

X.25 到 TCP 转换

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简介

XOT (X.25 over tcp)由Cisco系统在请求注释(RFC) 1613设计和被选派，传输在IP互联网的X.25。这允许在传输控制协议/互联网协议(TCP/IP)网络将发送的X.25数据包而不是链路接入过程，平衡式(LAPB)链路。XOT是发送在IP互联网的X.25数据包方法通过X.25数据包的封装级在TCP信息包。

本文呈现说明这两个转换的一配置示例：

- 对X.25转换的传输控制协议(TCP)。
- X.25到TCP的转换。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

此转换要求企业功能集，Cisco路由器平台26xx只支持以上。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

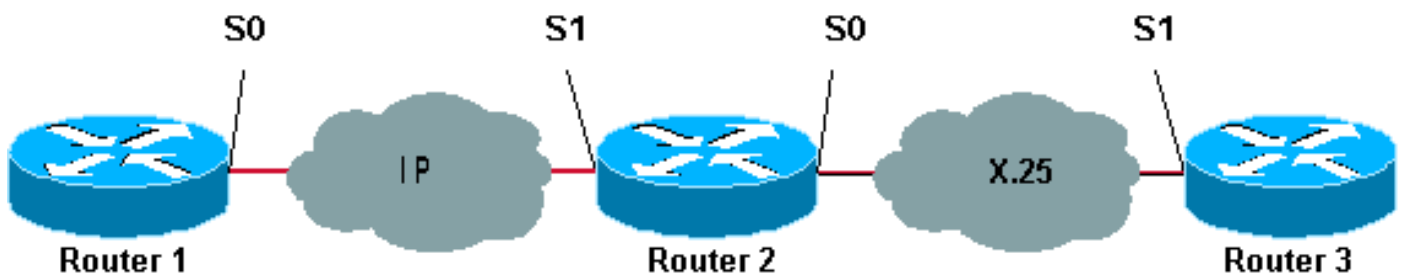
配置

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

本文档使用以下网络设置：



如显示此处，背对背链路使用在路由器1和2之间和在路由器2和3之间。

配置

本文档使用以下配置：

- Router1
- Router2
- Router3

注意：我们删节以下配置显示相关信息。

Router1
<pre>version 12.1 service timestamps debug datetime msec service timestamps log datetime msec ! hostname Router1 ! interface Serial0 description DCE connection to s1 Router2 ip address 10.0.0.6 255.255.255.252 no ip mroute-cache clockrate 56000 ! ip route 192.168.7.0 255.255.255.0 10.0.0.5</pre>
Router2
<pre>version 12.1</pre>

```
service timestamps debug datetime msec
service timestamps log datetime msec
!
hostname Router2
!
x25 routing
!
interface Loopback0
 ip address 192.168.7.1 255.255.255.0
!
interface Serial0
 description DCE connection to s1 Router3
 encapsulation x25 dce
 no ip mroute-cache
 clockrate 64000
!
interface Serial1
 description DTE connection to s0 Router1
 ip address 10.0.0.5 255.255.255.252
!
x25 route 123 interface Serial0
!
translate tcp 192.168.7.2 x25 123
translate x25 345 tcp 10.0.0.6
```

Router3

```
Router3#show running-config
Building configuration...

Current configuration:
!
version 12.1
service timestamps debug datetime msec
service timestamps log datetime msec
hostname Router3
!
ip subnet-zero
!
x25 routing
!
interface Serial1
 description DTE connection to s0 Router2
 encapsulation x25
 x25 address 123
!
x25 route 345 interface Serial1
```

验证

请使用以下命令测试您的网络适当地操作：

[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 debug** -显示各种各样的debug信息，或者执行特定故障排除工作。
- **telnet 192.168.7.2** —连接到在互联网的计算机系统及时模式的。
- **填充位345** —登录您对PAD。

