

Busy system needs shutdown if nonzero e2fsck result, otherwise Oops, was 2.4.24 Paging Fault...

Source: <http://linux.derkeiler.com/Mailing-Lists/Kernel/2004-02/7341.html>

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To: linux-kernel@vger.kernel.org

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Greetings,

I have a puzzling fault occurring on a system 2.4.24 or 2.4.26-pre1 patched with lowlat, preempt, vhz jiffies, and my nforce2 lockups patches.

My previous postings on topic

<http://www.ussg.iu.edu/hypermail/linux/kernel/0402.1/1573.html>

<http://www.ussg.iu.edu/hypermail/linux/kernel/0402.2/0042.html>

<http://www.ussg.iu.edu/hypermail/linux/kernel/0402.2/0070.html>

Debugging efforts have been on two systems with same type of hardware. Fault is reproducible.

I have not included all config info with this email as my kernel is not standard, limited value? but this still may be of some benefit.

I have not tried a standard 2.4 kernel with this system due to expected latency issues. Whilst a standard 2.6 series kern has all the latency features I need, the drivers I use have yet to be ported.

Currently system is now stable with scripted reboot after a non zero return code from e2fsck.

As such it has to go back out on the road imaging things. Unfortunately I do not have an complete duplicate system for immediate further testing on.

Findings.

If the e2fsck program exits with non zero i.e. drive was not clean then Oops guaranteed if I am grabbing from 3 cameras. If I switch off 2 cameras then no Oops (system less busy).

If I reboot after e2fsck nonzero result then no Oops occurs and system functions fine. Storage drives are not mounted at all prior to e2fsck.

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I have tried e2fsck 1.28 and 1.34 (static link) both with same result. Docs say reboot reqd on exit code of 2. This system needs reboot also with exit code of 1?

More testing revealed when conditions for Oops are met the process listed in Oops varies but Oops always occurred at roughly the same quantity of data written to drive or drives (estimated from distance, not measured).

System is vehicle mounted so simulated travel distance in daytime is around 8km to Oops with 1 storage drive. With 2 drives (not raid) writing duplicate of data then distance is around 4km. At night with basically black images (storage is mpeg compressed) then Oops is around 24km simulated distance for single drive.

Varying distance indicates to me that Oops is not sensitive to drive transfer rate. Time to fault also varies.

System is busy wrt dma from both a bt878 card (1 camera) and a meteor II mc card(2 cameras). Raw image transfer is fairly constant for a constant speed (3 images per 4m to 6m up to 110kph) with raw 614K images on bt878 and 2.4M images on mc card. (30Mb per second at 80kph) Travelling slower lowers the average transfer rate from the meteor II mc card but Oops occurs at roughly the same distance for same image content.

There is also serial, network and lpt activity as well. Problem still occurs without serial activity – seems somewhat insensitive to interrupts.

I get same results with mount program from either suse 8.2 or busybox mount.

The only daemons other than usual kernel ones are smbd and nmbd.

Ramdrive swap does not help 2.4.26–pre1, no longer certain if it helps 2.4.24.

My Questions if you please.

Are there some further fixups going on in the Kernel ext2fs driver when the filesystem has been fixed on boot by e2fsck that don't occur with a clean boot?

And if so do these only occur after a certain amount of data has passed out of the kernel to drive?

Does the e2fsck fixups without reboot alter the way the drive data is laid down? Resulting in a timing issue with interleave or something that isn't handled neatly with the PCI being busy?

Any thoughts on nforce2 IDE? hypertransport? errors occurring that are not being handled by the existing driver?

Thanks in advance,
Ross Dickson

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