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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 Compute Engine Incident #19008

Some networking update/create/delete operations pending globally

Incident began at **2019-10-31 16:30** and ended at **2019-11-02 14:00** (all times are **US/Pacific**).

DATE	TIME	DESCRIPTION
	Nov 08, 2019	16:13
<h4>ISSUE SUMMARY</h4> <p>On Thursday 31 October, 2019, network administration operations on Google Compute Engine (GCE), such as creating/deleting firewall rules, routes, global load balancers, subnets, or new VPCs, were subject to elevated latency and errors. Specific service impact is outlined in detail below.</p>		
<h4>DETAILED DESCRIPTION OF IMPACT</h4> <p>On Thursday 31 October, 2019 from 16:30 to 18:00 US/Pacific and again from 20:24 to 23:08 Google Compute Engine experienced elevated latency and errors applying certain network administration operations. At 23:08, the issue was mitigated fully, and as a result, administrative operations began to succeed for most projects. However, projects which saw network administration operations fail during the incident were left stuck in a state where new operations could not be applied. The cleanup process for these stuck projects took until 2019-11-02 14:00.</p> <p>The following services experienced up to a 100% error rate when submitting create, modify, and/or delete requests that relied on Google Compute Engine's global (and in some cases, regional) networking APIs between 2019-10-31 16:40 - 18:00 and 20:24 - 23:08 US/Pacific for a combined duration of 4 hours and 4 minutes:</p> <ul style="list-style-type: none">– Google Compute Engine– Google Kubernetes Engine– Google App Engine Flexible– Google Cloud Filestore– Google Cloud Machine Learning Engine– Google Cloud Memorystore– Google Cloud Composer– Google Cloud Data Fusion		
<h4>ROOT CAUSE</h4> <p>Google Compute Engine's networking stack consists of software which is made up of two components, a control plane and data plane. The data plane is where packets are processed and routed based on the configuration set up by the control plane. GCE's networking control plane has global components that are responsible for fanning-out network configurations that can affect an entire VPC network to downstream (regional/zonal) networking controllers. Each region and zone has their own control plane service, and each control plane service is sharded such that network programming is spread across multiple shards.</p> <p>A performance regression introduced in a recent release of the networking control software caused the service to begin accumulating a backlog of requests. The backlog eventually became significant enough that requests timed out, leaving some projects stuck in a state where further administrative operations could not be applied. The backlog was further exacerbated by the retry policy in the system sending the requests, which increased load still further. Manual intervention was required to clear the stuck projects, prolonging the incident.</p>		
<h4>REMEDIATION AND PREVENTION</h4> <p>Google engineers were alerted to the problem on 2019-10-31 at 17:10 US/Pacific and immediately began investigating. From 17:10 to 18:00, engineers ruled out potential sources of the outage without finding a definitive root cause. The networking control plane performed an automatic failover at 17:57, dropping the error rate. This greatly reduced the number of stuck operations in the system and significantly mitigated user impact. However, after 18:59, the overload condition returned and error rates again increased. After further investigation from multiple teams, additional mitigation efforts began at 19:52, when Google engineers allocated additional resources to the overloaded components. At 22:16, as a further mitigation, Google engineers introduced a rate limit designed to throttle requests to the network programming distribution service. At 22:28, this service was restarted, allowing it to drop any pending requests from its queue. The rate limit coupled with the restart mitigated the issue of new operations becoming stuck, allowing the team to begin focusing on the cleanup of stuck projects.</p> <p>Resolving the stuck projects required manual intervention, which was unique to each failed operation type. Engineers worked round the clock to address each operation type in turn; as each was processed, further operations of the same type (from the same project) also began to be processed. 80% of the stuck operations were processed by 2019-11-01 16:00, and all operations were fully processed by 2019-11-02 14:00.</p> <p>We will be taking these immediate steps to prevent this class of error from recurring:</p> <ul style="list-style-type: none">– We are implementing continuous load testing as part of the deployment pipeline of the component which suffered the performance regression, so that such issues are identified before they reach production in future.– We have rate-limited the traffic between the impacted control plane components to avoid the congestion collapse experienced during this incident.– We are further sharding the global network programming distribution service to allow for graceful horizontal scaling under high traffic.– We are automating the steps taken to unstick administrative operations, to eliminate the need for manual cleanup after failures such as this one.– We are adding alerting to the network programming distribution service, to reduce response time in the event of a similar problem in the future.– We are changing the way the control plane processes requests to allow forward progress even when there is a significant backlog. <p>Google is committed to quickly and continually improving our technology and operations to prevent service disruptions. We appreciate your patience and apologize again for the impact to your organization. We thank you for your business.</p> <p>If you believe your application experienced an SLA violation as a result of this incident, please contact us (https://support.google.com/cloud/answer/6282346).</p>		
