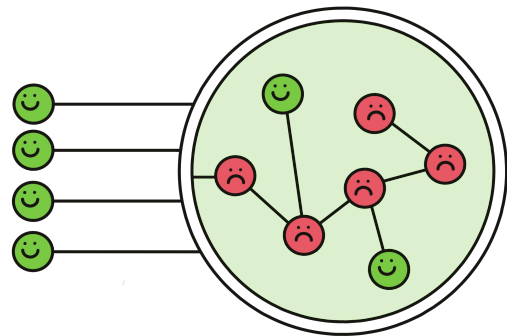


Hunting for Risky Dependencies



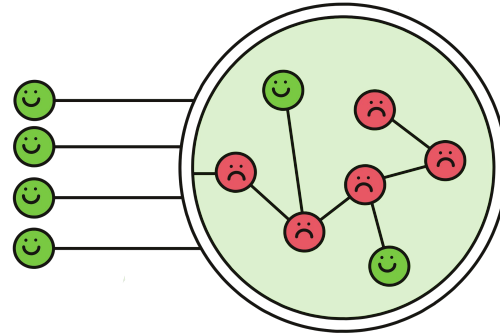
Theo Klein (pikle@google.com) / SRECon EMEA / Oct. 25th, 2022



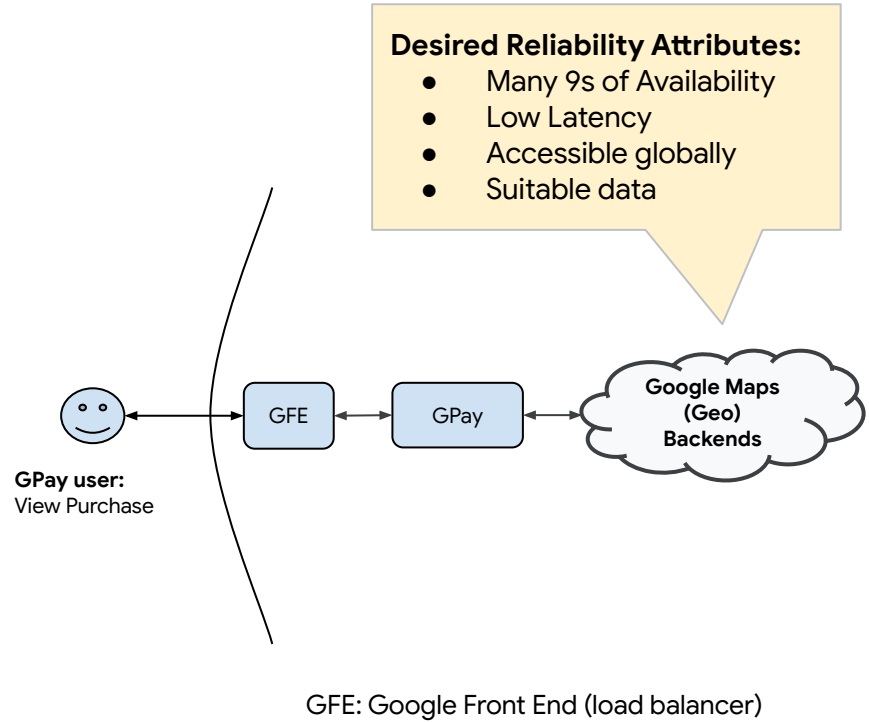
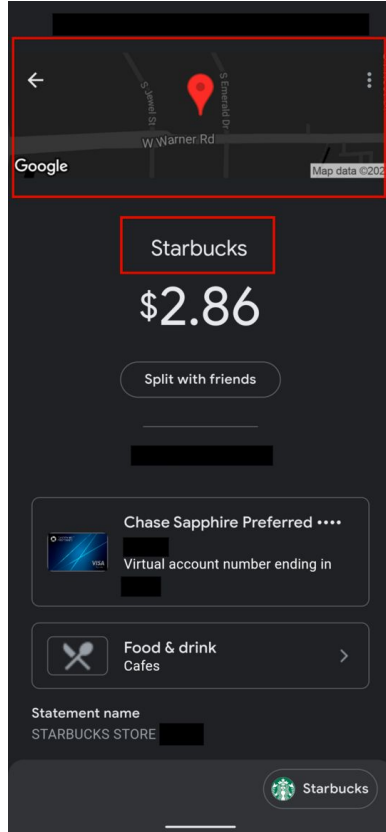
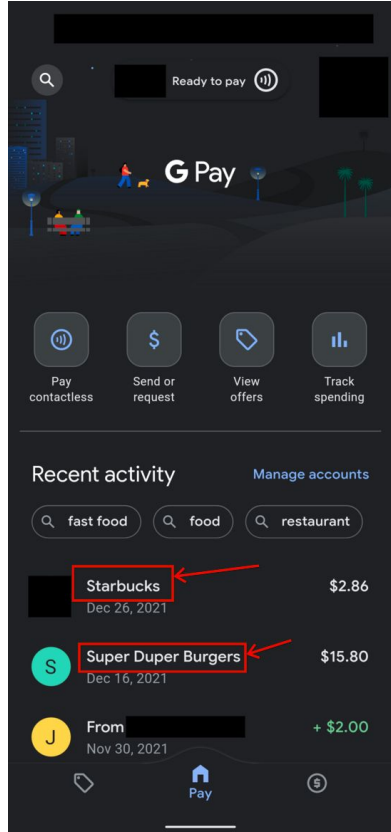
Geo Data SRE & Zero Outages



