Google Cloud Issue Summary

Google Chat - 2020-09-17

All dates/times relative to US/Pacific

On September 17th from 23:30 until 05:05 on the 18th, Google Chat experienced a period of degraded service. This manifested in a number of ways such as an increase in server error rates, slow loading of rooms, no typing state indicator, etc. for a duration of 5 hours and 35 minutes.
We understand that this issue has impacted our valued customers and users, and we apologize to those who were affected.

ROOT CAUSE

The Google Chat backends utilize a number of pre-processing functions prior to processing an incoming request. These pre-processors perform a number of calls to different services (such as Google's internal Identity service) and store these results in a local cache.
One of these preprocessors had been encountering an access error due to an incorrectly configured backend request, which prevented it from successfully completing. This error initially did not cause any further issues.

On September 17th, a new release of the Google Chat backend was deployed. This release included a change that required a post-processor to have access to the results of the failed preprocessor above. However, as this preprocessor aborted it's processing due to the access error, the cache was never populated. Initially, this post-processor attempted to retrieve the required value, but because the cache did not contain the value required, this spawned a new thread that attempted to retrieve the value, but had a dependency on the post-processor that was holding a lock.
This created a deadlock condition that was unable to be completed.

This deadlock caused the backend binary tasks to experience high thread lock contention, which ultimately led to application errors.

REMEDIATION AND PREVENTION

During the investigation of the issue - the Engineering team identified an increase in lock contention within the backend binaries since the deployment of the latest release and subsequently initiated a rollback of the production build which resolved the deadlock issue.

To prevent the recurrence of this issue and reduce the impact of similar events, the following actions are being taken:

- Adjusting the automated alerting system to improve the detection of lock contention issues..
- Increasing the number of threads available to Google Chat backend services in order to reduce the potential impact of lock contention events.
- Defining new testing which triggers this particular code path and identify this issue before reaching production.

Google is committed to quickly and continually improving our technology and operations to prevent service disruptions. We appreciate your patience and apologize again for any impact to your organization. We thank you for your business.

Sincerely,

The G Suite Team

END OF PUBLIC INCIDENT REPORT