

Distributed Systems, Lab 9

Fault Tolerance

Innopolis University, Fall semester

Lev Svalov

B18-DS-02.

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1 Part One

```
...ey-pair.pem ubuntu@ec2-3-137-206-80.us-east-2.compute.amazonaws.com ...key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com ...pair.pem ubuntu@ec2-18-191-30-28.us-east-2.compute.amazonaws.com +
ubuntu@gfs01:~$ sudo gluster volume create vol01 replica 2 transport tcp gfs01:/data/brick1/vol01 gfs02:/data/brick1/vol01 force
volume create: vol01: success: please start the volume to access data
ubuntu@gfs01:~$ sudo gluster volume start vol01
volume start: vol01: success
ubuntu@gfs01:~$ sudo gluster volume info vol01

Volume Name: vol01
Type: Replicate
Volume ID: ec6729dc-ba95-4717-8a3c-a71576dc76d
Status: Started
Snapshot Count: 0
Number of Bricks: 1 x 2 = 2
Transport-type: tcp
Bricks:
Brick1: gfs01:/data/brick1/vol01
Brick2: gfs02:/data/brick1/vol01
Options Reconfigured:
transport.address-family: inet
storage.fips-mode-rchecksum: on
nfs.disable: on
performance.client-io-threads: off
ubuntu@gfs01:~$
```

2 Part Two

Create 5 files on the client:

```
...ey-pair.pem ubuntu@ec2-3-137-206-80.us-east-2.compute.amazonaws.com  ...key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com  ...pair.pem ubuntu@ec2-18-191-30-28.us-east-2.compute.amazonaws.com  +-
ubuntu@client01:~$ cd /mnt/glusterfs
ubuntu@client01:/mnt/glusterfs$ sudo touch file{01,02,03,04,05}
ubuntu@client01:/mnt/glusterfs$ ls
file01 file02 file03 file04 file05
ubuntu@client01:/mnt/glusterfs$

X ...ey-pair.pem ubuntu@ec2-3-137-206-80.us-east-2.compute.amazonaws.com  ...key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com  ...pair.pem ubuntu@ec2-18-191-30-28.us-east-2.compute.amazonaws.com  +-
ubuntu@egfs01:~$ ls /data/brick1/vol01/
file01 file02 file03 file04 file05
ubuntu@egfs01:~$
```

```
...ey-pair.pem ubuntu@ec2-3-137-206-80.us-east-2.compute.amazonaws.com  ...key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com  ...pair.pem ubuntu@ec2-18-191-30-28.us-east-2.compute.amazonaws.com  +-
ubuntu@gfs02:~$ ls /data/brick1/vol01/
file01 file02 file03 file04 file05
ubuntu@gfs02:~$
```

3 Part Three

Stop gfs02, delete file_5 and create directory dir1 on the client and start gfs02 again:

```
...ey-pair.pem ubuntu@ec2-3-137-206-80.us-east-2.compute.amazonaws.com  ...key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com  ...pair.pem ubuntu@ec2-18-191-30-28.us-east-2.compute.amazonaws.com  +-
ubuntu@client01:~$ cd /mnt/glusterfs
ubuntu@client01:/mnt/glusterfs$ sudo touch file{01,02,03,04,05}
ubuntu@client01:/mnt/glusterfs$ ls
file01 file02 file03 file04 file05
ubuntu@client01:/mnt/glusterfs$ mkdir dir1
ubuntu@client01:/mnt/glusterfs$ rm file05
rm: remove write-protected regular empty file 'file05'? y
ubuntu@client01:/mnt/glusterfs$ ls
dir1 file01 file02 file03 file04
ubuntu@client01:/mnt/glusterfs$
```

```
...ey-pair.pem ubuntu@ec2-3-137-206-80.us-east-2.compute.amazonaws.com | key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com | pair.pem ubuntu@ec2-18-191-30-28.us-east-2.compute.amazonaws.com |
ubuntu@Gfs01:~$ ls /data/brick1/vol01/
file01 file02 file03 file04 file05
ubuntu@Gfs01:~$ ls /data/brick1/vol01/
dir1 file01 file02 file03 file04
ubuntu@Gfs01:~$ _

...ey-pair.pem ubuntu@ec2-3-137-206-80.us-east-2.compute.amazonaws.com | key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com | pair.pem ubuntu@ec2-18-191-30-28.us-east-2.compute.amazonaws.com |
levalov@MacBook-Air-Lev:~/c/r/05$ ssh -i key-pair.pem ubuntu@ec2-3-17-27-86.us-east-2.compute.amazonaws.com
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 5.3.0-1035-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sat Sep 26 11:46:55 UTC 2020

System load:  0.08          Processes:      110
Usage of /:   18.5% of 7.69GB Users logged in: 0
Memory usage: 22%          IP address for eth0: 10.0.15.11
Swap usage:   0%

36 packages can be updated.
31 updates are security updates.

Last login: Sat Sep 26 11:38:15 2020 from 82.193.155.224
ubuntu@Gfs02:~$ ls /data/brick1/vol01/
dir1 file01 file02 file03 file04
ubuntu@Gfs02:~$ _
```

4 Assignment

Add the new gfs03 storage server to the existing replicated volume:

```
ubuntu@gfs01:~$ sudo gluster vol status
Status of volume: vol01
Gluster process                                TCP Port  RDMA Port  Online  Pid
-----
Brick gfs01:/data/brick1/vol01                 49152     0          Y      1098
Brick gfs02:/data/brick1/vol01                 49152     0          Y      1137
Self-heal Daemon on localhost                   N/A      N/A        Y      1134
Self-heal Daemon on gfs03                      N/A      N/A        Y      6746
Self-heal Daemon on gfs02                      N/A      N/A        Y      1164

Task Status of Volume vol01
-----
There are no active volume tasks

ubuntu@gfs01:~$ sudo gluster volume add-brick vol01 replica 3 gfs03:/data/brick1/vol01
volume add-brick: success
ubuntu@gfs01:~$
```

```
...c2-3-137-206-80.us-east-2.compute.amazonaws.com  ...@ec2-3-17-27-86.us-east-2.compute.amazonaws.com  x ...2-18-191-30-28.us-east-2.compute.amazonaws.com  ...-3-131-137-166.us-east-2.compute.amazonaws.com  +
ubuntu@gfs03:~$ sudo gluster vol status
Status of volume: vol01
Gluster process                                TCP Port  RDMA Port  Online  Pid
-----
Brick gfs01:/data/brick1/vol01                 49152     0          Y      1098
Brick gfs02:/data/brick1/vol01                 49152     0          Y      1137
Brick gfs03:/data/brick1/vol01                 49152     0          Y      6786
Self-heal Daemon on localhost                   N/A      N/A        Y      6746
Self-heal Daemon on gfs02                      N/A      N/A        Y      1164
Self-heal Daemon on gfs01                      N/A      N/A        Y      1134

Task Status of Volume vol01
-----
There are no active volume tasks

ubuntu@gfs03:~$ sudo gluster volume info vol01
Volume Name: vol01
Type: Replicate
Volume ID: ec6729dc-ba95-4717-8a3c-a71576bdc76d
Status: Started
Snapshot Count: 0
Number of Bricks: 1 x 3 = 3
Transport-type: tcp
Bricks:
Brick1: gfs01:/data/brick1/vol01
Brick2: gfs02:/data/brick1/vol01
Brick3: gfs03:/data/brick1/vol01
Options Reconfigured:
transport.address-family: inet
storage.fips-mode-rchecksum: on
nfs.disable: on
performance.client-io-threads: off
ubuntu@gfs03:~$
```