Product Alert 13

Product: All versions of StorNext®

Summary: Metadata on more than one stripe group can cause corruption

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Overview: Two issues can occur when metadata is used on more than one stripe group in a file system configuration:

1. Under certain circumstances, cvfsck could lose track of one or more blocks of inodes in the file system. This can cause data to be incorrectly removed from the file system when running cvfsck.
2. Under certain circumstances, an inode could be marked as “unused” and set on the free list of inodes. When the free list with invalid inodes is later used on an active file system, it might cause corruption.

Problem: There are two bugs related to IEL blocks at address zero of stripe groups greater than 0:

1. An inode iteration loop in cvfsck could overflow a variable when checking metadata on stripe groups other than the first. This can cause cvfsck to fall out of the inode check early, and could cause loss of multiple blocks of inodes. In a read-only run this manifests as the inode count and free inode count dropping dramatically. If cvfsck is run in update mode, it could permanently lose these inodes.
2. There are multiple routines in StorNext free inode list processing that make an incorrect calculation when inode blocks are located at the beginning of a stripe group other than the first. This error could cause the wrong inode to be set as free or in-use in the free list. This behavior could cause data corruption or make free inodes no longer accessible. In addition, it could cause some inodes to be stuck in the process of being freed. This would prevent removed files from returning their data blocks back to the free block pool. This code is used by cvfsck and the FSM, and can cause corruption.

Solution: New code created to fix this issue will be rolled into the following maintenance releases for Stornext 2.6, 2.7, and 2.8:

- For StorNext 2.6.5: Build 49
- For StorNext 2.7.1: Build 98
- For StorNext 2.8.1: Build 39

If you are currently using metadata on multiple stripe groups, do not run cvfsck until the fix is available.

For further assistance in this matter, contact the Quantum Technical Assistance Center.

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