

Configurare nuovamente la connessione G.SHDSL in CO-CPE Setup

Sommario

[Introduzione](#)

[Prerequisiti](#)

[Requisiti](#)

[Componenti usati](#)

[Configurazione](#)

[Modalità ATM](#)

[Modalità EFM](#)

[Verifica](#)

[Risoluzione dei problemi](#)

[Informazioni correlate](#)

Introduzione

In questo documento viene descritta la procedura di configurazione necessaria per implementare una connessione back-to-back Multirate Symmetric High-Speed Digital Subscriber Line (G.SHDSL) tra due moduli EHWIC-4SHDSL-EA.

È necessario configurare un'estremità della connessione in modalità Ufficio centrale (CO) e l'altra estremità in modalità Customer Premises Equipment (CPE) per attivare la connessione SHDSL. Questo tipo di connessione back-to-back SHDSL viene comunemente implementata all'interno di una rete del campus per fornire la connettività tra due edifici senza la necessità di un DSLAM (Digital Subscriber Line Access Multiplexer) tra i due router DSL.

Prerequisiti

Requisiti

Cisco raccomanda la conoscenza dei seguenti argomenti:

- Modulo EHWIC-4SHDSL-EA
- I router Fixed Integrated Service Router (ISR) G2 come C888EA-K9 funzionano sia in modalità CO che CPE con software Cisco IOS® versione 15.2(2)T2 e successive

Componenti usati

Il documento può essere consultato per tutte le versioni software o hardware.

Tuttavia, la configurazione è realizzata con i seguenti dispositivi:

- Due router ISR di seconda generazione (CISCO 2901/K9) caricati con Cisco IOS® 15.4.3M2

- Due moduli EHWIC-4SHDSL-EA installati su entrambi i router ISR G2
- Cavo ANSI/TIA/EIA-568-B con connettori RJ-45 a entrambe le estremità

Le informazioni discusse in questo documento fanno riferimento a dispositivi usati in uno specifico ambiente di emulazione. Su tutti i dispositivi menzionati nel documento la configurazione è stata ripristinata ai valori predefiniti. Se la rete è operativa, valutare attentamente eventuali conseguenze derivanti dall'uso dei comandi.

Configurazione

In questa configurazione, si utilizzeranno router identici con i moduli EHWIC-4SHDSL-EA installati. Il dispositivo denominato **CO_Router** dispone del controller SHDSL configurato per funzionare in modalità CO, mentre il dispositivo denominato **CPE_Router** dispone del controller SHDSL configurato per funzionare in modalità CPE.

Il modulo EHWIC-4SHDSL-EA può essere configurato sia per Ethernet nell'EFM (First Mile) che per ATM (Asynchronous Transfer Mode). Questo documento spiega come impostare la connessione SHDSL di back-to-back sia in modalità EFM che ATM.

Nell'esempio viene mostrato come configurare una connessione SHDSL back-to-back in modalità ATM.

Modalità ATM

Quando si configura la connessione back-to-back SHDSL, è possibile implementare una soluzione IP over ATM (IPoA) o PPP over ATM (PPPoA).

1. Soluzione IPoA

- Router CO:

```
CO_Router#show running-config
```

```
Building configuration...
```

```
Current configuration : 1624 bytes
```

```
!
```

```
!
```

```
version 15.4
```

```
service config
```

```
service timestamps debug datetime msec
```

```
service timestamps log datetime msec
```

```
no service password-encryption
```

```
!
```

```
hostname CO_Router
```

```
!
```

```
boot-start-marker
```

```
boot system flash:c2900-universalk9-mz.SPA.154-3.M2.bin
```

```
boot-end-marker
```

```
!
```

```
!
```

```
!
```

```
no aaa new-model
```

```
!
```

```
!
```

```
!  
ip cef  
no ipv6 cef  
!  
multilink bundle-name authenticated  
!  
!  
cts logging verbose  
!  
!  
license udi pid CISCO2901/K9 sn FGL1622241N  
license boot module c2900 technology-package securityk9  
license boot module c2900 technology-package datak9  
!  
redundancy  
!  
!  
!  
controller SHDSL 0/1/0  
termination co  
dsl-group 0 pairs 0, 1, 2, 3 m-pair  
!  
  
!  
!  
interface Embedded-Service-Engine0/0  
no ip address  
shutdown  
!  
interface GigabitEthernet0/0  
ip address dhcp  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/1  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface ATM0/1/0  
ip address 1.1.1.1 255.255.255.0  
no atm ilmi-keepalive  
pvc 1/10  
!  
!  
!  
ip forward-protocol nd  
!  
no ip http server  
no ip http secure-server  
!  
  
control-plane  
!  
!  
line con 0  
line aux 0  
line vty 0 4  
login  
transport input all  
!
```