	Nov 02, 2019	10:51
<p>Our engineers have made significant progress unsticking operations overnight and early this morning. At this point in time, the issue with Google Cloud Networking operations being stuck is believed to be affecting a very small number of remaining projects and our Engineering Team is actively working on unsticking the final stuck operations.</p> <p>If you have questions or are still impacted, please open a case with the Support Team and we will work with you directly until this issue is fully resolved.</p> <p>No further updates will be provided here.</p>		
	Nov 01, 2019	20:35
<p>Description: Mitigation efforts have successfully mitigated most types of operations. At this time the backlog consists of mostly network and subnet deletion operations, and a small fraction of create subnet operations. This affects subnets created during the impact window. Subnets created outside of this window remain unaffected.</p> <p>Mitigation efforts will continue overnight to unstick the remaining operations.</p> <p>We will publish an analysis of this incident once we have completed our internal investigation. We thank you for your patience while we have worked on resolving the issue. We will provide more information by Saturday, 2019-11-02 11:00 US/Pacific.</p> <p>Diagnosis: Google Cloud Networking</p> <p>Networking-related Compute API operations stuck pending if submitted during the above time.</p> <p>The affected operations include: deleting and creating subnets, creating networks. Resubmitting similar requests may also enter a pending state as they are waiting for the previous operation to complete.</p> <p>Google Kubernetes Engine</p> <p>Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine</p> <p>New Cluster operations are now succeeding and further updates on recovering from this are underway as part of the mitigation mentioned under Google Cloud Networking.</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	16:32
<p>Description: Approximately 25% of global (and regional) route and subnet deletion operations remain stuck in a pending state. Mitigation work is still underway to unblock pending network operations globally. We expect the majority of mitigations to complete over the next several hours, with the long-tail going into tomorrow.</p> <p>Please note, this will allow newer incoming operations of the same type to eventually process successfully. However, resubmitting similar requests may still get stuck in a running state as they are waiting for previously queued operations to complete.</p> <p>We will publish an analysis of this incident once we have completed our internal investigation. We thank you for your patience while we have worked on resolving the issue. We will provide more information by Friday, 2019-11-01 20:30 US/Pacific.</p> <p>Diagnosis: Google Cloud Networking</p> <p>Networking-related Compute API operations stuck pending if submitted during the above time.</p> <p>The affected operations include: [deleting/creating] backend services, subnets, instance groups, routes and firewall rules. Resubmitting similar requests may also enter a pending state as they are waiting for the previous operation to complete. Our product team is working to unblock any pending operation</p> <p>Google Compute Engine</p> <p>40-80% of Compute Engine API operations may have become stuck pending if submitted during the above time. Affected operations include any operation which would need to update Networking on affected projects</p> <p>Google Cloud Filestore</p> <p>Impacts instance creation/deletion</p> <p>Google Kubernetes Engine</p> <p>Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine</p> <p>New Cluster operations are now succeeding and further updates on recovering from this are underway as part of the mitigation mentioned under Google Cloud Networking.</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	14:38
<p>Currently, the backlog of pending operations has been reduced by approximately 70%, and we expect the majority of mitigations to complete over the next several hours, with the long-tail going into tomorrow. Mitigation work is still underway to unblock pending network operations globally.</p> <p>To determine whether you are affected by this incident, you may run the following command [1] "gcloud compute operations list --filter="status=DONE" to view your project's pending operations. If you see global operations (or regional subnet operations) that are running for a long time (or significantly longer than usual), then you are likely still impacted.</p> <p>The remaining 30% of stuck operations are currently either being processed successfully or marked as failed. This will allow newer incoming operations of the same type to be eventually processed successfully, however, resubmitting similar requests may also get stuck in a running state as they are waiting for the queued operations to complete.