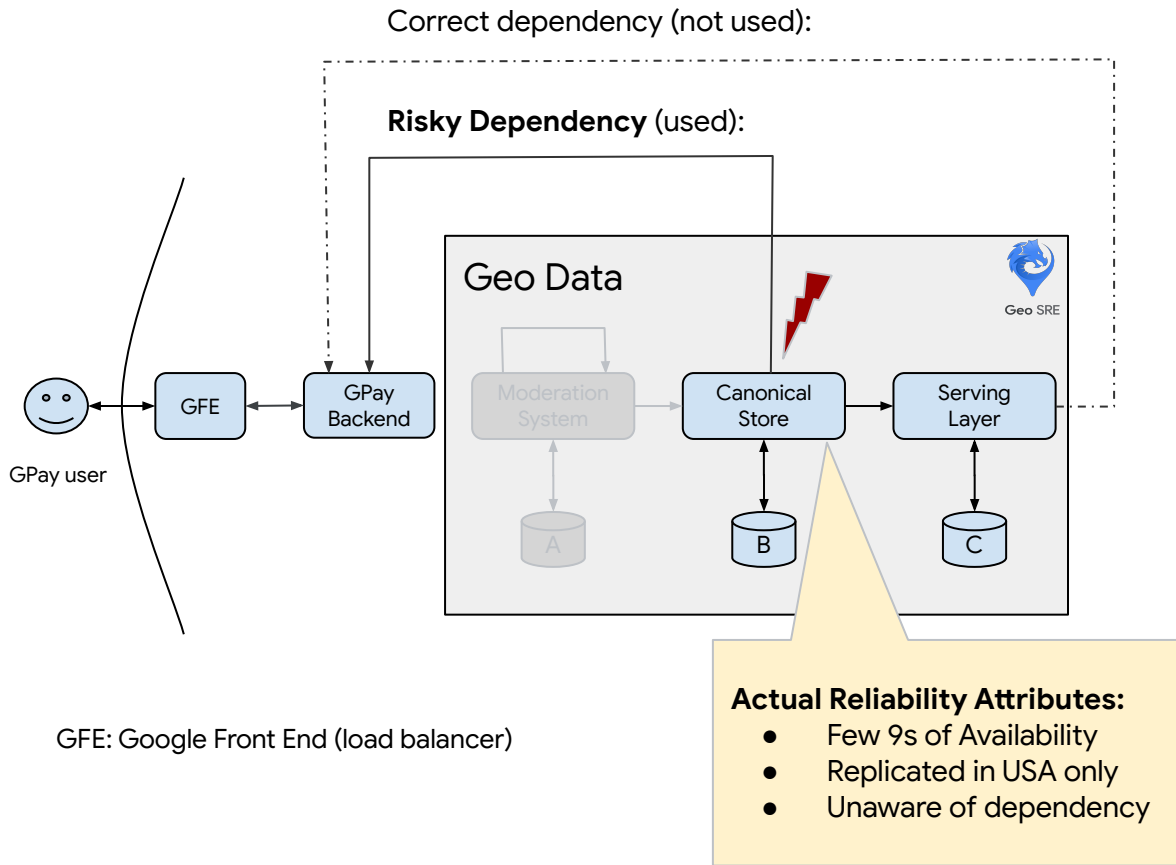
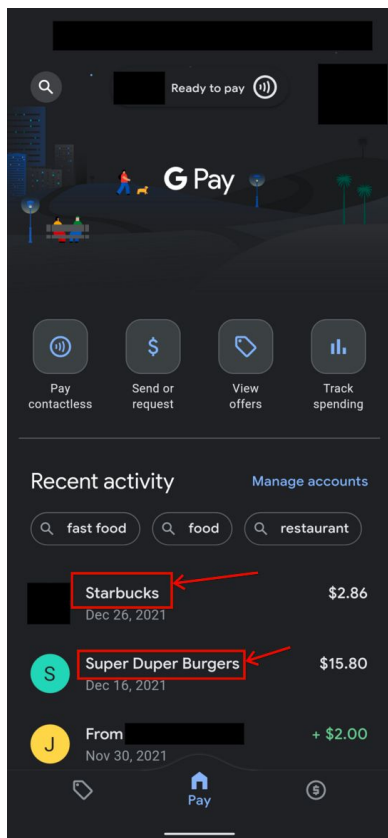
Geo SRE



