配置非同步介面作為串列線路的備份

目錄

簡介

為WAN連線（例如串列、租用線路或幀中繼）提供冗餘路徑通常帶有按需撥號(DDR)電路。非同步數據機和電路交換普通舊式電話服務(POTS)線路用於備份WAN介面。設計撥號備份方案時需要仔細規劃。考慮備份鏈路上的流量、容易發生故障的鏈路數量以及支援備份電路的埠容量規劃等因素。

必要條件

需求

本文件沒有特定先決條件。

採用元件

本檔案中的資訊是根據以下軟體和硬體版本。

- Cisco 2500路由器平台。
- 路由器上的Cisco IOS®軟體版本12.1(2)T。
- 路由器sphinx上的Cisco IOS軟體版本12.0(7)T。
- 外部數據機連線到路由器的串列埠。

注意：可以修改本文檔以在具有非同步介面（或內建數據機）的任何路由器上使用。 備份介面（在本例中為Serial 2介面）的配置將包含在「interface Async x」下。

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。如果您在即時網路中工作，請確保在使用任何命令之前瞭解其潛在影響。

背景資訊

為WAN鏈路提供備份的三種常用方法是：

- 備份介面 — 在主鏈路斷開之前，備份介面一直處於備用模式。然後啟用備用鏈路，重新建立兩個站點之間的連線。
- 撥號器監視 — 撥號器監視提供可靠的連線，而不只依賴定義感興趣的流量在中央路由器上觸發傳出呼叫。撥號器監視程式會監視特定的路由，如果無法到達這些網路，撥號器監視程式會啟動輔助鏈路。
- 浮動靜態路由 — 浮動靜態路由的管理距離大於動態路由的管理距離。可以在靜態路由上配置管理距離，以便靜態路由比動態路由更不可取；因此，當動態路由可用時，不使用靜態路由。但是，如果動態路由丟失，則靜態路由可以接管，流量可以通過此備用路由傳送。

此方案使用備份介面執行備份。有關備份介面使用的詳細資訊，請參閱評估DDR備份的備份介面、浮動靜態路由和撥號器監視的檔案。

有關配置備份的詳細資訊，請參閱配置和故障排除DDR備份文檔。本文檔提供了有關確定應使用哪種備份方法的資訊，以及其他配置資訊。

請閱讀並理解以上兩個文檔，然後再繼續此配置。

慣例

如需文件慣例的詳細資訊，請參閱思科技術提示慣例。
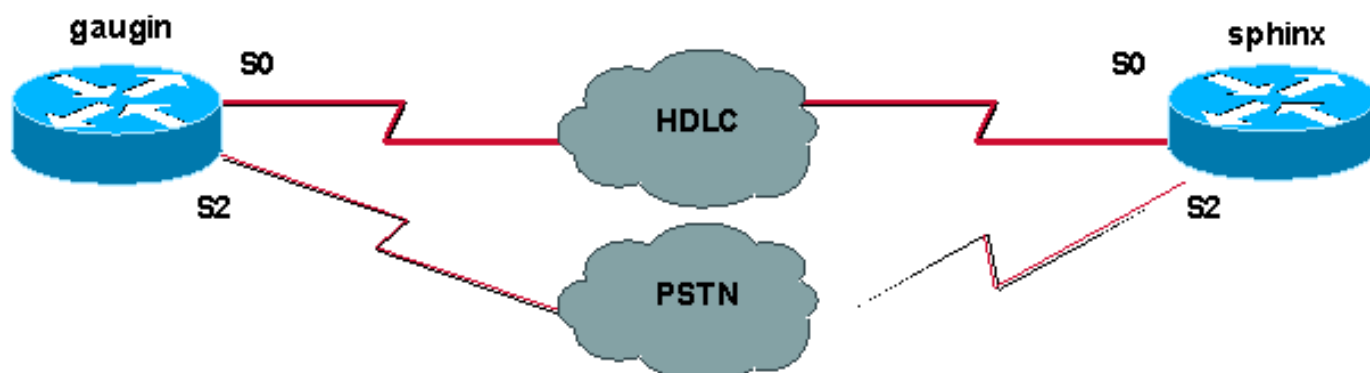
設定

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

本文檔使用下圖所示的網路設定。

組態

在此配置中，我們使用兩台Cisco路由器（高更和斯芬克斯），它們通過串列介面0通過租用線路連線。序列2介面由非同步資料機透過公共交換電話網路(PSTN)線路連線，並用作租用線路的備份。

