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    Dual-primary mode : : ..... 4

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# DRBD

: <https://docs.linbit.com/docs/users-guide-9.0/>

## DRBD

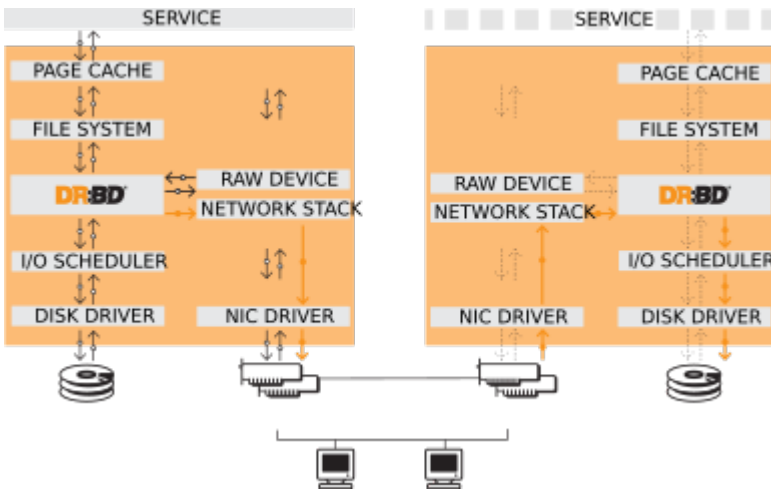
## DRBD

DRBD ( , , ) . DRBD .

- 가 가
- 가 가
- ( ) 가

DRBD Linux , DRBD 가 DRBD DRBD I/O 가 가

DRBD Linux 가 가 가 . DRBD DRBD가 DRBD ext3 XFS 가



## DRBD

### Single-primary mode :


(ext3, ext4, XFS )

DRBD 가 ( 가 )

### Dual-primary mode :

가 가 GFS OCFS2가

DRBD ( : 가 가  
DRBD

 DRBD-9.0 ( 가 ). DRBD-9.1  
2 가

DRBD 3 가 3 가

#### A : Async

TCP 가 (failover)가  
가 가 A 가  
DRBD

DRBD

#### B : Semi-Async

( ) 가 (failover)

가 가 가

가

### C : Sync

가

( 가 )가 가

DRBD

가

C

가

## DRBD

SLES 가

(HAE)

DRBD가

가

SLES

DRBD

YaST2

```
# yast -i drbd
```

```
# zypper install drbd
```

## CentOS

CentOS

5

DRBD 8 가

DRBD 9

EPEL, ELRepo

DRBD

yum(

가

).

```
# yum install drbd kmod-drbd
```

Ubuntu LTS

LINBIT

<https://launchpad.net/~linbit/+archive/ubuntu/linbit-drbd9-stack>

PPA

PPA

가

```
# apt-get install drbd-utils python-drbdmanage drbd-dkms
```

## DRBD

- DRBD

/etc/drbd.d/global\_common.conf

```
global {
    usage-count yes;
}
common {
    net {
        protocol C;
    }
}
```

- DRBD

/etc/drbd.d/r0.res

```
resource r0 {
    on alice {
        device    /dev/drbd1;
        disk      /dev/sda7;
        address   10.1.1.31:7789;
        meta-disk internal;
    }
    on bob {
        device    /dev/drbd1;
        disk      /dev/sda7;
        address   10.1.1.32:7789;
        meta-disk internal;
    }
}
```

- DRBD

/etc/drbd.d/r0.res

```
resource r0 {
    volume 0 {
        device    /dev/drbd1;
        disk      /dev/sda7;
```

```

    meta-disk internal;
}
volume 1 {
    device    /dev/drbd2;
    disk      /dev/sda8;
    meta-disk internal;
}
on alice {
    address   10.1.1.31:7789;
}
on bob {
    address   10.1.1.32:7789;
}
}

```

### global

... /etc/drbd.d/global\_common.conf ... 가

usage-count

DRBD DRBD DRBD

HTTP

usage-count no; usage-count ask; DRBD

DRBD ( <http://usage.drbd.org> ).

### common

/etc/drbd.d/global\_common.conf

common

```

common net { protocol C; }
resource

```

가

### resource

/etc/drbd.d/<resource>.res ... /etc/drbd.conf  
가 \*.res DRBD

on host ( )

common ( ) DRBD

resource

/etc/drbd.d/r0.res

```
resource r0 {
  device    /dev/drbd1;
  disk      /dev/sda7;
  meta-disk internal;
  on alice {
    address  10.1.1.31:7789;
  }
  on bob {
    address  10.1.1.32:7789;
  }
}
```

### initial device synchronization :

가

```
# drbdadm primary --force <resource>
```

### Using truck based replication :

가

```
# drbdadm new-current-uuid --clear-bitmap <resource>/<volume>
```



```
# drbdsetup new-current-uuid --clear-bitmap <minor>
```

```

                RAID1
dd              (file-copy          1
가

```

```
# drbdadm new-current-uuid <resource>
```

```
--clear-bitmap
```

```

                r0      0      2      1

