

2 solaris hosts serving as backup for each other, in addition to one iscsi san allocating block storage (win/nix) and smb/nfs shares 😊

```
root@vnx-solaris-storage:~# zpool status
```

```
pool: rpool
```

```
state: ONLINE
```

```
scan: none requested
```

```
config:
```

NAME	STATE	READ	WRITE	CKSUM
rpool	ONLINE	0	0	0
c1t0d0	ONLINE	0	0	0

```
errors: No known data errors
```

```
pool: stor-pool
```

```
state: ONLINE
```

```
scan: none requested
```

```
config:
```

NAME	STATE	READ	WRITE	CKSUM
stor-pool	ONLINE	0	0	0
raidz1-0	ONLINE	0	0	0
c3t0d0	ONLINE	0	0	0
c3t1d0	ONLINE	0	0	0
c3t2d0	ONLINE	0	0	0
c3t3d0	ONLINE	0	0	0

// raid 5 equivalent

```
errors: No known data errors
```

```

root@vnx-solaris-storage:~# zfs list -rH stor-pool
stor-pool    592G  2.09T  68.8K  /stor-pool
stor-pool/iscsi-san  578G  2.09T  62.8K  /stor-pool/iscsi-san
stor-pool/iscsi-san/zvols  578G  2.09T  65.8K  /stor-pool/iscsi-san/zvols
stor-pool/iscsi-san/zvols/nix  413G  2.09T  59.8K  /stor-pool/iscsi-san/zvols/nix
stor-pool/iscsi-san/zvols/nix/v1  103G  2.19T  6.93G  -
stor-pool/iscsi-san/zvols/nix/v2  103G  2.18T  7.02G  -
stor-pool/iscsi-san/zvols/nix/v3  103G  2.18T  7.02G  -
stor-pool/iscsi-san/zvols/nix/v4  103G  2.19T  6.93G  -
stor-pool/iscsi-san/zvols/win  165G  2.09T  59.8K  /stor-pool/iscsi-san/zvols/win
stor-pool/iscsi-san/zvols/win/v1  20.6G  2.11T  4.94G  -
stor-pool/iscsi-san/zvols/win/v2  20.6G  2.11T  694M  -
stor-pool/iscsi-san/zvols/win/v3  20.6G  2.11T  4.94G  -
stor-pool/iscsi-san/zvols/win/v4  20.6G  2.11T  4.94G  -
stor-pool/iscsi-san/zvols/win/v5  20.6G  2.11T  4.45M  -
stor-pool/iscsi-san/zvols/win/v6  20.6G  2.11T  4.38M  -
stor-pool/iscsi-san/zvols/win/v7  20.6G  2.11T  4.53M  -
stor-pool/iscsi-san/zvols/win/v8  20.6G  2.11T  4.52M  -
stor-pool/shares  12.7G  2.09T  12.7G  /stor-pool/shares
stor-pool/vm-datastore  74.1K  2.09T  74.1K  /stor-pool/vm-datastore

```

// block level luns created for
linux/unix and windows os

// general storage pool

// vmware datastore

```

root@vnx-solaris-storage:~# stmfadm list-hg -v
Host Group: nix-solaris
  Member: iqn.1986-03.com:sun:01:k-vnx-solaris
Host Group: win-w2k12r2
  Member: iqn.1991-05.com:microsoft:vnx-win-host

```

// Iscsi san equivalent of fc san lun masking

```
root@vnx-solaris-storage:~# stmfadm list-state
```

```
Operational Status: online
```

```
Config Status      : initialized
```

```
ALUA Status        : disabled
```

```
ALUA Node          : 0
```

```
root@vnx-solaris-storage:~# stmfadm list-target -v
```

```
Target: iqn.1986-03.com.sun:02:storpool-target
```

```
Operational Status : Online
```

```
Provider Name       : iscsit
```

```
Alias               : -
```

```
Protocol            : iSCSI
```

```
Sessions            : 2
```

```
Initiator: iqn.1991-05.com.microsoft:vnx-win-host
```

```
Alias: -
```

```
Logged in since: Fri Jul 15 10:31:03 2016
```

```
Initiator: iqn.1986-03.com.sun:01:k-vnx-solaris
```

```
Alias: -
```

```
Logged in since: Thu Jun 30 16:42:31 2016
```

```
root@vnx-solaris-storage:~# stmfadm list-tg -v
```

```
Target Group: storpool-tg
```

```
Member: iqn.1986-03.com.sun:02:storpool-target
```

```
root@vnx-solaris-storage:~# itadm list-initiator
```

INITIATOR NAME	CHAPUSER	SECRET
iqn.1991-05.com.microsoft:vnx-win-host	chap	set
iqn.1986-03.com.sun:01:k-vnx-solaris	chap	set