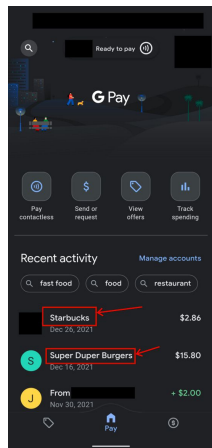
Google Pay



Google Pay

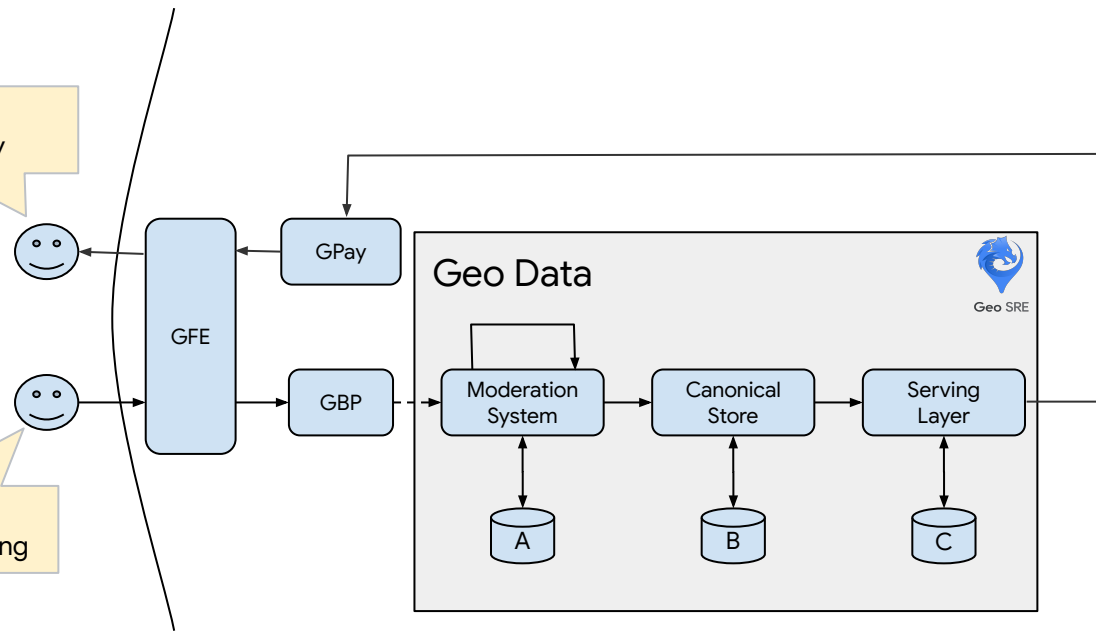


Google Business Profile (GBP) → Google Pay



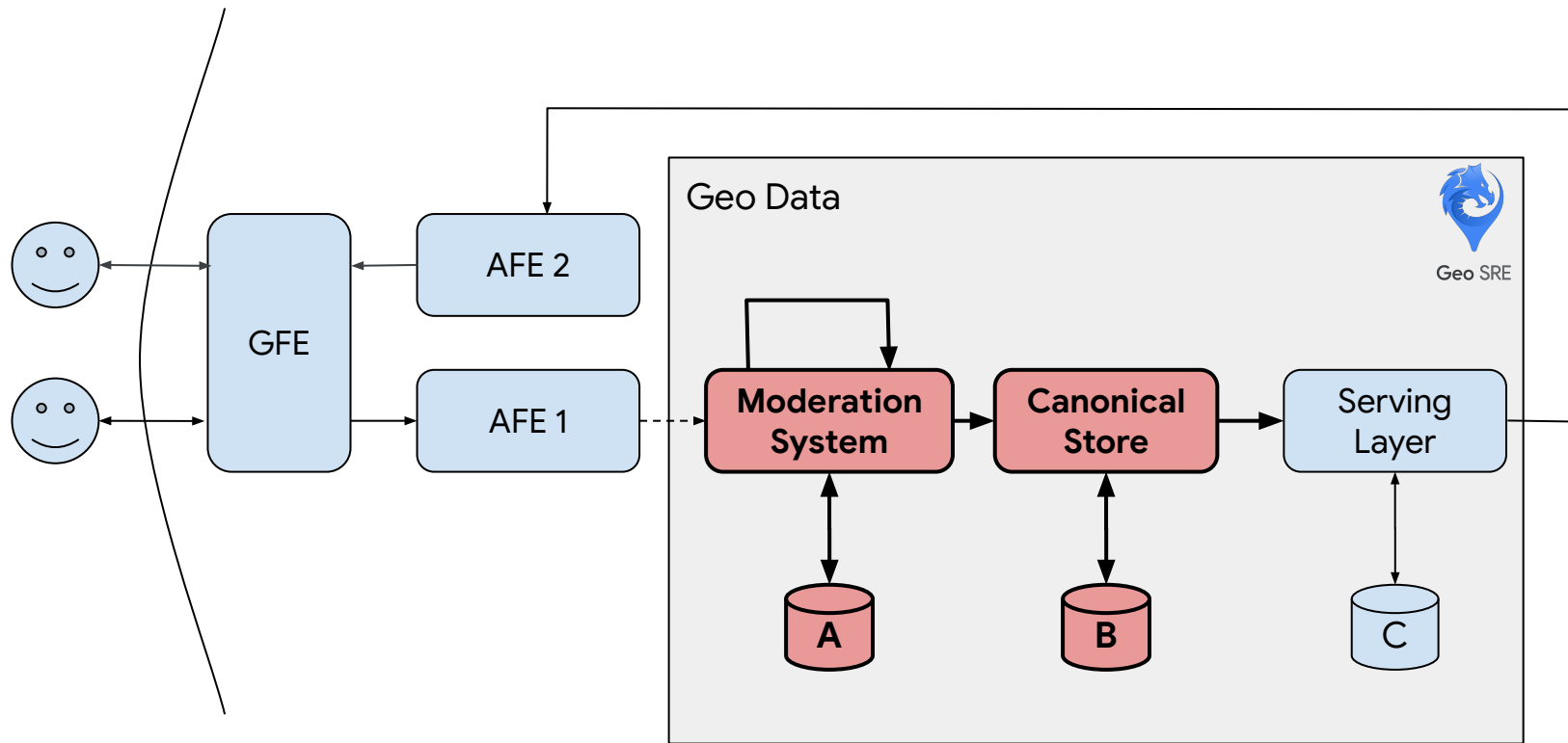
GPay User:
Transaction History

Merchant User:
Update a business listing



GFE: Google Front End (load balancer)
GBP: Google Business Profile

What Should Be on the Critical Path?