注意：預設情況下，這些介面在同步模式下工作，您必須手動配置它們(使用**physical-layer async**命令)以在非同步模式下工作。

通過使用**show version**命令，您可以瞭解這些介面是否也可以在非同步模式下工作。**show version**命令顯示的相關資訊如下所示：

```
2 Low-speed serial(sync/async) network interfaces
! --- This means it can work in sync or async mode.
```

建議您完成配置並驗證數據機連線是否可完成。您可以通過反向遠端登入到數據機，然後呼叫遠端數據機的號碼。

註：根據數據機型別，還必須使用數據機功能(modemcap)。有關此問題的詳細資訊，請參閱數據機 — 路由器連線指南

高金(Cisco 2500) — 通話路由器

```
gaugin#show running-config
 Building configuration...

 Current configuration:
 hostname gaugin

 username sphinx password 0 cisco
!---Username and shared secret for CHAP authentication.
! chat-script CALLOUT "" "atdt\T" TIMEOUT 60 CONNECT \c
!--- Chat script used for dialout. modemcap entry
usr:MSC=& FS0=1 & C1&D2;&H1;&R2;&B1;&W; !--- Modemcap
for the external modem. !--- Refer to Modem-Router
Connection Guide for more information. interface
Loopback1 ip address 1.1.1.1 255.255.255.255 ! interface
Serial0 !--- Primary link. ip address 3.3.3.1
255.255.255.0 !--- Remote peer serial interface is in
same subnet. backup interface serial 2 !--- Designate
interface serial 2 as the backup interface. ! interface
Serial2 !--- Backup interface. This interface will be in
"Standby" mode until the !--- line protocol on interface
Serial 0 (the primary) goes down. physical-layer async
!--- Permit async mode. ip unnumbered Loopback1
encapsulation ppp dialer in-band dialer map ip 2.2.2.1
name sphinx modem-script CALLOUT 8029 !--- Dialer map
for the peer. !--- Note the ip address, the name (which
matches the !--- authenticated username, the chat script
used and the number to dial. dialer-group 1 !---
Interesting traffic definition for dialout. async mode
dedicated no peer default ip address !--- Do not provide
the peer with an IP address. !--- It must have one
configured. no fair-queue ppp authentication chap callin
!--- Use one-way chap authentication. ! ip route 2.2.2.1
255.255.255.255 Serial0 ip route 2.2.2.1 255.255.255.255
Serial2 ! -- Identical routes for the peer. !--- Note
the IP address matches the dialer map ip. !--- When the
primary is up, the backup in in Standby hence the route
using !--- Serial 2 will not be used. When the backup is
brought out of standby !--- it will get used and the
serial 0 route is removed (since the link is down/down)
```

```
!--- To create a route for other networks use !--- ip
route
```

```
 dialer-list 1 protocol ip permit
```
!--- Interesting traffic definition. !--- Once the
backup link is brought out of standby !--- dialout is
ONLY initiaited after the router receives interesting
traffic. line 2 *!--- Line configuration for the modem on*
interface Serial 2. script dialer CALLOUT *!--- Use*
script CALLOUT. modem InOut modem autoconfigure type usr
!--- Use modemcap named "usr" configured earlier.
transport input all speed 115200 *!--- DTE-DCE speed.*
flowcontrol hardware

