RQ: How do gRPC interceptors affect throughput & latency in microservice communication?

Louis Loechel

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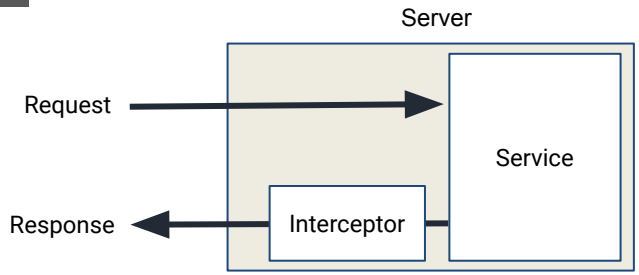
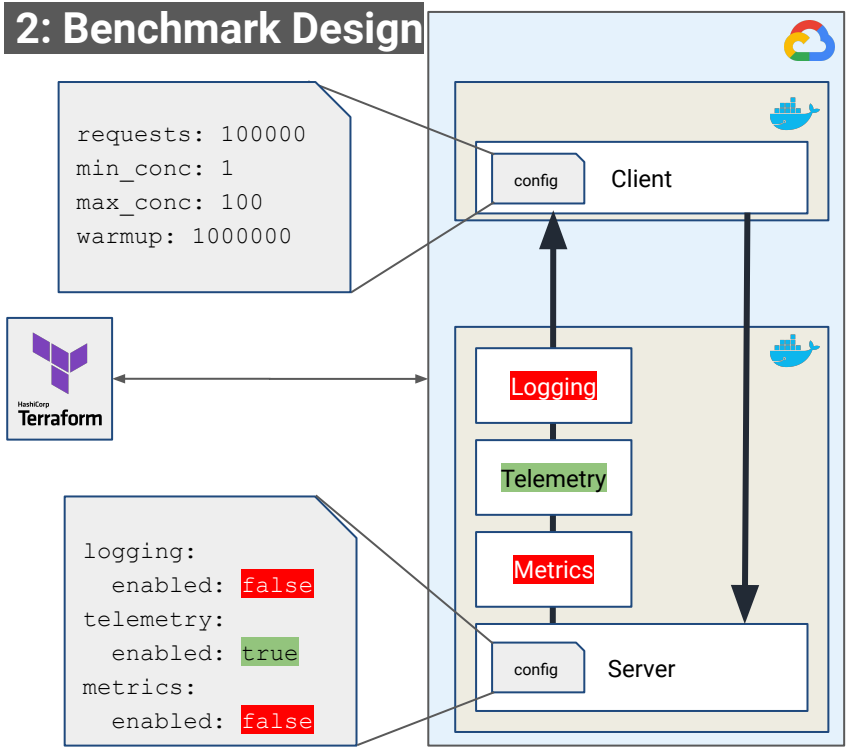
1: SUT