!
end

CO_Router#

- Router CPE:

CPE_Router#show running-config

Building configuration...

Current configuration : 1538 bytes

!

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname CPE_Router

!

boot-start-marker

boot-end-marker

!

!

!

no aaa new-model

!

ip cef

!

!

!

no ipv6 cef

!

multilink bundle-name authenticated

!

!

!

voice-card 0

!

!

!

!

license udi pid CISCO2901/K9 sn FGL151625KN

license boot module c2900 technology-package securityk9

license boot module c2900 technology-package uck9

license boot module c2900 technology-package datak9

!

!

!

redundancy

!

controller SHDSL 0/1/0

dsl-group 0 pairs 0, 1, 2, 3 m-pair

!

!

```

interface Embedded-Service-Engine0/0
  no ip address
  shutdown
!
interface GigabitEthernet0/0
  no ip address
  shutdown
  duplex auto
  speed auto
!
interface GigabitEthernet0/1
  ip address dhcp
  duplex auto
  speed auto
!
interface ATM0/1/0
ip address 1.1.1.2 255.255.255.0
no atm ilmi-keepalive
pvc 1/10
!
!
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
!
control-plane
!
!
gatekeeper
  shutdown
!
!
!
line con 0
line aux 0
line vty 0 4
  login
  transport input all

!
end

```

CPE_Router#

2. Soluzione PPPoA

- Router CO:

CO_Router#show running-config

Building configuration...

Current configuration : 1779 bytes

```

!
!
version 15.4
service config
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption

```

```
!  
hostname CO_Router  
!  
boot-start-marker  
boot system flash:c2900-universalk9-mz.SPA.154-3.M2.bin  
boot-end-marker  
!  
!  
!  
no aaa new-model  
!  
!  
ip cef  
no ipv6 cef  
!  
multilink bundle-name authenticated  
!  
!  
cts logging verbose  
!  
!  
license udi pid CISCO2901/K9 sn FGL1622241N  
license boot module c2900 technology-package securityk9  
license boot module c2900 technology-package datak9  
!  
!  
redundancy  
!  
!  
controller SHDSL 0/1/0  
  termination co  
  dsl-group 0 pairs 0, 1, 2, 3 m-pair  
  !  
interface Embedded-Service-Engine0/0  
  no ip address  
  shutdown  
!  
interface GigabitEthernet0/0  
  ip address dhcp  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0/1  
  no ip address  
  shutdown  
  duplex auto  
  speed auto  
!  
interface ATM0/1/0  
  no ip address  
  no atm ilmi-keepalive  
  pvc 1/10  
    encapsulation aal5snap  
    protocol ppp dialer  
    dialer pool-member 1  
  !  
!  
interface Dialer1  
  ip address 1.1.1.1 255.255.255.0  
  encapsulation ppp  
  dialer pool 1
```

```
dialer-group 1
!  
!  
ip forward-protocol nd  
!  
no ip http server  
no ip http secure-server  
!  
  
!  
!  
control-plane  
!  
!  
line con 0  
line aux 0  
line vty 0 4  
  login  
  transport input all  
  
!  
end
```

CO_Router#

- Router CPE:

CPE_Router#show running-config

Building configuration...