sphinx(Cisco 2500) — 稱為路由器

```
sphinx#show running-config
 Building configuration...

 Current configuration:
 !
 version 12.0
 service timestamps debug uptime
 service timestamps log uptime
 no service password-encryption
 !
 hostname sphinx
 username gaugin password 0 cisco
```
!--- Username and shared secret for CHAP authentication.
modemcap entry usr:MSC=& FS0=1 & C1&D2;&H1;&R2;&B1;&W; !
interface Loopback1 ip address 2.2.2.1 255.255.255.255
no ip directed-broadcast ! interface Serial0 *!---*
Primary interface !--- Note that this router does not
initiate the backup when the primary fails !--- it will
rely on the peer to initiate the connection. ip address
3.3.3.2 255.255.255.0 ! interface Serial2 *!--- Interface*
providing backup. !--- There is no dialer map/dialer
string since it is only accepting the call. !--- This
interface will be in Up/Up(Spoofing) mode when the
primary interface is up. !--- Later, configure a
floating static route to prevent packet loss. physical-
layer async ip unnumbered Loopback1 no ip directed-
broadcast encapsulation ppp dialer in-band dialer-group
1 async mode dedicated no peer default ip address no
fair-queue no cdp enable ppp authentication chap ip
route 1.1.1.1 255.255.255.255 Serial0 ip route 1.1.1.1
255.255.255.255 Serial2 2 *!--- The 2 makes the route a*
floating static route. !--- This is important since the
async interface will be in spoofing mode !--- (not in
standby mode) when the primary interface is up. !--- If
we do not use the 2 here, we lose half of the packets in
the return path !--- since the router will attempt to
load balance !--- across the 2 links (eventhough the
backup is down). !--- To create a route for other
networks use !--- **ip route**

```
line 2
 modem InOut
 modem autoconfigure type usr
 transport input all
 speed 115200
 flowcontrol hardware
```

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。

- **show interface serial** — 顯示有關串列介面的資訊。
- **show ip route** — 顯示路由表的當前狀態。
- **show line** — 顯示終端線路的引數。

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

有關對備份介面進行故障排除的詳細資訊，請參閱配置和故障排除DDR備份文檔

疑難排解指令

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。

注意：發出debug指令之前，請先參閱有關Debug指令的重要資訊。

- **show dialer** — 顯示有關撥號器介面的資訊。
- **ping** — 測試連通性。
- **debug modem** — 觀察接入伺服器上的數據機線路活動。
- **debug ppp negotiation** — 在協商PPP元件(包括鏈路控制協定(LCP)、身份驗證和網路控制協定(NCP))時顯示有關PPP流量和交換的資訊。成功的PPP協商將首先開啟LCP狀態，然後進行身份驗證，最後協商NCP。
- **debug ppp authentication** — 顯示PPP身份驗證協定消息，包括質詢身份驗證協定(CHAP)資料包交換和口令身份驗證協定(PAP)交換。如果發現故障，請驗證chap使用者名稱和密碼是否配置正確。
- **debug chat** — 顯示聊天指令碼活動。
- **debug dialer** — 顯示有關撥號器介面上接收的資料包的DDR調試資訊。

在下面的示例輸出中，我們可以看到gaugin（呼叫路由器）上的主串列連線(serial 0)出現問題，因此會斷開連線。備份介面（串列2）開始建立備份連線。在本例中，我們斷開電纜以測試備用鏈路。

注意：在主介面上發出shutdown命令不會導致備份進行撥號。如果您發出shutdown命令來關閉主連線，則Cisco IOS軟體不會自動啟動備份連線。您必須通過拔下電纜或某種等效的方法來物理關閉主連線，才能啟用備用介面。

```
    gaugin#
    *Mar 1 00:57:25.127: %LINK-3-UPDOWN: Interface Serial0, changed state to down
    *Mar 1 00:57:26.127: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0,
    changed state to down
```
!--- Primary Link is brought down. !--- This will cause the backup link (int Serial 2) to be taken out of standby. `*Mar 1 00:57:37.143: %LINK-3-UPDOWN:` **Interface Serial2, changed state to down**

