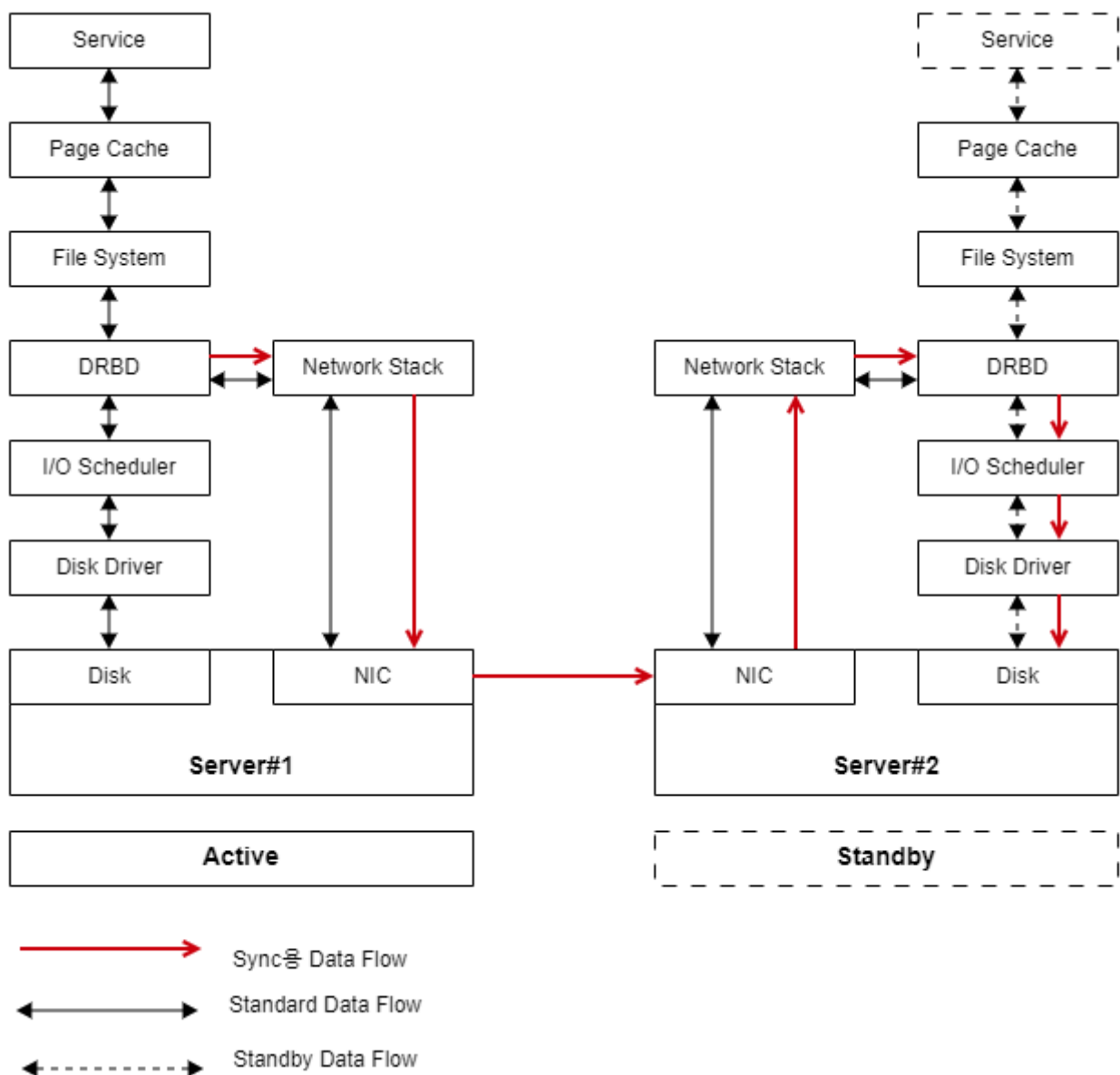


DRBD ㅁㅁㅁ

1. Opensource ㅁㅁ : DRBD / DRBDUtils (<https://www.linbit.com/en/drbd-oss-distribution/>)
2. DRBD Stack (Active / Passive ㅁㅁ)
3. ㅁㅁ ㅁㅁ ㅁㅁ ㅁㅁㅁ Mantec ㅁ ㅁㅁㅁ ㅁㅁㅁ :
<https://mantech.jira.com/wiki/spaces/WDRBDV9/pages/170098908/1>.
4. Mantechㅁ MCCSㅁㅁ ㅁㅁㅁ DRBDㅁ ㅁㅁㅁ ㅁㅁㅁㅁ
5. DRBD Data Flow