Current configuration : 1693 bytes

```
!  
  
version 15.2  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname CPE_Router  
!  
boot-start-marker  
boot-end-marker  
!  
!  
no aaa new-model  
!  
ip cef  
!  
  
!  
no ipv6 cef  
!  
multilink bundle-name authenticated  
!  
  
!  
!  
license udi pid CISCO2901/K9 sn FGL151625KN
```

```
license boot module c2900 technology-package securityk9
license boot module c2900 technology-package uck9
license boot module c2900 technology-package datak9
!
!
!
redundancy
!
!
controller SHDSL 0/1/0
  dsl-group 0 pairs 0, 1, 2, 3 m-pair
  !
interface Embedded-Service-Engine0/0
  no ip address
  shutdown
!
interface GigabitEthernet0/0
  no ip address
  shutdown
  duplex auto
  speed auto
!
interface GigabitEthernet0/1
  ip address dhcp
  duplex auto
  speed auto
!
interface ATM0/1/0
  no ip address
  no atm ilmi-keepalive
  pvc 1/10
    encapsulation aal5snap
    protocol ppp dialer
    dialer pool-member 1
  !
!
interface Dialer1
  ip address 1.1.1.2 255.255.255.0
  encapsulation ppp
  dialer pool 1
  dialer-group 1
!
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
control-plane
!
gatekeeper
  shutdown
!
line con 0
line aux 0
line vty 0 4
  login
  transport input all

!
end
```

CPE_Router#

3. Soluzione PPPoE over ATM

- Router CO:

```
CO_Router#show running-configuration
Building configuration...
```

```
Current configuration : 2299 bytes
!
```

```
version 15.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname CO_Router
!
boot-start-marker
boot-end-marker
!

no aaa new-model
!

username cisco password 0 cisco
!
redundancy
!
!
controller SHDSL 0/1/0
termination co dsl-group 0 pairs 0, 1, 2, 3 m-pair
!
!

bba-group pppoe global
virtual-template 1
!
!
interface Loopback0
ip address 10.1.1.1 255.255.255.255
!
interface Embedded-Service-Engine0/0
no ip address
shutdown
!
interface GigabitEthernet0/0
no ip address
shutdown
duplex auto
speed auto

!
interface GigabitEthernet0/1
no ip address
shutdown
duplex auto
speed auto
!

!
interface ATM0/1/0
```

```

no ip address
no atm ilmi-keepalive
!
interface ATM0/1/0.1 point-to-point
 pvc 1/100
  protocol pppoe group global
!
!
interface Virtual-Template1
 ip unnumbered Loopback0
 ip mtu 1492
 peer default ip address pool PPPOE
!
!
ip local pool PPPOE 10.1.1.2 10.1.1.254

!
line con 0
line aux 0
line vty 0 4
 login
 transport input all

end

```

CO_Router#

Verification:

CO_Router#show caller ip

Line	User	IP Address	Local Number	Remote Number	<->
Vil.1	-	10.1.1.2	-	-	in

CO_Router#

- Router CPE:

CPE_Router#show running-config

Building configuration...

Current configuration : 2554 bytes

```

!
!
version 15.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname CPE_Router
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
!

ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!

```

```

controller SHDSL 0/1/0
dsl-group 0 pairs 0, 1, 2, 3 m-pair
!
!
!
interface Embedded-Service-Engine0/0
no ip address
shutdown
!
interface GigabitEthernet0/0
ip address dhcp
duplex auto
speed auto
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/2
ip address dhcp
duplex auto
speed auto
!
interface ATM0/1/0
no ip address
no atm ilmi-keepalive
!
interface ATM0/1/0.1 point-to-point
pvc 1/100
pppoe-client dial-pool-number 1
!
!
interface Dialer1
ip address negotiated
encapsulation ppp
dialer pool 1
ppp chap hostname cisco
ppp chap password 0 cisco
!
!
!
control-plane
!
!
line con 0
line aux 0
line vty 0 4
login
transport input all
!
!
end

```

CPE_Router#

Verification:

CPE_Router#show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
-----------	------------	-----	--------	--------	----------

Embedded-Service-Engine0/0	unassigned	YES	NVRAM	administratively	down	down
ATM0/1/0	unassigned	YES	unset	up		up
ATM0/1/0.1	unassigned	YES	unset	up		up
Dialer1	10.1.1.2	YES	IPCP	up		up
Virtual-Access1	unassigned	YES	unset	up		up

CPE_Router#

Modalità EFM

È possibile implementare una soluzione IPoE o PPPoE quando si configura una connessione SHDSL back-to-back.

