

Enterprise Data Center Networking Sample Configurations

Overview

This bulletin provides sample configurations for the following enterprise data center networking solutions:

- SNA Switching Services (SNASw) used with Data-Link Switching Plus (DLSw+)
- Channel Interface Processor (CIP) and Channel Port Adapter (CPA)
- Dependent Logical Unit Requester (DLUR) with Cisco TN3270 Server
- TN3270 Server with SNASw
- Remote SNASw router
- Remote DLSw+ router

SNASw/DLSw+ Sample Configuration

In the following sample configuration, which ties SNASw to DLSw+ using the virtual data-link control (VDLC) port, SNASw uses Enterprise Extender transport for communication to the upstream host:

```

!
source-bridge ring-group 100
dlsw local-peer peer-id 10.2.10.1 promiscuous
!
interface Loopback0
 ip address 10.2.10.1 255.255.255.252
!
interface Ethernet0/1
 ip address 10.2.12.1 255.255.255.0
 no ip mroute-cache
!
interface FastEthernet1/0
 ip address 10.2.1.1 255.255.255.0
 no ip mroute-cache
 duplex auto
 speed auto
!
snasw cpname NETA.RWSNASR1
snasw port HPRLO0 hpr-ip Loopback0 vname NETA.SSCPVN
snasw port VDLCPORT vdlc 100 mac 4000.0001.0001 conntype nohpr
snasw link MVSALINK port HPRLO0 ip-dest 10.2.8.1
!
router ospf 1
 log-adjacency-changes
 network 10.2.0.0 0.0.255.255 area 1
!

```

CIP/CPA Sample Configuration

The following sample configuration is for a Cisco 7500 Series CIP using Cisco MultiPath Channel (CMPC):

```
!  
*** some statements omitted***  
!  
microcode CIP flash slot1:cip28-6.bin  
microcode reload  
!  
source-bridge ring-group 1001  
!  
interface Channel6/0  
  description CPMC read interfaces to sysplex hosts  
  no ip address  
  ip directed-broadcast  
  load-interval 30  
  no keepalive  
  cmpc CA02 E0 TGMVS001 READ  
  cmpc CA02 E2 TGMVS062 READ  
  cmpc CA02 E4 TGMVS069 READ  
  cmpc CA02 E6 TGMVS154 READ  
!  
interface Channel6/1  
  description CMPC write interfaces to sysplex hosts  
  no ip address  
  ip directed-broadcast  
  ip ospf network point-to-multipoint  
  load-interval 30  
  no keepalive  
  cmpc D900 10 TGMVS001 WRITE  
  cmpc D900 12 TGMVS062 WRITE  
  cmpc D900 14 TGMVS069 WRITE  
  cmpc D900 16 TGMVS154 WRITE  
!  
interface Channel6/2  
  description TN3270 Server Port  
  ip address 10.1.2.21 255.255.255.248  
  ip ospf network point-to-multipoint  
  ip igmp join-group 224.0.1.2  
  no keepalive  
  max-llc2-sessions 2000  
  lan TokenRing 0  
    source-bridge 100 1 1001  
    adapter 0 4000.7507.7507  
    adapter 1 4000.7507.3270  
  tn3270-server  
    maximum-lus 200  
    unbind-action keep  
    dlur USIBMNM.C7507TN USIBMNM.N07N  
    lsap token-adapter 1  
      link DLURPIPE rmac 4000.7507.7507  
      pu TESTPU11 05D70571 10.1.2.170  
      pu TESTPU12 05D70572 10.1.2.171  
      pu TESTPU13 05D70573 10.1.2.172  
      pu TESTPU14 05D70574 10.1.2.173  
      pu TESTPU15 05D70575 10.1.2.174  
  tg TGMVS001 ip 10.1.2.17 10.1.2.21 broadcast  
  tg TGMVS062 ip 10.1.2.18 10.1.2.21 broadcast  
  tg TGMVS069 ip 10.1.2.19 10.1.2.21 broadcast  
  tg TGMVS154 ip 10.1.2.20 10.1.2.21 broadcast  
!
```

```

!
router eigrp 1
 redistribute ospf 7514 route-map stopem
 network 10.1.2.144 0.0.0.15
 network 211.1.1.0
 network 211.1.2.0
 default-metric 16000 1 255 1 1500
 distribute-list 1 out Fddi5/0
 no auto-summary
 no eigrp log-neighbor-changes
!
router ospf 7514
 router-id 10.1.2.82
 log-adjacency-changes
 auto-cost reference-bandwidth 1000
 redistribute eigrp 1 subnets route-map sendem
 network 10.1.2.0 0.0.0.255 area 1.1.1.1
 maximum-paths 3
!
ip kerberos source-interface any
ip classless
ip route 0.0.0.0 0.0.0.0 211.1.1.1
!
access-list 1 permit 10.1.2.96 0.0.0.15
access-list 1 permit 10.1.2.112 0.0.0.15
access-list 1 permit 10.1.2.128 0.0.0.15
access-list 10 permit any
access-list 20 deny 0.0.0.0
access-list 20 permit any
access-list 111 permit tcp any any eq telnet
access-list 112 permit tcp any any eq www
access-list 113 permit tcp any any eq ftp
access-list 114 permit ip any any
access-list 121 permit udp any any range 16384 32768
access-list 131 permit udp any any dscp af11
access-list 132 permit udp any any dscp af12
access-list 132 permit tcp any any eq ftp
route-map stopem deny 10
 match tag 1
!
route-map stopem permit 11
 match tag 0
!
route-map sendem permit 10
 match ip address 10
 set tag 1
!

