Porting GlusterFS to FreeBSD

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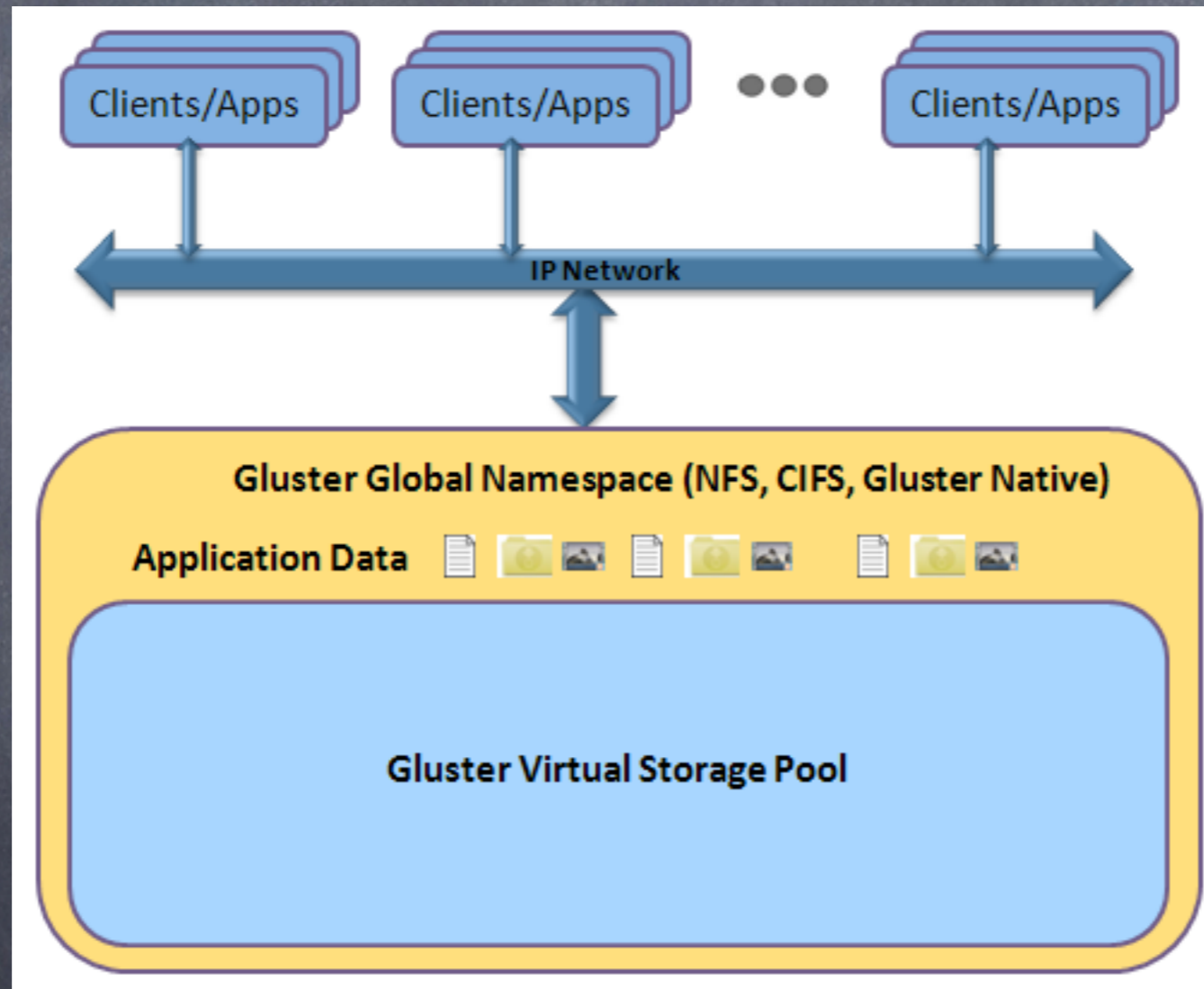
Outline

- **Background**

- Setup Steps

- Experimental Result

- Known Issues

- Conclusion

Motivation

- GlusterFS

    - open source, distributed file system

    - cluster machines into storage cloud

    - userspace filesystem

    - written for Linux initially, later ported to NetBSD

    - FUSE is now available in FreeBSD 10

Architecture

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Setup Steps

- Download Source code:

  - git clone https://github.com/cosql/glusterfs

- Build and install

  - ./autogen.sh && ./configure && make && make install

- Start **glusterd** first

  - glusterd

Setup steps

- Initialize disk partition

  - newfs /dev/da2s1a

  - mount /dev/da2s1a /mnt

- Create a gluster volume

  - gluster volume create **gv0** replica 2 $server_ip:/mnt/exp1 $server_ip:/mnt/exp2

  - gluster volume **gv0** start

- Mount

  - glusterfs --log-file=log --log-level=INFO --volfile-id=**gv0** --volfile-server=$server_ip <mount_point>

