MDS/IPS-8에 Solaris iSCSI 호스트 구성

목차

소개

Cisco iSCSI(Small Computer Systems Interface over IP) 드라이버는 iSCSI 솔루션의 핵심 구성 요소입니다.이러한 iSCSI 드라이버는 다음 서버에 상주합니다.

- Intercept iSCSI 명령.
- 명령을 IP 패킷으로 캡슐화합니다.
- 명령을 Cisco SN 5420, Cisco SN 5428, Cisco SN 5428-2 또는 Cisco MDS/IPS-8로 리디렉션합니다.

이 문서에서는 Cisco MDS/IPS-8에 대한 Solaris iSCSI 호스트의 샘플 컨피그레이션을 제공합니다.

사전 요구 사항

요구 사항

이 구성을 시도하기 전에 다음 요구 사항을 충족해야 합니다.

- Solaris 버전과 호환되는 iSCSI 드라이버를 설치한 다음 Cisco MDS 9000에서 iSCSI 구성을 만듭니다.최신 드라이버 버전(solaris-iscsi-3.3.5.tar.Z)은 Cisco iSCSI 드라이버(등록된 고객만 해당)를 참조하십시오.README.txt 파일은 드라이버 ZIP(TAR) 파일에 포함되어 있습니다 .README.txt 파일에는 다음이 포함되어 있습니다.라이센스 계약 정보드라이버 설치 및 구성 지침드라이버 아키텍처에 대한 기술 개요
- 운영 체제(OS) 및 패치 요구 사항은 Cisco iSCSI Driver for Sun Solaris Release Notes의 System Requirements 섹션을 참조하십시오.

- Sun Solaris용 Cisco iSCSI 드라이버는 SPARC 시스템에서만 실행됩니다.드라이버는 다른 프로세서 유형(예: x86)에서 작동하지 않습니다.

사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

- SunOS 5.9, SPARC Ultra-4 E450

```
#uname -a

SunOS baboon 5.9 Generic sun4u sparc SUNW,Ultra-4
```

- Solaris용 Cisco iSCSI 드라이버 3.3.3

```
#pkginfo -l CSCOiscsi

   PKGINST:  CSCOiscsi
      NAME:  Cisco iSCSI device driver
  CATEGORY:  system
      ARCH:  sparc
   VERSION:  3.3.3
   BASEDIR:  /opt/CSCOiscsi
    VENDOR:  Cisco Systems, Inc.
      DESC:  Cisco iSCSI device driver 3.3.3
    PSTAMP:  solaris-920030807170521
  INSTDATE:  Aug 25 2003 23:41
   HOTLINE:  For contracted support, 1-800-553-2447,
             Cisco Technical Assistance Center (TAC)
     EMAIL:  For online help, go to http://www.cisco.com/
    STATUS:  completely installed
     FILES:       74 installed pathnames
                  16 shared pathnames
                  29 directories
                  32 executables
                2182 blocks used (approx)

#iscsi-ls -v

iSCSI driver version: 3.3.3
```

- Cisco MDS 9216 및 소프트웨어 릴리스 1.1.2

```
canterbury#show module

Mod  Ports  Module-Type                      Model              Status
---  -----  -------------------------------- ------------------ ------------
1    16     1/2 Gbps FC/Supervisor           DS-X9216-K9-SUP    active *
2    8      IP Storage Module                DS-X9308-SMIP      ok
Mod  Sw           Hw      World-Wide-Name(s) (WWN)
---  -----------  ------  --------------------------------------------------
1    1.1(2)       1.0     20:01:00:0c:30:6c:24:40 to 20:10:00:0c:30:6c:24:40
2    1.1(2)       0.3     20:41:00:0c:30:6c:24:40 to 20:48:00:0c:30:6c:24:40

Mod  MAC-Address(es)                         Serial-Num
---  --------------------------------------  ----------
1    00-0b-be-f8-7f-08 to 00-0b-be-f8-7f-0c  JAB070804QK
2    00-05-30-00-ad-e2 to 00-05-30-00-ad-ee  JAB070806SB

* this terminal session

canterbury#show version

Cisco Storage Area Networking Operating System (SAN-OS) Software
TAC support: http://www.cisco.com/tac
```

```
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distributed under license.

Software
  BIOS:      version 1.0.7
  loader:    version 1.0(3a)
  kickstart: version 1.1(2)
  system:    version 1.1(2)

  BIOS compile time:       03/20/03
  kickstart image file is: bootflash:/k112
  kickstart compile time:  7/13/2003 20:00:00
  system image file is:    bootflash:/s112
  system compile time:     7/13/2003 20:00:00

Hardware
  RAM 963112 kB

  bootflash: 500736 blocks (block size 512b)
  slot0:          0 blocks (block size 512b)

  canterbury uptime is 16 days 20 hours 51 minute(s) 36 second(s)

  Last reset at 684726 usecs after Mon Aug 11 13:53:17 2003
    Reason: Reset Requested by CLI command reload
    System version: 1.1(2)
```

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다.이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다.현재 네트워크가 작동 중인 경우, 모든 명령어의 잠재적인 영향을 미리 숙지하시기 바랍니다.

표기 규칙

문서 규칙에 대한 자세한 내용은 Cisco 기술 팁 표기 규칙을 참고하십시오.

배경 정보

IP 스토리지 모듈은 FC(Fibre Channel) 스토리지 디바이스에 대한 IP 호스트 액세스를 제공합니다.IP 스토리지 모듈은 투명한 iSCSI 라우팅을 제공하는 DS-X9308-SMIP입니다.iSCSI 프로토콜을 사용하는 IP 호스트는 FC 네트워크의 iSCSI(FC 프로토콜[FCP]) 대상에 투명하게 액세스할 수 있습니다.IP 호스트는 TCP/IP 연결을 통해 iSCSI PDU(protocol data unit)에 캡슐화된 iSCSI 명령을 Cisco MDS 9000 IP 스토리지 포트로 전송합니다.IP 스토리지 모듈에 적절하게 구성된 기가비트 이더넷(GE) 인터페이스는 연결을 제공합니다.IP 스토리지 모듈:

- 가상 iSCSI 대상을 생성하여 FC SAN에서 사용 가능한 물리적 FC 대상에 매핑할 수 있습니다.
- 물리적 대상이 IP 네트워크에 로컬로 연결된 것처럼 IP 호스트에 FC 대상을 표시합니다.

IP 스토리지 모듈을 통해 스토리지에 액세스해야 하는 각 iSCSI 호스트에는 호환되는 iSCSI 드라이버가 설치되어 있어야 합니다.iSCSI 드라이버를 사용하면 iSCSI 호스트가 iSCSI 프로토콜을 사용하여 IP 네트워크를 통해 iSCSI 요청 및 응답을 전송할 수 있습니다.호스트 OS의 관점에서 보면 iSCSI 드라이버는 호스트의 주변 장치 채널에 대한 FC 드라이버와 유사한 iSCSI 전송 드라이버로 나타납니다.각 IP 호스트는 스토리지 디바이스의 관점에서 FC 호스트로 표시됩니다.

IP 호스트에서 FC 스토리지 디바이스로 iSCSI를 라우팅하려면 다음 단계를 완료합니다.

- 호스트와 IP 스토리지 모듈 간에 IP 네트워크를 통해 iSCSI 요청 및 응답을 전송합니다.
- IP 스토리지 모듈을 사용하여 IP 네트워크의 호스트와 FC 스토리지 디바이스 간에 iSCSI 요청 및 응답을 라우팅합니다(iSCSI를 FCP로 변환 또는 그 반대로 변환).
- IP 스토리지 모듈과 FC 스토리지 디바이스 간의 FCP 요청 또는 응답 전송

IP 스토리지 모듈은 기본적으로 FC 대상을 iSCSI로 가져오지 않습니다.IP 스토리지 모듈이 FC 대상을 iSCSI 이니시에이터에서 사용할 수 있도록 동적 또는 정적 매핑을 구성해야 합니다.정적으로 매핑된 FC 타겟은 둘 다 구성된 경우 이름이 구성됩니다.이 컨피그레이션에서는 정적 매핑의 예를 제공합니다.

동적 매핑을 사용하여 iSCSI 호스트가 IP 스토리지 모듈에 연결될 때마다

- 새 FC N 포트가 생성됩니다.
- 이 N 포트에 할당된 nWWN(World Wide Name) 및 포트 WWN(World Wide Name)은 다를 수 있습니다.

IP 스토리지 모듈에 연결할 때마다 iSCSI 호스트에 대해 동일한 nWWN 및 pWWN을 얻어야 하는 경우 고정 매핑 방법을 사용합니다.IP 스토리지 모듈에서 정적 매핑을 사용하여 다음과 같은 지능형 FC 스토리지 어레이에 액세스할 수 있습니다.

