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Incident report: 2015-06-06

Description

Several customers had reported increased I/O latency and general filestore slowness during the week leading up to Monday, 6 June, at which point performance degraded more severely to the extent that certain latency sensitive customer VMs became unusable.

Analysis

Having earlier noted increased I/O load on the affected storage cluster due to higher than usual new customer sign-ups, isoho.st was proactively in the process of procuring additional storage system capacity in terms of doubling our storage node CPU deployment. Due to the long lead time on the additional components, we had already begun negotiating bandwidth thottling on certain customer VMs that were found to be performing higher than expected rates of storage I/O. In spite of these load reduction measures, the performance issue worsened, coming to a head on Monday, where I/O was found to be unacceptably slow even when the storage cluster was relatively quiet in terms of customer I/O requests. At this point investigation into potential software issues began, until discovering a software bug in the tcmalloc library [1], a dependency of our storage solution, that explained the high CPU load.

Impact

While no VMs experienced any down time as a result of this issue, the performance of customer functionality depending on timeous I/O was impacted.

Actions

The affected library was upgraded on each storage node with the result that CPU load on the storage cluster returned to acceptable levels. While the patched cluster appears to be handling base load at acceptable levels, we are still CPU constrained while recovering from failures or restoring backup snapshots, where such activities may impact customer I/O going forward. A maintance window is scheduled towards the end of June to install the newly acquired CPUs and in the interim we have disabled customer initiated rollback of snapshots. For customers where rollback is necessitated, we have developed a manual process to achieve the same results without impacting cluster performance.

References

[1] https://bugs.launchpad.net/ubuntu/+source/google-perftools/+bug/1439277

Please direct any questions or comments to support@isoho.st