- **show x25 vc** —显示关于活跃的交换虚拟电路(SVC)的信息和永久虚电路(PVC)在特权EXEC模式。

在测验显示的输出下面是输入这些on命令结果在上面网络图中显示的设备。此输出表示，网络在适当地运行。

测试 1 : TCP到X.25的转换

在此测验中，我们执行从Router1的一远程登录会话到Router2:的IP地址

1. 从Router1的Telnet 192.168.7.2。注意：此地址属于网络在Router2的192.168.7.0 /24。不能分配此地址到在网络的其他系统。
2. Router2执行TCP到X.25的转换为了到达Router3。输出如下所示。

```
Router2#show debug
```

```
TCP:
  TCP special event debugging is on
X.29 PAD:
  X25 PAD debugging is on
X.25:
  X.25 special event debugging is on
Protocol translation:
  Protocol Translation debugging is on
Router2#
```

```
Router1#telnet 192.168.7.2
```

```
Trying 192.168.7.2 ... Open
Trying 123...Open
  User Access Verification
  Password:
Router3>
```

```
Router2#
```

```
*Mar 1 01:50:28.759: TCP0: state was LISTEN -> SYNRCVD [23 -> 10.0.0.6(11007)]
*Mar 1 01:50:28.763: TCBC00499CAC setting property TCP_TOS (11) C0094
*Mar 1 01:50:28.767: tcppad2: fork started
*Mar 1 01:50:28.767: TCP: sending SYN, seq 3338770911, ack 4026886977
*Mar 1 01:50:28.771: TCP2: Connection to 10.0.0.6:11007, advertising MSS 1460
*Mar 1 01:50:28.775: TCP2: Connection to 10.0.0.6:11007, received MSS 556, MSS is 556
*Mar 1 01:50:28.791: TCP2: state was SYNRCVD -> ESTAB [23 -> 10.0.0.6(11007)]
*Mar 1 01:50:28.803: pad_open_connection: found a valid route
*Mar 1 01:50:28.807: Serial0: X.25 O R1 Call (11) 8 lci 1
*Mar 1 01:50:28.811: From (0): To (3): 123
*Mar 1 01:50:28.811: Facilities: (0)
*Mar 1 01:50:28.815: Call User Data (4): 0x01000000 (pad)
*Mar 1 01:50:28.827: Serial0: X.25 I R1 Call Confirm (5) 8 lci 1
*Mar 1 01:50:28.831: From (0): To (0):
*Mar 1 01:50:28.835: Facilities: (0)
*Mar 1 01:50:28.835: PAD2: Call completed
*Mar 1 01:50:28.839: PAD2: Control packet received.
*Mar 1 01:50:28.851: PAD2: Input X29 packet type 4 (Read X.3 param) len 1
*Mar 1 01:50:28.855: PAD2: Output X29 packet type 0 (Parameter indication) len 45
  1:1, 2:1, 3:2, 4:1, 5:0, 6:0, 7:4,
  8:0, 9:0, 10:0, 11:14, 12:0, 13:0, 14:0, 15:0,
  16:127, 17:21, 18:18, 19:0, 20:0, 21:0, 22:0,
*Mar 1 01:50:28.879: PAD2: Control packet received.
*Mar 1 01:50:28.883: PAD2: Input X29 packet type 6 (Set and Read) len 9
```

```
Router2#show debug
```

```
TCP:
  TCP special event debugging is on
X.29 PAD:
  X25 PAD debugging is on
X.25:
  X.25 special event debugging is on
Protocol translation:
  Protocol Translation debugging is on
Router2#
```

```
Router1#telnet 192.168.7.2
Trying 192.168.7.2 ... Open
Trying 123...Open
  User Access Verification
  Password:
Router3>
```

```
Router2#
*Mar  1 01:50:28.759: TCP0: state was LISTEN -> SYNRCVD [23 -> 10.0.0.6(11007)]
*Mar  1 01:50:28.763: TCB00499CAC setting property TCP_TOS (11) C0094
*Mar  1 01:50:28.767: tcppad2: fork started
*Mar  1 01:50:28.767: TCP: sending SYN, seq 3338770911, ack 4026886977
*Mar  1 01:50:28.771: TCP2: Connection to 10.0.0.6:11007, advertising MSS 1460
*Mar  1 01:50:28.775: TCP2: Connection to 10.0.0.6:11007, received MSS 556, MSS is 556
*Mar  1 01:50:28.791: TCP2: state was SYNRCVD -> ESTAB [23 -> 10.0.0.6(11007)]
*Mar  1 01:50:28.803: pad_open_connection: found a valid route
*Mar  1 01:50:28.807: Serial0: X.25 O R1 Call (11) 8 lci 1
*Mar  1 01:50:28.811: From (0): To (3): 123
*Mar  1 01:50:28.811: Facilities: (0)
*Mar  1 01:50:28.815: Call User Data (4): 0x01000000 (pad)
*Mar  1 01:50:28.827: Serial0: X.25 I R1 Call Confirm (5) 8 lci 1
*Mar  1 01:50:28.831: From (0): To (0):
*Mar  1 01:50:28.835: Facilities: (0)
*Mar  1 01:50:28.835: PAD2: Call completed
*Mar  1 01:50:28.839: PAD2: Control packet received.
*Mar  1 01:50:28.851: PAD2: Input X29 packet type 4 (Read X.3 param) len 1
*Mar  1 01:50:28.855: PAD2: Output X29 packet type 0 (Parameter indication) len 45
  1:1, 2:1, 3:2, 4:1, 5:0, 6:0, 7:4,
  8:0, 9:0, 10:0, 11:14, 12:0, 13:0, 14:0, 15:0,
  16:127, 17:21, 18:18, 19:0, 20:0, 21:0, 22:0,
*Mar  1 01:50:28.879: PAD2: Control packet received.
*Mar  1 01:50:28.883: PAD2: Input X29 packet type 6 (Set and Read) len 9
  2:0, 4:1, 15:0, 7:21,
```

```
Router2#show x25 vc
SVC 1, State: D1, Interface: Serial0
  Started 00:00:25, last input 00:00:22, output 00:00:22
Line: 2 vty 0 Location: Host: 10.0.0.6
  connected to 123 PAD <--> X25
Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 5 PR: 4 ACK: 4 Remote PR: 5 RCNT: 0 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 57/62 packets 5/4 Resets 0/0 RNRs 0/0 REJs 0/0 INTs 0/0
Router2#
```

