

Google Apps Incident Report

Gmail Partial Outage - December 10, 2012

Prepared for Google Apps customers

The following is the incident report for the Google access disruption that occurred on December 10, 2012. We understand this service issue has impacted our valued customers and users, and we apologize to everyone who was affected.

Issue Summary

For approximately 18 minutes, from 8:54 to 9:00 AM and then from 9:04 to 9:16 AM PT, Gmail users experienced slow performance, "Server Error 502" messages, or timeouts when trying to access Gmail. The number of affected users varied between 8% and 40% during this period. A smaller percentage of users received errors with Google Drive, Google Chat, Google Calendar, Google Play, and Google Chrome Sync. The root cause of this service disruption was an issue with load balancing software.

Actions and Root Cause Analysis

Background: The load balancing software routes the millions of users' requests to Google data centers around the world for processing and serving content, such as search results and email.

Between 8:45 AM PT and 9:13 AM PT, a routine update to Google's load balancing software was rolled out to production. A bug in the software update caused it to incorrectly interpret a portion of Google data centers as being unavailable. The Google load balancers have a failsafe mechanism to prevent this type of failure from causing Google-wide service degradation, and they continued to route user traffic. As a result, most Google services, such as Google Search, Maps, and AdWords, were unaffected. However, some services, including Gmail, that require specific data center information to efficiently route users' requests, experienced a partial outage.

Google's monitoring systems detected the problem at 9:06 AM. The Google Engineering team analyzed the issue, and reverted the load balancing update at 9:13 AM. Service operations began to return to normal and the rollout finished at 9:18 AM. Gmail and most affected services returned to normal operation by 9:16 AM; a few services, such as Google Chat, took an additional few minutes to reestablish connections.

The Google Engineering team is currently conducting an internal review and analysis of the December 10 event. They are taking the following preliminary actions to address the underlying causes of the issue and to help prevent recurrence:

- Correcting the issue in the load balancing software (completed).
- Changing the release process for load balancer software and configuration updates to implement additional safeguards. In particular, they are reviewing a multi-step release process to push load balancer changes in one location before proceeding with a general rollout. The unique nature of load balancing systems makes this more difficult than with other software components.
- Reviewing internal processes to ensure more timely updates to Google Apps Status Dashboard.

Google is committed to continually and quickly improving our technology and operational processes to prevent service disruptions. We appreciate your patience and again apologize for the impact to your organization. We thank you for your business and continued support.

Sincerely,

The Google Apps Team