

GlusterFS

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Distributed File Systems

- Access from multiple hosts
- Location transparency
- Replication, fault tolerance
- Concurrency
- Scalability

Distributed File Systems. Main Components

- Client
- Data server
- Metadata server

Distributed File Systems. Main Components

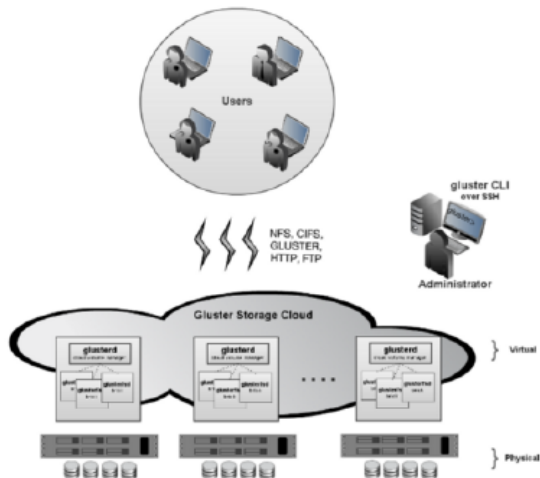
- Client
- Data server
- Metadata server

GlusterFS:

Metadata server < Data server

GlusterFS

- Network/cluster filesystem written in user space
- Scale up to petabytes of storage under a single mount point

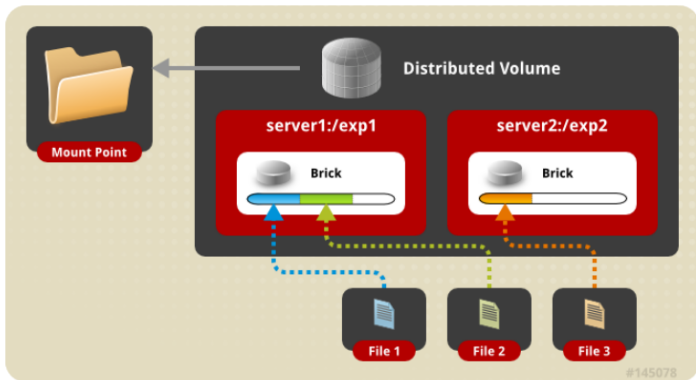


- Brick
- Subvolume
- Volume
- Trusted storage pool

Volume types

- Distributed
 - Replicated
 - Striped
-
- Distributed striped
 - Distributed replicated
 - Striped replicated

Distributed volumes



Distributed volumes. Pros and Cons

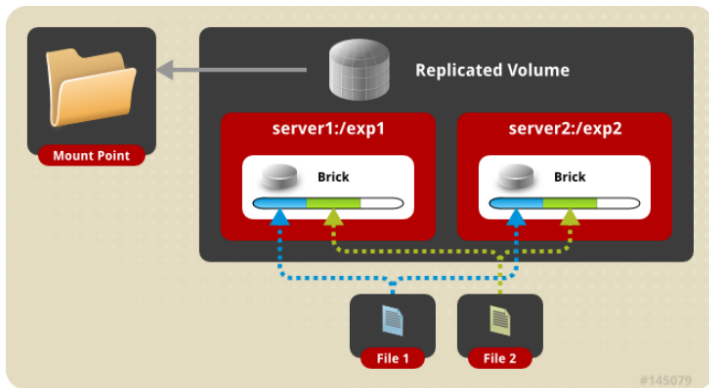
Advantages

- More servers - better scaling
- Increasing volume - adding a new server

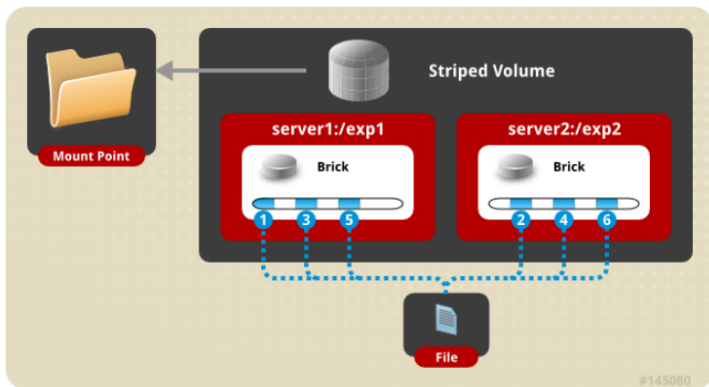
Disadvantages

- Lose of one server - lose access to all its files
- File can't be large than subvolume
- Filename change -> hashcode not valid -> extra lookup

Replicated volumes



Striped volumes



Setting up (1)

```
mkfs.xfs disk-image  
mount disk-image gluster_disk  
  
apt-get install glusterfs-server  
service glusterfs-server start  
service glusterfs-server status
```

Setting up (2)

```
gluster peer probe 192.168.1.105
gluster volume create gv0 replica 2
    192.168.1.114:/home/us1/gluster_disk
    192.168.1.105:/home/us2/gluster_disk

gluster volume start gv0
gluster volume info

mount -t glusterfs 192.168.1.105:/gv1 /mnt
```

Performance (1)

```
cat /mnt/Files/example > /dev/null 700mb
```

NFS

0m15.220s

0m16.139s

0m18.812s

GlusterFS

0m28.101s

0m20.321s

0m36.444s

Performance (2)

700 little files, copying

NFS

0m15.848s

0m12.792s

0m13.417s

GlusterFS

0m28.318s

0m27.432s

0m29.397s

Performance (3)

700 little files, removing

NFS

0m4.861s

0m3.618s

0m4.297s

GlusterFS

0m5.050s

0m7.055s

0m5.300s

- <http://www.gluster.org/>
- Взрослеем с GlusterFS <http://habrahabr.ru/post/140031/>
- GlusterFS, опыт новой версии <http://habrahabr.ru/post/157029/>