2: Benchmark Design

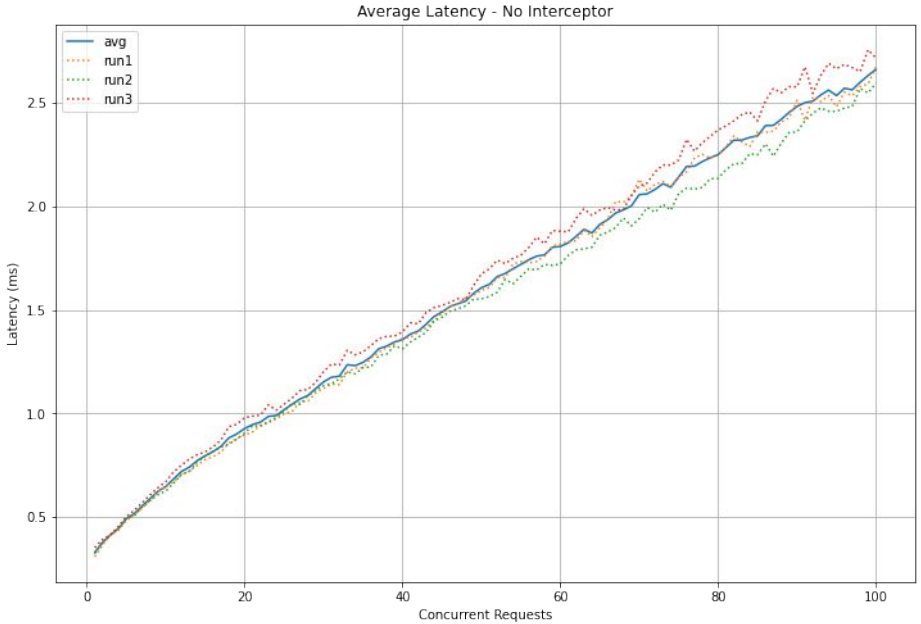


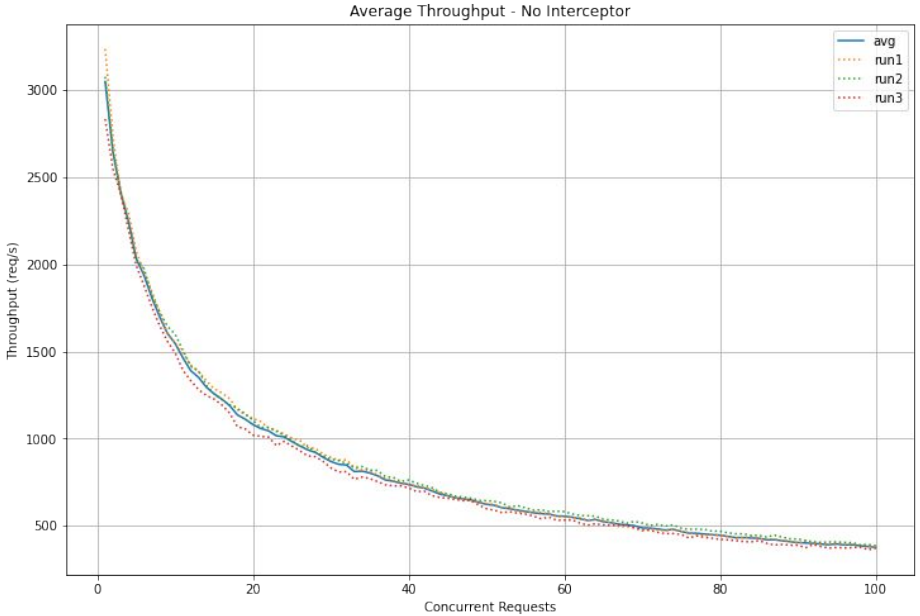
3: Benchmark Runs