!--- The Backup link is changes from Standby to Down. `*Mar 1 00:57:37.147: Se2 LCP: State is Closed.. *Mar 1 00:57:40.019: TTY2: restoring DTR *Mar 1 00:57:41.019: TTY2: autoconfigure probe started *Mar 1 00:57:52.147: Se2 DDR: re-enable timeout. *Mar 1 00:57:55.067: Se2 DDR:` **Dialing cause ip (s=1.1.1.1, d=2.2.2.1)**

!--- Interesting traffic for the peer causes the dialout. `*Mar 1 00:57:55.071: Se2 DDR: Attempting to dial 8029 *Mar 1 00:57:55.071: CHAT2: Attempting async line dialer script *Mar 1 00:57:55.075: CHAT2: Dialing using` **Modem script: CALLOUT**
```
    & System script: none
```
!--- Chat-script named CALLOUT is used. `*Mar 1 00:57:55.083: CHAT2: process started *Mar 1 00:57:55.083: CHAT2: Asserting DTR *Mar 1 00:57:55.087: CHAT2: Chat script CALLOUT started *Mar 1 00:57:55.087: CHAT2: Sending string: atdt\T<8029> *Mar 1 00:57:55.091: CHAT2: Expecting string: CONNECT......... *Mar 1 00:58:12.859: CHAT2: Completed match for expect: CONNECT *Mar 1 00:58:12.859: CHAT2: Sending string: \c *Mar 1 00:58:12.863: CHAT2: Chat script CALLOUT finished, status = Success *Mar 1 00:58:12.867: TTY2: no timer type 1 to destroy *Mar 1 00:58:12.867: TTY2: no timer type 0 to destroy *Mar 1 00:58:12.875: Se2 IPCP: Install route to 2.2.2.1. *Mar 1 00:58:14.871: %LINK-3-UPDOWN: Interface Serial2, changed state to up Dialer state change to up Serial2 Dialer call has been placed Serial2 *Mar 1 00:58:14.891: Se2 PPP: Treating connection as a callout` *!--- PPP LCP negotiation begins.* `*Mar 1 00:58:14.891: Se2 PPP: Phase is ESTABLISHING, Active Open *Mar 1 00:58:14.895: Se2 PPP: No remote authentication for call-out *Mar 1 00:58:14.899: Se2 LCP: O CONFREQ [Closed] id 10 len 20 *Mar 1 00:58:14.899: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) *Mar 1 00:58:14.903: Se2 LCP: MagicNumber 0x0041E7ED (0x05060041E7ED) *Mar 1 00:58:14.907: Se2 LCP: PFC (0x0702) *Mar 1 00:58:14.907: Se2 LCP: ACFC (0x0802). *Mar 1 00:58:16.895: Se2 LCP: TIMEout: State REQsent *Mar 1 00:58:16.899: Se2 LCP: O CONFREQ [REQsent] id 11 len 20 *Mar 1 00:58:16.899: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) *Mar 1 00:58:16.903: Se2 LCP: MagicNumber 0x0041E7ED (0x05060041E7ED) *Mar 1 00:58:16.907: Se2 LCP: PFC (0x0702) *Mar 1 00:58:16.907: Se2 LCP: ACFC (0x0802) *Mar 1 00:58:17.063: Se2 LCP: I CONFACK [REQsent] id 11 len 20 *Mar 1 00:58:17.067: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) *Mar 1 00:58:17.067: Se2 LCP: MagicNumber 0x0041E7ED (0x05060041E7ED) *Mar 1 00:58:17.071: Se2 LCP: PFC (0x0702) *Mar 1 00:58:17.075: Se2 LCP: ACFC (0x0802) *Mar 1 00:58:17.083: Se2 LCP: I CONFREQ [ACKrcvd] id 32 len 25 *Mar 1 00:58:17.083: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) *Mar 1 00:58:17.087: Se2 LCP: AuthProto CHAP (0x0305C22305) *Mar 1 00:58:17.091: Se2 LCP: MagicNumber 0xE05307CD (0x0506E05307CD) *Mar 1 00:58:17.095: Se2 LCP: PFC (0x0702) *Mar 1 00:58:17.095: Se2 LCP: ACFC (0x0802) *Mar 1 00:58:17.099: Se2 LCP: O CONFACK [ACKrcvd] id 32 len 25 *Mar 1 00:58:17.103: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) *Mar 1 00:58:17.103: Se2 LCP: AuthProto CHAP (0x0305C22305) *Mar 1 00:58:17.107: Se2 LCP: MagicNumber 0xE05307CD (0x0506E05307CD) *Mar 1 00:58:17.111: Se2 LCP: PFC (0x0702) *Mar 1 00:58:17.111: Se2 LCP: ACFC (0x0802) *Mar 1 00:58:17.115: Se2 LCP:` **State is Open**