- 액세스 제어
- 이니시에이터의 pWWN 또는 nWWN을 기반으로 하는 LUN(Logical Unit Number) 매핑 및 마스킹 구성

정적으로 매핑된 각 iSCSI 대상에 대한 액세스를 제어하려면 다음 항목을 지정하십시오.

- 광고되는 IP 스토리지 포트 목록
- 액세스가 허용된 iSCSI 이니시에이터 노드 이름 목록

FC 조닝 (zoning) 기반 액세스 제어 및 iSCSI 기반 액세스 제어는 iSCSI에 대한 액세스 제어를 제공하는 두 가지 메커니즘입니다.두 메서드를 동시에 사용할 수 있습니다.이 구성의 특정 VSAN(가상 스토리지 영역 네트워크)에 대해 기본 영역 지정이 허용되었습니다.IP 스토리지 모듈은 iSCSI 노드 이름 기반 및 FC 조닝 기반 액세스 제어 목록을 모두 사용하여 iSCSI 검색 및 iSCSI 세션 생성 중에 액세스 제어를 적용합니다.

iSCSI 이니시에이터는 IP 주소 또는 IQN(iSCSI qualified name)으로 정적으로 정의할 수 있습니다 .proxy-initiator 옵션을 사용하면 Cisco MDS 스위치에 대해 SAN-IOS 1.3에서 iSCSI 이니시에이터를 동적으로 생성할 수 있습니다.

iSCSI 검색은 iSCSI 호스트가 iSCSI 검색 세션을 생성하고 모든 iSCSI 대상을 쿼리할 때 발생합니다.IP 스토리지 모듈은 액세스 제어 정책에서 iSCSI 호스트에 액세스를 허용하는 iSCSI 대상 목록만 반환합니다.

iSCSI 세션 생성은 IP 호스트가 iSCSI 세션을 시작할 때 발생합니다.IP 스토리지 모듈은 다음을 확인합니다.

- 세션 로그인 요청에 지정된 iSCSI 대상이 정적 매핑된 대상인 경우
- IP 호스트의 iSCSI 노드 이름이 대상에 액세스할 수 있도록 허용되는지 여부

IP 호스트에 액세스 권한이 없는 경우 로그인이 거부됩니다.

IP 스토리지 모듈:

- 이 IP 호스트에 대한 FC 가상 N 포트(N 포트는 이미 존재할 수 있음)를 생성합니다.
- FC 이름 서버가 IP 호스트가 액세스하는 FC 대상 pWWN의 FCID(Fibre Channel ID)에 대해 쿼

리합니까?

IP 스토리지 모듈은 IP 호스트 가상 N 포트의 pWWN을 이름 서버 쿼리의 요청자로 사용합니다.따라서 이름 서버는 pWWN에 대해 영역 적용 쿼리를 수행하고 쿼리에 응답합니다.이름 서버에서 FCID를 반환하면 iSCSI 세션이 수락됩니다.그렇지 않으면 로그인 요청이 거부됩니다.

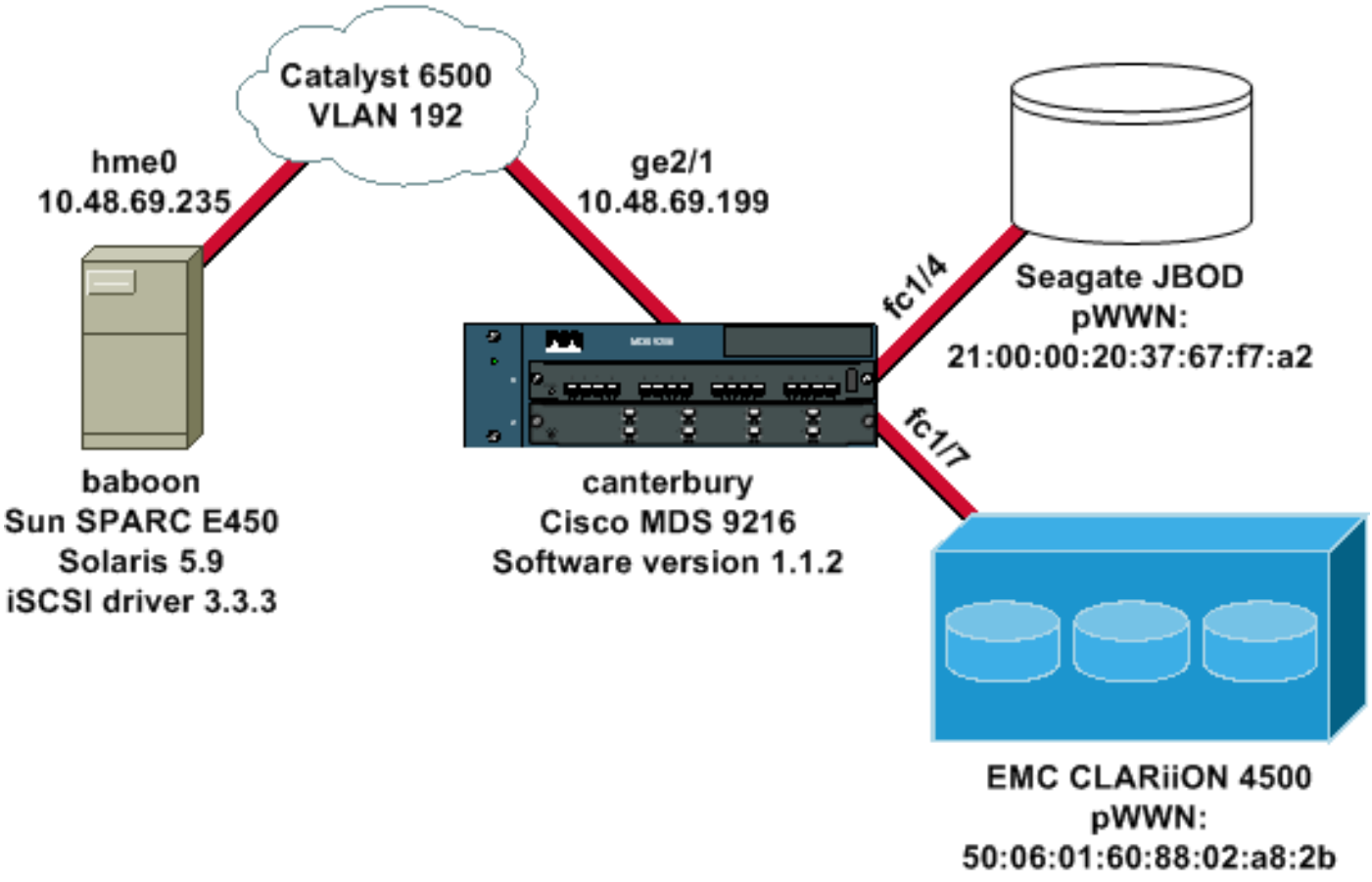
구성

이 섹션에서는 이 문서에 설명된 기능을 구성하는 정보를 제공합니다.

참고: 명령 조회 도구(등록된 고객만 해당)를 사용하여 이 문서에 사용된 명령에 대한 자세한 내용을 확인하십시오.

네트워크 다이어그램

이 문서에서는 다음 네트워크 설정을 사용합니다.



구성

이 문서에서는 다음 구성을 사용합니다.

- baboon(SunOS 5.9, SPARC E450)
- 캔터베리(Cisco MDS 9216)