2^3 Configs ←

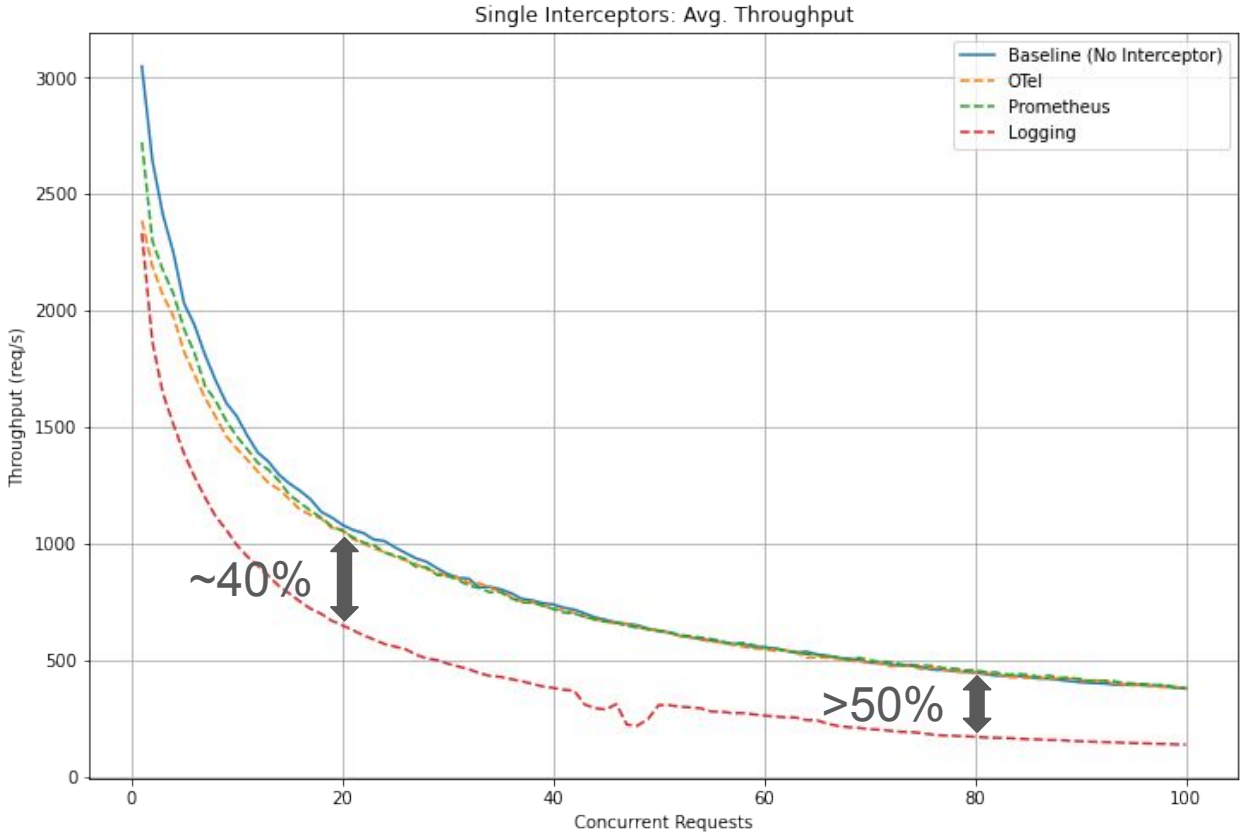
	On	Off
Logging	x3	x3
Telemetry	x3	x3
Metrics	x3	x3

