

File Level Snapshot - Reflink

Tao Ma
2009-10-25

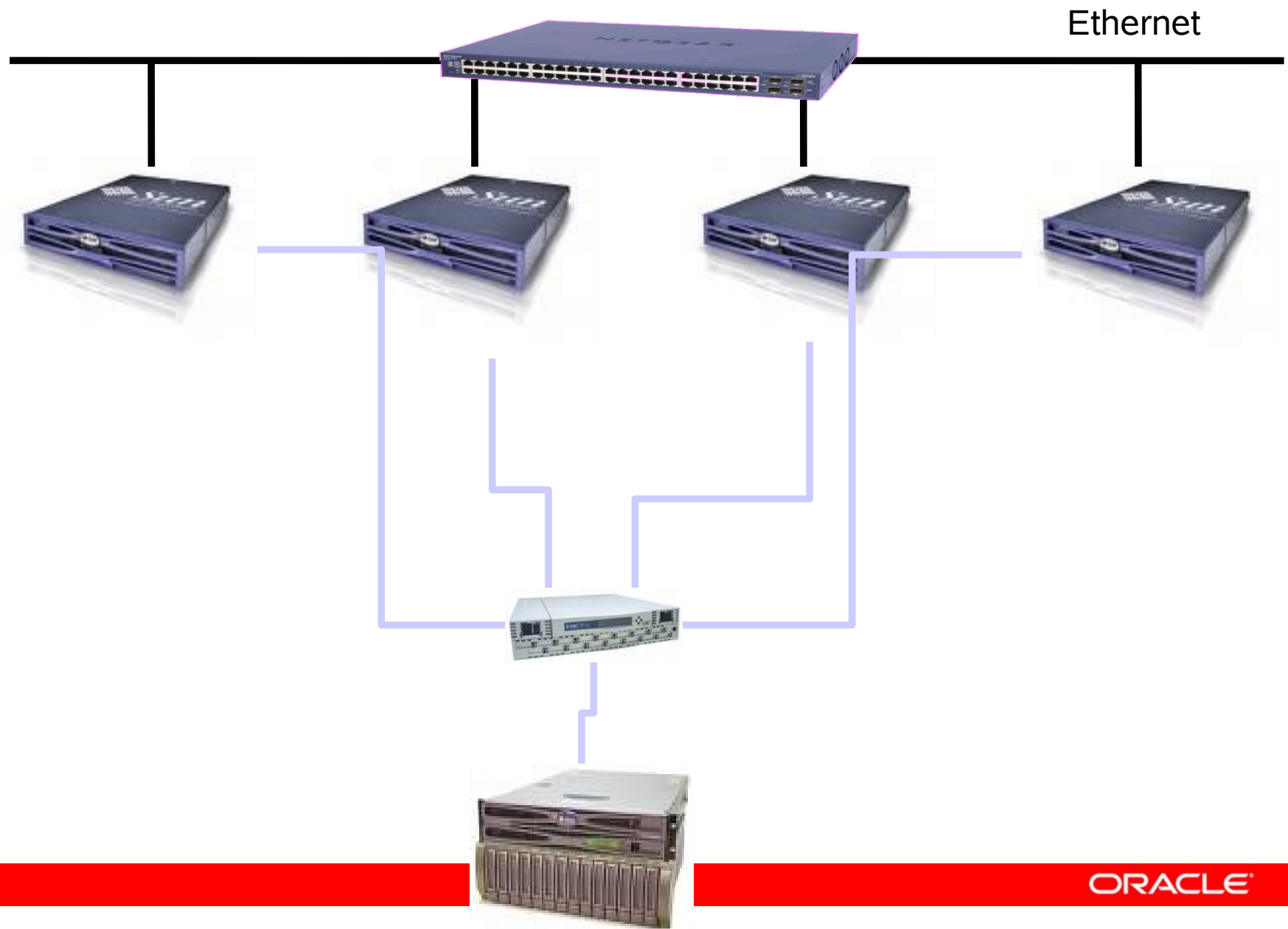
Agenda

General Introduction of OCFS2

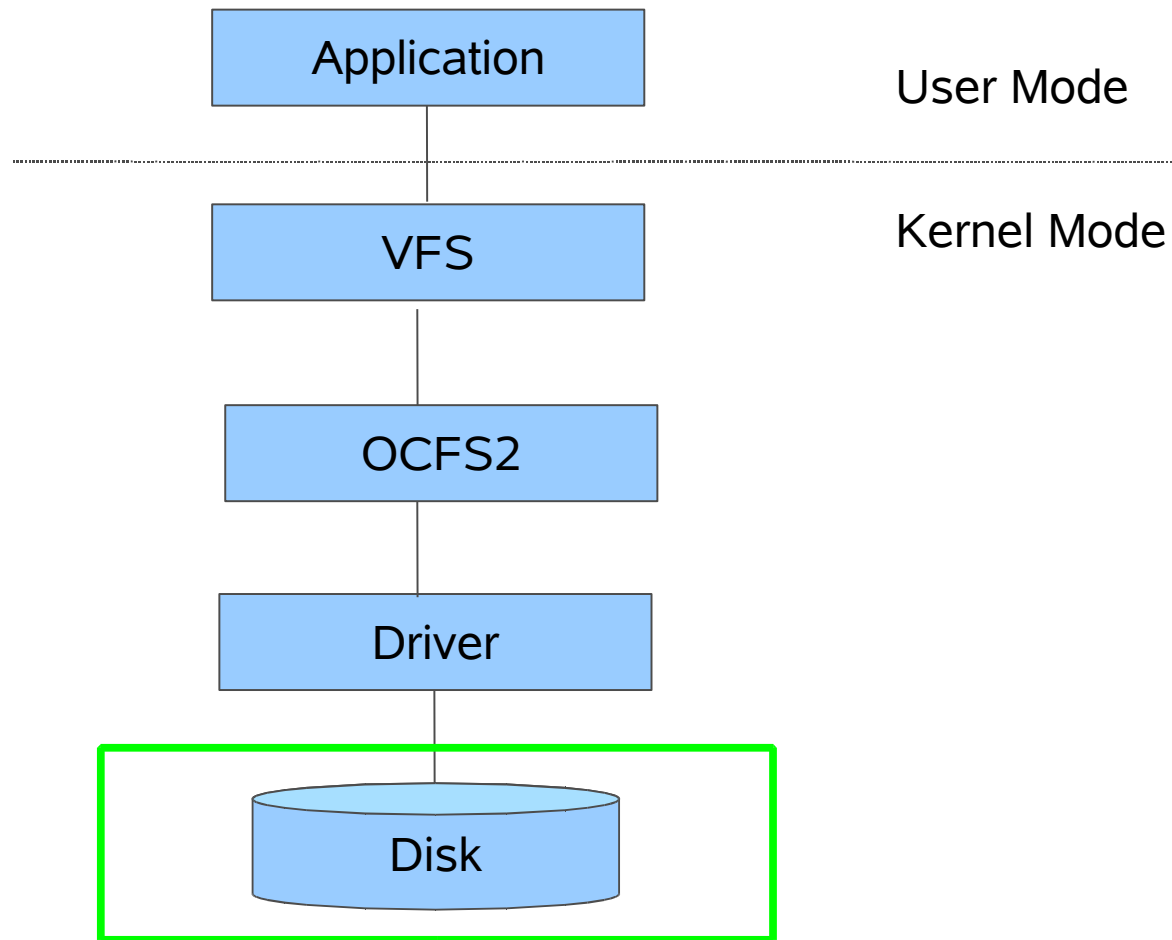
Cloud Computing

File Level Snapshot - reflink

Oracle cluster file system 2



Linux file system



Goals for OCFS2

Become a high performance general purpose Cluster FS

- Meta data caching
- Meta data journaling
- Cross node file data consistency
- Easy to administer, including operation as shared root fs
- Integrate well with the Linux Kernel (2.6.16)
- Cluster aware tools
- Multiple cluster size (4K ~ 1M)
- Multiple block sizes (512,1024,2048,4096 bytes)

Resources

Web Access:

<http://oss.oracle.com/projects/ocfs2>

<http://oss.oracle.com/projects/ocfs2-tools>

Mailist:

ocfs2-users@oss.oracle.com

ocfs2-devel@oss.oracle.com

Cloud Computing

Definition:

Cloud computing is the provision of dynamically scalable and often virtualised resources as a service over the Internet on a utility basis.

Cloud Computing

Key Words:

Scalability

Virtualization

Cloud Computing(EC2)

EC2:

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud.

Xen virtualization

Images Sharing

Problems

Snapshots

Clones

Space Savings

File Level Snapshot - reflink

```
int reflink(const char *oldpath,  
           const char *newpath, int preserve);
```

reflink() has the same calling semantics as link(2)
but creates a new file that shares all the data extents of the source file.

Using reflink

Snapshots:

```
# umask 333 && reflink host1.img \  
host1.img.snap
```

Restore:

```
# unlink host1.img  
# reflink host1.img.snap host1.img
```

Clones:

```
# reflink os-base.img host1.img  
# create-vm --name host1 host1.img
```

Current Status

OCFS2 part has been merged into 2.6.32.

System call isn't merged as Linus doesn't like it.

Other file system

Btrfs

bcp

Linux Kernel Development

Start from the simplest.

My first kernel commit:

commit c77534f6fb6d58e27d923b6825ea3b0ef485ab26

Author: Tao Mao <tao.ma@oracle.com>

Date: Tue Aug 28 17:22:33 2007 -0700

ocfs2: remove mostly unused field from insert structure

Thanks !