"next-gen" FS topics

- What we want from a next generation generic file system. (BTRFS)

- What do **you** want from a next-gen FS?

- issues in higher layers

- speeding up fsck.ext2?

- CRFS?

critical BTRFS design

- efficient writable snapshots: reference-counted COW trees

- efficient repair: back-pointers

- systematic efficient space utilization: variable length items in B+tree leaves

- block level replication: internal map from logical blocks to device blocks

- integrity: per-block UUIDs, checksums, transaction numbers, and block identity

issues in higher layers

- online repair: serializing in-kernel btrfs.ko and userspace fsck.btrfs

- multi-device interface: how much of DM can or should be used

- efficient FS deltas: stream transactions to or from userspace

- expose sequence numbers: let userspace find files that changed since some previous number

- expose data checksums: let userspace specify checksums for data, perhaps calculated far away

faster fsck.ext2

- Watch dchinner's LCA'08 talk on XFS repair
- Twice.