```

The following sample configuration is for a Cisco 7200 Series CPA using Common Link Access for Workstations (CLAW):

```

!
*** some statement omitted ***
!
version 12.2
!
microcode ecpa disk0:xcpa28-6.bin
microcode reload
ip subnet-zero
!
interface Channel3/0
 description CLAW interfaces to sysplex hosts
 ip address 10.1.2.65 255.255.255.248

```

```

no ip redirects
ip directed-broadcast
ip pim dense-mode
no ip route-cache cef
ip ospf network point-to-multipoint
ip igmp join-group 224.0.1.2
no ip mroute-cache
load-interval 30
no keepalive
service-policy input SETDSCP
claw D102 A0 10.1.2.66 MVS001B C7507A PACKED PACKED broadcast
claw D102 A2 10.1.2.67 MVS069B C7507B PACKED PACKED broadcast
claw D102 A4 10.1.2.68 MVS154B C7507C PACKED PACKED broadcast
claw D102 A6 10.1.2.69 MVS062B C7507D PACKED PACKED broadcast
ip rsvp bandwidth 1 1
ip rsvp udp-multicasts 224.0.0.14
!
router eigrp 1
 redistribute ospf 1 route-map stopem
 network 10.1.2.144 0.0.0.15
 network 211.1.2.0
 default-metric 16000 1 255 1 1500
 no auto-summary
 no eigrp log-neighbor-changes
!
router ospf 1
 router-id 10.1.2.89
 log-adjacency-changes
 auto-cost reference-bandwidth 1000
 redistribute eigrp 1 subnets route-map sendem
 network 10.1.2.0 0.0.0.255 area 1.1.1.1
 neighbor 10.1.2.82 cost 2
 neighbor 10.1.2.81 cost 1
 maximum-paths 3
!
ip classless
!
access-list 10 permit any
access-list 111 permit tcp any any eq telnet
access-list 112 permit tcp any any eq www
access-list 113 permit tcp any any eq ftp
access-list 114 permit ip any any
access-list 121 permit udp any any range 16384 32768
access-list 131 permit udp any any dscp af11
access-list 132 permit udp any any dscp af12
access-list 132 permit tcp any any eq ftp
access-list 198 permit tcp any any
access-list 199 permit tcp any any eq 8008
access-list 199 permit tcp any any range 8000 8008
route-map stopem deny 10
 match tag 1
!
route-map stopem permit 11
 match tag 0
!
route-map sendem permit 10
 match ip address 10
 set tag 1
!

```

DLUR TN3270 Server Sample Configuration

The following sample configuration illustrates DLUR used with TN3270 Server:

```
*** some statements omitted***
!
microcode CIP flash slot1:cip28-6.bin
microcode reload
!
source-bridge ring-group 1001
!
interface Channel6/0
  description CPMC read interfaces to sysplex hosts
  no ip address
  ip directed-broadcast
  load-interval 30
  no keepalive
  cmpc CA02 E0 TGMVS001 READ
  cmpc CA02 E2 TGMVS062 READ
  cmpc CA02 E4 TGMVS069 READ
  cmpc CA02 E6 TGMVS154 READ
!
interface Channel6/1
  description CMPC write interfaces to sysplex hosts
  no ip address
  ip directed-broadcast
  ip ospf network point-to-multipoint
  load-interval 30
  no keepalive
  cmpc D900 10 TGMVS001 WRITE
  cmpc D900 12 TGMVS062 WRITE
  cmpc D900 14 TGMVS069 WRITE
  cmpc D900 16 TGMVS154 WRITE
!
interface Channel6/2
  description TN3270 Server Port
  ip address 10.1.2.21 255.255.255.248
  ip ospf network point-to-multipoint
  ip igmp join-group 224.0.1.2
  no keepalive
  max-llc2-sessions 2000
  lan TokenRing 0
  source-bridge 100 1 1001
  adapter 0 4000.7507.7507
  adapter 1 4000.7507.3270
tn3270-server
  maximum-lus 200
  unbind-action keep
  dlur USIBMNM.C7507TN USIBMNM.N07N
  lsap token-adapter 1
    link DLURPIPE rmac 4000.7507.7507
  pu TESTPU11 05D70571 10.1.2.170
  pu TESTPU12 05D70572 10.1.2.171
  pu TESTPU13 05D70573 10.1.2.172
  pu TESTPU14 05D70574 10.1.2.173
  pu TESTPU15 05D70575 10.1.2.174
  tg TGMVS001 ip 10.1.2.17 10.1.2.21 broadcast
  tg TGMVS062 ip 10.1.2.18 10.1.2.21 broadcast
  tg TGMVS069 ip 10.1.2.19 10.1.2.21 broadcast
  tg TGMVS154 ip 10.1.2.20 10.1.2.21 broadcast
!
```