</p> <p>If you have an operation that does not appear to be finishing, please wait for it to succeed or be marked as failed before retrying the operation.</p> <p>For Context: 40-80% of Cloud Networking operations submitted between 2019-10-31 16:41 US/Pacific and 2019-10-31 23:01 US/Pacific may have been affected. The exact percentage of failures is region dependent.</p> <p>We will provide more information by Friday, 2019-11-01 14:30 US/Pacific.</p> <p>[1] https://cloud.google.com/sdk/gcloud/reference/compute/operations/list</p> <p>Diagnosis:</p> <p>As we become aware of products which were impacted we will update this post to ensure transparency.</p> <p>Google Cloud Networking Networking-related Compute API operations stuck pending if submitted during the above time. The affected operations include: [deleting/creating] backend services, subnets, instance groups, routes and firewall rules. Resubmitting similar requests may also enter a pending state as they are waiting for the previous operation to complete. Our product team is working to unblock any pending operation</p> <p>Google Compute Engine 40-80% of Compute Engine API operations may have become stuck pending if submitted during the above time. Affected operations include any operation which would need to update Networking on affected projects</p> <p>Google Cloud DNS Some DNS updates may be stuck pending from during the above time.</p> <p>Google Cloud Filestore Impacts instance creation/deletion</p> <p>Cloud Machine Learning Online prediction jobs using Google Kubernetes Engine may have experienced failures during this time The team is no longer seeing issues affecting Cloud Machine Learning and we feel the incident for this product is now resolved.</p> <p>Cloud Composer Create Environment operations during the affected time may have experienced failures. Customers should no longer being seeing impact</p> <p>Google Kubernetes Engine Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine - New Cluster operations are now succeeding and further updates on recovering from this are underway as part of the mitigation mentioned under Google Compute Engine. No further updates will be provided for Google Kubernetes Engine in this post.</p> <p>Google Cloud Memorystore - This issue is believed to have affected less than 1% of projects - The affected projects should find full resolution once the issue affecting Google Compute Engine is resolved.</p> <p>App Engine Flexible New deployments experienced elevated failure rates during the affected time. The team is no longer seeing issues affecting new deployment creation</p>		
	Nov 01, 2019	12:22
<p>Description: Mitigation work continues to unblock pending network operations globally. 40-80% of Cloud Networking operations submitted between Thursday, 2019-10-31 16:41 US/Pacific and Thursday, 2019-10-31 23:01 US/Pacific may have been affected. The exact amount of failures is region dependent.</p> <p>Our team has been able to reduce the number of pending operations by 60% at this time. We expect mitigation to continue over the next 4 hours and are working to clear the pending operations by largest type impacted.</p> <p>We will provide more information by Friday, 2019-11-01 14:30 US/Pacific.</p> <p>Diagnosis: As we become aware of products which were impacted we will update this post to ensure transparency.</p> <p>Google Compute Engine - Networking-related Compute API operations pending to complete if submitted during the above time. - Resubmitting similar requests may fail as they are waiting for the above operations to complete. - The affected operations include: deleting backend services, subnets, instance groups, routes and firewall rules. - Some operations may still show as pending and are being mitigated at this time. We are currently working to address operations around subnet deletion as our next target group</p> <p>Google Kubernetes Engine - Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine - New Cluster operations are now succeeding and further updates on recovering from this are underway as part of the mitigation mentioned under Google Compute Engine. No further updates will be provided for Google Kubernetes Engine in this post.</p> <p>Google Cloud Memorystore - This issue is believed to have affected less than 1% of projects - The affected projects should find full resolution once the issue affecting Google Compute Engine is resolved. No further updates will be provided for Google Cloud Memorystore</p> <p>App Engine Flexible - New deployments experienced elevated failure rates during the affected time. - The team is no longer seeing issues affecting new deployment creation and we feel the incident for this product is now resolved. No further updates will be provided for App Engine Flexible</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	10:13