测试 2 : X.25到TCP的转换

在此测验中，我们启动一信息包组合/分拆器(PAD)会话从Router3到Router2: X.25地址

1. 执行PAD到345从Router3。

2. Router2执行X.25到TCP的转换为了到达Router1。输出如下所示。

```
Router2#show debug
```

```
TCP:
  TCP special event debugging is on
X.29 PAD:
  X25 PAD debugging is on
X.25:
  X.25 special event debugging is on
Protocol translation:
  Protocol Translation debugging is on
Router2#
```

```
Router3#pad 345
```

```
Trying 345...Open
Trying 10.0.0.6 ... Open
  User Access Verification
  Password: CCCC
Router1>
```

```
Router2#
```

```
*Mar 1 01:51:31.475: Serial0: X.25 I R1 Call (12) 8 lci 1024
*Mar 1 01:51:31.479: From (3): 123 To (3): 345
*Mar 1 01:51:31.483: Facilities: (0)
*Mar 1 01:51:31.483: Call User Data (4): 0x01000000 (pad)
*Mar 1 01:51:31.487: PAD: translate call to 345
*Mar 1 01:51:31.491: Call User Data (4): 0x01000000 (pad)
*Mar 1 01:51:31.495: PAD: Creating proto translation on tty2 for vc 1024
*Mar 1 01:51:31.499: Serial0: X.25 O R1 Call Confirm (5) 8 lci 1024
*Mar 1 01:51:31.503: From (0): To (0):
*Mar 1 01:51:31.503: Facilities: (0)
*Mar 1 01:51:31.507: PAD2: Call completed
*Mar 1 01:51:31.511: padtcp2: fork started
*Mar 1 01:51:31.515: PAD2: Output X29 packet type 4 (Read X.3 param) len 1
*Mar 1 01:51:31.523: TCB0049E7A4 created
*Mar 1 01:51:31.523: TCB0049E7A4 setting property TCP_TOS (11) 49C853
*Mar 1 01:51:31.527: TCB0049E7A4 bound to UNKNOWN.44034
*Mar 1 01:51:31.531: PAD2: Control packet received.
*Mar 1 01:51:31.531: TCP: sending SYN, seq 3401534831, ack 0
*Mar 1 01:51:31.535: TCP2: Connection to 10.0.0.6:23, advertising MSS 1460
*Mar 1 01:51:31.539: TCP2: state was CLOSED -> SYNSENT [44034 -> 10.0.0.6(23)]
*Mar 1 01:51:31.559: TCP2: state was SYNSENT -> ESTAB [44034 -> 10.0.0.6(23)]
*Mar 1 01:51:31.563: TCP2: Connection to 10.0.0.6:23, received MSS 1460, MSS is 1460
*Mar 1 01:51:31.567: TCB0049E7A4 connected to 10.0.0.6.23
*Mar 1 01:51:31.571: PAD2: Input X29 packet type 0 (Parameter indication) len 45
  1:1, 2:1, 3:2, 4:1, 5:0, 6:0, 7:4,
  8:0, 9:0, 10:0, 11:14, 12:0, 13:0, 14:0, 15:0,
  16:127, 17:21, 18:18, 19:0, 20:0, 21:0, 22:0,
*Mar 1 01:51:31.583: PAD2: Setting ParamsIn, length 44
*Mar 1 01:51:31.587: PAD2: Output X29 packet type 6 (Set and Read) len 9
```

```
Router2#show debug
```

```
TCP:
  TCP special event debugging is on
X.29 PAD:
  X25 PAD debugging is on
X.25:
  X.25 special event debugging is on
Protocol translation:
  Protocol Translation debugging is on
Router2#
```