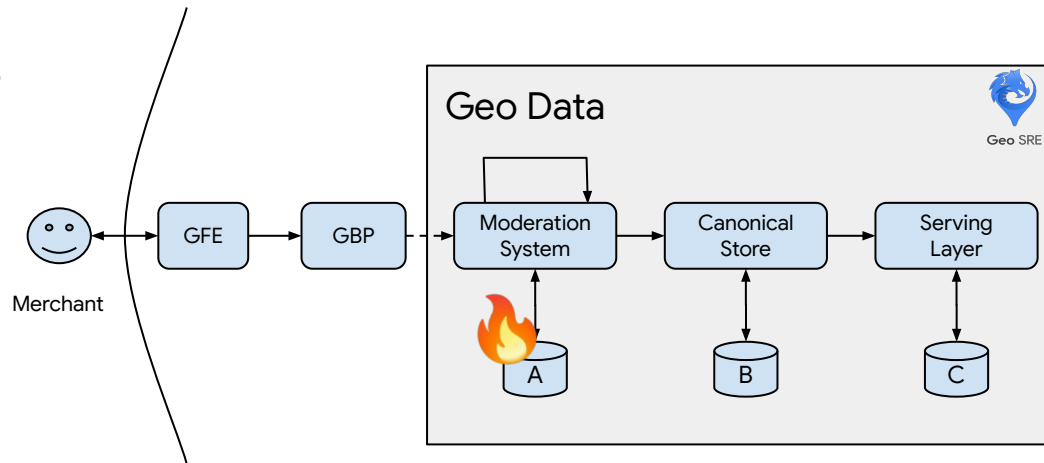


GFE: Google Front End (load balancer)
AFE: Application Front End

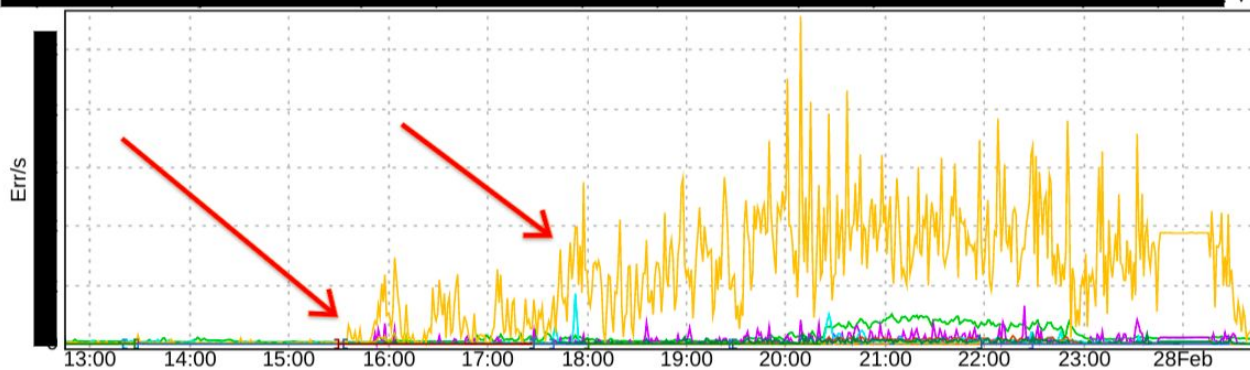
Bolded / Red: Not on the end-user path
