

# 配置异步接口作为串行线路的备份

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## 简介

它是普通为广域网连接提供冗余路径，例如序列、出租线路或者帧中继，用按需拨号的(DDR)电路。异步调制解调器和电路交换的普通旧式电话服务线路使用对备用广域网接口。当设计拨号备用方案时，仔细规划是必要的。设想要素例如在备份链路的流量，链路计划对支持备用电路的数量易受影响失败和端口容量。

## 先决条件

### 要求

本文档没有任何特定的前提条件。

### 使用的组件

本文档中的信息基于以下软件和硬件版本。

- Cisco 2500路由器平台。
- 在路由器gaugin的Cisco IOS软件版本12.1(2)T。
- 在路由器狮身人面象的Cisco IOS软件版本12.0(7)T。
- 外置调制解调器连接对路由器的串行端口。

**注意：**本文可以被修改为在所有路由器的使用用异步接口(或内置的调制解调器)。备份接口(接口Serial2的配置，在本例中)将包括在“接口异步x”下。

本文档中的信息都是基于特定实验室环境中的设备创建的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您是在真实网络上操作，请确保您在使用任何命令前已经了解其潜在影响。

## 背景信息

可用三个普通的方法为广域网链路提供备份是：

- 备份接口-备份接口在备用模式依然是，直到主链路断开。备份链路然后被激活，重新建立两个站点之间的连接。
- Dialer Watch - Dialer Watch提供可靠的连通性，无需唯一取决于在定义关注数据流触发呼出呼叫在中央路由器。Dialer Watch监控某些特定路由，并且，如果那些网络是不可得到的，Dialer Watch启动辅助链路。
- 浮动静态路由-浮动静态路由是比动态路由管理距离有极大管理距离的静态路由。管理距离在静态路由可以配置，以便静态路由比动态路由较不理想;因此，静态路由，当动态路由是可用的时，没有使用。然而，如果动态路由丢失，静态路由能接管，并且流量可以通过此备选路由发送。

此方案使用备份接口执行备份。关于使用备份接口的更多信息参考本文[评估备份接口、浮动静态路由和Dialer Watch DDR备份的](#)。

关于配置备份的更多信息请参考[配置和故障排除DDR备份文件](#)。本文在确定提供信息应该使用哪个备份方法和其他配置信息。

请在继续进行请读并且了解上述两个文档此配置前。

## 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

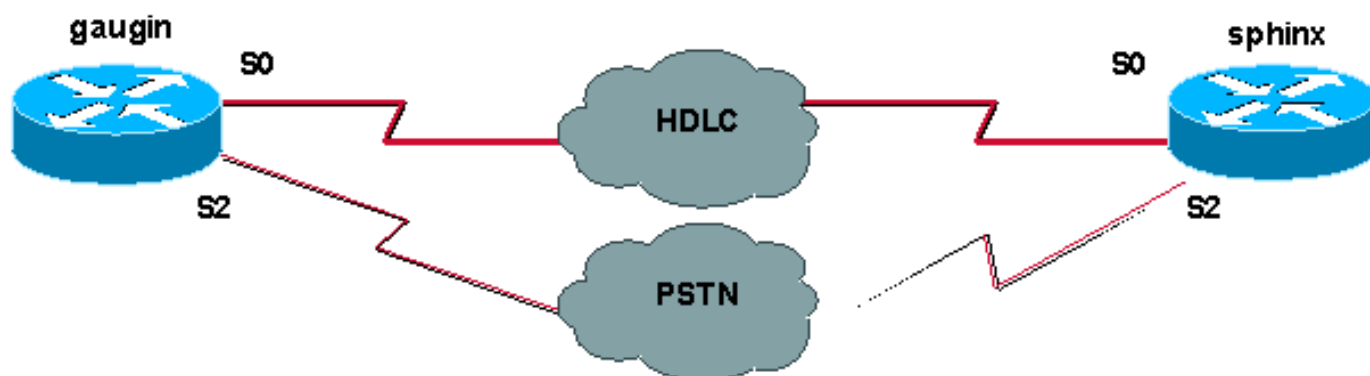
## 配置

本部分提供有关如何配置本文档所述功能的信息。

**注意：**要查找本文档所用命令的其他信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。

## 网络图

本文档使用下图所示的网络设置。



## 配置

在此配置中我们使用在一条租用的线路连接通过他们的serial0接口的两个Cisco路由器(gaugin和狮身人面象)。序列2接口由在公共交换电话网(PSTN)线路的异步调制解调器连接，并且使用，备份租用的线路。

