Design and implementation of GEOM Gate

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GEOM Gate: What's this??

- Provides support for network exported disk devices

- Exported disk devices from the remote system are represented by a /dev/gg[0-9]+ devices on the local system

GEOM Gate: Why??

- Leak of GEOM documentation!
- Cool thing to have (IMHO)

And some more serious reason:

- Easy to use for network backups

...I'm quite sure there are more:)

GEOM Gate: Implementation

- Implemented as a GEOM class
- Three general parts:
  - geom_gate.ko (kernel module)
  - ggc (client-side daemon)
  - ggd (server-side daemon)
- Support for many workers processes
- Cache mechanism (really necessary?)

GEOM Gate: Configuration file

```
# cat /etc/gg.exports
192.168.0.5        RW  /dev/ad0s1a
192.168.0.0/24   RD  /dev/acd0
192.168.0.6        RW  /test.img
```

GEOM Gate: Examples (1/3)

```
server# truncate -s 512M /test.img
server# echo "10.1.0.2 RW /test.img" >
          /tmp/gg.exports.tmp
server# ggd /tmp/gg.exports.tmp

client# ggc -a -h server -s 512M -n 4 -u 5
          /test.img
client# newfs -O2 /dev/gg5
client# mount /dev/gg5 /mnt/gg/
```

GEOM Gate: Examples (2/3)

```
server# truncate -s 10G /backups/client.img
server# ggd

client# ggc -a -h server -s 10G -n 4 -u 6
            /backups/client.img
client# mksnap_ffs / /snapshot
client# dd if=/snapshot of=/dev/gg6
client# ggc -d -u 6
```

GEOM Gate: Examples (3/3)

```
client# ggc -a -h es1 -s 80G -u 1 /dev/ad0s1a
client# ggc -a -h es2 -s 80G -u 2 /dev/ad0s1a
client# ggc -a -h es3 -s 80G -u 3 /dev/ad0s1a
client# ggc -a -h es4 -s 80G -u 4 /dev/ad0s1a

client# ccdconfig ccd0 64 none /dev/gg1
            /dev/gg2 /dev/gg3 /dev/gg4
```

GEOM Gate: Status

- Not finished yet!!
- Not secure yet!!
- Not full-functional yet!!
- Not performance optimized yet!!

- Quite cool already!!!

GEOM Gate: Futher work

- Find some clean way for errors handling
- Add UDP support (for now it only works at TCP layer)
- Option for encrypted communication, but:
  # ggc -a -h server -s 10G -u 1 /disks/1.img
  # gbde attach /dev/gg1 -l /etc/gg1.lock
  # mount /dev/gg1.bde /mnt/1/
- Option for compressed transport
- Global access control (preventing multiple writers, etc.)

GEOM Gate: Availability

http://garage.freebsd.pl/geom_gate.tbz