Dashed Arrow: Asynchronous flow

How Isolated Are We Really?

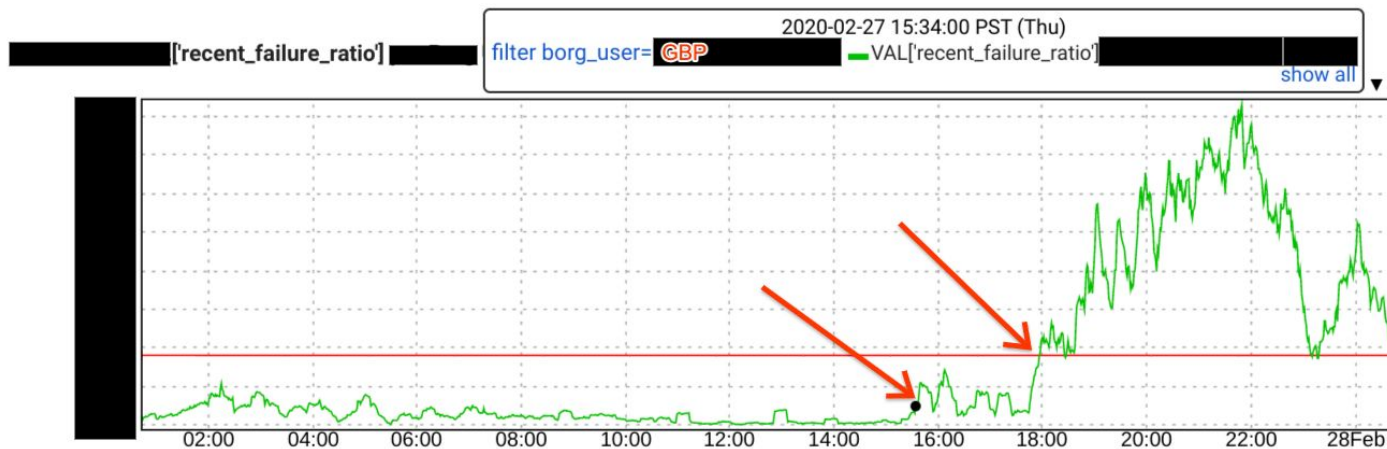
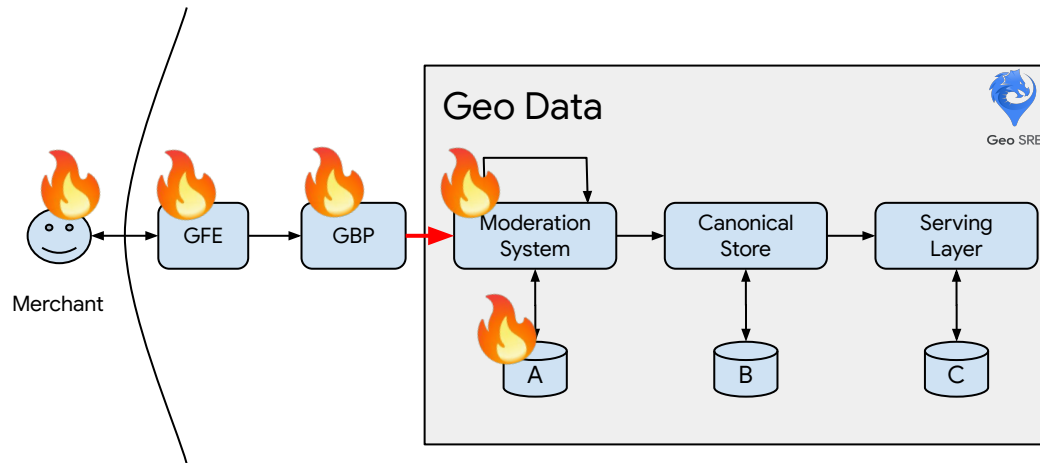
Moderation Storage Errors