1. Soluzione IPoE

- Router CO:

CO_Router#show running-config

Building configuration...

Current configuration : 2194 bytes

```

!
! Last configuration change at 14:56:53 UTC Thu Mar 10 2016
!
version 15.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname CO_Router
!
boot-start-marker
boot system flash:c2900-universalk9-mz.SPA.154-3.M2.bin
boot-end-marker
!

!
ip cef
no ipv6 cef
multilink bundle-name authenticated
!

!
cts logging verbose
!

!
redundancy
!

!
controller SHDSL 0/3/0
termination co
mode efm
dsl-group 0 pairs 0, 1, 2, 3 efm-bond
!

!
interface Embedded-Service-Engine0/0
no ip address

```

```
shutdown
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
!
!
interface Ethernet0/3/0
ip address 1.1.1.1 255.255.255.252
!
!
ip forward-protocol nd
!
no ip http server
no ip http secure-server
!
!
control-plane
!

gatekeeper
shutdown
!

line con 0
line aux 0
line vty 0 4
login
transport input all
!
scheduler allocate 20000 1000
!
end
```

CO_Router#

- Router CPE:

CPE_Router#show running-config

Building configuration...

Current configuration : 1646 bytes

```
!
! Last configuration change at 14:50:55 UTC Thu Mar 10 2016
!
version 15.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname CPE_Router
!
boot-start-marker
boot system flash:c2900-universalk9-mz.SPA.154-3.M2.bin
boot-end-marker
!
```

```
!  
no aaa new-model  
!  
  
ip cef  
no ipv6 cef  
!  
multilink bundle-name authenticated  
!  
  
cts logging verbose  
!  
  
redundancy  
!  
  
controller SHDSL 0/3/0  
mode efm  
dsl-group 0 pairs 0, 1, 2, 3 efm-bond  
!  
  
!  
interface Embedded-Service-Engine0/0  
no ip address  
shutdown  
!  
interface GigabitEthernet0/0  
ip address dhcp  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/1  
no ip address  
duplex auto  
speed auto  
!  
interface Ethernet0/3/0  
ip address 1.1.1.2 255.255.255.252  
!  
!  
ip forward-protocol nd  
!  
no ip http server  
no ip http secure-server  
!  
  
control-plane  
!  
  
line con 0  
line aux 0  
line vty 0 4  
login  
transport input all  
!  
scheduler allocate 20000 1000  
!  
end  
  
CPE_Router#
```

2. Soluzione PPPoE

- Router CO:

CO_Router#show running-config

Building configuration...

Current configuration : 1851 bytes

```
!  
! Last configuration change at 15:00:06 UTC Thu Mar 10 2016  
!  
version 15.4  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname CO_Router  
!  
boot-start-marker  
boot system flash:c2900-universalk9-mz.SPA.154-3.M2.bin  
boot-end-marker  
!  
  
ip cef  
no ipv6 cef  
!  
multilink bundle-name authenticated  
!  
  
cts logging verbose  
!  
  
controller SHDSL 0/3/0  
  mode efm  
  dsl-group 0 pairs 0, 1, 2, 3 efm-bond  
!  
  
bba-group pppoe global  
  virtual-template 1  
!  
!  
interface Embedded-Service-Engine0/0  
  no ip address  
  shutdown  
!  
interface GigabitEthernet0/0  
  ip address dhcp  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0/1  
  no ip address  
  duplex auto  
  speed auto  
!  
interface Ethernet0/3/0  
  ip address 1.1.1.2 255.255.255.252  
  pppoe enable group global  
!  
interface Virtual-Template1  
  mtu 1492  
  ip unnumbered Ethernet0/3/0  
  peer default ip address pool PPPOE  
!
```

```
!  
ip local pool PPPOE 1.1.1.1  
  
!  
no ip http server  
no ip http secure-server  
!  
  
control-plane  
!  
  
line con 0  
line aux 0  
line vty 0 4  
  login  
  transport input all  
!  
scheduler allocate 20000 1000  
!  
end
```

CO_Router#

- Router CPE:

CPE_Router#show running-config

Building configuration...

