SILICON GRAPHICS | The Source of Innovation and Discovery™

Silicon Graphics, Inc.

XFS Overview & Internals
03 - Build

November 2006

sgi®

Building XFS

- This tutorial describes how to
  - obtain the latest XFS source code
  - how to build and install the commands and kernel components

- The following prerequisite RPMs should be installed
  - xfsprogs-devel
  - dmapi-devel

- These headers and installed can be built from source, but these RPMs will normally suffice

sgi

XFS Source Code

- Latest XFS is available via CVS from oss.sgi.com:

```
> export CVSROOT=':pserver:cvs@oss.sgi.com:/cvs'
> cvs login
Logging in to :pserver:cvs@oss.sgi.com:2401/cvs
CVS password: <password is "cvs">
> cvs checkout linux-2.6-xfs
cvs checkout: Updating linux-2.6-xfs
U linux-2.6-xfs/.gitignore
U linux-2.6-xfs/COPYING
U linux-2.6-xfs/CREDITS
...
> cvs checkout xfs-cmds
```

sgi®

Building xfs-cmds

- Building the XFS commands

```
> cd xfs-cmds
> make
...
```

- RPM packages will be placed in RPMS/<arch>

```
> cd RPMS/x86_64
> sudo rpm -i xfsprogs-2.8.15-1.x86_64.rpm
> sudo rpm -i xfsdump-2.2.43-1.x86_64.rpm
```

- Source RPM packages will be placed in SRPMS/

sgi

Kernel Configuration Options

- *CONFIG_XFS_FS*
  - XFS can be built as a module or statically linked into the kernel
- *CONFIG_XFS_QUOTA*
  - support for quota disk limits.
- *CONFIG_XFS_DMAPI*
  - support for the data management API (requires generic kernel DMAPI support)
- *CONFIG_XFS_SECURITY*
  - support for alternate access control models (ie SELinux).
- *CONFIG_XFS_POSIX_ACL*
  - support for Access Control Lists.
- *CONFIG_XFS_REALTIME*
  - support for the realtime allocator that provides deterministic data rates.
- *CONFIG_XFS_DEBUG*
  - include debugging features in the build (ie ASSERTs, sanity checking code, etc).
- *CONFIG_XFS_TRACING*
  - include support for activity tracing of inodes, buffers, locks, the log, I/O path, etc.

sgi

Build Kernel Components

- Configure and build kernel and modules

```
> cd linux-2.6-xfs
> make xconfig
> make bzImage
> make modules
> sudo make modules_install
```

- If XFS wasn't built as a module

```
# cp arch/<arch>/boot/bzImage /boot/vmlinuz
# cp System.map /boot/System.map
# lilo
# reboot
```

sgi

Load XFS Modules

- Load the XFS modules

```
# modprobe xfs
# modprobe xfs_dmapi
# modprobe xfs_quota


# lsmod
Module                    Size  Used by
xfs_dmapi                32852  0
xfs_quota                85120  0
xfs                     848864  2 xfs_dmapi,xfs_quota
```

- Can now mount XFS filesystems...

sgi®