// initiator to target
authentication via CHAP

```
root@vnx-solaris-storage:~# itadm list-target -v
TARGET NAME                               STATE  SESSIONS
iqn.1986-03.com.sun:02:storpool-target    online  2
  alias:                                   -
  auth:                                    chap
  targetchapuser:                          chap
  targetchapsecret:                        set
  tpg-tags:                                default
```

```
root@vnx-solaris-storage:~# iscsiadm list initiator-node
Initiator node name: iqn.1986-03.com.sun:01:e00000000000.5765b11a
Initiator node alias: vnx-solaris-storage
  Login Parameters (Default/Configured):
    Header Digest: NONE/-
    Data Digest: NONE/-
    Max Connections: 65535/-
  Authentication Type: NONE
  RADIUS Server: NONE
  RADIUS Access: disabled
  Tunable Parameters (Default/Configured):
    Session Login Response Time: 60/-
    Maximum Connection Retry Time: 180/-
    Login Retry Time Interval: 60/-
  Configured Sessions: 1
```

```

root@vnx-solaris-storage:~# cat /etc/dfs/sharetab
/var/smb/cvol c$  smb  -   Default Share
- IPC$  smb  -   Remote IPC
/stor-pool stor-pool  nfs  sec=sys,rw
/stor-pool stor-pool  smb  -
/stor-pool/iscsi-san stor-pool_iscsi-san  nfs  sec=sys,rw
/stor-pool/iscsi-san stor-pool_iscsi-san  smb  -
/stor-pool/iscsi-san/zvols stor-pool_iscsi-san_zvols  nfs  sec=sys,rw
/stor-pool/iscsi-san/zvols stor-pool_iscsi-san_zvols  smb  -
/stor-pool/iscsi-san/zvols/nix stor-pool_iscsi-san_zvols_nix  nfs  sec=sys,rw
/stor-pool/iscsi-san/zvols/nix stor-pool_iscsi-san_zvols_nix  smb  -
/stor-pool/iscsi-san/zvols/win stor-pool_iscsi-san_zvols_win  nfs  sec=sys,rw
/stor-pool/iscsi-san/zvols/win stor-pool_iscsi-san_zvols_win  smb  -
/stor-pool/shares stor-pool_shares  nfs  sec=sys,rw
/stor-pool/shares stor-pool_shares  smb  -
/stor-pool/vm-datastore stor-pool_vm-datastore  nfs  sec=sys,rw
/stor-pool/vm-datastore stor-pool_vm-datastore  smb  -

```

// system verification of storage
pools/shares being shared out /
exported via smb/nfs

```

root@vnx-solaris-storage:~# stmfadm list-lu
LU Name: 600144F03E9782000000574FD81B0001
LU Name: 600144F03E9782000000574FD81F0002
LU Name: 600144F03E9782000000574FD8210003
LU Name: 600144F03E9782000000574FD8250004
LU Name: 600144F03E9782000000574FD82C0005
LU Name: 600144F03E9782000000574FD82F0006
LU Name: 600144F03E9782000000574FD8320007
LU Name: 600144F03E9782000000574FD8350008
LU Name: 600144F03E9782000000574FD8410009
LU Name: 600144F03E9782000000574FD843000A
LU Name: 600144F03E9782000000574FD847000B
LU Name: 600144F03E9782000000574FD849000C

```

// block level luns created and listed

root@vnx-solaris-storage:~# stmfadm list-lu -v

LU Name: 600144F03E9782000000574FD81B0001

Operational Status : Online

Provider Name : sbd

Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v1

View Entry Count : 1

Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v1

Meta File : not set

Size : 21474836480

Block Size : 512

Management URL : not set

Vendor ID : SUN

Product ID : COMSTAR

Serial Num : not set

Write Protect : Disabled

Write Cache Mode Select: Enabled

Writeback Cache : Enabled

Access State : Active

LU Name: 600144F03E9782000000574FD81F0002

Operational Status : Online

Provider Name : sbd

Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v2

View Entry Count : 1

Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v2

Meta File : not set

Size : 21474836480

Block Size : 512

Management URL : not set

Vendor ID : SUN

Product ID : COMSTAR

Serial Num : not set

Write Protect : Disabled

Write Cache Mode Select: Enabled

Writeback Cache : Enabled

Access State : Active



// lun details, os, size, alias, state, etc

LU Name: 600144F03E9782000000574FD8210003

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v3
View Entry Count : 1
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v3
Meta File : not set
Size : 21474836480
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E9782000000574FD8250004

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v4
View Entry Count : 1
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v4
Meta File : not set
Size : 21474836480
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E9782000000574FD82C0005

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v5
View Entry Count : 0
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v5
Meta File : not set
Size : 21474836480
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E9782000000574FD82F0006

