444
    remoteport 81
    key default
    cert default
    secpolicy default
    cachesize 20
    no transparent
  end
end
sca2#
```

驗證

本節提供的資訊可用於確認您的組態是否正常運作。

輸出直譯器工具(僅供註冊客戶使用)支援某些show命令，此工具可讓您檢視show命令輸出的分析。

```
!--- A client opens a connection to www.testsite1.com. Cat6k# show module csm 5 vserver detail
TESTSITE1, state = OPERATIONAL, v_index = 10
  virtual = 10.10.10.10/32:443, TCP, service = NONE, advertise = FALSE
  idle = 3600, replicate csrp = none, vlan = ALL, pending = 0
  max parse len = 600, persist rebalance = TRUE
  conns = 1, total conns = 1
  Default policy:
    server farm = SCA443
    sticky: timer = 60, subnet = 0.0.0.0, group id = 10
  Policy            Tot Conn     Client pkts  Server pkts
  ------------------------------------------------------
  (default)         1            9            11
!--- The client connection to port 443 hits the vserver TESTSITE1 !--- and is load balanced to
an SCA. TESTSITE2, state = OPERATIONAL, v_index = 11 virtual = 10.10.10.20/32:443, TCP, service
= NONE, advertise = FALSE idle = 3600, replicate csrp = none, vlan = ALL, pending = 0 max parse
len = 600, persist rebalance = TRUE conns = 0, total conns = 0 Default policy: server farm =
SCA444 sticky: timer = 60, subnet = 0.0.0.0, group id = 20 Policy Tot Conn Client pkts Server
pkts ------------------------------------------------------ (default) 0 0 0 WEB-DECRYPT, state =
OPERATIONAL, v_index = 13 virtual = 10.10.10.100/32:81, TCP, service = NONE, advertise = FALSE
idle = 3600, replicate csrp = none, vlan = 4, pending = 0 max parse len = 600, persist rebalance
= TRUE conns = 1, total conns = 1 Default policy: server farm = WEBFARM sticky: timer = 0,
subnet = 0.0.0.0, group id = 0 Policy Tot Conn Client pkts Server pkts ------------------------
----------------------------- (default) 1 7 5 !--- The SCA opens a connection to 10.10.10.100
port 81, !--- which is load balanced to a web server. Cat6k# show module csm 5 conns detail

    prot vlan source                destination           state
----------------------------------------------------------------------
In   TCP  4    192.168.1.250:4376    10.10.10.100:81       ESTAB
Out  TCP  10   192.168.2.11:81       192.168.1.250:4376    ESTAB
    vs = WEB-DECRYPT, ftp = No, csrp = False
!--- This provides details of the connection from the SCA to the web server. !--- The connection
comes from VLAN 4 (the SCA VLAN), destined to !--- 10.10.10.100 port 81. !--- This is different
from what happens in transparent mode. !--- In this case, the SCA opens the connections with use
of !--- the SCA IP address, 192.168.1.250. The server does not see the IP !--- of the original
client. !--- The connection goes to VLAN 10 (web servers VLAN) !--- to the web server selection.
(The destination IP address !--- changes accordingly. The port does not change.) !--- If the
servers listen to port 80 instead of port 81, you can configure !--- the translation of the
destination port. You can add a port !--- to the definition of the real servers. !--- NOTE: The
Out line swaps source with destination. !--- "Out" refers to the return traffic packets that the
CSM !--- receives from that VLAN.

In   TCP  6    10.15.0.50:2324       10.10.10.10:443       ESTAB
Out  TCP  4    192.168.1.250:443     10.15.0.50:2324       ESTAB
    vs = TESTSITE1, ftp = No, csrp = False
 !--- This provides details of the connection from the client to the VIP. !--- The connection
comes from VLAN 6 (the client VLAN), destined to !--- 10.10.10.10 port 443. !--- The connection
goes to VLAN 4 (the SCA VLAN) !--- to the SCA selection. The destination IP changes !--- from
the 10.10.10.10 (the VIP) to 192.168.1.250 (the SCA), !--- as the server farm had the option NAT
server. !--- This is different in nontransparent mode. !--- The same client opens a second
connection, !--- this time to www.testsite2.com. Cat6k# Cat6k# show module csm 5 conns detail