baboon(SunOS 5.9, SPARC E450)
Solaris 호스트에서 다음 파일을 수정합니다. • /etc/iscsi.conf

- /etc/iscsi.bindings
- /kernel/drv/sd.conf

다음은 샘플 컨피그레이션 출력입니다.

```
bash-2.05#cat /etc/iscsi.conf

# iSCSI configuration file - see iscsi.conf(4)

# DiscoveryAddress Settings
# -------------------------
# Add "DiscoveryAddress=xxx" entries for each iSCSI
router instance.
# The driver will attempt to discover iSCSI targets at
that address
# and make as many targets as possible available for
use.
# 'xxx' can be an IP address or a hostname.  A TCP port
number can be
# specified by appending a colon and the port number to
the address.
# All entries have to start in column one and must not
contain any
# whitespace.
#
# Example:
#
# DiscoveryAddress=scsirouter1
 DiscoveryAddress=10.48.69.199
 !--- Configure the IP address of the GE interface that
accepts iSCSI !--- requests from your host. # The
DiscoveryAddress Settings can take following entry. # #
1) Authentication Settings # 2) ConnectionTimeout
Settings !--- Other required driver parameters can be
changed in the iscsi.conf file. !--- Output is
suppressed. bash-2.05#cat /etc/iscsi.bindings

# iSCSI bindings, file format version 1.0.
# NOTE: this file is automatically maintained by the
iSCSI daemon.
# You should not need to edit this file under most
circumstances.
# If iSCSI targets in this file have been permanently
deleted, you
# may wish to delete the bindings for the deleted
targets.
#
# Format:
# bus   target  iSCSI
# id    id      TargetName
#
0       0       san-fc-jbod-1
0       1       clariion
0       2       clariion-lun-3-4-5
!--- The iSCSI driver discovery daemon process looks up
each discovered target !--- in the /etc/iscsi.bindings
file. !--- The corresponding iSCSI target ID is assigned
to the target if an entry exists in the file for the
target. !--- The smallest available iSCSI target ID !---
is assigned if no entry exists for the target, and an
entry is written to the /etc/iscsi.bindings file for !--
- this target. !--- Note that the /etc/iscsi.bindings
file permanently contains entries !--- for all iSCSI
targets ever logged into from this host. !--- You can
```

```
manually edit the file and remove !--- entries so that
the obsolete target no longer consumes an iSCSI target
ID if a target is no longer available to a host. !---
Add an entry manually if you know the iSCSI target name
!--- in advance and want it to be assigned a particular
iSCSI target ID. !--- Stop the iSCSI driver before you
edit the /etc/iscsi.bindings !--- file. Issue the !---
/etc/init.d/iscsi start command to manually start the
iSCSI driver. !--- Issue the /etc/init.d/iscsi stop
command to manually stop the iSCSI driver.

bash-2.05#cat /kernel/drv/sd.conf

name="sd" class="scsi" class_prop="atapi"
target=0 lun=0;

name="sd" class="scsi" target=1 lun=0;
name="sd" class="scsi" target=1 lun=1;
name="sd" class="scsi" target=1 lun=2;

# Start iSCSI auto-generated configuration -- do NOT
alter or delete this line
# You may need to add additional lines to probe for
additional LUNs
# or targets. You SHOULD delete any lines that represent
iSCSI targets
# or LUNs that are not used.
name="sd" parent="iscsi" target=0 lun=0;
name="sd" parent="iscsi" target=1 lun=0;
name="sd" parent="iscsi" target=1 lun=1;
name="sd" parent="iscsi" target=1 lun=2;
name="sd" parent="iscsi" target=2 lun=3;
name="sd" parent="iscsi" target=2 lun=4;
name="sd" parent="iscsi" target=2 lun=5;
name="sd" parent="iscsi" target=2 lun=0;

# End iSCSI auto-generated configuration -- do NOT alter
or delete this line

 !--- The corresponding entries for these devices must
be made in the standard device configuration files !---
if the targets that get discovered by the iSCSI driver
at any point in time !--- do not have a corresponding
entry in the standard device configuration files (for
example, /kernel/drv/sd.conf or /kernel/drv/st.conf). !-
-- Then reboot the system and issue the standard Solaris
administrative commands !--- (devfsadm, drvconfig) once
the system comes up. !--- You do not need to reboot the
system if the entries in the device configuration files
are already present. However, the standard device
configuration !--- commands (devfsadm, drvconfig, and so
on) must be issued to configure the !--- new iSCSI
devices in the system.
```

캔터베리(Cisco MDS 9216)

```
!--- Output is suppressed. vsan database vsan 777 !---
VSAN 777 has been used for iSCSI targets. !--- Output is
suppressed. vsan database vsan 777 interface fc1/4 vsan
777 interface fc1/7 !--- Output is suppressed. boot
system bootflash:/s112 boot kickstart bootflash:/k112 ip
```

```
domain-name cisco.com ip name-server 144.254.10.123 ip
default-gateway 10.48.69.129 ip routing iscsi
authentication none iscsi initiator ip-address
10.48.69.235 !--- Identifies the iSCSI initiator based
on the IP address. A virtual N port is !--- created for
each network interface card (NIC) or network interface.
vsan 777 !--- VSAN 777 has been used for iSCSI targets.
Configure the initiator IP address. !--- Targets via
VSAN 777 are accessible by iSCSI initiators. iscsi
virtual-target name san-fc-jbod-1 pWWN
21:00:00:20:37:67:f7:a2 advertise interface
GigabitEthernet2/1 initiator ip address 10.48.69.235
permit !--- Create a static iSCSI virtual target for LUN
0, 1, and 2 of CLARiiON. iscsi virtual-target name
clariion pWWN 50:06:01:60:88:02:a8:2b fc-lun 0000 iscsi-
lun 0000 pWWN 50:06:01:60:88:02:a8:2b fc-lun 0001 iscsi-
lun 0001 pWWN 50:06:01:60:88:02:a8:2b fc-lun 0002 iscsi-
lun 0002 advertise interface GigabitEthernet2/1
initiator ip address 10.48.69.235 permit !--- Create a
static iSCSI virtual target for LUN 3, 4, and 5 of
CLARiiON. iscsi virtual-target name clariion-lun-3-4-5
pWWN 50:06:01:60:88:02:a8:2b fc-lun 0003 iscsi-lun 0003
pWWN 50:06:01:60:88:02:a8:2b fc-lun 0004 iscsi-lun 0004
pWWN 50:06:01:60:88:02:a8:2b fc-lun 0005 iscsi-lun 0005
advertise interface GigabitEthernet2/1 initiator ip
address 10.48.69.235 permit !--- Output is suppressed.
switchname canterbury !--- Output is suppressed. zone
default-zone permit vsan 777 !--- Output is suppressed.
interface GigabitEthernet2/1 ip address 10.48.69.199
255.255.255.192 iscsi authentication none switchport mtu
2156 no shutdown !--- Output is suppressed. interface
fc1/4 no shutdown !--- Output is suppressed. interface
fc1/7 no shutdown interface mgmt0 ip address
10.48.69.156 255.255.255.192 interface iscsi2/1 no
shutdown
```

다음을 확인합니다.

이 섹션을 사용하여 컨피그레이션이 제대로 작동하는지 확인합니다.

Output Interpreter 도구(등록된 고객만 해당)(OIT)는 특정 **show** 명령을 지원합니다.OIT를 사용하여 **show** 명령 출력의 분석을 봅니다.

- **netstat -n** —Solaris 호스트에서 TCP 연결을 확인합니다.
- **iscsi-ls -l** —Solaris 호스트에서 현재 사용 가능한 디바이스를 표시합니다.
- **show zone status** —영역 정보를 표시합니다.
- **show fcns database vsan 777** —특정 VSAN에 대한 이름 서버 정보를 표시합니다.
- **show flogi database vsan 777** —특정 VSAN에 대한 FLOGI(Fabric Login) 서버 정보를 표시합니다.
- **show vsan membership** —여러 VSAN에 대한 인터페이스 정보를 표시합니다.
- **show iscsi initiator detail** —iSCSI 이니시에이터 정보를 표시합니다.
- **show iscsi initiator iscsi-session detail** —iSCSI 이니시에이터 세션에 대한 자세한 정보를 표시합니다.
- **show iscsi initiator fcp-session detail** —iSCSI initiator FCP 세션에 대한 자세한 정보를 표시합니다.
- **show ips stats tcp interface gigabitethernet 2/1 detail** —특정 GE 인터페이스에 대한 TCP 통계

를 표시합니다.

- **show iscsi virtual-target configured** —Cisco MDS 9000에 구성된 iSCSI 가상 대상을 표시합니다.
- **show iscsi initiator configured** —Cisco MDS 9000에 구성된 iSCSI 이니시에이터를 표시합니다.
- **show ips arp interface gigabitethernet 2/1** —특정 GE 인터페이스에 대한 IP ARP(Storage Address Resolution Protocol) 정보를 표시합니다.
- **show scsi-target devices vsan 777** —특정 VSAN에 대한 iSCSI 디바이스를 표시합니다(FC LUN을 iSCSI LUN에 매핑).
- **show int iscsi 2/1** —iSCSI 인터페이스를 표시합니다.
- **show iscsi stats iscsi 2/1** —iSCSI 통계를 표시합니다.
- **show int gigabitethernet 2/1** —GE 인터페이스를 표시합니다.
- **show ip route** —IP 경로 정보를 표시합니다.

문제 해결

이 섹션에서는 컨피그레이션 문제를 해결할 수 있습니다.