!--- LCP negotiation is complete. `*Mar 1 00:58:17.115: Se2 PPP: Phase is AUTHENTICATING, by the peer *Mar 1 00:58:17.263: Se2 CHAP: I CHALLENGE id 4 len 27 from "sphinx" *Mar 1 00:58:17.271: Se2 CHAP: O RESPONSE id 4 len 27 from "gaugin" *Mar 1 00:58:17.391: Se2 CHAP: I SUCCESS id 4 len 4 *Mar 1 00:58:17.395: Se2 PPP: Phase is UP *Mar 1 00:58:17.399: Se2 IPCP: O CONFREQ [Closed] id 4 len 10 *Mar 1 00:58:17.399: Se2 IPCP: Address 1.1.1.1 (0x030601010101) *Mar 1 00:58:17.407: Se2 CDPCP: O CONFREQ [Closed] id 4 len 4 *Mar 1 00:58:17.411: Se2 IPCP: I CONFREQ [REQsent] id 5 len 10 *Mar 1.00:58:17.415: Se2 IPCP: Address 2.2.2.1 (0x030602020201) *Mar 1 00:58:17.419: Se2 IPCP: O CONFACK [REQsent] id 5 len 10 *Mar 1 00:58:17.423: Se2 IPCP: Address 2.2.2.1 (0x030602020201) *Mar 1 00:58:17.527: Se2 IPCP: I CONFACK [ACKsent] id 4 len 10 *Mar 1 00:58:17.531: Se2 IPCP: Address 1.1.1.1 (0x030601010101) *Mar 1 00:58:17.535: Se2 IPCP: State is Open *Mar 1 00:58:17.543: Se2 LCP: I PROTREJ [Open] id 33 len 10 protocol CDPCP (0x820701040004) *Mar 1 00:58:17.547: Se2 CDPCP: State is Closed *Mar 1 00:58:17.547: Se2 DDR: dialer protocol up *Mar 1 00:58:18.075: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2, changed state to up` *!--- Connection is successful. Backup link is now active.* `gaugin#`**show ip route 2.2.2.1**
```
    Routing entry for 2.2.2.1/32
    Known via "connected", distance 0, metric 0 (connected, via interface)
    Routing Descriptor Blocks:
    * directly connected, via Serial2
```
!--- The route for the peer uses the backup link. !--- Note the static route for primary link is

```
removed !--- (since the link is down/down). Route metric is 0, traffic share count is 1
gaugin#show dialer
    Se2 - dialer type = IN-BAND ASYNC NO-PARITY
    Idle timer (120 secs), Fast idle timer (20 secs)
    Wait for carrier (30 secs), Re-enable (15 secs)
    Dialer state is data link layer up
    Dial reason: ip (s=1.1.1.1, d=2.2.2.1)
    Time until disconnect 108 secs
    Connected to 8029


    Dial String Successes Failures Last     DNIS  Last status
    8029        4         0        00:01:00      successful


    gaugin#show interface serial 2
    Serial2 is up, line protocol is up
!--- Backup link is verified to be up. Hardware is CD2430 in async mode Interface is unnumbered.
Using address of Loopback1 (1.1.1.1) MTU 1500 bytes, BW 115 Kbit, DLY 100000 usec, ... ...
gaugin#ping 2.2.2.1
    Type escape sequence to abort.
    Sending 5, 100-byte ICMP Echos to 2.2.2.1, timeout is 2 seconds:
    !!!!!
    Success rate is 100 percent (5/5), round-trip min/avg/max = 128/132/136 ms
```