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v6
View Entry Count : 0
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v6
Meta File : not set
Size : 21474836480
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E9782000000574FD8320007

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v7
View Entry Count : 0
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v7
Meta File : not set
Size : 21474836480
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E97820000000574FD8350008

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v8
View Entry Count : 0
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v8
Meta File : not set
Size : 21474836480
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E9782000000574FD8410009

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v1
View Entry Count : 1
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v1
Meta File : not set
Size : 107374182400
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E9782000000574FD843000A

Operational Status : Online
Provider Name : sbd
Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v2
View Entry Count : 1
Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v2
Meta File : not set
Size : 107374182400
Block Size : 512
Management URL : not set
Vendor ID : SUN
Product ID : COMSTAR
Serial Num : not set
Write Protect : Disabled
Write Cache Mode Select: Enabled
Writeback Cache : Enabled
Access State : Active

LU Name: 600144F03E9782000000574FD847000B

Operational Status : Online

Provider Name : sbd

Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v3

View Entry Count : 1

Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v3

Meta File : not set

Size : 107374182400

Block Size : 512

Management URL : not set

Vendor ID : SUN

Product ID : COMSTAR

Serial Num : not set

Write Protect : Disabled

Write Cache Mode Select: Enabled

Writeback Cache : Enabled

Access State : Active

LU Name: 600144F03E9782000000574FD849000C

Operational Status : Online

Provider Name : sbd

Alias : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v4

View Entry Count : 1

Data File : /dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v4

Meta File : not set

Size : 107374182400

Block Size : 512

Management URL : not set

Vendor ID : SUN

Product ID : COMSTAR

Serial Num : not set

Write Protect : Disabled

Write Cache Mode Select: Enabled

Writeback Cache : Enabled

Access State : Active

```
root@vnx-solaris-storage:~# sbdadm list-lu
```

```
Found 12 LU(s)
```

GUID	DATA SIZE	SOURCE
600144f03e9782000000574fd81b0001	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v1
600144f03e9782000000574fd81f0002	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v2
600144f03e9782000000574fd8210003	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v3
600144f03e9782000000574fd8250004	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v4
600144f03e9782000000574fd82c0005	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v5
600144f03e9782000000574fd82f0006	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v6
600144f03e9782000000574fd8320007	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v7
600144f03e9782000000574fd8350008	21474836480	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/win/v8
600144f03e9782000000574fd8410009	107374182400	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v1
600144f03e9782000000574fd843000a	107374182400	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v2
600144f03e9782000000574fd847000b	107374182400	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v3
600144f03e9782000000574fd849000c	107374182400	/dev/zvol/rdisk/stor-pool/iscsi-san/zvols/nix/v4

// lun mapping details



```
root@vnx-solaris-storage:~# ls /mnt/  
r610-shares-backup
```

```
root@vnx-solaris-storage:~# ls /mnt/r610-shares-backup/  
solaris-test-file-for-mounts.txt test2 test4  
test1 test3 test5
```

```
root@k-vnx-solaris-mobile-cart:~# zpool status
```

```
pool: r610p-146gb
```

```
state: ONLINE
```

```
scan: none requested
```

```
config:
```

NAME	STATE	READ	WRITE	CKSUM
r610p-146gb	ONLINE	0	0	0
raidz1-0	ONLINE	0	0	0
c2t2d0	ONLINE	0	0	0
c2t3d0	ONLINE	0	0	0
c2t4d0	ONLINE	0	0	0
c2t5d0	ONLINE	0	0	0

← // storage pools health status

```
errors: No known data errors
```

```
pool: rpool
```

```
state: ONLINE
```

```
scan: none requested
```

```
config:
```

NAME	STATE	READ	WRITE	CKSUM
rpool	ONLINE	0	0	0
c2t0d0	ONLINE	0	0	0

```
errors: No known data errors
```

pool: storpool-zvol
state: ONLINE
scan: none requested
config:

NAME	STATE	READ	WRITE	CKSUM
storpool-zvol	ONLINE	0	0	0
mirror-0	ONLINE	0	0	0
c0t600144F03E9782000000574FD843000Ad0	ONLINE	0	0	0
c0t600144F03E9782000000574FD847000Bd0	ONLINE	0	0	0
mirror-1	ONLINE	0	0	0
c0t600144F03E9782000000574FD849000Cd0	ONLINE	0	0	0
c0t600144F03E9782000000574FD8410009d0	ONLINE	0	0	0