문제 해결 절차

- babon 출력
- 캔터베리 Cisco MDS 9216 출력
- 패브릭 관리자 및 장치 관리자 출력

babon 출력

```
bash-2.05# /etc/init.d/iscsi stop

iSCSI is stopping.
Aug 28 09:42:08 baboon iscsimod: iSCSIs: closing
connection to target 2 at 10.48.69.199
Aug 28 09:42:08 baboon iscsimod: iSCSIs: closing
connection to target 1 at 10.48.69.199
Aug 28 09:42:08 baboon iscsimod: iSCSIs: closing
connection to target 0 at 10.48.69.199

bash-2.05# /etc/init.d/iscsi start

iSCSI is starting.

bash-2.05#bash-2.05# netstat -n

TCP: IPv4
   Local Address         Remote Address    Swind Send-Q
Rwind Recv-Q  State
-------------------- -------------------- ----- ------ -
---- ------ -------
10.48.69.235.32797   10.48.69.199.3260    65535      0
49172    0   ESTABLISHED
10.48.69.235.32798   10.48.69.199.3260    9379072    0
263152   0   ESTABLISHED
10.48.69.235.32799   10.48.69.199.3260    9379072    0
263152   0   ESTABLISHED
```

```
Active UNIX domain sockets
Address  Type          Vnode       Conn     Local Addr
Remote Addr
30002d95c88 dgram      30000205828 00000000 /tmp/portal
```

/etc/iscsi.bindings

```
#
0       0       san-fc-jbod-1
0       1       clariion
```

bash-2.05# devfsadm

```
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 0, Cmd 0x4d, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 0, Cmd 0x5e, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 1, Cmd 0x00, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000600 0000000a
00000000 29000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 1, Cmd 0x4d, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 1, Cmd 0x5e, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 2, Cmd 0x00, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000600 0000000a
00000000 29000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 2, Cmd 0x4d, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:04 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 1 lun 2, Cmd 0x5e, Sense:
Aug 28 09:45:04 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:45:05 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 0 lun 0, Cmd 0x1c, Sense:
Aug 28 09:45:05 baboon iscsimod:     70000500 0000000a
00000000 35010300 0000
```

bash-2.05# format output

```
AVAILABLE DISK SELECTIONS:
       0. c0t0d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
          /pci@1f,4000/scsi@3/sd@0,0
       1. c0t1d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
          /pci@1f,4000/scsi@3/sd@1,0
       2. c3t0d0 <SEAGATE-ST318203FC-0004 cyl 9770 alt 2
hd 12 sec 303>
          /iscsipseudo/iscsi@0/sd@0,0
       3. c3t1d0 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@1,0
```

```
       4. c3t1d1 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@1,1
       5. c3t1d2 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@1,2
       6. c3t2d0 <drive not available>
          /iscsipseudo/iscsi@0/sd@2,0
 !--- After you add the clariion-lun-3-4-5 virtual
target on the Cisco MDS 9216. /etc/iscsi.bindings

0       0       san-fc-jbod-1
0       1       clariion
0       2       clariion-lun-3-4-5

bash-2.05#bash-2.05# netstat -n

TCP: IPv4
   Local Address        Remote Address    Swind Send-Q
Rwind Recv-Q  State
-------------------- -------------------- ----- ------ -
---- ------ -------
10.48.69.235.32797   10.48.69.199.3260    65535      0
49172      0 TIME_WAIT
10.48.69.235.32798   10.48.69.199.3260    9379072    0
263152     0 ESTABLISHED
10.48.69.235.32799   10.48.69.199.3260    9379072    0
263152     0 ESTABLISHED
10.48.69.235.32800   10.48.69.199.3260    65535      0
49108      0 ESTABLISHED
10.48.69.235.32801   10.48.69.199.3260    9379072    0
263152     0 ESTABLISHED

Active UNIX domain sockets
Address  Type          Vnode       Conn     Local Addr
Remote Addr
30002d95c88 dgram      30000205828 00000000 /tmp/portal

bash-2.05# devfsadm

Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 3, Cmd 0x00, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000600 0000000a
00000000 29000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 3, Cmd 0x4d, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 3, Cmd 0x5e, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 4, Cmd 0x00, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000600 0000000a
00000000 29000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 4, Cmd 0x5e, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 5, Cmd 0x00, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000600 0000000a
00000000 29000000 0000
```

```
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 5, Cmd 0x4d, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000
Aug 28 09:47:58 baboon iscsimod: NOTICE: iSCSIs: bus 0
tgt 2 lun 5, Cmd 0x5e, Sense:
Aug 28 09:47:58 baboon iscsimod:     70000500 0000000a
00000000 20000000 0000

And the format output:
       0. c0t0d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
          /pci@1f,4000/scsi@3/sd@0,0
       1. c0t1d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
          /pci@1f,4000/scsi@3/sd@1,0
       2. c3t0d0 <SEAGATE-ST318203FC-0004 cyl 9770 alt 2
hd 12 sec 303>
          /iscsipseudo/iscsi@0/sd@0,0
       3. c3t1d0 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@1,0
       4. c3t1d1 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@1,1
       5. c3t1d2 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@1,2
       6. c3t2d0 <drive not available>
          /iscsipseudo/iscsi@0/sd@2,0
       7. c3t2d3 <DGC-RAID0-0632 cyl 10920 alt 2 hd 3
sec 128>
          /iscsipseudo/iscsi@0/sd@2,3
       8. c3t2d4 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@2,4
       9. c3t2d5 <DGC-RAID0-0632 cyl 5459 alt 2 hd 3 sec
128>
          /iscsipseudo/iscsi@0/sd@2,5
 !--- Issue the iscsi-ls -v command to see iSCSI driver
version.

bash-2.05# iscsi-ls -v

iSCSI driver version: 3.3.3
!--- Issue the iscsi-ls -l or iscsi-ls commands to see
the devices that are currently available.

bash-2.05# iscsi-ls -l

*******************************************************
***********************
TARGET NAME san-fc-jbod-1
TARGET ID 0:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS  = Connected 10.48.69.235:32798<-
>10.48.69.199:3260  8/28/2003 09:43:59
  SESSION = ISID 00023d000001  TSID 128  PID 463
  LUN   0 = DISK c3t0d0 (sd296) 'SEAGATE-ST318203FC-
0004' SERIAL# LRE80915
            BLOCKS: 35566479  BLOCK SIZE: 512
*******************************************************
***********************
TARGET NAME clariion
TARGET ID 1:
  ADDRESS = 10.48.69.199:3260, 128
```

```
  STATUS  = Connected 10.48.69.235:32799<-
>10.48.69.199:3260  8/28/2003 09:43:59
  SESSION = ISID 00023d000001  TSID 128  PID 464
  LUN   0 = DISK c3t1d0 (sd297) 'DGC-RAID 0-0632'
SERIAL# 008E080000CL
            BLOCKS: 2097023  BLOCK SIZE: 512
  LUN   1 = DISK c3t1d1 (sd298) 'DGC-RAID 0-0632'
SERIAL# 0127AB0000CL
            BLOCKS: 2097023  BLOCK SIZE: 512
  LUN   2 = DISK c3t1d2 (sd299) 'DGC-RAID 0-0632'
SERIAL# 02E4180000CL
            BLOCKS: 2097023  BLOCK SIZE: 512
**********************************************************
**********************
TARGET NAME clariion-lun-3-4-5
TARGET ID 2:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS  = Connected 10.48.69.235:32801<-
>10.48.69.199:3260  8/28/2003 09:46:42
  SESSION = ISID 00023d000001  TSID 128  PID 482
  LUN   0 : SCSI Inquiry failed - Bad file number
  LUN   3 = DISK c3t2d3 (sd371) 'DGC-RAID 0-0632'
SERIAL# 03E0A1E330CL
            BLOCKS: 4194047  BLOCK SIZE: 512
  LUN   4 = DISK c3t2d4 (sd372) 'DGC-RAID 0-0632'
SERIAL# 04E9A1E330CL
            BLOCKS: 2097023  BLOCK SIZE: 512
  LUN   5 = DISK c3t2d5 (sd373) 'DGC-RAID 0-0632'
SERIAL# 0594B1E330CL
            BLOCKS: 2097023  BLOCK SIZE: 512
**********************************************************
**********************
 !-- Issue the iscsi-ls -c command to see detailed
statistics for currently established iSCSI sessions.

bash-2.05# iscsi-ls -c

**********************************************************
**********************
TARGET NAME san-fc-jbod-1
TARGET ID 0:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS  = Connected 10.48.69.235:32798<-
>10.48.69.199:3260  8/28/2003 09:43:59
  SESSION = ISID 00023d000001  TSID 128  PID 463
  InitialR2T               = Yes
  MaxRecvDataSegmentLength = 131072 Bytes
  MaxXmitDataSegmentLength = 2048 Bytes
  FirstBurstLength         = 262144 Bytes
  MaxBurstLength           = 16776192 Bytes
  LoginTimeout             = 15 Seconds
  AuthTimeout              = 45 Seconds
  ActiveTimeout            = 5 Seconds
  IdleTimeout              = 60 Seconds
  PingTimeout              = 5 Seconds
  HeaderDigest             = None
  DataDigest               = None
  ConnFailTimeout          = Default
  MultiPath                = None
**********************************************************
**********************
TARGET NAME clariion
TARGET ID 1:
  ADDRESS = 10.48.69.199:3260, 128
```

```
  STATUS  = Connected 10.48.69.235:32799<-
>10.48.69.199:3260  8/28/2003 09:43:59
  SESSION = ISID 00023d000001  TSID 128  PID 464
  InitialR2T               = Yes
  MaxRecvDataSegmentLength = 131072 Bytes
  MaxXmitDataSegmentLength = 2048 Bytes
  FirstBurstLength         = 262144 Bytes
  MaxBurstLength           = 16776192 Bytes
  LoginTimeout             = 15 Seconds
  AuthTimeout              = 45 Seconds
  ActiveTimeout            = 5 Seconds
  IdleTimeout              = 60 Seconds
  PingTimeout              = 5 Seconds
  HeaderDigest             = None
  DataDigest               = None
  ConnFailTimeout          = Default
  MultiPath                = None
************************************************************
************************
TARGET NAME clariion-lun-3-4-5
TARGET ID 2:
  ADDRESS = 10.48.69.199:3260, 128
  STATUS  = Connected 10.48.69.235:32801<-
>10.48.69.199:3260  8/28/2003 09:46:42
  SESSION = ISID 00023d000001  TSID 128  PID 482
  InitialR2T               = Yes
  MaxRecvDataSegmentLength = 131072 Bytes
  MaxXmitDataSegmentLength = 2048 Bytes
  FirstBurstLength         = 262144 Bytes
  MaxBurstLength           = 16776192 Bytes
  LoginTimeout             = 15 Seconds
  AuthTimeout              = 45 Seconds
  ActiveTimeout            = 5 Seconds
  IdleTimeout              = 60 Seconds
  PingTimeout              = 5 Seconds
  HeaderDigest             = None
  DataDigest               = None
  ConnFailTimeout          = Default
  MultiPath                = None
************************************************************
************************
 !--- You can see these iSCSI connections in the
/var/adm/messages or dmesg:

Aug 28 09:43:59 baboon iscsid[454]: [ID 702911
daemon.notice]
   version 3.3.3 ( 7-Aug-2003)
Aug 28 09:43:59 baboon iscsid[463]: [ID 702911
daemon.notice]
   iSCSI normal session to san-fc-jbod-1 estabished
Aug 28 09:43:59 baboon iscsid[463]: [ID 702911
daemon.notice]
   logged into target san-fc-jbod-1 -- id 0, Initiator
sid 00023d000001, target sid 128
Aug 28 09:43:59 baboon iscsid[464]: [ID 702911
daemon.notice]
   iSCSI normal session to clariion estabished
Aug 28 09:43:59 baboon iscsid[464]: [ID 702911
daemon.notice]
   logged into target clariion -- id 1, Initiator sid
00023d000001, target sid 128
Aug 28 09:45:23 baboon iscsi: [ID 318680 kern.notice]
NOTICE:
   tran_start disabled to bus 0, target 2, lun 0
```

```
Aug 28 09:46:42 baboon iscsid[482]: [ID 702911
daemon.notice]
   iSCSI normal session to clariion-lun-3-4-5
established
Aug 28 09:46:42 baboon iscsid[482]: [ID 702911
daemon.notice]
   logged into target clariion-lun-3-4-5 -- id 2,
Initiator sid 00023d000001,
   target sid 128
```