Router3#pad 345

```
Trying 345...Open
Trying 10.0.0.6 ... Open
  User Access Verification
  Password: CCCC
Router1>
```

Router2#

```
*Mar 1 01:51:31.475: Serial0: X.25 I R1 Call (12) 8 lci 1024
*Mar 1 01:51:31.479: From (3): 123 To (3): 345
*Mar 1 01:51:31.483: Facilities: (0)
*Mar 1 01:51:31.483: Call User Data (4): 0x01000000 (pad)
*Mar 1 01:51:31.487: PAD: translate call to 345
*Mar 1 01:51:31.491: Call User Data (4): 0x01000000 (pad)
*Mar 1 01:51:31.495: PAD: Creating proto translation on tty2 for vc 1024
*Mar 1 01:51:31.499: Serial0: X.25 O R1 Call Confirm (5) 8 lci 1024
*Mar 1 01:51:31.503: From (0): To (0):
*Mar 1 01:51:31.503: Facilities: (0)
*Mar 1 01:51:31.507: PAD2: Call completed
*Mar 1 01:51:31.511: padtcp2: fork started
*Mar 1 01:51:31.515: PAD2: Output X29 packet type 4 (Read X.3 param) len 1
*Mar 1 01:51:31.523: TCB0049E7A4 created
*Mar 1 01:51:31.523: TCB0049E7A4 setting property TCP_TOS (11) 49C853
*Mar 1 01:51:31.527: TCB0049E7A4 bound to UNKNOWN.44034
*Mar 1 01:51:31.531: PAD2: Control packet received.
*Mar 1 01:51:31.531: TCP: sending SYN, seq 3401534831, ack 0
*Mar 1 01:51:31.535: TCP2: Connection to 10.0.0.6:23, advertising MSS 1460
*Mar 1 01:51:31.539: TCP2: state was CLOSED -> SYNSENT [44034 -> 10.0.0.6(23)]
*Mar 1 01:51:31.559: TCP2: state was SYNSENT -> ESTAB [44034 -> 10.0.0.6(23)]
*Mar 1 01:51:31.563: TCP2: Connection to 10.0.0.6:23, received MSS 1460, MSS is 1460
*Mar 1 01:51:31.567: TCB0049E7A4 connected to 10.0.0.6.23
*Mar 1 01:51:31.571: PAD2: Input X29 packet type 0 (Parameter indication) len 45
    1:1, 2:1, 3:2, 4:1, 5:0, 6:0, 7:4,
    8:0, 9:0, 10:0, 11:14, 12:0, 13:0, 14:0, 15:0,
    16:127, 17:21, 18:18, 19:0, 20:0, 21:0, 22:0,
*Mar 1 01:51:31.583: PAD2: Setting ParamsIn, length 44
*Mar 1 01:51:31.587: PAD2: Output X29 packet type 6 (Set and Read) len 9
    (Parameter indication) len 9 2:0, 4:1, 15:0, 7:21,
*Mar 1 01:51:31.627: PAD2: Setting ParamsIn, length 8
*Mar 1 01:51:31.631: PAD2: Input X29 packet type 0 (Parameter indication) len 3 2:0,
*Mar 1 01:51:31.635: PAD2: Setting ParamsIn, length 2
*Mar 1 01:51:31.643: PADTCP2: Telnet received DONT TTY-LOCATION (23)
*Mar 1 01:51:31.647: PADTCP2: Telnet received DONT TTY-SPEED (32)
```

Router2#

Router2#show x25 vc

```
SVC 1024, State: D1, Interface: Serial0
  Started 00:00:10, last input 00:00:07, output 00:00:05
Line: 2 vty 0 Location: Host: 123
  123 connected to 345 PAD <--> X25
Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 1 PR: 6 ACK: 6 Remote PR: 1 RCNT: 0 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 3057/60 packets 33/6 Resets 0/0 RNRs 0/0 REJs 0/0 INTs 0/0
```

Router2#

Router2#

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

故障排除

目前没有针对此配置的故障排除信息。

[相关信息](#)

- [更多X.25技术提示](#)
- [技术支持 - Cisco Systems](#)