**注意：**默认情况下，这些接口在异步模式工作同步的模式，您必须手工配置他们(使用**physical-layer async**命令)工作。

通过使用**show version**命令，您能发现这些接口是否在异步模式能也是运作。**show version**命令显示的相关信息如下所示：

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

推荐您完成配置并且验证调制解调器连接可以完成。您能由远程登录到调制解调器的反向执行此，并且进行呼叫到远程调制解调器的编号。

**注意：**根据调制解调器类型使用调制解调器容量(modemcap)也是强制的。欲知关于此的详情，参考[调制解调器-路由器连接指南](#)

### gaugin (Cisco2500) -呼叫路由器

```
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 <network> <mask> 2.2.2.1.
```

```
dialer-list 1 protocol ip permit
!--- Interesting traffic definition. !--- Once the
backup link is brought out of standby !--- dialout is
ONLY initiated 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
```

## 狮身人面象(Cisco2500) -呼叫的Router

```
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 <network> <mask> 1.1.1.1.

line 2
modem InOut
```

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

## 验证

本部分所提供的信息可用于确认您的配置是否正常工作。

[命令输出解释程序工具](#) ( [仅限注册用户](#) ) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令输出的分析。

- **show interface serial** -显示关于serial interfaces的信息。
- **show ip route** - 显示路由表的当前状态。
- **show line** -显示终端线路的参数。

## 故障排除

本部分提供的信息可用于对配置进行故障排除。

关于故障排除备份接口的更多信息请参考

### 故障排除命令

[命令输出解释程序工具](#) ( [仅限注册用户](#) ) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令输出的分析。

**注意：** 在发出 **debug** 命令之前，请参阅[有关 Debug 命令的重要信息](#)。

- **show dialer** -显示关于拨号接口的信息。
- **ping**测试连接。
- **debug modem** - 观察接入服务器上的调制解调器线路活动性。
- **debug ppp negotiation** - 显示关于PPP流量的信息，并进行交换，同时协商PPP组件，这些组件包括链路控制协议 ( LCP )、认证以及网络控制协议 ( NCP )。成功的PPP协商将首先开放LCP状态，然后进行验证，最后进行NCP协商。
- **debug ppp authentication** -显示PPP认证协议消息，包括质询验证协议(CHAP)信息包交换和密码认证协议(PAP)交换。如果观察一失败，请验证chap用户名和密码正确地配置。
- **debug chat** -显示对话脚本活动。
- **debug dialer** -关于在拨号接口收到数据包的显示DDR调试信息。

在下列的示例输出，我们能看到主要串行连接(serial0)在gaugin (呼叫路由器)有一问题并且失败连接。备份接口(序列2)开始进行备用连接。对于此示例，我们断开电缆测试备份链路。

**注意：** 发出在主要接口的**shutdown**命令不会引起备份拨号。如果发出shutdown命令减少主要连接，Cisco IOS软件不会自动地启动备用连接。您必须通过拔掉电缆或某个等效方法为了启动备份接口物理的减少主要连接。

```
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
```

这是同一呼叫从接收呼叫的狮身人面象的角度：

```
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) 00:57:33: 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)

```

当前让我们重新连接主链路的电缆。主链路将是移动陈述Up/Up和备份链路(序列2)将把变成gaugin的备用状态(因为有**backup interface serial 2**命令)。这将造成调制解调器链路中断和在断开的狮身人面象的接口序列2。

在gaugin的以下调试显示此进程：

```

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!

```

以下调试显示同一处理从在狮身人面象的方面。

```

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)#
```

## 相关信息

- [DDR 备份的配置与故障排除](#)
- [用于 DDR 备份的备份接口、浮动静态路由与 Dialer Watch 的比较](#)
- [配置使用Dialer Profile的 BRI备份接口](#)
- [使用 BRI 和 Backup Interface 命令实现 DDR 备份](#)
- [通过拨号程序配置文件实现异步备份](#)
- [DDR 备份的配置与故障排除](#)
- [技术支持 - Cisco Systems](#)