캔터베리 Cisco MDS 9216 출력

```
canterbury#show zone status

VSAN: 1 default-zone: permit distribute: active only
Interop: Off
Full Zoning Database :
    Zonesets:0  Zones:0 Aliases: 0
Active Zoning Database :
    Database Not Available
Status: Deactivation completed at Fri Aug 22 11:47:53
2003

VSAN: 777 default-zone: permit distribute: active only
Interop: Off.
Full Zoning Database :
    Zonesets:0  Zones:0 Aliases: 0
Active Zoning Database :
    Database Not Available
Status: Default zoning policy changed to permit at Mon
Aug 25 20:19:31 2003
!--- VSAN 777 has been used for this configuration, and
default-zone behavior has been !--- set to permit.
canterbury#show flogi da vsan 777

--------------------------------------------------------
-------------------
INTERFACE  VSAN    FCID            PORT NAME
NODE NAME
--------------------------------------------------------
-------------------
fc1/4      777   0x7000e8  21:00:00:20:37:67:f7:a2
20:00:00:20:37:67:f7:a2
fc1/7      777   0x700103  50:06:01:60:88:02:a8:2b
50:06:01:60:11:02:a8:2b
iscsi2/1   777   0x700100  21:02:00:0c:30:6c:24:42
21:01:00:0c:30:6c:24:42

Total number of flogi = 3.

canterbury#show fcns database vsan 777

VSAN 777:
--------------------------------------------------------
------------------
FCID        TYPE  PWWN                    (VENDOR)
FC4-TYPE:FEATURE
--------------------------------------------------------
------------------
0x7000e8    NL    21:00:00:20:37:67:f7:a2 (Seagate)
scsi-fcp:target
0x700100    N     21:02:00:0c:30:6c:24:42 (Cisco)
scsi-fcp:init isc..w
```

```
0x700103    N     50:06:01:60:88:02:a8:2b (Clariion)
scsi-fcp:target

Total number of entries = 3
!--- FCID 0X700100 is the virtual N port (HBA) for the
iSCSI host. canterbury#show fcns database detail vsan
777

-----------------------
VSAN:777   FCID:0x7000e8
-----------------------
port-wwn (vendor)     :21:00:00:20:37:67:f7:a2 (Seagate)
node-wwn              :20:00:00:20:37:67:f7:a2
class                 :3
node-ip-addr          :0.0.0.0
ipa                   :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:target
symbolic-port-name    :
symbolic-node-name    :
port-type             :NL
port-ip-addr          :0.0.0.0
fabric-port-wwn       :20:04:00:0c:30:6c:24:40
hard-addr             :0x000000
-----------------------
VSAN:777   FCID:0x700100
-----------------------
port-wwn (vendor)     :21:02:00:0c:30:6c:24:42 (Cisco)
node-wwn              :21:01:00:0c:30:6c:24:42
class                 :2,3
node-ip-addr          :10.48.69.235
ipa                   :ff ff ff ff ff ff ff ff
fc4-types:fc4_features:scsi-fcp:init iscsi-gw
!--- Virtual N port for host. symbolic-port-name :
symbolic-node-name :10.48.69.235 port-type :N port-ip-
addr :0.0.0.0 fabric-port-wwn :20:41:00:0c:30:6c:24:40
hard-addr :0x000000 ----------------------- VSAN:777
FCID:0x700103 ----------------------- port-wwn (vendor)
:50:06:01:60:88:02:a8:2b (Clariion) node-wwn
:50:06:01:60:11:02:a8:2b class :3 node-ip-addr :0.0.0.0
ipa :ff ff ff ff ff ff ff ff fc4-
types:fc4_features:scsi-fcp:target symbolic-port-name :
symbolic-node-name : port-type :N port-ip-addr :0.0.0.0
fabric-port-wwn :20:07:00:0c:30:6c:24:40 hard-addr
:0x000000 Total number of entries = 3 canterbury#show
vsan membership

vsan 777 interfaces:
        fc1/4   fc1/7

canterbury#show iscsi initiator

iSCSI Node name is 10.48.69.235
    iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
    iSCSI alias name: baboon
    Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
    Member of vsans: 777
    Number of Virtual n_ports: 1
    Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
      Interface iSCSI 2/1, Portal group tag: 0x80
      VSAN ID 777, FCID 0x700100

canterbury#show iscsi initiator detail
```

```
iSCSI Node name is 10.48.69.235
    iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
    iSCSI alias name: baboon
    Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
    Member of vsans: 777
    Number of Virtual n_ports: 1

    Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
      Interface iSCSI 2/1, Portal group tag is 0x80
      VSAN ID 777, FCID 0x700100
      2 FC sessions, 3 iSCSI sessions
      iSCSI session details
        Target: san-fc-jbod-1
          Statistics:
            PDU: Command: 24, Response: 24
            Bytes: TX: 3504, RX: 0
            Number of connection: 1
          TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32798
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 4 ms, Variance: 6
            Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
            Congestion window: Current: 11 KB
        Target: clariion-lun-3-4-5
          Statistics:
            PDU: Command: 73, Response: 73
            Bytes: TX: 9740, RX: 0
            Number of connection: 1
          TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32801
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 7 ms, Variance: 13
            Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
            Congestion window: Current: 11 KB
        Target: clariion
          Statistics:
            PDU: Command: 101, Response: 101
            Bytes: TX: 14828, RX: 0
            Number of connection: 1
          TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32799
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 2 ms, Variance: 1
            Advertised window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
            Congestion window: Current: 11 KB
```

```
      FCP Session details
        Target FCID: 0x7000e8 (S_ID of this session:
0x700100)
          pWWN: 21:00:00:20:37:67:f7:a2, nWWN:
20:00:00:20:37:67:f7:a2
          Session state: LOGGED_IN
          1 iSCSI sessions share this FC session
            Target: san-fc-jbod-1
          Negotiated parameters
            RcvDataFieldSize 2048 our_RcvDataFieldSize
2048
            MaxBurstSize 0, EMPD: FALSE
            Random Relative Offset: FALSE, Sequence-in-
order: Yes
          Statistics:
            PDU: Command: 0, Response: 24
        Target FCID: 0x700103 (S_ID of this session:
0x700100)
          pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
          Session state: LOGGED_IN
          2 iSCSI sessions share this FC session
            Target: clariion-lun-3-4-5
            Target: clariion
          Negotiated parameters
            RcvDataFieldSize 1024 our_RcvDataFieldSize
2048
            MaxBurstSize 0, EMPD: FALSE
            Random Relative Offset: FALSE, Sequence-in-
order: Yes
          Statistics:
            PDU: Command: 0, Response: 174

canterbury#show iscsi initiator iscsi-session detail

iSCSI Node name is 10.48.69.235
    iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
    iSCSI alias name: baboon
    Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
    Member of vsans: 777
    Number of Virtual n_ports: 1

    Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
      Interface iSCSI 2/1, Portal group tag is 0x80
      VSAN ID 777, FCID 0x700100
      2 FC sessions, 3 iSCSI sessions
      iSCSI session details
        Target: san-fc-jbod-1
          Statistics:
            PDU: Command: 24, Response: 24
            Bytes: TX: 3504, RX: 0
            Number of connection: 1
          TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32798
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 4 ms, Variance: 6
            Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
```

```
            Congestion window: Current: 11 KB
        Target: clariion-lun-3-4-5
          Statistics:
            PDU: Command: 73, Response: 73
            Bytes: TX: 9740, RX: 0
            Number of connection: 1
          TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32801
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 7 ms, Variance: 13
            Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
            Congestion window: Current: 11 KB
        Target: clariion
          Statistics:
            PDU: Command: 101, Response: 101
            Bytes: TX: 14828, RX: 0
            Number of connection: 1
          TCP parameters
            Local 10.48.69.199:3260, Remote
10.48.69.235:32799
            Path MTU: 1500 bytes
            Retransmission timeout: 300 ms
            Round trip time: Smoothed 2 ms, Variance: 1
            Advertized window: Current: 256 KB, Maximum:
257 KB, Scale: 3
            Peer receive window: Current: 9159 KB,
Maximum: 9159 KB, Scale: 8
            Congestion window: Current: 11 KB

canterbury#show iscsi initiator fcp-session detail

iSCSI Node name is 10.48.69.235
    iSCSI Initiator name: iqn.1987-
05.com.cisco:01.894b196796e7
    iSCSI alias name: baboon
    Node WWN is 21:01:00:0c:30:6c:24:42 (dynamic)
    Member of vsans: 777
    Number of Virtual n_ports: 1

    Virtual Port WWN is 21:02:00:0c:30:6c:24:42
(dynamic)
      Interface iSCSI 2/1, Portal group tag is 0x80
      VSAN ID 777, FCID 0x700100
      2 FC sessions, 3 iSCSI sessions

      FCP Session details
        Target FCID: 0x7000e8 (S_ID of this session:
0x700100)
          pWWN: 21:00:00:20:37:67:f7:a2, nWWN:
20:00:00:20:37:67:f7:a2
          Session state: LOGGED_IN
          1 iSCSI sessions share this FC session
            Target: san-fc-jbod-1
          Negotiated parameters
            RcvDataFieldSize 2048 our_RcvDataFieldSize
2048
            MaxBurstSize 0, EMPD: FALSE
            Random Relative Offset: FALSE, Sequence-in-
order: Yes
```

```
          Statistics:
            PDU: Command: 0, Response: 24
        Target FCID: 0x700103 (S_ID of this session:
0x700100)
          pWWN: 50:06:01:60:88:02:a8:2b, nWWN:
50:06:01:60:11:02:a8:2b
          Session state: LOGGED_IN
