

# Configurando DLSw+ sobre QLLC

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## Introduction

Nesta configuração, dois recursos X.25 diferentes (usamos o dspu-host para simular os dispositivos finais nesta configuração). Para obter mais informações sobre a unidade física downstream (DSPU), consulte estes documentos:

- [Configurando o suporte de DSPU e de ponto de serviço SNA](#)
- [Perguntas frequentes sobre unidade física downstream](#)

Esses dois dispositivos finais se comunicam com adaptadores diferentes no local do mainframe por X.25. Os recursos X.25 remotos foram configurados para endereços de destino diferentes (em comprimentos diferentes e endereços diferentes). Qualquer chamada recebida cujo endereço de destino X.121 corresponda ao "subendereço qlc dlsw" do roteador é enviada para Data Link Switching Plus (DLSw+) (com ID.STN IND). Quando o DLSw+ recebe uma consulta "Can You Reach" sobre um endereço MAC virtual no pool, o código QLLC (Qualified Logical Link Control) tenta configurar um VC (Virtual Circuit, circuito virtual) para o endereço X.121 que mapeia para o endereço MAC virtual especificado. Se uma chamada recebida for recebida, o QLLC enviará um ID.STN.IND com um endereço MAC virtual do pool para DLSw+.

## Prerequisites

### Requirements

Não existem requisitos específicos para este documento.

### Componentes Utilizados

As informações neste documento são baseadas nas versões de software e hardware:

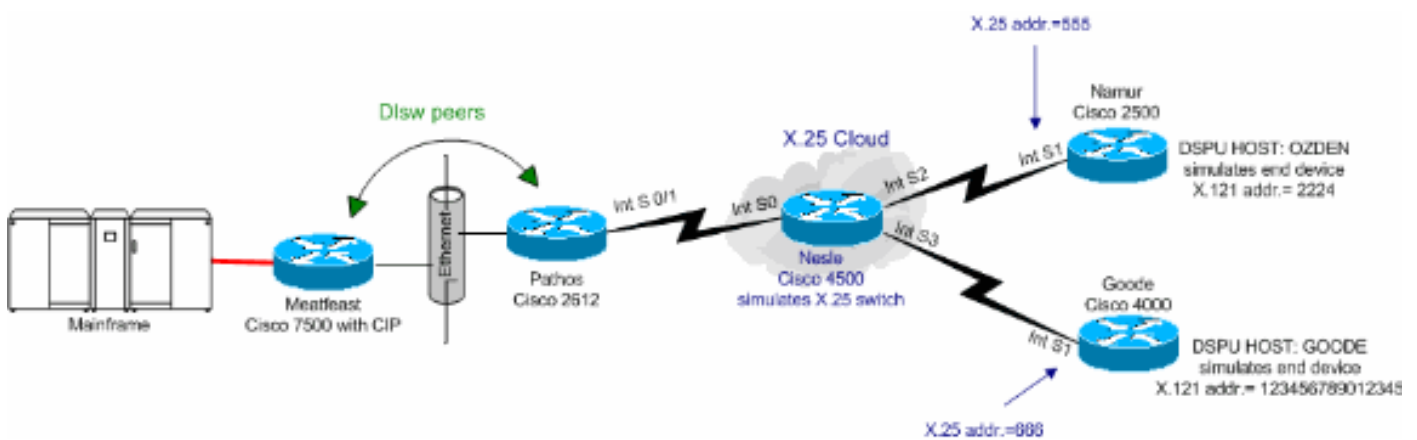
- O Software Cisco IOS® versão 12.2(6a) foi usado em Pathos (Cisco 2612)
- O Cisco IOS Software Release 12.0(20) foi usado no Namur & Goode (Cisco 2500, Cisco 4000)
- O Cisco IOS Software Release 12.1(7) foi usado no Nesle (Cisco 4500)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

For more information on document conventions, refer to the [Cisco Technical Tips Conventions](#).

## Diagrama de topologia



## Configurar

Nesta seção, você encontrará informações para configurar os recursos descritos neste documento.

**Observação:** para encontrar informações adicionais sobre os comandos usados neste documento, use a [ferramenta Command Lookup Tool](#) (somente clientes [registrados](#)).