```

```
V=r0/0
```

```
NODE_FROM=2
```

```
NODE_TO=1
```

```
drbdadm -- --force dump-md $V > /tmp/md_orig.txt
sed -e "s/node-id $NODE_FROM/node-id $NODE_TO/" \
    -e "s/^peer.$NODE_FROM. /peer-NEW /" \
    -e "s/^peer.$NODE_TO. /peer[$NODE_FROM] /" \
    -e "s/^peer-NEW /peer[$NODE_TO] /" \
    < /tmp/md_orig.txt > /tmp/md.txt
```

```
drbdmeta --force $(drbdadm sh-minor $V) v09 $(drbdadm sh-ll-dev $V) internal
restore-md /tmp/md.txt
```

```
# drbdadm up <resource>
```

```
가
```

```
4
```

```
4
```

```
/etc/drbd.d/r0.res
```

```
resource r0 {
    device      /dev/drbd0;
```

```
disk /dev/vg/r0;
meta-disk internal;

on store1 {
  address 10.1.10.1:7100;
  node-id 1;
}
on store2 {
  address 10.1.10.2:7100;
  node-id 2;
}
on store3 {
  address 10.1.10.3:7100;
  node-id 3;
}
on store4 {
  address 10.1.10.4:7100;
  node-id 4;
}

# All connections involving store1
connection {
  host store1 port 7012;
  host store2 port 7021;
}
connection {
  host store1 port 7013;
  host store3 port 7031;
}
connection {
  host store1 port 7014;
  host store4 port 7041;
}

# All remaining connections involving store2
connection {
  host store2 port 7023;
  host store3 port 7032;
}
connection {
  host store2 port 7024;
  host store4 port 7042;
}

# All remaining connections involving store3
connection {
  host store3 port 7034;
  host store4 port 7043;
}
```

```
# store4 already done.
}
```

4 가 Full-mesh

1-2, 1-3, 1-4, 2-3, 2-4, 3-4

/etc/drbd.d/r0.res

```
resource r0 {
  device      /dev/drbd0;
  disk        /dev/vg/r0;
  meta-disk   internal;

  on store1 {
    address    10.1.10.1:7100;
    node-id    1;
  }
  on store2 {
    address    10.1.10.2:7100;
    node-id    2;
  }
  on store3 {
    address    10.1.10.3:7100;
    node-id    3;
  }
  on store4 {
    address    10.1.10.4:7100;
    node-id    4;
  }

  connection-mesh {
    hosts      store1 store2 store3 store4;
  }
}
```

NIC가

IP

/etc/drbd.d/r0.res

```
resource r0 {
  ...

  # store1 has crossover links like 10.99.1x.y
  connection {
    host store1 address 10.99.12.1 port 7012;
    host store2 address 10.99.12.2 port 7021;
```

```
}
connection {
  host store1 address 10.99.13.1 port 7013;
  host store3 address 10.99.13.3 port 7031;
}
connection {
  host store1 address 10.99.14.1 port 7014;
  host store4 address 10.99.14.4 port 7041;
}

# store2 has crossover links like 10.99.2x.y
connection {
  host store2 address 10.99.23.2 port 7023;
  host store3 address 10.99.23.3 port 7032;
}
connection {
  host store2 address 10.99.24.2 port 7024;
  host store4 address 10.99.24.4 port 7042;
}

# store3 has crossover links like 10.99.3x.y
connection {
  host store3 address 10.99.34.3 port 7034;
  host store4 address 10.99.34.4 port 7043;
}
}
```

(/etc/drbd.d/\*.res)

```
# drbdadm create-md <resource>
```

```
[root@node1 drbd.d]# drbdadm create-md lv_voll
md_offset 32212250624
al_offset 32212217856
bm_offset 32211234816
```

```
Found ext3 filesystem
  31457280 kB data area apparently used
```

31456284 kB left usable by current configuration

```
initializing activity log
initializing bitmap (960 KB) to all zero
Writing meta data...
New drbd meta data block successfully created.
[root@node1 drbd.d]#
```

가

```
Device size would be truncated, which
would corrupt data and result in
'access beyond end of device' errors.
You need to either
* use external meta data (recommended)
* shrink that filesystem first
* zero out the device (destroy the filesystem)
Operation refused.
```

```
Command 'drbdmeta 0 v09 /dev/mapper/vg_data-lv_vol1 internal create-md 1'
terminated with exit code 40
```

DRBD

가

## DRBD

DRBD

drbd-overview

```
nina# drbd-overview
0:r0/0 Connected(*) Seco(*)/Prim(nina) UpTo(*)/Disk(nono)
    /mnt ext3 1008M 18M 940M 2%
1:r1/0 Connected(*) Secondary(*) UpTo(*)/Disk(nono)
5:r2/0 Connected(*) Seco(*)/Prim(nini) UpTo(*)/Disk(nono)
6:r2/1 Connected(*) Seco(*)/Prim(nini) UpTo(*)/Disk(nono)
```

- r0 0 nina( ) Primary ext3 /mnt
- nono .(DRBD )
- UpToDate .
- r1 .
- r2 nini .

Last update: drbd\_  
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11:45

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Last update: **2024/01/25 11:45**