TN3270 Server/SNASw Sample Configuration

The following sample configuration shows how the Channel Port Adapter (CPA) can be used to implement TN3270 Server, connecting to a virtual Token Ring interface configured as a SNASw port:

```
!  
version 12.1  
no service single-slot-reload-enable  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname cabernet  
!  
boot system flash disk0:c7200-a3js-mz.121-5.T5.bin  
boot system flash  
logging buffered 32000 debugging  
logging rate-limit console 10 except errors  
enable password cisco  
!  
microcode ecpa disk0:xcpa28-2.bin  
microcode reload  
ip subnet-zero  
!  
no ip finger  
!  
call rsvp-sync  
cns event-service server  
!  
source-bridge ring-group 100  
!  
interface Loopback0  
 ip address 10.2.10.13 255.255.255.252  
!  
interface FastEthernet0/0  
 ip address 172.26.65.49 255.255.240.0  
 no ip proxy-arp  
 no ip mroute-cache  
 duplex half  
!  
interface Channell1/0  
 ip address 10.2.90.1 255.255.255.0  
 no keepalive  
 lan TokenRing 0  
  source-bridge 200 1 100  
  adapter 1 4000.7200.0001  
   name tnadap  
 tn3270-server  
  pu RWP98001 08198001 10.2.98.1          token-adapter 1 08 rmac 4000.7200.0002  
!  
interface FastEthernet2/0  
 ip address 10.2.1.4 255.255.255.0  
 duplex half  
!  
interface Virtual-TokenRing0  
 mac-address 4000.7200.0002  
 no ip address  
 ring-speed 16  
 source-bridge 300 2 100  
!
```

```

snasw cpname NETA hostname
snasw port HPRLOO hpr-ip Loopback0 vname NETA.SSCPVN nostart
snasw port TNPORT Virtual-TokenRing0 conntype nohpr
snasw link MVSALINK port HPRLOO ip-dest 10.2.8.1 nostart
!
router ospf 1
  log-adjacency-changes
  redistribute static subnets
  network 10.2.0.0 0.0.255.255 area 1
!

```

Remote SNASw Router Sample Configuration

The following sample configuration uses SNASw and Enterprise Extender to transport SNA traffic natively over High Performance Routing (HPR)/IP:

```

!
version 12.1
!
interface Loopback0
  ip address 10.2.10.5 255.255.255.252
!
interface FastEthernet0/0
  ip address 172.26.65.55 255.255.240.0
  no ip proxy-arp
  no ip route-cache
  no ip mroute-cache
  duplex auto
  speed auto
!
interface FastEthernet1/0
  mac-address 4000.0000.0002
  ip address 10.2.13.1 255.255.255.0
  duplex half
!
interface Serial2/0
  no ip address
  encapsulation frame-relay
  no ip mroute-cache
!
interface Serial2/0.100 point-to-point
  ip address 10.2.11.2 255.255.255.252
  frame-relay interface-dlci 100
!
snasw cpname NETA hostname
snasw port HPRLOO hpr-ip Loopback0 vname NETA.SSCPVN
snasw port ETHER FastEthernet1/0 conntype nohpr
snasw link MVSALINK port HPRLOO ip-dest 10.2.8.1
!
router ospf 1
  log-adjacency-changes
  network 10.2.0.0 0.0.255.255 area 1
!

```

Remote DLSw+ Router Sample Configuration

This sample configuration shows a remote router with two upstream peers. It designates one peer as the preferred router by setting a lower cost. For increased availability, the configuration uses Ethernet redundancy, which allows another remote router to provide backup SNA service in the event that the primary router fails:

```
!  
version 12.2  
  
!  
source-bridge ring-group 400  
dlsw local-peer peer-id 10.2.10.21  
dlsw timer explorer-wait-time 3  
dlsw remote-peer 0 tcp 10.2.10.17 cost 2  
dlsw remote-peer 0 tcp 10.2.10.13 cost 4  
!  
!  
interface Loopback0  
 ip address 10.2.10.21 255.255.255.252  
!  
interface FastEthernet0/0  
 mac-address 4000.7777.0001  
 ip address 10.3.3.1 255.255.255.0  
 no keepalive  
 duplex half  
 standby ip 10.3.3.3  
 dlsw transparent redundancy-enable 9999.9999.9999  
!  
interface FastEthernet2/0  
 ip address 10.2.11.6 255.255.255.252  
 duplex half  
!  
router ospf 1  
 log-adjacency-changes  
 network 10.0.0.0 0.255.255.255 area 1  
!
```



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