Sanity Check: Measurement Variations

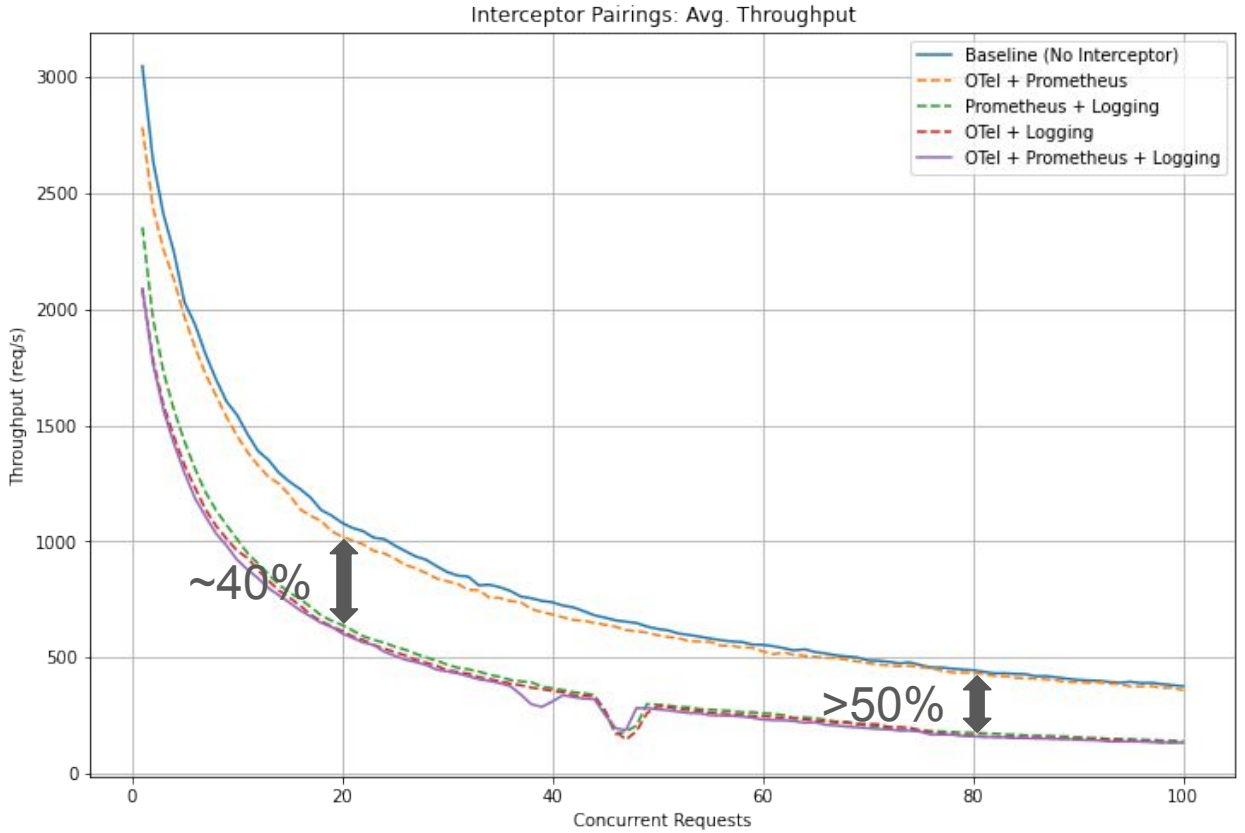




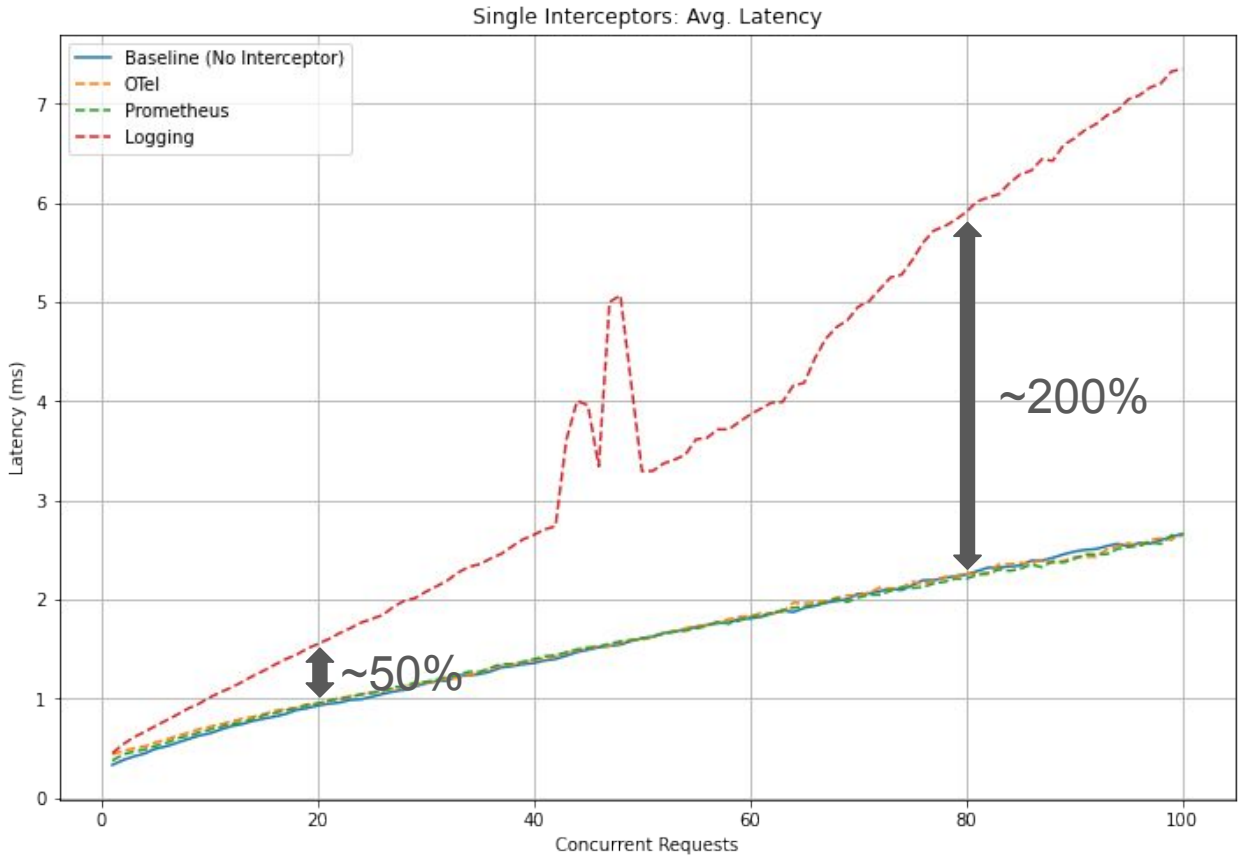
Results: Effect of each **single** interceptor on throughput