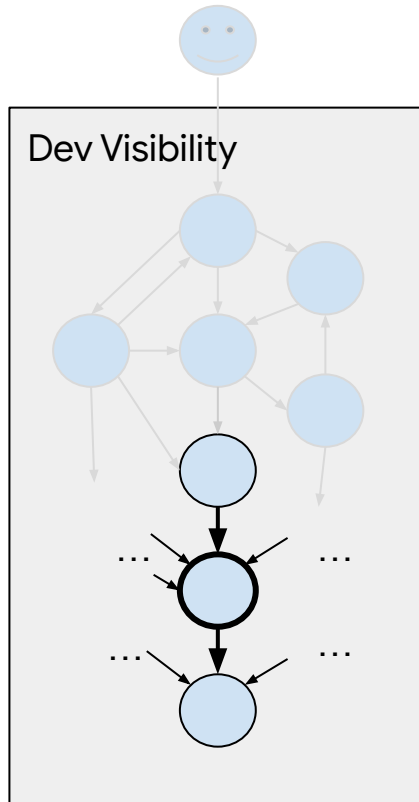
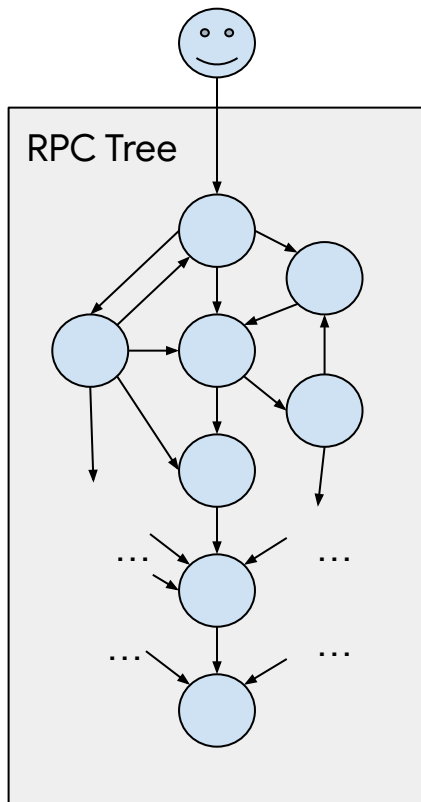
Spanner RPC Errors per Status [🔗](#) [?](#)



Major Outage in GBP!