從接到電話的獅身人面像的角度來看，這是同一個電話：

```
sphinx#
    00:57:29: TTY2: DSR came up
!--- Modem DSR is first changed to up, indicating an incoming call. 00:57:29: TTY2: destroy
timer type 1 00:57:29: TTY2: destroy timer type 0 00:57:29: tty2: Modem: IDLE->(unknown)
00:57:31: Se2 LCP: I CONFREQ [Closed] id 10 len 20
    !--- Begin LCP negotiation . 00:57:31: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) 00:57:31:
Se2 LCP: MagicNumber 0x0041E7ED (0x05060041E7ED) 00:57:31: Se2 LCP: PFC (0x0702) 00:57:31: Se2
LCP: ACFC (0x0802) 00:57:31: Se2 LCP: Lower layer not up, Fast Starting 00:57:31: Se2 PPP:
Treating connection as a callin 00:57:31: Se2 PPP: Phase is ESTABLISHING, Passive Open 00:57:31:
Se2 LCP: State is Listen 00:57:31: Se2 LCP: O CONFREQ [Listen] id 31 len 25 00:57:31: Se2 LCP:
ACCM 0x000A0000 (0x0206000A0000) 00:57:31: Se2 LCP: AuthProto CHAP (0x0305C22305) 00:57:31: Se2
LCP: MagicNumber 0xE05307CD (0x0506E05307CD) 00:57:31: Se2 LCP: PFC (0x0702) 00:57:31: Se2 LCP:
ACFC (0x0802) 00:57:31: Se2 LCP: O CONFACK [Listen] id 10 len 20 00:57:31: Se2 LCP: ACCM
0x000A0000 (0x0206000A0000) 00:57:31: Se2 LCP: MagicNumber 0x0041E7ED (0x05060041E7ED) 00:57:31:
Se2 LCP: PFC (0x0702) 00:57:31: Se2 LCP: ACFC (0x0802) 00:57:31: %LINK-3-UPDOWN: Interface
Serial2, changed state to upDialer statechange to up Serial2 00:57:31: Serial2 DDR: Dialer
received incoming call from <unknown> 00:57:33: Se2 LCP: I CONFREQ [ACKsent] id 11 len 20
00:57:33: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) 00:57:33: Se2 LCP: MagicNumber 0x0041E7ED
(0x05060041E7ED) 00:57:33: Se2 LCP: PFC (0x0702) 00:57:33: Se2 LCP: ACFC (0x0802) 00:57:33: Se2
LCP: O CONFACK [ACKsent] id 11 len 20 00:57:33: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000)
00:57:33: Se2 LCP: MagicNumber 0x0041E7ED (0x05060041E7ED) 00:57:33: Se2 LCP: PFC (0x0702)
00:57:33: Se2 LCP: ACFC (0x0802) 00:57:33: Se2 LCP: TIMEout: State ACKsent 00:57:33: Se2 LCP: O
CONFREQ [ACKsent] id 32 len 25 00:57:33: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) 00:57:33: Se2
LCP: AuthProto CHAP (0x0305C22305) 00:57:33: Se2 LCP: MagicNumber 0xE05307CD (0x0506E05307CD)
00:57:33: Se2 LCP: PFC (0x0702) 00:57:33: Se2 LCP: ACFC (0x0802) 00:57:33: Se2 LCP: I CONFACK
[ACKsent] id 32 len 25 00:57:33: Se2 LCP: ACCM 0x000A0000 (0x0206000A0000) 00:57:33: Se2 LCP:
AuthProto CHAP (0x0305C22305) 00:57:33: Se2 LCP: MagicNumber 0xE05307CD (0x0506E05307CD)
00:57:33: Se2 LCP: PFC (0x0702) 0:57:33: Se2 LCP: ACFC (0x0802) 00:57:33: Se2 LCP: State is Open
    !--- LCP negotiation is complete. 00:57:33: Se2 PPP: Phase is AUTHENTICATING, by this end
00:57:33: Se2 CHAP: O CHALLENGE id 4 len 27 from "sphinx" 00:57:33: Se2 CHAP: I RESPONSE id 4
len 27 from "gaugin" 00:57:33: Se2 CHAP: O SUCCESS id 4 len 4 !--- CHAP authentication is
successful. 00:57:33: Serial2 DDR: Authenticated host gaugin with no matching dialer map
00:57:33: Se2 PPP: Phase is UP 00:57:33: Se2 IPCP: O CONFREQ [Closed] id 5 len 10 00:57:33: Se2
IPCP: Address 2.2.2.1 (0x030602020201) 00:57:33: Se2 IPCP: I CONFREQ [REQsent] id 4 len 10
00:57:33: Se2 IPCP: Address 1.1.1.1 (0x030601010101) 00:57:33: Se2 IPCP: O CONFACK [REQsent] id
4 len 10 00:57:33: Se2 IPCP: Address 1.1.1.1 (0x030601010101) 00:57:33: Se2 CDPCP: I CONFREQ
[Not negotiated] id 4 len 4 00:57:33: Se2 LCP: O PROTREJ [Open] id 33 len 10 protocol CDPCP
(0x820701040004) 00:57:33: Se2 IPCP: I CONFACK [ACKsent] id 5 len 10 00:57:33: Se2 IPCP: Address
```