          2 iSCSI sessions share this FC session
            Target: clariion-lun-3-4-5
            Target: clariion
          Negotiated parameters
            RcvDataFieldSize 1024 our_RcvDataFieldSize
2048
            MaxBurstSize 0, EMPD: FALSE
            Random Relative Offset: FALSE, Sequence-in-
order: Yes
          Statistics:
            PDU: Command: 0, Response: 174

canterbury#show ips stats tcp interface gigabitethernet
2/1 detail

TCP Statistics for port GigabitEthernet2/1
    TCP send stats
      28621 segments, 4231096 bytes
      15842 data, 12335 ack only packets
      168 control (SYN/FIN/RST), 0 probes, 210 window
updates
      66 segments retransmitted, 63724 bytes
      66 retransmitted while on ethernet send queue,
1127 packets split
      480 delayed acks sent
    TCP receive stats
      36728 segments, 12911 data packets in sequence,
2668162 bytes in sequence
      0 predicted ack, 12050 predicted data
      0 bad checksum, 0 multi/broadcast, 0 bad offset
      0 no memory drops, 0 short segments
      48 duplicate bytes, 1 duplicate packets
      0 partial duplicate bytes, 0 partial duplicate
packets
      0 out-of-order bytes, 164 out-of-order packets
      0 packet after window, 0 bytes after window
      0 packets after close
      12621 acks, 3486850 ack bytes, 0 ack toomuch,
11652 duplicate acks
      0 ack packets left of snd_una, 6 non-4 byte
aligned packets
      8333 window updates, 0 window probe
      624 pcb hash miss, 79 no port, 0 bad SYN, 0 paws
drops
    TCP Connection Stats
      0 attempts, 231 accepts, 231 established
      227 closed, 14 drops, 0 conn drops
      0 drop in retransmit timeout, 2 drop in keepalive
timeout
      0 drop in persist drops, 0 connections drained
    TCP Miscellaneous Stats
      11761 segments timed, 12027 rtt updated
      51 retransmit timeout, 304 persist timeout
      10452 keepalive timeout, 10450 keepalive probes
    TCP SACK Stats
      0 recovery episodes, 0 data packets, 0 data bytes
      0 data packets retransmitted, 0 data bytes
```

```
retransmitted
      0 connections closed, 0 retransmit timeouts
    TCP SYN Cache Stats
      233 entries, 231 connections completed, 1 entries
timed out
      0 dropped due to overflow, 1 dropped due to RST
      0 dropped due to ICMP unreach, 0 dropped due to
bucket overflow
      0 abort due to no memory, 4 duplicate SYN, 76 no-
route SYN drop
      0 hash collisions, 0 retransmitted

    TCP Active Connections
      Local  Address        Remote Address        State
Send-Q   Recv-Q
      10.48.69.199:3260     10.48.69.235:32798
ESTABLISH  0        0
      10.48.69.199:3260     10.48.69.235:32799
ESTABLISH  0        0
      10.48.69.199:3260     10.48.69.235:32800
ESTABLISH  0        0
      10.48.69.199:3260     10.48.69.235:32801
ESTABLISH  0        0
      0.0.0.0:3260          0.0.0.0:0             LISTEN
0        0

canterbury#show iscsi virtual-target configured

target: san-fc-jbod-1
  * Port WWN 21:00:00:20:37:67:f7:a2
!--- The * means that you have both discovery and target
sessions. !--- You only have a discovery session if
there is no * in front of the pWWN.

    Configured node
    No. of advertised interface: 1
      GigabitEthernet 2/1
    No. of initiators permitted: 3
      initiator iqn.1987-
05.com.cisco.02.89451e183581.mcandege-w2k1 is permitted
      initiator 10.48.69.235/32 is permitted
      initiator 10.48.69.232/32 is permitted
    all initiator permit is disabled

target: clariion
  * Port WWN 50:06:01:60:88:02:a8:2b
    Configured node
    No. of LU mapping: 3
      iSCSI LUN: 0000, FC LUN: 0000
      iSCSI LUN: 0001, FC LUN: 0001
      iSCSI LUN: 0002, FC LUN: 0002
    No. of advertised interface: 1
      GigabitEthernet 2/1
    No. of initiators permitted: 1
      initiator 10.48.69.235/32 is permitted
    all initiator permit is disabled

target: clariion-lun-3-4-5
  * Port WWN 50:06:01:60:88:02:a8:2b
    Configured node
    No. of LU mapping: 3
      iSCSI LUN: 0003, FC LUN: 0003
      iSCSI LUN: 0004, FC LUN: 0004
      iSCSI LUN: 0005, FC LUN: 0005
```

```
    No. of advertised interface: 1
      GigabitEthernet 2/1
    No. of initiators permitted: 1
      initiator 10.48.69.235/32 is permitted
    all initiator permit is disabled

canterbury#show iscsi initiator configured

iSCSI Node name is 10.48.69.235
    Member of vsans: 777

canterbury#show ips arp interface gigabitethernet 2/1

Protocol         Address   Age (min)   Hardware Addr
Type   Interface
Internet    10.48.69.200        0     0008.e21e.c7bc
ARPA  GigabitEthernet2/1
Internet    10.48.69.206        7     0005.9ba6.95ff
ARPA  GigabitEthernet2/1
Internet    10.48.69.209        4     0009.7c60.561f
ARPA  GigabitEthernet2/1
Internet    10.48.69.226        0     0060.08f6.bc1a
ARPA  GigabitEthernet2/1
Internet    10.48.69.229       15     0800.209e.edab
ARPA  GigabitEthernet2/1
Internet    10.48.69.233        0     0010.4200.7d5b
ARPA  GigabitEthernet2/1
Internet    10.48.69.235        9     0800.20b6.6559
ARPA  GigabitEthernet2/1
Internet    10.48.69.238        5     0030.6e1b.6f51
ARPA  GigabitEthernet2/1
Internet    10.48.69.239       12     0030.6e1c.a00b
ARPA  GigabitEthernet2/1
Internet    10.48.69.248        5     0202.3d30.45f8
ARPA  GigabitEthernet2/1
Internet    10.48.69.252        1     0202.3d30.45fc
ARPA  GigabitEthernet2/1
Internet      10.10.2.28        9     0202.3d0a.021c
ARPA  GigabitEthernet2/1

canterbury#show scsi-target devices vsan 777

-------------------------------------------------------
------------------------
VSAN    FCID        PWWN                      VENDOR
MODEL            REV
-------------------------------------------------------
------------------------
777     0x7000e8    21:00:00:20:37:67:f7:a2   SEAGATE
ST318203FC       0004
777     0x700103    50:06:01:60:88:02:a8:2b   DGC
RAID 0           0632

canterbury#show scsi-target lun vsan 777

- ST318203FC from SEAGATE (Rev 0004)
  FCID is 0x7000e8 in VSAN 777, PWWN is
21:00:00:20:37:67:f7:a2
  -----------------------------------------------------
------------------------
  LUN    Capacity  Status  Serial Number    Device-Id
         (MB)
  -----------------------------------------------------
------------------------
```

```
  0x0    18210     Online  LRE8091500007039 C:1 A:0 T:3
20:00:00:20:37:67:f7:a2
- RAID from DGC (Rev 0632)
  FCID is 0x700103 in VSAN 777, PWWN is
50:06:01:60:88:02:a8:2b
  ------------------------------------------------------
------------------------
  LUN    Capacity  Status  Serial Number    Device-Id
         (MB)
  ------------------------------------------------------
------------------------
  0x0    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

da:05:b6:a9:b6:9d:7b:00
                                            C:1 A:0 T:0
00:00:00:00
  0x1    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

6a:66:0d:74:cb:33:88:6c
                                            C:1 A:0 T:0
00:01:00:00
  0x2    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

ec:81:5b:a2:c4:43:0d:8a
                                            C:1 A:0 T:0
00:02:00:00
  0x3    2147      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

e0:47:b3:be:3b:00:e0:d5
                                            C:1 A:0 T:0
00:03:00:00
  0x4    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

00:51:5b:7f:3d:9a:7b:ce
                                            C:1 A:0 T:0
00:04:00:00
  0x5    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

ab:b1:ae:80:59:c0:fc:f0
                                            C:1 A:0 T:0
00:05:00:00
  0x6    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

ad:91:58:af:d2:fd:c7:47
                                            C:1 A:0 T:0
00:06:00:00
  0x7    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

b1:ef:e7:6c:44:5c:16:97
                                            C:1 A:0 T:0
00:07:00:00
  0x8    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

84:4f:09:60:30:1e:fc:50
                                            C:1 A:0 T:0
```

```
00:08:00:00
  0x9    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

aa:6d:e2:0e:ce:7a:cc:21
                                            C:1 A:0 T:0
00:09:00:00
  0xa    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

5b:66:67:89:6c:f2:d1:56
                                            C:1 A:0 T:0
00:0a:00:00
  0xb    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

a9:32:bd:04:4a:bb:3d:9b
                                            C:1 A:0 T:0
00:0b:00:00
  0xc    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

cd:d9:96:f7:57:3f:07:0c
                                            C:1 A:0 T:0
00:0c:00:00
  0xd    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

0c:e5:ba:39:68:ca:d6:f0
                                            C:1 A:0 T:0
00:0d:00:00
  0xe    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

60:6e:ee:76:98:fc:ab:97
                                            C:1 A:0 T:0
00:0e:00:00
  0xf    1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

8b:58:80:7b:12:fb:6b:12
                                            C:1 A:0 T:0
00:0f:00:00
  0x10   1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

a1:2f:6d:b0:c3:d6:c2:46
                                            C:1 A:0 T:0
00:10:00:00
  0x11   1074      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

2c:48:c4:74:25:4b:26:dd
                                            C:1 A:0 T:0
00:11:00:00
  0x20   5369      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b

ba:18:6a:40:22:40:94:75
                                            C:1 A:0 T:0
00:20:00:00
  0x21   3221      Online  f60004202091     C:1 A:0 T:3
60:06:01:60:88:02:a8:2b
```