DRBD

1. DRBD (8.x, 9.x)

```
> tar -zxvf drbd-8.4.5.tar.gz
> cd drbd-8.4.5
> make;make install
> echo "modprobe drbd" > /etc/sysconfig/modules/drbd.modules
> chmod +x /etc/sysconfig/modules/drbd.modules
> modprobe drbd
> lsmod | grep drbd
drbd                568788  0
libcrc32c           12644  4 xfs,drbd,nf_nat,nf_contrack
```

2. DRBD Util (8.x, 9.x)

```
> yum install -y libxslt libxml2
> tar -zxvf drbd-utils-8.9.1.tar.gz
> cd drbd-utils-8.9.1
> ./configure --prefix=/usr/local/drbd --sysconfdir=/etc/ --with-initscripttype=sysv
> ./configure --sysconfdir=/etc/ --with-initscripttype=systemd --with-pacemaker (Centos7)
> make; make install
> mkdir -p /usr/local/drbd/var/run
```

DRBD

1. Target

```
># fdisk /dev/xvdb
Device contains neither a valid DOS partition table, nor Sun, SGI or OSF disklabel
Building a new DOS disklabel with disk identifier 0xcce44d25.
Changes will remain in memory only, until you decide to write them.
After that, of course, the previous content won't be recoverable.
\\Warning: invalid flag 0x0000 of partition table 4 will be corrected by w(rite)
\\WARNING: DOS-compatible mode is deprecated. It's strongly recommended to
switch off the mode (command 'c') and change display units to
sectors (command 'u').
\\Command (m for help): n
```


Command action

e extended

p primary partition (1-4)

p ()

Partition number (1-4): 1 ()

First cylinder (1-2080500, default 1):

Using default value 1 ()

Last cylinder, +cylinders or +size{K,M,G} (1-2080500, default 2080500):

Using default value 2080500

\\Command (m for help): w ()

The partition table has been altered!

\\Calling ioctl() to re-read partition table.

Syncing disks.

2. DRBD

```
># cat /etc/drbd.d/drbd.res
resource drbd0
{
    startup {
        wfc-timeout 30;
        outdated-wfc-timeout 20;
        degr-wfc-timeout 30;
    }
    \\ syncer {
        rate 1000M;
        verify-alg sha1;
    }
    \\ on web1 {
        device drbd0;
        disk /dev/xvdb1;
        address { 1 IP }:7789;
        meta-disk internal;
    }
    \\ on web2 {
        device drbd0;
        disk /dev/xvdb1;
        address { 2 IP }:7789;
        meta-disk internal;
```



```
}  
}
```

3. DRBD 11 111 11 1 111 11

```
># drbdadm create-md drbd0  
># /etc/init.d/drbd start
```

4. Disk Sync 11 (11 1111 11) (DRBD 8.x 11)

```
># drbdadm -- --overwrite-data-of-peer primary drbd0
```

5. drbd 11 11 primary 11 (111111 11)

```
># drbdadm invalidate drbd0  
># drbdadm primary --force drbd0
```

6. 111 111 11 11 DRBD 111 11 (DRBD 8.x 11)

```
># cat /proc/drbd  
version: 8.4.5 (api:1/proto:86-101)  
GIT-hash: 1d360bde0e095d495786eae2a1ac76888e4db96 build by root@web2, 2015-03-09 14:49:34  
0: cs:SyncTarget ro:Secondary/Primary ds:Inconsistent/UpToDate C r-----  
   ns:0 nr:491520 dw:487424 dr:0 al:0 bm:0 lo:16 pe:0 ua:16 ap:0 ep:1 wo:f oos:9986956  
   [>.....] sync'ed: 4.7% (9752/10228)M  
   finish: 0:04:05 speed: 40,616 (40,616) want: 102,400 K/sec
```