<p>Description: Mitigation work is currently underway by our product team to unblock stuck network operations globally. Network operations submitted between Thursday, 2019-10-31 16:41 US/Pacific and Thursday, 2019-10-31 23:01 US/Pacific may be affected.</p> <p>New operations are succeeding as expected currently and we are currently working to clear a back log of pending operations in our system.</p> <p>We will provide more information by Friday, 2019-11-01 12:30 US/Pacific.</p> <p>Diagnosis: Customer may have encountered errors across the below products if affected.</p> <p>Google Compute Engine - Networking-related Compute API operations pending to complete if submitted during the above time. - Resubmitting similar requests may fail as they are waiting for the above operations to complete. - The affected operations include: deleting backend services, subnets, instance groups, routes and firewall rules. - Some operations may still show as pending and are being mitigated at this time. We expect this current mitigation work to be completed no later than 2019-11-01 12:30 PDT</p> <p>Google Kubernetes Engine - Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine - New Cluster operations are now succeeding and further updates on recovering from this are underway as part of the mitigation mentioned under Google Compute Engine. No further updates will be provided for Google Kubernetes Engine in this post.</p> <p>Google Cloud Memorystore - This issue is believed to have affected less than 1% of projects - The affected projects should find full resolution once the issue affecting Google Compute Engine is resolved. No further updates will be provided for Google Cloud Memorystore</p> <p>App Engine Flexible - New deployments experienced elevated failure rates during the affected time. - The team is no longer seeing issues affecting new deployment creation and we feel the incident for this product is now resolved. No further updates will be provided for App Engine Flexible</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	10:05
<p>Description: Mitigation work is currently underway by our product team to unblock stuck network operations globally. Network operations submitted between Thursday, 2019-10-31 16:41 US/Pacific and Thursday, 2019-10-31 23:01 US/Pacific may be affected.</p> <p>New operations are showing a reduction in failures currently and we are currently working to clear a back log of pending operations in our system.</p> <p>We will provide more information by Friday, 2019-11-01 12:00 US/Pacific.</p> <p>Diagnosis: Customer may have encountered errors across the below products if affected.</p> <p>Google Compute Engine - Networking-related Compute API operations pending to complete if submitted during the above time. - The affected operations include: deleting backend services, subnets, instance groups, routes and firewall rules. - Some operations may still show as pending and are being mitigated at this time. We expect this current mitigation work to be completed no later than 2019-11-01 12:30 PDT</p> <p>Google Kubernetes Engine - Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine - New Cluster operations are now succeeding and further updates on recovering from this are underway as part of the mitigation mentioned under Google Compute Engine. No further updates will be provided for Google Kubernetes Engine in this post.</p> <p>Google Cloud Memorystore - This issue is believed to have affected less than 1% of projects - The affected projects should find full resolution once the issue affecting Google Compute Engine is resolved. No further updates will be provided for Google Cloud Memorystore</p> <p>App Engine Flexible - New deployments experienced elevated failure rates during the affected time. - The team is no longer seeing issues affecting new deployment creation and we feel the incident for this product is now resolved. No further updates will be provided for App Engine Flexible</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	09:06
<p>Description: Mitigation work is currently underway by our product team to unblock stuck network operations globally. Network operations submitted between Thursday, 2019-10-31 16:41 US/Pacific and Thursday, 2019-10-31 23:01 US/Pacific may be affected.</p> <p>New operations are showing a reduction in failures currently and we are currently working to clear a back log of pending operations in our system.</p> <p>We will provide more information by Friday, 2019-11-01 12:00 US/Pacific.</p> <p>Diagnosis: Customer may have encountered errors across the below products if affected.</p> <p>Google Compute Engine - Networking-related Compute API operations pending to complete if submitted during the above time. - The affected operations include: deleting backend services, subnets, instance groups, routes and firewall rules. - Some operations may still show as pending and are being mitigated at this time. We expect this current mitigation work to be completed no later than 2019-11-01 12:30 PDT</p> <p>Google Kubernetes Engine - Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine - New Cluster operations are now succeeding and further updates on recovering from this can be found https://status.cloud.google.com/incident/container-engine/19011. No further updates will be provided for Google Kubernetes Engine in this post.</p> <p>Google Cloud Memorystore - This issue is believed to have affected less than 1% of projects - The affected projects should find full resolution once the issue affecting Google Compute Engine is resolved. No further updates will be provided for Google Cloud Memorystore</p> <p>App Engine Flexible - New deployments experienced elevated failure rates during the affected time. - The team is no longer seeing issues affecting new deployment creation and we feel the incident for this product is now resolved. No further updates will be provided for App Engine Flexible</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	08:50
