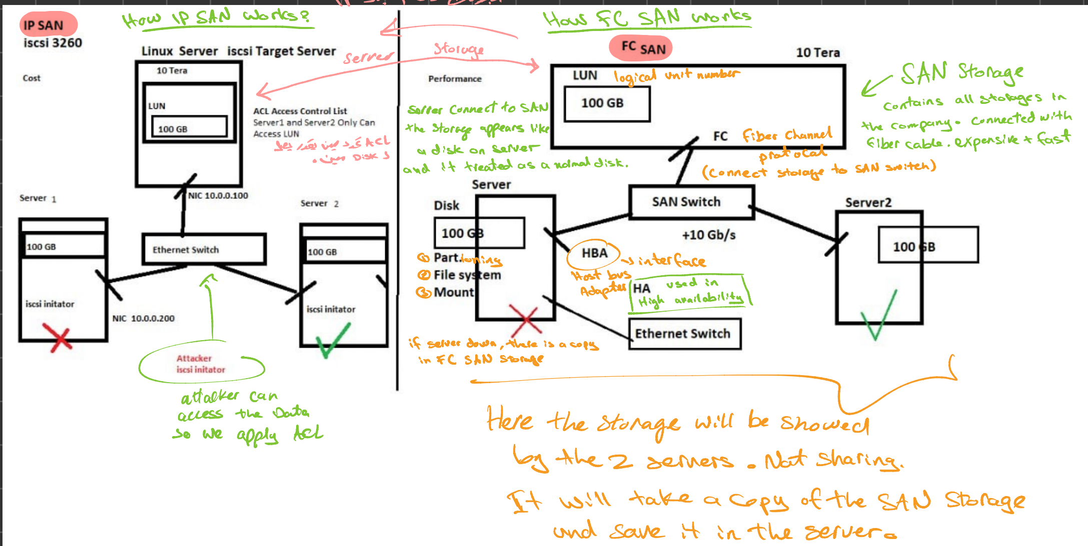
Storage as Network service

```
Provide block-based storage
Storage Types :-
        1- DAS Storage  Direct Attached Storage  ( local Disks Attached Directly to Server )
        2- NAS Storage  Network Attached Storage ( File Based Storage - File Sharing Service NFS-SMB)
        3- SAN Storage  Storage Area Network     ( Block based Storage )
```

← we will talk about this session

block-based storage (SAN)   2 technologies :

1) FC SAN → SAN protocol
Fiber Channel
SAN Storage
2) IP SAN → TCP/IP



ISCSI → TCP/IP protocol, ISCSI protocol provide block-based without fiber channel.
SCSI → a Disk

⇒ FC SAN is better in performance than IP SAN

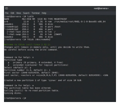
Terms:

```
-Back store: Block storage will be Assigned As LUN Disk - LVM
-LUN :  Logical unit Number
-Target:  Group of Luns assigned to server      (Lun1 Lun2 Lun3) >> Target >>> assigned target  to Server1
-ACL :   Access control List    Security ( who can access Target )
-IQN :   Naming Convintion for target and initator
              iqn.2022-03.com.abc:t1           iqn.2022.com.abc:client1
```

Naming convintion for targets   Naming convintion for initator

```
----------------------------------------------------------
iscsi target configuration
# lsblk
# fdisk /dev/nvme0n2    10 GB Partition /dev/nvme0n2p1
# yum install targetcli.noarch
# systemctl enable target.service --now
```

→ package to configure the iscsi



```
# targetcli
/> backstores/block create block1 /dev/nvme0n2p1                          create backstore
/> iscsi/ create iqn.2022-03.com.abc:t1                                   create target
/> iscsi/iqn.2022-03.com.abc:t1/tpg1/luns create /backstores/block/block1  create lun
/> iscsi/iqn.2022-03.com.abc:t1/tpg1/acls create iqn.2022-03.com.abc:client1  create ACL
/> exit ; /> ls

# firewall-cmd --add-port=3260/tcp --permanent
# firewall-cmd --reload
# firewall-cmd --list-port
```

On iscsi initator

```
# yum install iscsi-initiator-utils.i686

# vim /etc/iscsi/initiatorname.iscsi
InitiatorName=iqn.2022-03.com.abc:client1

# systemctl enable iscsi --now
# iscsiadm --mode discovery --type sendtargets --portal 10.0.0.100
# iscsiadm --mode node --targetname iqn.2022-03.com.abc:t1 --portal 10.0.0.100 --login

# mkdir /m1
# pvcreate /dev/sda
# vgcreate vg0 /dev/sda
# lvcreate --name lv0 --size 10G vg0
# lvcreate --name lv0 --size 9G vg0
# mkfs.ext4 /dev/vg0/lv0
# mount /dev/vg0/lv0 /m1
# lsblk
```

discover available targets on 10.0.0.100

add target to local device