2.2.2.1 (0x030602020201) 00:57:33: Se2 IPCP: State is Open 00:57:33: Serial2 DDR: dialer protocol up 00:57:33: **Se2 IPCP: Install route to 1.1.1.1**
!--- A route to the peer is installed. 00:57:34: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2, changed state to up *!--- Backup link is up.* sphinx#**ping 1.1.1.1**

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 132/142/152 ms

sphinx#show ip route 1.1.1.1
Routing entry for 1.1.1.1/32
Known via "connected", distance 0, metric 0 (connected, via interface)
Routing Descriptor Blocks:
* directly connected, via Serial2
```
!--- The floating static route is now installed. Route metric is 0, traffic share count is 1 sphinx#**show dialer**

```
Serial2 - dialer type = IN-BAND ASYNC NO-PARITY
Idle timer (120 secs), Fast idle timer (20 secs)
Wait for carrier (30 secs), Re-enable (15 secs)
Dialer state is data link layer up
Time until disconnect 119 secs (gaugin)
```
現在重新連線主鏈路的電纜。主鏈路將變為Up/Up狀態,備份鏈路(串列2)在標準上將變為Standby狀態(因為它具有**backup interface serial 2**命令)。 這將導致數據機鏈路斷開,並且斯芬克斯上的介面串列2也會斷開。

高金上的以下**debug**顯示此過程:

```
gaugin#
*Mar 1 00:59:38.859: %LINK-3-UPDOWN: Interface Serial0, changed state to up
*Mar 1 00:59:39.875: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0,
changed state to up
```
!--- Primary link is re-established. *Mar 1 00:59:59.315: TTY2: Async Int reset: Dropping DTR *Mar 1 01:00:00.875: TTY2: DSR was dropped *Mar 1 01:00:00.875: tty2: Modem: READY->(unknown) *Mar 1 01:00:01.315: **%LINK-5-CHANGED: Interface Serial2,**
```
changed state to standby mode
```
!--- the backup link is returned to standby mode. !--- The modem connection is terminated *Mar 1 01:00:01.331: Se2 IPCP: State is Closed *Mar 1 01:00:01.335: Se2 PPP: Phase is TERMINATING *Mar 1 01:00:01.335: Se2 LCP: State is Closed *Mar 1 01:00:01.339: Se2 PPP: Phase is DOWN *Mar 1 01:00:01.343: Se2 IPCP: Remove route to 2.2.2.1 *Mar 1 01:00:01.883: TTY2: dropping DTR, hanging up *Mar 1 01:00:01.883: tty2: Modem: HANGUP->(unknown) *Mar 1 01:00:02.315: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2, changed state to down *Mar 1 01:00:02.899: TTY2: cleanup pending. Delaying DTR *Mar 1 01:00:03.927: TTY2: cleanup pending. Delaying DTR *Mar 1 01:00:04.323: TTY2: no timer type 0 to destroy *Mar 1 01:00:04.323: TTY2: no timer type 1 to destroy *Mar 1 01:00:04.327: TTY2: no timer type 3 to destroy *Mar 1 01:00:04.327: TTY2: no timer type 4 to destroy *Mar 1 01:00:04.327: TTY2: no timer type 2 to destroy *Mar 1 01:00:04.331: Serial2: allowing modem_process to continue hangup!

以下**debug**從斯芬克斯的角度顯示同一事務。

```
sphinx#
00:58:54: %LINK-3-UPDOWN: Interface Serial0, changed state to up
00:58:55: %LINEPROTO-5-UPDOWN: Line protocol on
Interface Serial0, changed state
to up
```
!--- Primary link is brought up. 00:59:16: TTY2: DSR was dropped *!--- Modem connection is terminated by the peer.* 00:59:16: tty2: Modem: READY->(unknown) 00:59:17: TTY2: dropping DTR, hanging up 00:59:17: TTY2: Async Int reset: Dropping DTR 00:59:17: tty2: Modem: HANGUP->(unknown) 00:59:18: TTY2: cleanup pending. Delaying DTR 00:59:19: %LINK-5-CHANGED: **Interface Serial2, changed state to reset**

!--- The Backup Interface (serial 2)is reset. 00:59:19: Se2 IPCP: State is Closed 00:59:19: Se2 PPP: Phase is TERMINATING 00:59:19: Se2 LCP: State is Closed 00:59:19: Se2 PPP: Phase is DOWN 00:59:19: TTY2: cleanup pending. Delaying DTR 00:59:19: Se2 IPCP: Remove route to 1.1.1.1 *!--- The route to 1.1.1.1 using Serial 2 is removed since !--- it is has a higher administrative distance of 2.* 00:59:20: %LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2, changed state to down 00:59:20: TTY2: cleanup pending. Delaying DTR 00:59:21: TTY2: cleanup pending. Delaying DTR 00:59:22: TTY2: destroy timer type 0 00:59:22: TTY2: destroy timer type 1 00:59:22: TTY2: destroy timer type 3 00:59:22: TTY2: destroy timer type 4 00:59:22: TTY2: destroy timer type 2 00:59:22: Serial2: allowing modem_process to continue hangup 00:59:22: TTY2: restoring DTR 00:59:22: TTY2: autoconfigure probe started 00:59:24: %LINK-3-UPDOWN: Interface Serial2, changed state to down 00:59:24: Se2 LCP: State is Closed sphinx(config-if)#

相關資訊

- [DDR備份的配置與故障排除](#)
- [評估備份介面、浮動靜態路由和撥號器監視DDR備份](#)
- [使用撥號程式配置檔案配置BRI備份介面](#)
- [使用BRI和備份介面命令進行DDR備份](#)
- [使用撥號程式設定檔的非同步備份](#)
- [DDR備份的配置與故障排除](#)
- [技術支援 - Cisco Systems](#)