// raid 10 equivalent,
mirrored configuration

errors: No known data errors

```
root@k-vnx-solaris-mobile-cart:~# zfs list -rH r610p-146gb
r610p-146gb 214K 401G 62.8K /r610p-146gb
r610p-146gb/storpool-shares-backup 70.3K 400G 70.3K /r610p-146gb/storpool-shares-backup
```

```
root@k-vnx-solaris-mobile-cart:~# ls /r610p-146gb/storpool-shares-backup/
solaris-test-file-for-mounts.txt test2 test4
test1 test3 test5
```

```
root@k-vnx-solaris-mobile-cart:~# zfs list -rH storpool-zvol
storpool-zvol 12.8G 183G 12.7G /storpool-zvol
```

```
root@k-vnx-solaris-mobile-cart:~# ls /mnt/
stor-pool vm-datastore
```

root@k-vnx-solaris-mobile-cart:~# ls -ls /mnt/stor-pool/

total 26591631

858 -rwxrwxrwx 1 nobody staff 427680 Aug 22 2013 bootmgr
4 -rwxrwxrwx 1 nobody staff 1 Jun 18 2013 BOOTNXT
632181 -rw-r--r-- 1 nobody nobody 330301440 Jun 22 13:31 debian-8.2.0-i386-netinst.iso
7750575 -rw-r--r-- 1 nobody nobody 3994091520 Jun 22 13:34 debian-8.4.0-amd64-DVD-1.iso
9113654 -rw-r--r-- 1 nobody nobody 4674091008 Jun 22 13:39 debian-8.4.0-amd64-DVD-2.iso
9094305 -rw-r--r-- 1 nobody nobody 4663099392 Jun 22 13:43 debian-8.4.0-amd64-DVD-3.iso
5 -rwxrwxrwx 1 nobody staff 479 Jul 14 11:00 drive-scans.txt
11 -rwxrwxrwx 1 nobody staff 8371 Jun 30 20:04 jf-d1689-post-ica.txt
11 -rwxrwxrwx 1 nobody staff 8866 Jun 30 21:46 jf-d1689-post-nas.txt
5 -rwxrwxrwx 1 nobody staff 459 Apr 14 02:33 post-nas-install-commands.txt
4 -rwxrwxrwx 1 root root 0 Jun 20 16:00 solaris-storage-text-file-for-mounts.txt
7 drwxr-xr-x 2 nobody nobody 7 Jun 20 22:25 test-folder
4 -rwxrwxrwx 1 nobody staff 5242880000 Jul 15 09:54 test1
7 drwxrwxrwx+ 2 nobody staff 6 Jun 21 23:27 testing-windows

root@k-vnx-solaris-mobile-cart:~# ls -ls /mnt/vm-datastore/

total 3

3 drwxr-xr-x 5 vnxadmin staff 5 Jun 30 15:09 vms

root@k-vnx-solaris-mobile-cart:~# ls -ls /mnt/vm-datastore/vms/

total 9

3 drwxr-xr-x 3 vnxadmin staff 6 Jun 30 14:06 debian-v8x64
3 drwxr-xr-x 2 vnxadmin staff 5 Jun 30 14:01 test
3 drwxr-xr-x 3 vnxadmin staff 5 Jul 11 16:07 test2

```
root@k-vnx-solaris-mobile-cart:~# iscsiadm list target -v
```

```
Target: iqn.1986-03.com.sun:02:storpool-target
```

```
Alias: -
```

```
TPGT: 1
```

```
ISID: 4000002a0000
```

```
Connections: 1
```

```
  CID: 0
```

```
    IP address (Local): 172.16.100.3:36702
```

```
    IP address (Peer): 172.16.100.4:3260
```

```
    Transport Type: socket
```

```
    Discovery Method: SendTargets
```

```
    Login Parameters (Negotiated):
```

```
      Data Sequence In Order: yes
```

```
      Data PDU In Order: yes
```

```
      Default Time To Retain: 20
```

```
      Default Time To Wait: 2
```

```
      Error Recovery Level: 0
```

```
      First Burst Length: 65536
```

```
      Immediate Data: yes
```

```
      Initial Ready To Transfer (R2T): yes
```

```
      Max Burst Length: 262144
```

```
      Max Outstanding R2T: 1
```

```
      Max Receive Data Segment Length: 32768
```

```
      Max Connections: 32
```

```
      Header Digest: NONE
```

```
      Data Digest: NONE
```



// iscsi storage target details

root@k-vnx-solaris-mobile-cart:~# iscsiadm list initiator-node

Initiator node name: iqn.1986-03.com.sun:01:k-vnx-solaris

Initiator node alias: k-vnx-solaris-mobile-cart

Login Parameters (Default/Configured):

Header Digest: NONE/-

Data Digest: NONE/-

Max Connections: 65535/-

Authentication Type: CHAP

CHAP Name: chap

RADIUS Server: NONE

RADIUS Access: disabled

Tunable Parameters (Default/Configured):

Session Login Response Time: 60/-

Maximum Connection Retry Time: 180/-

Login Retry Time Interval: 60/-

Configured Sessions: 1

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