

Google Cloud Status Dashboard

This page provides status information on the services that are part of Google Cloud Platform. Check back here to view the current status of the services listed below. If you are experiencing an issue not listed here, please [contact Support](#). Learn more about what's posted on the dashboard in [this FAQ](#). For additional information on these services, please visit [cloud.google.com](#).

Google App Engine Incident #16008

App Engine Outage

Incident began at **2016-08-11 13:13** and ended at **2016-08-11 15:00** (all times are **US/Pacific**).

DATE	TIME	DESCRIPTION
✓ Aug 23, 2016	09:54	<p>SUMMARY:</p> <p>On Thursday 11 August 2016, 21% of Google App Engine applications hosted in the US-CENTRAL region experienced error rates in excess of 10% and elevated latency between 13:13 and 15:00 PDT. An additional 16% of applications hosted on the same GAE instance observed lower rates of errors and latency during the same period.</p> <p>We apologize for this incident. We know that you choose to run your applications on Google App Engine to obtain flexible, reliable, high-performance service, and in this incident we have not delivered the level of reliability for which we strive. Our engineers have been working hard to analyze what went wrong and ensure incidents of this type will not recur.</p> <p>DETAILED DESCRIPTION OF IMPACT:</p> <p>On Thursday 11 August 2016 from 13:13 to 15:00 PDT, 18% of applications hosted in the US-CENTRAL region experienced error rates between 10% and 50%, and 3% of applications experienced error rates in excess of 50%. Additionally, 14% experienced error rates between 1% and 10%, and 2% experienced error rate below 1% but above baseline levels. In addition, the 37% of applications which experienced elevated error rates also observed a median latency increase of just under 0.8 seconds per request.</p> <p>The remaining 63% of applications hosted on the same GAE instance, and applications hosted on other GAE instances, did not observe elevated error rates or increased latency.</p> <p>Both App Engine Standard and Flexible Environment applications in US-CENTRAL were affected by this incident. In addition, some Flexible Environment applications were unable to deploy new versions during this incident.</p> <p>App Engine applications in US-EAST1 and EUROPE-WEST were not impacted by this incident.</p> <p>ROOT CAUSE:</p> <p>The incident was triggered by a periodic maintenance procedure in which Google engineers move App Engine applications between datacenters in US-CENTRAL in order to balance traffic more evenly.</p> <p>As part of this procedure, we first move a proportion of apps to a new datacenter in which capacity has already been provisioned. We then gracefully drain traffic from an equivalent proportion of servers in the downsized datacenter in order to reclaim resources. The applications running on the drained servers are automatically rescheduled onto different servers.</p> <p>During this procedure, a software update on the traffic routers was also in progress, and this update triggered a rolling restart of the traffic routers. This temporarily diminished the available router capacity.</p> <p>The server drain resulted in rescheduling of multiple instances of manually-scaled applications. App Engine creates new instances of manually-scaled applications by sending a startup request via the traffic routers to the server hosting the new instance.</p> <p>Some manually-scaled instances started up slowly, resulting in the App Engine system retrying the start requests multiple times which caused a spike in CPU load on the traffic routers. The overloaded traffic routers dropped some incoming requests.</p> <p>Although there was sufficient capacity in the system to handle the load, the traffic routers did not immediately recover due to retry behavior which amplified the volume of requests.</p> <p>REMEDIATION AND PREVENTION:</p> <p>Google engineers were monitoring the system during the datacenter changes and immediately noticed the problem. Although we rolled back the change that drained the servers within 11 minutes, this did not sufficiently mitigate the issue because retry requests had generated enough additional traffic to keep the system's total load at a substantially higher-than-normal level.</p> <p>As designed, App Engine automatically redirected requests to other datacenters away from the overload - which reduced the error rate. Additionally, our engineers manually redirected all traffic at 13:56 to other datacenters which further mitigated the issue.</p> <p>Finally, we then identified a configuration error that caused an imbalance of traffic in the new datacenters. Fixing this at 15:00 finally fully resolved the incident.</p> <p>In order to prevent a recurrence of this type of incident, we have added more traffic routing capacity in order to create more capacity buffer when draining servers in this region.</p> <p>We will also change how applications are rescheduled so that the traffic routers are not called and also modify that the system's retry behavior so that it cannot trigger this type of failure.</p> <p>We know that you rely on our infrastructure to run your important workloads and that this incident does not meet our bar for reliability. For that we apologize. Your trust is important to us and we will continue to all we can to earn and keep that trust.</p>
✓ Aug 11, 2016	15:45	<p>The issue with App Engine APIs is now resolved for most of the affected projects as of 14:12 US/Pacific. We will follow up directly with the few remaining affected applications. We will also conduct a thorough internal investigation of this issue and make appropriate improvements to our systems to prevent or minimize any future recurrence. Finally, we will publish a more detailed analysis of this incident once we have completed an internal investigation.</p>
✓ Aug 11, 2016	15:15	<p>We are still investigating the issue with App Engine apis being unavailable.</p> <p>Current data indicates that some projects are affected by this issue. We will provide another status update by 15:45 US/Pacific with current details.</p>
✗ Aug 11, 2016	14:44	<p>The issue with App Engine apis being unavailable should have been resolved for the majority of projects and we expect a full resolution in the near future.</p> <p>We will provide another status update by 15:15 US/Pacific with current details.</p>
✗ Aug 11, 2016	14:16	<p>We are experiencing an issue with App Engine apis being unavailable beginning at Thursday, 2016-08-11 13:45 US/Pacific.</p> <p>Current data indicates that Applications in us-central are affected by this issue.</p>
✗ Aug 11, 2016	14:01	<p>We are investigating reports of an issue with App Engine. We will provide more information by 02:15 US/Pacific.</p>