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Experiment Settings

- VirtualBox

  - 8 core cpu
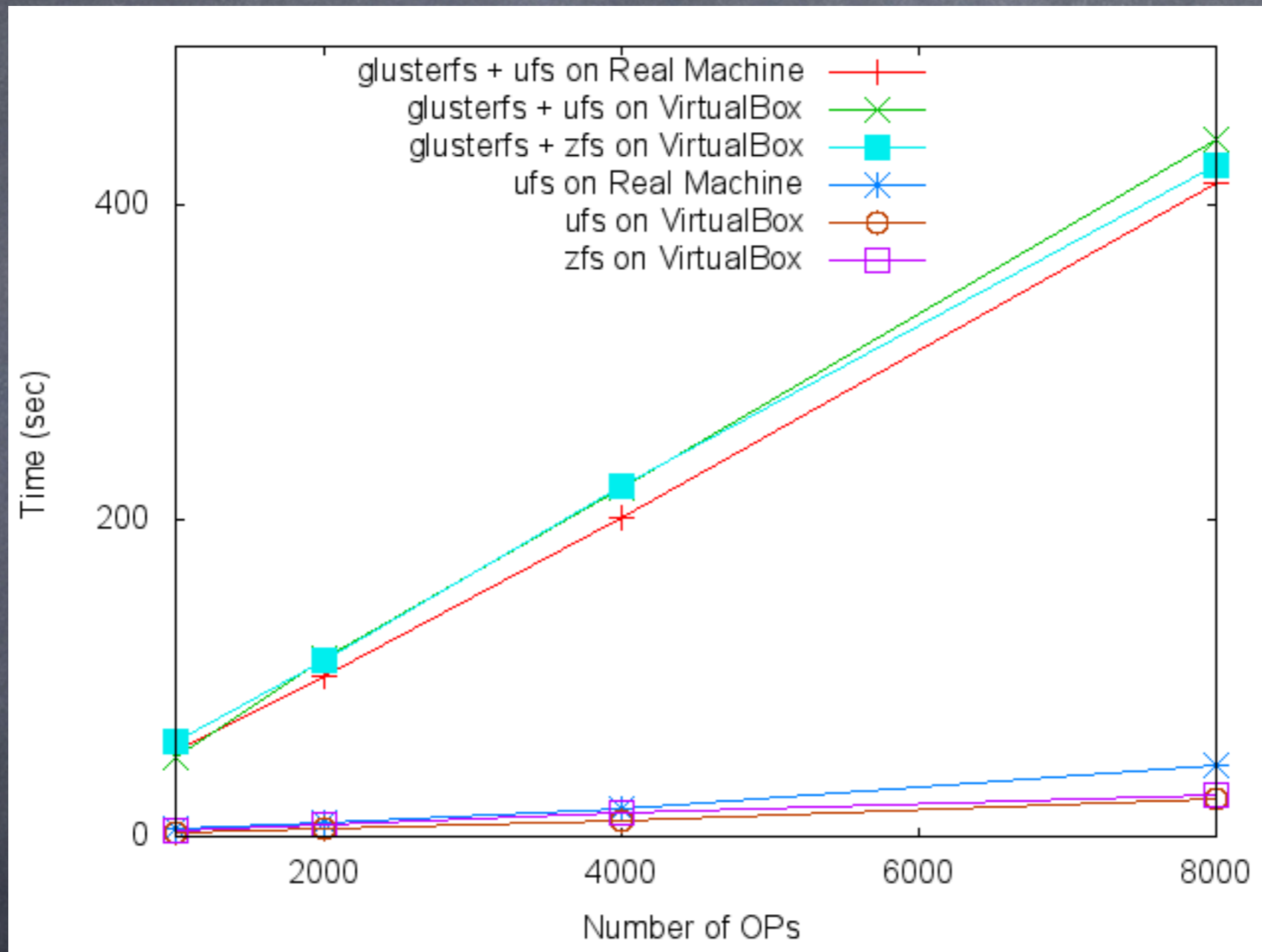 - 8GB RAM
  - 40GB VDI, ufs and zfs

- Real Machine

  - Intel(R) Core(TM)2 Duo CPU E6850 @3.00GHz
  - 2GB RAM
  - 2GB usb disk, formatted as ufs

- FreeBSD-10-Current

- 2 replicas

FSX

Run with -N {1000, 2000, 4000, 8000}

Blogbench

Gluster		Underlying ufs		Gluster		Underlying zfs	
Rd	Wr	Rd	Wr	Rd	Wr	Rd	Wr
2	5490	30	66577	1	159	22	13180
1	121	28	54191	2	174	17	7884
2	1697	29	48407	1	148	10	7125
1	128	29	45987	1	285	9	6262
1	230	26	46340	2	245	10	5166

- On VirtualBox

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Known Issues

- "mount -t fuse.glusterfs" not working

- tests under tests/ directory not ported

- libgfapi not supported

- build with clang could fail

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Conclusion

- Pre-alpha state

- Need more tests on physical machines

- Plan to submit the changes to gluster.org after GSoC is over

The End

Thank You!