

?? 18, 2007 ??? sunchiahome

??? NAS/SAN ??,?????? Storage ???,?????? NAS/SAN ??????.??? Storage ????? 3 ?.

**DAS (Direct Attached Storage)**

?????????????????? DAS ,?? Floppy , Hard Disk(IDE / SATA / SCSI / SAS / SSD) ,Tape , CD / DVD /Blue Ray Disk.

???? : IBM / Fujitsu / Hitachi / Seagate / Toshiba / WD

**NAS(Network-attached storage)**

??? NAS,?????????????????????.??????(File based)?????????.?????? windows ???,???? licence ??????.?????????????? NAS  
???? Linux ??????????,????????? samba(? Linux ???????(?????)?????) ??????????????????? NAS.??????????,??????????????????  
NAS ??????.?????????.

???? : NetApp / FalconStor

????????????????? **FreeNAS**

??? Linux ?? samba ?????? NAS **RHEL5 - Samba**

**SAN (Storage area Network)**

??? SAN (Storage area Network),?????????????(Raw Device),????????? NAS ??????????.?????? Server ???????,? Server ?  
?????????????.????????????????????? serve ?????????,?????????????.??? SAN ?????????,????? 1G,10Gb ??(????????? iSCSI ???,???  
TOE:TCP/IP offload engine,?????????????????????????? CPU ?????)???,????????????,????????????????????(????????? 2G,4Gb,?????  
-850 mm,??-1310 mm),????????? iSCSI(Internet SCSI),????????????????????? SAN,??? IP-SAN.

???? : EMC / NetApp / FalconStor

**Initiator ??? "?????" ?????, Target ??? "?????" ?????.**

**Fiber SAN:**

**?? IBM DS3400 :** IBM DS3400 ?? SAN ,????? IBM ??????,??? Host ? logical Drive ???,Server ?????? SAN ?????  
Lun(Logical Unit Number) Disk.

**IP SAN:**

??? IP-SAN ? iSCSI / FCoE / FCP / AoE

**1.iSCSI (Internet SCSI):**

iSCSI ??? SAN????? SAN?????????? Server ????????.????????? SAN ?????????????? iSCSI(Internet SCSI)?? IP-based ?????????  
?.?????????????????????.

**2.FCoE**

**3.FCP**

**4.AoE:**

AoE ??????? Brantley Coile Company (<http://www.coraid.com/>) ??????????????????.AoE ? IP SAN ??????,????????  
iSCSI ?????????????? Raw device ??????????????.

??:

SAN - ??? "LUN"

?? SCSI RAID ??? SCSI HD ??????????(LUN),SCSI ??????????????????????.?? RAID ?????????? SAN (Fiber / iSCSI) ??

**Fiber**

Fiber - ?????

????(MMF, Multi Mode Fiber)/????(SMF, Single Mode Fiber)

Fiber - Throughput

Fiber ????????? 8/10

Fiber - Tranreciver ???

Tranreciver ????????? "transmitter-receiver" ????????????????? transmitter ? receiver .

Fiber - WWN FC ????????

????? MAC Address(48bits) ??????.???????????? WWN

Fiber - Fiber (10GBASE-R)

10GBASE-SR / 10GBASE-LR / 10GBASE-LRM

note:

TOE (Transport Offload Engine)

<http://taiwan.cnet.com/enterprise/press/0,2000062927,20041021,00.htm>

**RDMA (Remote Direct Memory Access)**

<http://taiwan.cnet.com/news/hardware/0,2000064553,20085066,00.htm>

<http://taiwan.cnet.com/news/hardware/0,2000064553,20073749,00.htm>