## Configurações

Os endereços MAC do mainframe são os seguintes:

- 4000.7507.0000
- 4000.7507.ffff

Este documento utiliza as configurações mostradas aqui:

- [Cisco 7507 \(Meatfeast\)](#)
- [Cisco 2612 \(Pathos\)](#)
- [Cisco 4500 \(Nesle\)](#)
- [Cisco 2500 \(Namur\)](#)
- [Cisco 4000 \(Goode\)](#)

## Cisco 7507 (Meatfeast)

```
source-bridge ring-group 100
dlsw local-peer peer-id 10.48.64.75 promiscuous
!
interface Channel4/2
 ip address 10.48.64.225 255.255.255.240
 no keepalive
 lan TokenRing 0
  source-bridge 88 1 100
  adapter 0 4000.7507.0000
  adapter 1 4000.7507.ffff
```

## Cisco 2612 (Pathos)

```
!
source-bridge ring-group 200
dlsw local-peer peer-id 10.48.64.40
dlsw remote-peer 0 tcp 10.48.64.75
!
interface Ethernet0/0
 ip address 10.48.64.40 255.255.255.0
 half-duplex
!
interface Serial10/0
 no ip address
!
interface TokenRing0/0
 no ip address
 ring-speed 16
!
interface Serial10/1
 no ip address
 encapsulation x25
 x25 alias .*
!--- It is used against the destination !--- address of
a received call. x25 htc 10 x25 win 7 x25 wout 7 qllc
accept-all-calls qllc dlsw subaddress 123456789012345
vmacaddr 4000.3333.0000 2 partner 4000.7507.0000 qllc
dlsw subaddress 2224 vmacaddr 4000.2222.0000 2 partner
4000.7507.ffff ! ip default-gateway 10.48.64.1 ip
classless no ip http server ip pim bidir-enable ! !
dial-peer cor custom !
```

## Cisco 4500 (Nesle)

```
!
x25 routing
!
!
!
interface Ethernet0
 ip address 10.48.64.34 255.255.255.0
 media-type 10BaseT
!
interface Ethernet1
 no ip address
 shutdown
 media-type 10BaseT
!
interface Ethernet2
 no ip address
```

```
media-type 10BaseT
!
interface Serial0
  no ip address
  encapsulation x25 dce
  clockrate 250000
!
interface Serial1
  no ip address
!
interface Serial2
  no ip address
  encapsulation x25 dce
  no ip mroute-cache
  clockrate 250000
!
interface Serial3
  no ip address
  encapsulation x25 dce
  clockrate 250000
!
interface TokenRing0
  no ip address
  ring-speed 16
!
ip default-gateway 10.48.64.1
ip classless
no ip http server
x25 route input-interface Serial2 interface Serial0
x25 route input-interface Serial3 interface Serial0
x25 route 555 interface Serial2
x25 route 666 interface Serial3
!
line con 0
  exec-timeout 0 0
line aux 0
  exec-timeout 0 0
line vty 0 4
  exec-timeout 0 0
  password 7 071836
  login
!
ntp clock-period 17179258
ntp server 10.48.64.100
end
```

## Cisco 2500 (Namur)

```
hostname namur
!
logging buffered 150000 debugging
enable password 7 120E12
!
dspu host OZDEN xid-snd 00000000 x25 2224 ql1c 12
interface Serial1
!
interface Ethernet0
  no ip address
  no ip directed-broadcast
  shutdown
!
interface Serial0
  no ip address
```

```
no ip directed-broadcast
shutdown
!
interface Serial1
no ip address
no ip directed-broadcast
encapsulation x25
no ip mroute-cache
x25 address 555
x25 htc 10
x25 win 7
x25 wout 7
dspu enable-host qllc 12
dspu start OZDEN
!
interface TokenRing0
no ip address
no ip directed-broadcast
shutdown
!
```

### Cisco 4000 (Goode)

```
dspu host GOODE xid-snd 11132323 x25 123456789012345
qllc 20 interface Serial1
!
interface Ethernet0
ip address 10.48.64.17 255.255.255.0
no ip directed-broadcast
media-type 10BaseT
!
interface Serial0
no ip address
no ip directed-broadcast
shutdown
!
interface Serial1
no ip address
no ip directed-broadcast
encapsulation x25
no ip mroute-cache
x25 address 666
x25 htc 10
x25 win 7
x25 wout 7
dspu enable-host qllc 20
dspu start GOODE
!
```

## Verificar

Esta seção fornece informações que você pode usar para confirmar se sua configuração está ativa.

A [Output Interpreter Tool \(somente clientes registrados\)](#) oferece suporte a determinados comandos show, o que permite exibir uma análise da saída do comando show.

- **show llc2** —Exibe as conexões LLC2 ativas no roteador.
- **show version** — Exibe informações sobre a versão do software.