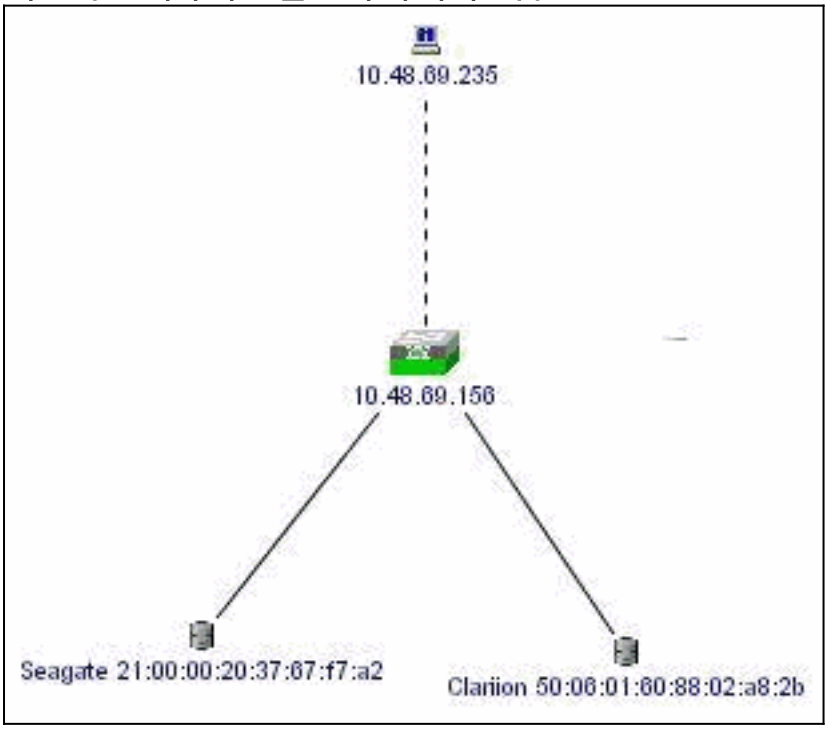
```
74:d2:42:9e:31:8d:ff:86
                                                C:1 A:0 T:0
00:21:00:00

canterbury#show interface iscsi 2/1

iscsi2/1 is up
    Hardware is GigabitEthernet
    Port WWN is 20:41:00:0c:30:6c:24:40
    Admin port mode is ISCSI
    Port mode is ISCSI
    Speed is 1 Gbps
    iSCSI initiator is identified by name
    Number of iSCSI session: 4, Number of TCP
connection: 4
    Configured TCP parameters
        Local Port is 3260
        PMTU discover is enabled, reset timeout is 3600
sec
        Keepalive-timeout is 60 sec
        Minimum-retransmit-time is 300 ms
        Max-retransmissions 4
        Sack is disabled
        Maximum allowed bandwidth is 800000 kbps
        Minimum available bandwidth is 800000 kbps
        Estimated round trip time is 100000 usec
    5 minutes input rate 168 bits/sec, 21 bytes/sec, 0
frames/sec
    5 minutes output rate 728 bits/sec, 91 bytes/sec, 0
frames/sec
    iSCSI statistics
      Input 12209 packets, 2668348 bytes
        Command 3282 pdus, Data-out 1038 pdus, 1989664
bytes
      Output 14762 packets, 3486596 bytes
        Response 3059 pdus (with sense 77), R2T 153 pdus
        Data-in 3215 pdus, 2744116 bytes

canterbury#show iscsi stats iscsi 2/1

iscsi2/1
    5 minutes input rate 168 bits/sec, 21 bytes/sec, 0
frames/sec
    5 minutes output rate 728 bits/sec, 91 bytes/sec, 0
frames/sec
    iSCSI statistics
      12209 packets input, 2668348 bytes
        Command 3282 pdus, Data-out 1038 pdus, 1989664
bytes, 0 fragments
      output 14762 packets, 3486596 bytes
        Response 3059 pdus (with sense 77), R2T 153 pdus
        Data-in 3215 pdus, 2744116 bytes

canterbury#show interface gigabitethernet 2/1

GigabitEthernet2/1 is up
    Hardware is GigabitEthernet, address is
0005.3000.ade6
    Internet address is 10.48.69.199/26
    MTU 2156  bytes
    Port mode is IPS
    Speed is 1 Gbps
    Beacon is turned off
    Auto-Negotiation is turned on
```

```
    iSCSI authentication: NONE
    5 minutes input rate 392 bits/sec, 49 bytes/sec, 0
frames/sec
    5 minutes output rate 64 bits/sec, 8 bytes/sec, 0
frames/sec
    126128 packets input, 12476013 bytes
      2 multicast frames, 0 compressed
      0 input errors, 0 frame, 0 overrun 0 fifo
    43443 packets output, 6256174 bytes, 0 underruns
      0 output errors, 0 collisions, 0 fifo
      0 carrier errors

canterbury#show ip route

Codes: C - connected, S - static

Gateway of last resort is 10.48.69.129

C 10.48.69.192/26 is directly connected,
gigabitethernet2-1
C 10.48.69.128/26 is directly connected, mgmt0
```