<p>Description: Mitigation work is currently underway by our product team to unblock stuck network operations globally. Network operations submitted between Thursday, 2019-10-31 16:41 US/Pacific and Thursday, 2019-10-31 23:01 US/Pacific may be affected.</p> <p>New operations are showing a reduction in failures currently and we are currently working to clear a back log of pending operations in our system.</p> <p>We will provide more information by Friday, 2019-11-01 10:00 US/Pacific.</p> <p>Diagnosis: Customer may be seeing errors across the below products if affected.</p> <p>Google Compute Engine - Networking-related Compute API operations failing to complete if submitted during the above time. - This may include deleting backend services, subnets, instance groups, routes and firewall rules.</p> <p>Google Kubernetes Engine - Cluster operations including creation, update, auto scaling may have failed due to the networking API failures mentioned under Google Compute Engine - New Cluster operations are now succeeding and further updates on restoring this can be found https://status.cloud.google.com/incident/container-engine/19011</p> <p>Google Cloud Memorystore - Create/Delete events failed during the above time</p> <p>App Engine Flexible - Deployments seeing elevated failure rates</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	08:28
<p>Description: Mitigation work is currently underway by our product team to address the ongoing issue with some network operations failing globally at this time. These reports started Thursday, 2019-10-31 16:41 US/Pacific. Operations are showing a reduction in failures currently and we are currently working to clear a back log of stuck operations in our system.</p> <p>We will provide more information by Friday, 2019-11-01 09:30 US/Pacific.</p> <p>Diagnosis: Customer may experience errors with the below products if affected</p> <p>Google Compute Engine * Networking-related Compute API operations failing * This may include deleting backend services, subnets, instance groups, routes and firewall rules and more.</p> <p>Google Kubernetes Engine * Cluster operations including creation, update, auto scaling may fail due to the networking API failures</p> <p>Google Cloud Memorystore * Create/Delete events failing</p> <p>App Engine Flexible * Deployments seeing elevated failure rates</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	07:15
<p>Description: Mitigation work is still underway by our engineering team.</p> <p>We will provide more information by Friday, 2019-11-01 08:30 US/Pacific.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups, routes and firewall rules. Cloud Armor rules might not be updated.</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	05:51
<p>Description: Our engineering team still investigating the issue.</p> <p>We will provide an update by Friday, 2019-11-01 07:00 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups, routes and firewall rules. Cloud Armor rules might not be updated.</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	04:56
<p>Description: Our engineering team still investigating the issue.</p> <p>We will provide an update by Friday, 2019-11-01 06:00 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups and firewall rules. New GKE nodes creation might fail with NetworkUnavailable status set to True. Cloud Armor rules might not be updated.</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	03:54
<p>Description: Our engineering team still investigating the issue.</p> <p>We will provide an update by Friday, 2019-11-01 05:00 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups and firewall rules.</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	02:55
<p>Description: Our engineering team still investigating the issue.</p> <p>We will provide an update by Friday, 2019-11-01 04:00 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups and firewall rules.</p> <p>Workaround: No workaround is available at the moment</p>		
	Nov 01, 2019	01:53
<p>Description: Our engineering team still investigating the issue.</p> <p>We will provide an update by Friday, 2019-11-01 03:00 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups and firewall rules.</p> <p>Workaround: No workaround is available at the moment</p>		
	Oct 31, 2019	23:51
<p>Description: Our engineering team still investigating the issue.</p> <p>We will provide an update by Thursday, 2019-11-01 02:00 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups and firewall rules.</p> <p>Workaround: No workaround is available at the moment</p>		
	Oct 31, 2019	22:54
<p>Description: Our engineering team has determined that further investigation is required to mitigate the issue.</p> <p>We will provide an update by Thursday, 2019-10-31 23:50 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups and firewall rules.</p> <p>Workaround: No workaround is available at the moment</p>		
	Oct 31, 2019	22:06
<p>Description: We are observing recurrence of the issue. The engineering team continues the investigation.</p> <p>We will provide an update by Thursday, 2019-10-31 23:00 US/Pacific with current details.</p> <p>Diagnosis: Customer may experience errors while creating or deleting backend services, subnets, instance groups and firewall rules.</p> <p>Workaround: No workaround is available at the moment</p>		