- **show dlsw peer** — Exibe informações de conexão de peer dlsw.
- **show dlsw circuit detail** — Exibe os detalhes do circuito DLSW.
- **show qllc serial 0/1** —Exibe informações sobre o QLLC serial 0/1.
- **show x25 interface serial 0/1** —Exibe o status da linha e do protocolo na interface serial 0/1 do X.25.
- **show x25 route** — Exibe a tabela de roteamento X.25.
- **show x25 interface serial 0** — Exibe o status da linha e do protocolo na interface serial X.25 0.
- **show dspu** — Exibe o status do recurso DSPU.
- **show x25 interface serial 1** —Exibe o status da linha e do protocolo na interface serial X.25 1.

## Meatfeast

```
#show llc2
....
Channel4/2 DTE: 4000.7507.ffff 4000.2222.0000 04 04
state NORMAL
  V(S)=1, V??)=1, Last N??)=1, Local window=7, Remote
Window=127
  akmax=3, n2=8,
  xid-retry timer      0/0      ack timer      0/1000
  p timer              0/1000   idle timer
5430/10000
  rej timer            0/3200   busy timer     0/9600
  adm timer            0/60000  llc1 timer     0/1000
  akdelay timer        0/100    txQ count      0/200
  RIF: 06B0.0581.0640
Channel4/2 DTE: 4000.7507.0000 4000.3333.0000 04 04
state NORMAL
  V(S)=6, V??)=6, Last N??)=6, Local window=7, Remote
Window=127
  akmax=3, n2=8,
  xid-retry timer      0/0      ack timer      0/1000
  p timer              0/1000   idle timer
5630/10000
  rej timer            0/3200   busy timer     0/9600
  adm timer            0/60000  llc1 timer     0/1000
  akdelay timer        0/100    txQ count      0/200
  RIF: 06B0.0581.0640
```

## Pathos

```
pathos#show version
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-IS-M), Version 12.2(6a),
RELEASE SOFTWARE (fcl)
Copyright ??) 1986-2001 by cisco Systems, Inc.
Compiled Sat 01-Dec-01 22:30 by pwade
Image text-base: 0x80008088, data-base: 0x810616B4
pathos#show dlsw peer
Peers:                state      pkts_rx   pkts_tx   type
drops ckts TCP    uptime
TCP 10.48.64.75      CONNECT          118       91   conf
0    2    0 00:32:12
Total number of connected peers: 1
Total number of connections:    1
pathos#show dlsw circuit detail
Index      local addr(lsap)  remote addr(dsap)
state      uptime
234881048  4000.2222.0000(04) 4000.7507.ffff(04)
CONNECTED  00:29:50
```

```

PCEP: 81C25730   UCEP: 81D88528
Port:Se0/1      peer 10.48.64.75(2065)
Flow-Control-Tx CW:20, Permitted:19; Rx CW:20,
Granted:39; Op: Repeat
Congestion: Low(02), Flow Op: Half: 0/0 Reset
0/0
RIF = --no rif--
Bytes:          429/453      Info-frames:
1/1
XID-frames:     5/4         UInfo-frames:
0/0
HPR saps: local 0x0, remote 0x4
1426063385      4000.3333.0000(04) 4000.7507.0000(04)
CONNECTED      00:29:49
PCEP: 81D081B4   UCEP: 81D108B0
Port:Se0/1      peer 10.48.64.75(2065)
Flow-Control-Tx CW:20, Permitted:34; Rx CW:20,
Granted:34; Op: Repeat
Congestion: Low(02), Flow Op: Half: 0/0 Reset
0/0
RIF = --no rif--
Bytes:          554/513      Info-frames:
6/6
XID-frames:     5/4         UInfo-frames:
0/0
HPR saps: local 0x0, remote 0x4
Total number of circuits connected: 2
pathos#show qlc serial 0/1
Interface Serial0/1
vc 2 66620
Circuit State P4/D1, Logical Link State QLOpened
4000.3333.0000(04)->4000.7507.0000(04)
0 packets held
vc 1 55512
Circuit State P4/D1, Logical Link State QLOpened
4000.2222.0000(04)->4000.7507.ffff(04)
0 packets held
pathos#
pathos#show x25 interface serial 0/1
SVC 1, State: D1, Interface: Serial0/1
Started 00:30:51, last input 00:30:50, output 00:30:50
Connects 55512 <-->
qlc 4000.2222.0000
Window size input: 7, output: 7
Packet size input: 128, output: 128
PS: 0 PR: 7 ACK: 6 Remote PR: 0 RCNT: 1 RNR: no
P/D state timeouts: 0 timer (secs): 0
data bytes 463/441 packets 8/7 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
SVC 2, State: D1, Interface: Serial0/1
Started 00:30:51, last input 00:30:50, output 00:30:50
Connects 66620 <-->
qlc 4000.3333.0000
Window size input: 7, output: 7
Packet size input: 128, output: 128
PS: 5 PR: 4 ACK: 2 Remote PR: 5 RCNT: 2 RNR: no
P/D state timeouts: 0 timer (secs): 0
data bytes 523/566 packets 13/12 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
pathos#