7. 1111 11 (DRBD 9.0)

```
$> drbdadm status drbd0  
drbd0 role:Primary  
disk:UpToDate  
repotx-gitlab-dev02.tx.skp role:Secondary  
replication:SyncSource  
peer-disk:Inconsistent done:8.53
```

DRBD 11 1111

1. DRBD 11 Primary 11 (master 1111)


```
$> drbdadm primary drbd0
$> cat /proc/drbd  *Primary/Secondary  0  0  0  0
version: 8.4.5 (api:1/proto:86-101)
GIT-hash: 1d360bde0e095d495786eae2a1ac76888e4db96 build by root@techtx-base-dev02, 2019-
04-26 17:54:37
0: cs:Connected ro:Primary/Secondary ds:UpToDate/UpToDate C r-----
    ns:0 nr:0 dw:0 dr:664 al:0 bm:0 lo:0 pe:0 ua:0 ap:0 ep:1 wo:f oos:0
```

2. `mkfs.ext4` (master `drbd0`)

```
># mkfs.ext4 /dev/drbd0
mke2fs 1.41.12 (17-May-2010)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
327680 inodes, 1310595 blocks
65529 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=1342177280
40 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736
\\Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done
\\This filesystem will be automatically checked every 26 mounts or
180 days, whichever comes first. Use tune2fs -c or -i to override.
```

3. `mount` (master `drbd0`)

```
$> mount /dev/drbd0 /mnt/
$> df -h /mnt
Filesystem      Size  Used Avail Use% Mounted on
/dev/drbd0      4.8G  10M  4.6G   1% /mnt
```

4. `lsblk` (master `drbd0`)


```
$> touch 123
$> ls -l 123
-rw-r--r-- 1 root root 0 Apr 29 13:04 123
```

5. `drbdadm secondary drbd0` (master `drbd0`)

```
$> umount /mnt
$> drbdadm secondary drbd0
$> cat /proc/drbd
version: 8.4.5 (api:1/proto:86-101)
GIT-hash: 1d360bde0e095d495786eae2a1ac76888e4db96 build by root@techtix-base-dev02, 2019-04-26 17:54:37
0: cs:Connected ro:Secondary/Secondary ds:UpToDate/UpToDate C r-----
   ns:1235836 nr:0 dw:1235836 dr:1409 al:307 bm:0 lo:0 pe:0 ua:0 ap:0 ep:1 wo:f oos:0
```

6. `drbdadm primary drbd0` (slave `drbd0`)

```
$> drbdadm primary drbd0
$> cat /proc/drbd
version: 8.4.5 (api:1/proto:86-101)
GIT-hash: 1d360bde0e095d495786eae2a1ac76888e4db96 build by root@techtix-base-dev05, 2019-04-26 17:54:29
0: cs:Connected ro:Primary/Secondary ds:UpToDate/UpToDate C r-----
   ns:4 nr:1235836 dw:1235840 dr:1017 al:1 bm:0 lo:0 pe:0 ua:0 ap:0 ep:1 wo:f oos:0
```

7. `mount /dev/drbd0 /mnt` (slave `drbd0`)

```
># mount /dev/drbd0 /mnt/
># ls -l /mnt/
total 1000020
-rw-r--r-- 1 root root      0 Apr 29 13:04 123
```

DRBD `drbd0` `drbd1` `drbd2` `drbd3` `drbd4`

1. `crm_mon -l` `drbd0` `drbd1` `drbd2` Active / Standby `drbd3` `drbd4`
2. Corocync / Pacemaker / DRBD `drbd0` `drbd1`
3. DRBD `drbd0` `drbd1`
4. `drbd0` `drbd1` (Standby `drbd2` `drbd3`)


```
$> drbdadm secondary all  
$> drbdadm disconnect all  
$> drbdadm -- --discard-my-data connect all
```

5. 主 节点 (Active 节点 节点)

```
$> drbdadm primary all  
$> drbdadm disconnect all  
$> drbdadm connect all
```

6. 主 节点 节点 (节点 节点 节点)

```
$> drbdadm invalidate drbd0
```

Revision #4

Created 8 June 2022 03:40:35 by artop0420

Updated 24 December 2023 02:30:29 by artop0420