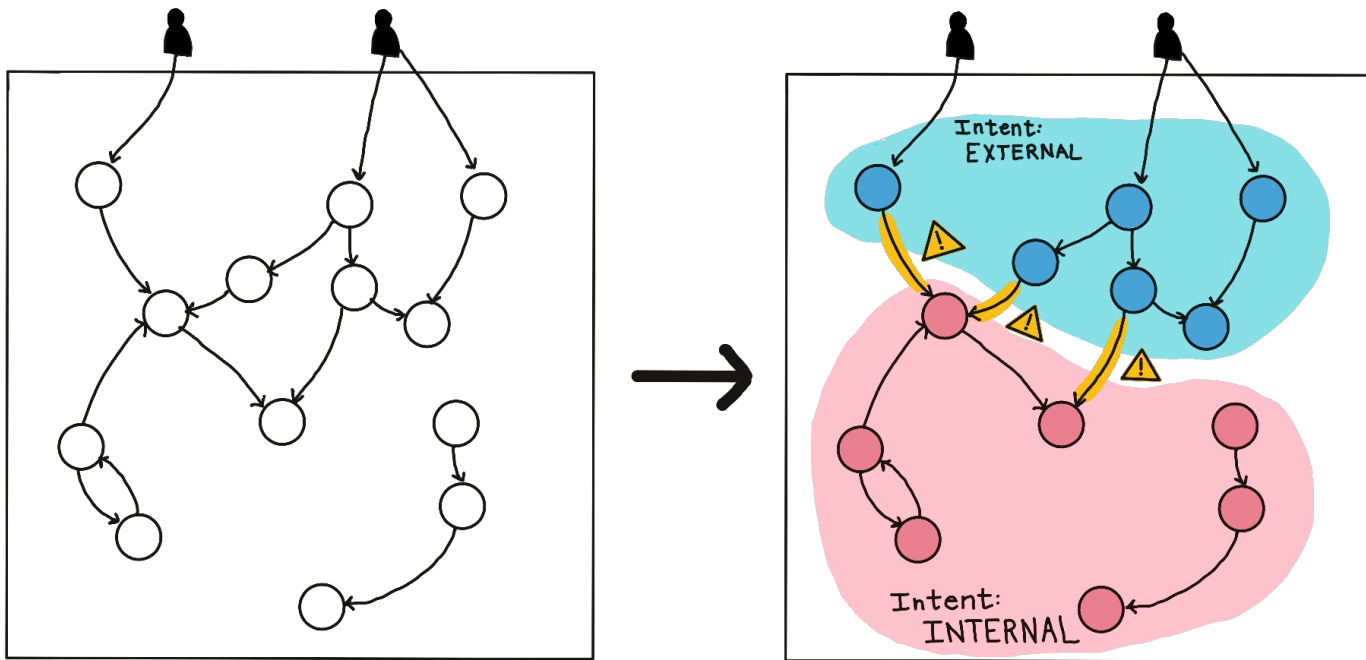


Why does this happen?

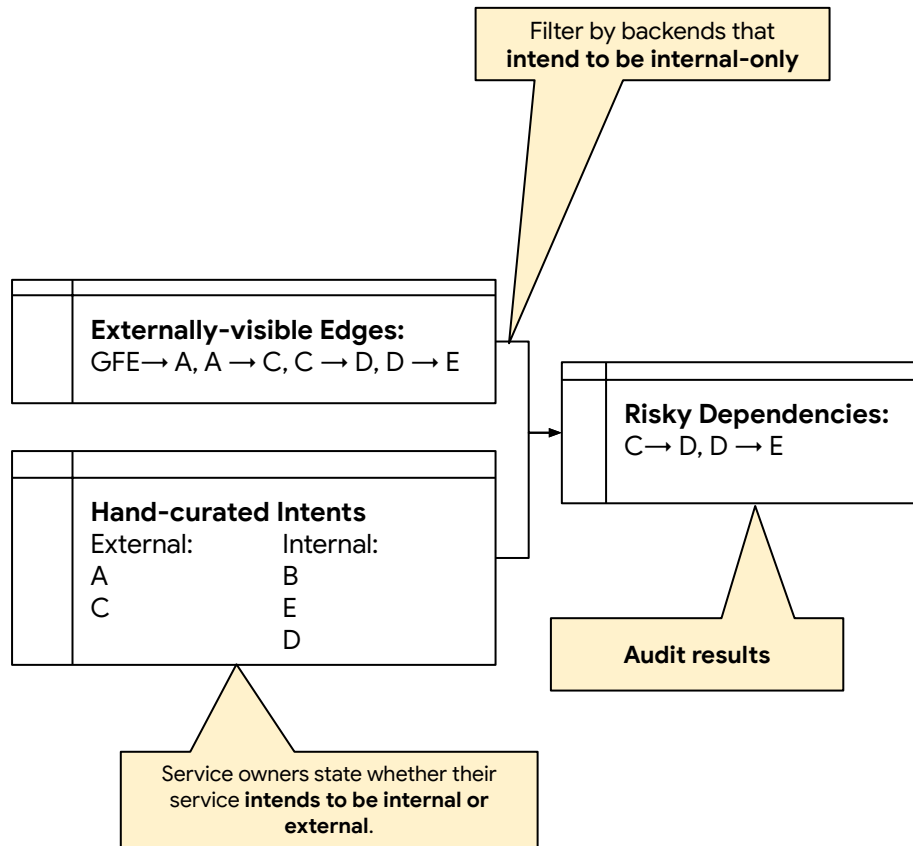
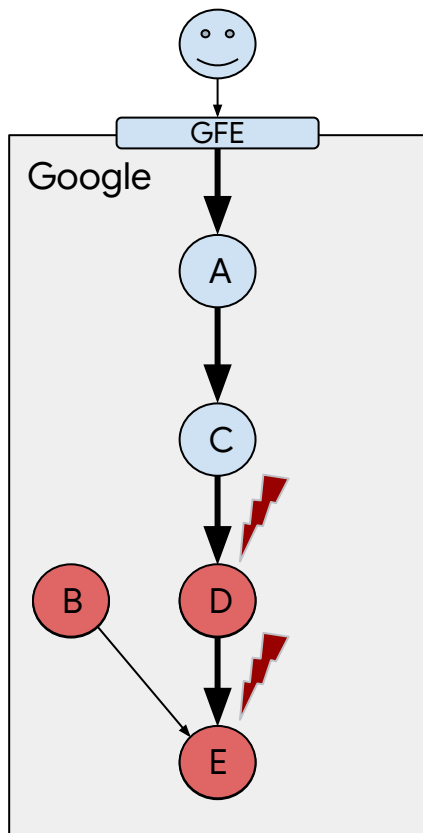


