

Google Cloud Status Dashboard

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Google Compute Engine Incident #16011

Compute Engine SSD Persistent disk latency in zone US-Central1-a

Incident began at **2016-06-28 18:55** and ended at **2016-06-28 21:57** (all times are **US/Pacific**).

	DATE	TIME	DESCRIPTION
✔	Jul 10, 2016	17:57	<p>SUMMARY:</p> <p>On Tuesday, 28 June 2016 Google Compute Engine SSD Persistent Disks experienced elevated write latency and errors in one zone for a duration of 211 minutes. We would like to apologize for the length and severity of this incident. We are taking immediate steps to prevent a recurrence and improve reliability in the future.</p> <p>DETAILED DESCRIPTION OF IMPACT:</p> <p>On Tuesday, 28 June 2016 from 18:15 to 21:46 PDT SSD Persistent Disks (PD) in zone us-central1-a experienced elevated latency and errors for most writes. Instances using SSD as their root partition were likely unresponsive. For instances using SSD as a secondary disk, IO latency and errors were visible to applications. Standard (i.e. non-SSD) PD in us-central1-a suffered slightly elevated latency and errors.</p> <p>Latency and errors also occurred when taking and restoring from snapshots of Persistent Disks. Disk creation operations also had elevated error rates, both for standard and SSD PD.</p> <p>Persistent Disks outside of us-central1-a were unaffected.</p> <p>ROOT CAUSE:</p> <p>Two concurrent routine maintenance events triggered a rebalancing of data by the distributed storage system underlying Persistent Disk. This rebalancing is designed to make maintenance events invisible to the user, by redistributing data evenly around unavailable storage devices and machines. A previously unseen software bug, triggered by the two concurrent maintenance events, meant that disk blocks which became unused as a result of the rebalance were not freed up for subsequent reuse, depleting the available SSD space in the zone until writes were rejected.</p> <p>REMEDIATION AND PREVENTION:</p> <p>The issue was resolved when Google engineers reverted one of the maintenance events that triggered the issue. A fix for the underlying issue is already being tested in non-production zones.</p> <p>To reduce downtime related to similar issues in future, Google engineers are refining automated monitoring such that, if this issue were to recur, engineers would be alerted before users saw impact. We are also improving our automation to better coordinate different maintenance operations on the same zone to reduce the time it takes to revert such operations if necessary.</p>
✔	Jun 28, 2016	22:12	<p>The issue with Compute Engine SSD persistent disk latency in zone US-Central1-a should have been resolved for all projects as of 21:57 US/Pacific. We will conduct an internal investigation of this issue and make appropriate improvements to our systems to prevent or minimize future recurrence.</p>
✔	Jun 28, 2016	22:03	<p>The issue with Compute Engine SSD Persistent disk latency in zone US-Central1-a should have been resolved for the majority of projects and we expect a full resolution in the near future. We will provide another status update by 23:00 US/Pacific with current details.</p>
⚠	Jun 28, 2016	21:04	<p>We are still investigating the issue with Compute Engine SSD Persistent disk latency in zone US-Central1-a. We will provide another status update by 22:00 US/Pacific with current details.</p>
⚠	Jun 28, 2016	20:13	<p>We are investigating an issue with Compute Engine SSD Persistent disk latency in zone US-Central1-a. We will provide more information by 21:00 US/Pacific.</p>

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