패브릭 관리자 및 장치 관리자 출력

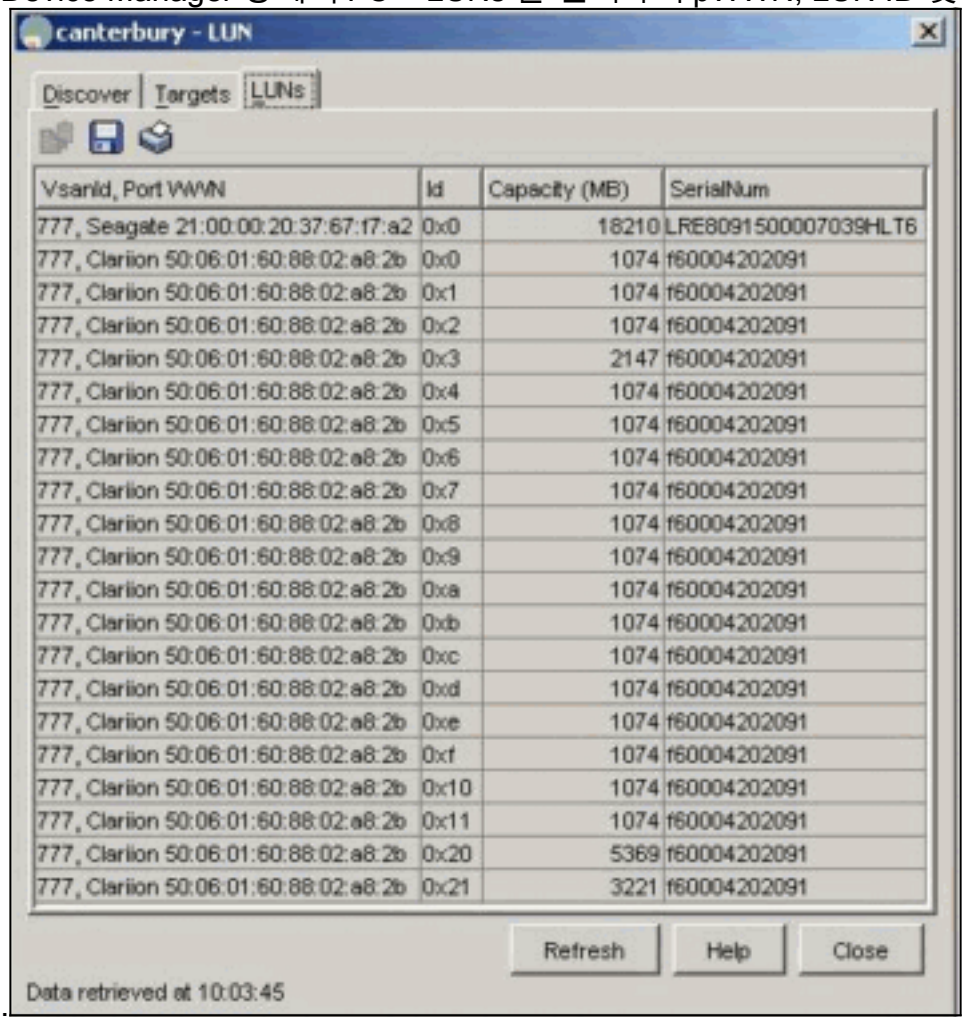
이 섹션에서는 MDS Fabric Manager 1.1(2) 및 Device Manager 1.1.(2)의 샘플 출력을 제공합니다.

패브릭 관리자의 토폴로지 다이어그램



이것은 캔터베리에 있는 Device Manager 1.1(2) 보기의 샘플 스크린샷입니다.

1. Device Manager 창에서 FC > LUNs 를 선택하여 pWWN, LUN ID 및 LUN 용량을 표시합니다

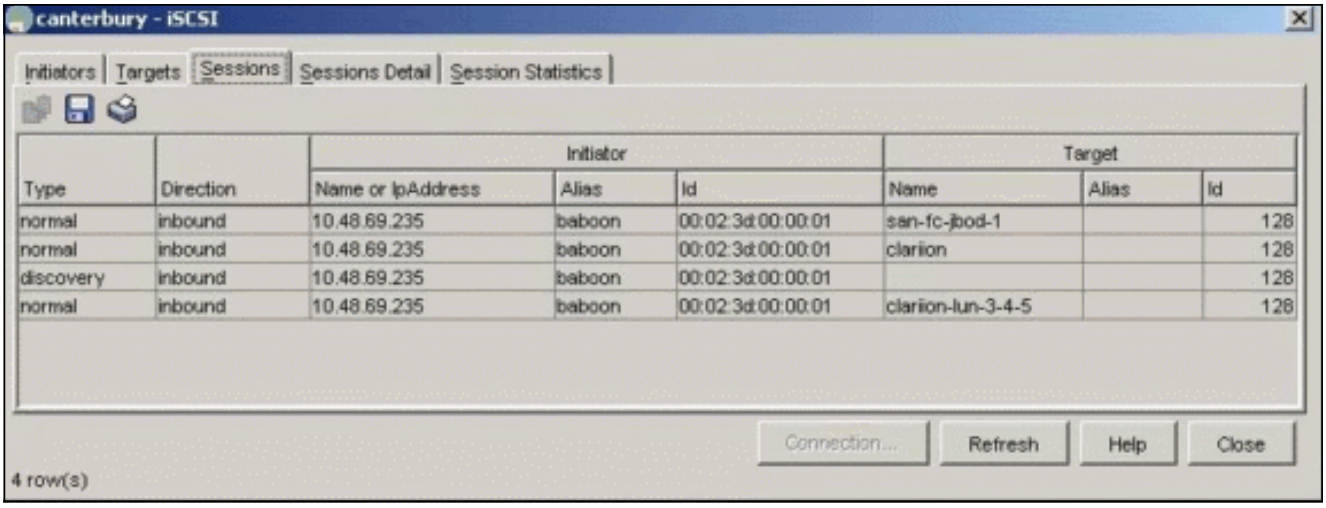


Vsanid, Port WWN	Id	Capacity (MB)	SerialNum
777, Seagate 21:00:00:20:37:67:f7:a2	0x0	16210	LRE8091500007039HLT6
777, Clariion 50:06:01:60:88:02:a8:2b	0x0	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x1	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x2	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x3	2147	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x4	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x5	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x6	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x7	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x8	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x9	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0xa	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0xb	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0xc	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0xd	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0xe	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0xf	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x10	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x11	1074	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x20	5369	f60004202091
777, Clariion 50:06:01:60:88:02:a8:2b	0x21	3221	f60004202091

.

2. iSCSI **세션을** 표시하려면 IP > iSCSI를 선택합니다

.



관련 정보

- iSCSI(Small Computer Systems Interface over IP) 기술 지원