Current configuration : 2310 bytes

```
!  
! Last configuration change at 15:10:04 UTC Thu Mar 10 2016  
!  
version 15.4  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname CPE_Router  
!  
boot-start-marker  
boot system flash:c2900-universalk9-mz.SPA.154-3.M2.bin  
boot-end-marker  
!  
!  
ip cef  
no ipv6 cef  
multilink bundle-name authenticated  
!  
!  
!  
!  
!  
cts logging verbose  
!  
!  
voice-card 0  
!  
!  
!  
!
```



```
!  
redundancy  
!  
controller SHDSL 0/3/0  
  termination co  
  mode efm  
  dsl-group 0 pairs 0, 1, 2, 3 efm-bond  
!  
!  
!  
!  
!  
interface Embedded-Service-Engine0/0  
  no ip address  
  shutdown  
!  
interface GigabitEthernet0/0  
  no ip address  
  duplex auto  
  speed auto  
!  
interface GigabitEthernet0/1  
  no ip address  
  duplex auto  
  speed auto  
!  
!  
interface Ethernet0/3/0  
  no ip address  
  pppoe enable group global  
  pppoe-client dial-pool-number 1  
!  
interface Dialer1  
  ip address negotiated  
  encapsulation ppp  
  dialer pool 1  
!  
!  
ip forward-protocol nd  
!  
no ip http server  
no ip http secure-server  
!  
!  
!  
!  
control-plane  
!  
!  
!  
gatekeeper  
  shutdown  
!  
!  
!  
line con 0  
line aux 0  
line vty 0 4  
  login
```

```
transport input all
!  
scheduler allocate 20000 1000  
!  
end
```

CPE_Router#

Verifica

Fare riferimento a questa sezione per verificare che la configurazione funzioni correttamente.

1. Per verificare che il router sia in modalità CO, eseguire il comando **show**. La linea di terminazione CO nell'output (in grassetto nell'esempio) indica che il router è in modalità CO. La modalità predefinita è CPE. Alcuni output non vengono visualizzati qui, per brevità.

```
CO# show controllers shDSL 0/1/0
```

```
Controller SHDSL 0/1/0 is UP Hardware is EHWIC-4SHDSL-EA, rev 0 on slot 0, hwic slot 1  
Capabilities: EFM: 2-wire, EFM-Bond, Annex A, B, F & G ATM: 2-wire, Mpair, IMA, Annex A, B, F &  
G
```

- **Terminazione CO:**

```
cdb=0x3CF085F0, plugin=0x21C33C1C, ds=0x21C33C68 base=0x10200000
```

```
FPGA Version is A14
```

```
NPU Source: System
```

```
NPU Firmware version: SHDSL_EA_FW_20130116053038
```

```
Vendor: Infineon, Chipset: SOCRATES-4e
```

```
PHY Source: System
```

```
IDC Firmware version: 1.7.5.0
```

```
DFE Firmware version: 1.1-1.7.5__002
```

```
Firmware reload mode: Auto
```

<Output abbreviated due to space constraints>

2. Per la modalità EFM, eseguire il comando **show controllers ethernet** per la verifica.

3. Per la modalità ATM, eseguire il comando **show controllers atm** per la verifica.

Risoluzione dei problemi

Al momento non sono disponibili informazioni specifiche per la risoluzione dei problemi di questa configurazione.

Informazioni correlate

- Per informazioni dettagliate sulla risoluzione dei problemi relativi alle connessioni SHDSL, consultare il documento sulla [configurazione di Cisco G.SHDSL EFM/ATM EHWIC nei router Cisco](#)
- Per la risoluzione dei problemi relativi a PPP, consultare il [diagramma di flusso per la risoluzione dei problemi PPP](#)
- [Documentazione e supporto tecnico – Cisco Systems](#)