

dm-snapshot in userspace

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dm-snapshot was a huge step forward for Android updates, but it can have greatly outsized disk space requirements for relatively small binary patches. Since dm-snapshot is closely tuned to the underlying exception store, it is not easily amenable to custom storage formats.

We have addressed this by implementing dm-snapshot in userspace via a new “dm-user” device-mapper module (like FUSE, but for block devices). Since the entire OS runs off this block device, performance is a primary motivation over NBD/iSCSI, and we are interested in how to achieve high-performance userspace block devices in the upstream kernel.

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