Finding these Risks

In Theory:

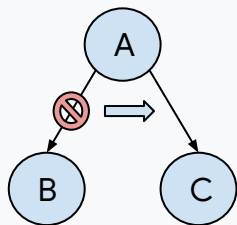


In Practice: Horizontal Monitoring

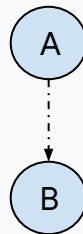


Fixing these risks

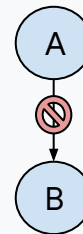
Migrate



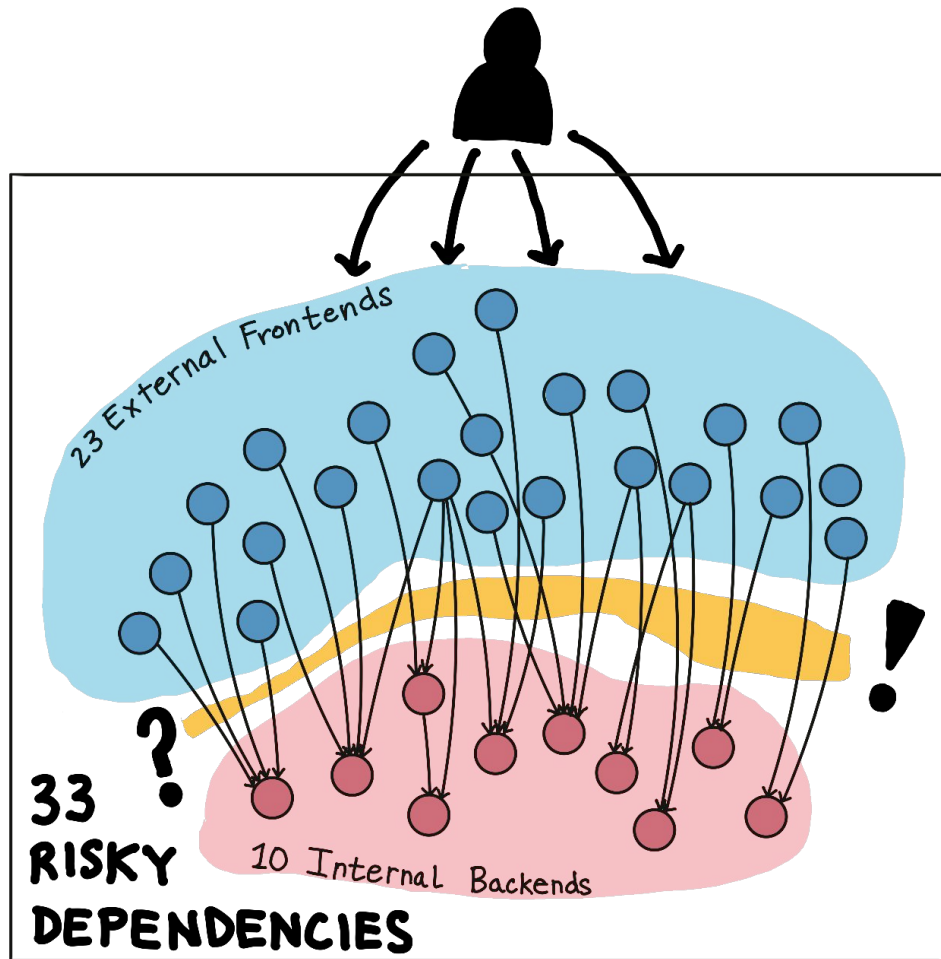
Make Optional



Deprecate



Results



To Recap

1. Invariant

Internal backends should not be on the critical path for end users.

2. Problem

These backends often become risky dependencies when service complexity increases.

3. Solution

We can **find and fix these risky dependencies** with OpenTelemetry and engineering work.

Appendix

Additional Resources

- OpenTelemetry: <https://opentelemetry.io/>
- OpenTelemetry + Google Cloud: <https://cloud.google.com/learn/what-is-opentelemetry>
- Baggage: <https://opentelemetry.io/docs/concepts/signals/baggage/>