```

**Nesle**

```
nesle#show x25 route
# Match                               Substitute
Route to
  1 input-int Serial2
Serial0
  2 input-int Serial3
Serial0
  3 dest 555
Serial2
  4 dest 666
Serial3

nesle#show x25 interface serial 0
SVC 1, State: D1, Interface: Serial0
  Started 00:32:47, last input 00:32:46, output 00:32:46
  Connects 55512 <--> 2224 from Serial2 SVC 10
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 7 PR: 0 ACK: 0 Remote PR: 6 RCNT: 0 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 441/463 packets 7/8 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
SVC 2, State: D1, Interface: Serial0
  Started 00:32:47, last input 00:32:46, output 00:32:46
  Connects 66620 <--> 123456789012345 from Serial3 SVC
1024
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 4 PR: 5 ACK: 5 Remote PR: 2 RCNT: 0 RNR: no
  Window is closed
  P/D state timeouts: 0 timer (secs): 0
  data bytes 566/523 packets 12/13 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
nesle#show x25 interface serial 2
SVC 10, State: D1, Interface: Serial2
  Started 00:32:51, last input 00:32:50, output 00:32:50
  Connects 55512 <--> 2224 to Serial0 SVC 1
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 0 PR: 7 ACK: 6 Remote PR: 0 RCNT: 1 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 463/441 packets 8/7 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
nesle#show x25 interface serial 3
SVC 1024, State: D1, Interface: Serial3
  Started 00:32:53, last input 00:32:52, output 00:32:52
  Connects 66620 <--> 123456789012345 to Serial0 SVC 2
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 5 PR: 4 ACK: 2 Remote PR: 5 RCNT: 2 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 523/566 packets 13/12 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
```

## Namur

```
namur#show dspu
dspu host OZDEN Serial1 (QLLC) PU STATUS Active
  FRAMES RECEIVED 8 FRAMES SENT 8
  LUs USED BY DSPU 0 LUs ACTIVE 0
  LUs USED BY API 0 LUs ACTIVE 0
  LUs ACTIVATED BY HOST BUT NOT USED 0
```



```
namur#show x25 interface serial 1
SVC 10, State: D1, Interface: Serial1
  Started 00:34:55, last input 00:34:54, output 00:34:54
  Connects 2224 <-->
  qllc
  Window size input: 7, output: 7
  Packet size input: 128, output: 128
  PS: 7 PR: 0 ACK: 0 Remote PR: 6 RCNT: 0 RNR: no
  P/D state timeouts: 0 timer (secs): 0
  data bytes 441/463 packets 7/8 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
namur#
```

## Goode

```
goode#show dspu
dspu host GOODE Serial1 (QLLC) PU STATUS Active
  FRAMES RECEIVED 18 FRAMES SENT 18
  LUs USED BY DSPU 0 LUs ACTIVE 0
  LUs USED BY API 0 LUs ACTIVE 0
  LUs ACTIVATED BY HOST BUT NOT USED 5

goode#show x25 interface serial 1
SVC 1024, State: D1, Interface: Serial1
  Started 00:41:25, last input 00:41:25, output 00:41:25
  Connects 123456789012345 <-->
  qllc
  Window size input: 2, output: 2
  Packet size input: 128, output: 128
  PS: 4 PR: 5 ACK: 5 Remote PR: 2 RCNT: 0 RNR: no
  Window is closed
  P/D state timeouts: 0 timer (secs): 0
  data bytes 566/523 packets 12/13 Resets 0/0 RNRs 0/0
REJs 0/0 INTs 0/0
goode#
```

## [Troubleshoot](#)

Atualmente, não existem informações disponíveis específicas sobre Troubleshooting para esta configuração.

## [Informações Relacionadas](#)

- [Página de suporte da tecnologia DLSw+ \(Data-Link Switching Plus\)](#)
- [Suporte à tecnologia IBM](#)
- [Suporte Técnico e Documentação - Cisco Systems](#)