    prot vlan source                destination           state
----------------------------------------------------------------------
In   TCP  4    192.168.1.250:4377    10.10.10.100:81       ESTAB
Out  TCP  10   192.168.2.10:81       192.168.1.250:4377    ESTAB
    vs = WEB-DECRYPT, ftp = No, csrp = False
!--- This connection is from SCA to VIP .100, load balanced to !--- web server .10. In TCP 4
192.168.1.250:4376 10.10.10.100:81 ESTAB Out TCP 10 192.168.2.11:81 192.168.1.250:4376 ESTAB vs
= WEB-DECRYPT, ftp = No, csrp = False !--- This connection is from SCA to VIP .100, load
balanced to !--- webserver .11. In TCP 6 10.15.0.50:2325 10.10.10.20:443 ESTAB Out TCP 4
192.168.1.250:444 10.15.0.50:2325 ESTAB vs = TESTSITE2, ftp = No, csrp = False !--- This
connection is from client to VIP .20, load balanced to !--- SCA .250, port 444. In TCP 6
10.15.0.50:2324 10.10.10.10:443 ESTAB Out TCP 4 192.168.1.250:443 10.15.0.50:2324 ESTAB vs =
TESTSITE1, ftp = No, csrp = False !--- This connection is from client to VIP .10, load balanced
to !--- SCA .250, port 443. Cat6k#show module csm 5 real detail
192.168.2.10, WEBFARM, state = OPERATIONAL
  conns = 1, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 1
  total conns established = 1, total conn failures = 0
192.168.2.11, WEBFARM, state = OPERATIONAL
  conns = 1, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 1
  total conns established = 1, total conn failures = 0
192.168.1.250:443, SCA443, state = OPERATIONAL
  conns = 1, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 1
  total conns established = 1, total conn failures = 0
192.168.1.251:443, SCA443, state = OPERATIONAL
  conns = 0, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 0
  total conns established = 0, total conn failures = 0
192.168.1.250:444, SCA444, state = OPERATIONAL
  conns = 1, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 1
  total conns established = 1, total conn failures = 0
```

```
192.168.1.251:444, SCA444, state = OPERATIONAL
  conns = 0, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 0
  total conns established = 0, total conn failures = 0
!--- This output shows that each web server has received a !--- connection. !--- The SCA .250
has received two connections, one to port 443 and !--- one to port 444. !--- The SCA .251 has
not yet received any connection because !--- only two connections are open. One is open to each
site !--- (10.10.10.10 and 10.10.10.20). A different port (443 or 444) !--- on the SCAs handles
each site. The first !--- connection for each site goes to the first SCAs. !--- The following
connection to either .10 or .20 goes to !--- .251, port 443 or 444, respectively. !--- This is
SCA1 output. !--- There is one open connection. sca1# show netstat
Pro State Recv-Q Send-Q Local Address         Remote Address
R-Win S-Win
---------------------------------------------------------------------------
tcp ESTAB      0      0 192.168.1.250:443     10.15.0.50:2324
33580 16529
tcp ESTAB      0      0 192.168.1.250:4376    10.10.10.100:81
33304 17232
udp            0      0 *:4099                *:*
0     0
udp            0      0 *:4098                *:*
0     0
tcp LISTN      0      0 *:2932                *:*
0     0
udp            0      0 *:2932                *:*
0     0
udp            0      0 *:520                 *:*
0     0
udp            0      0 *:514                 *:*
0     0
tcp LISTN      0      0 *:444                 *:*
0     0
tcp LISTN      0      0 *:443                 *:*
32768     0
tcp LISTN      0      0 *:80                  *:*
0     0
tcp LISTN      0      0 *:23                  *:*
0     0
sca1#
!--- There are two open connections. sca1# show netstat
Pro State Recv-Q Send-Q Local Address         Remote Address
R-Win S-Win
---------------------------------------------------------------------------
tcp ESTAB      0      0 192.168.1.250:444     10.15.0.50:2325
33580 16529
tcp ESTAB      0      0 192.168.1.250:443     10.15.0.50:2324
33580 16529
tcp ESTAB      0      0 192.168.1.250:4377    10.10.10.100:81
33304 17232
tcp ESTAB      0      0 192.168.1.250:4376    10.10.10.100:81
33304 17232
udp            0      0 *:4099                *:*
0     0
udp            0      0 *:4098                *:*
0     0
tcp LISTN      0      0 *:2932                *:*
0     0
udp            0      0 *:2932                *:*
0     0
udp            0      0 *:520                 *:*
0     0
udp            0      0 *:514                 *:*
0     0
tcp LISTN      0      0 *:444                 *:*
```

```
32768      0
tcp LISTN       0       0 *:443                 *:*
32768      0
tcp LISTN       0       0 *:80                  *:*
0      0
tcp LISTN       0       0 *:23                  *:*
0      0
sca1#
```

疑難排解

目前尚無適用於此組態的具體疑難排解資訊。