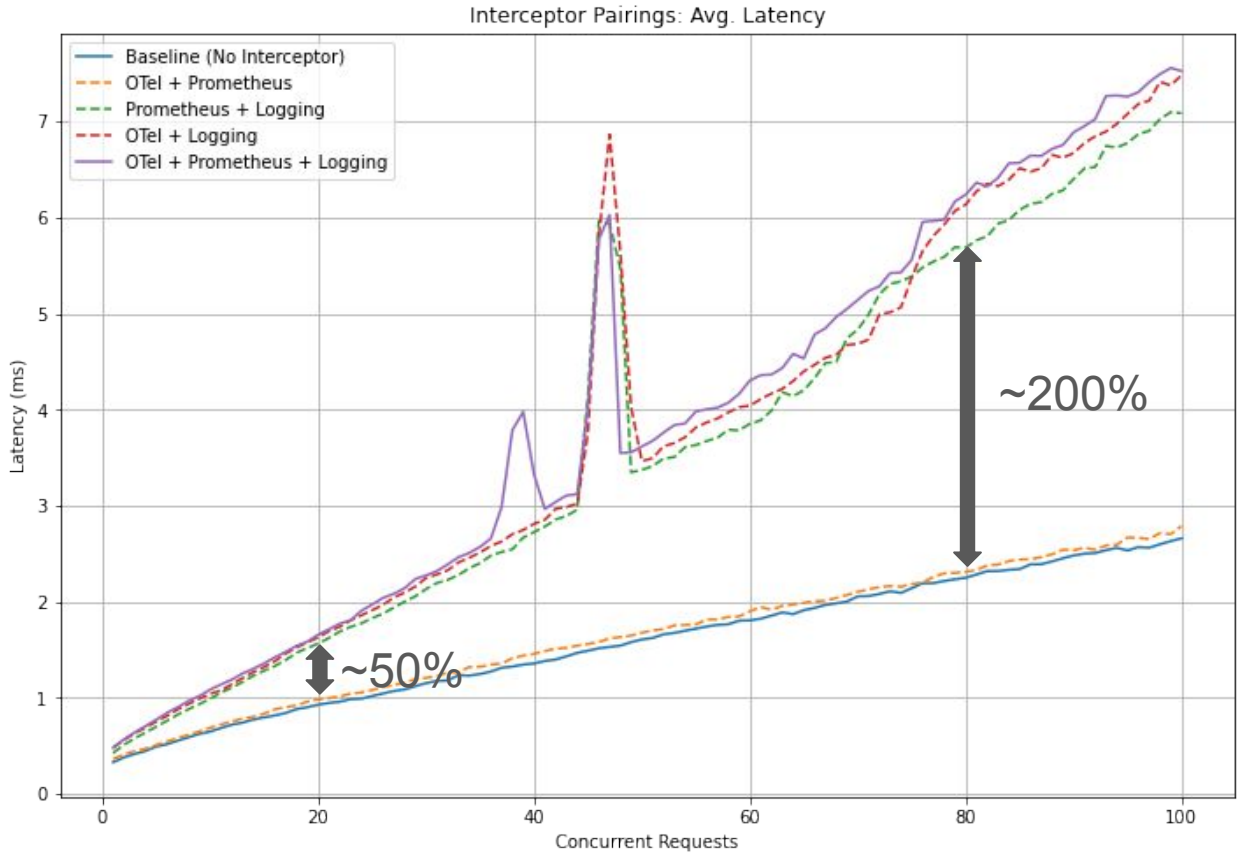
Results: Effect of interceptor **combinations** on throughput



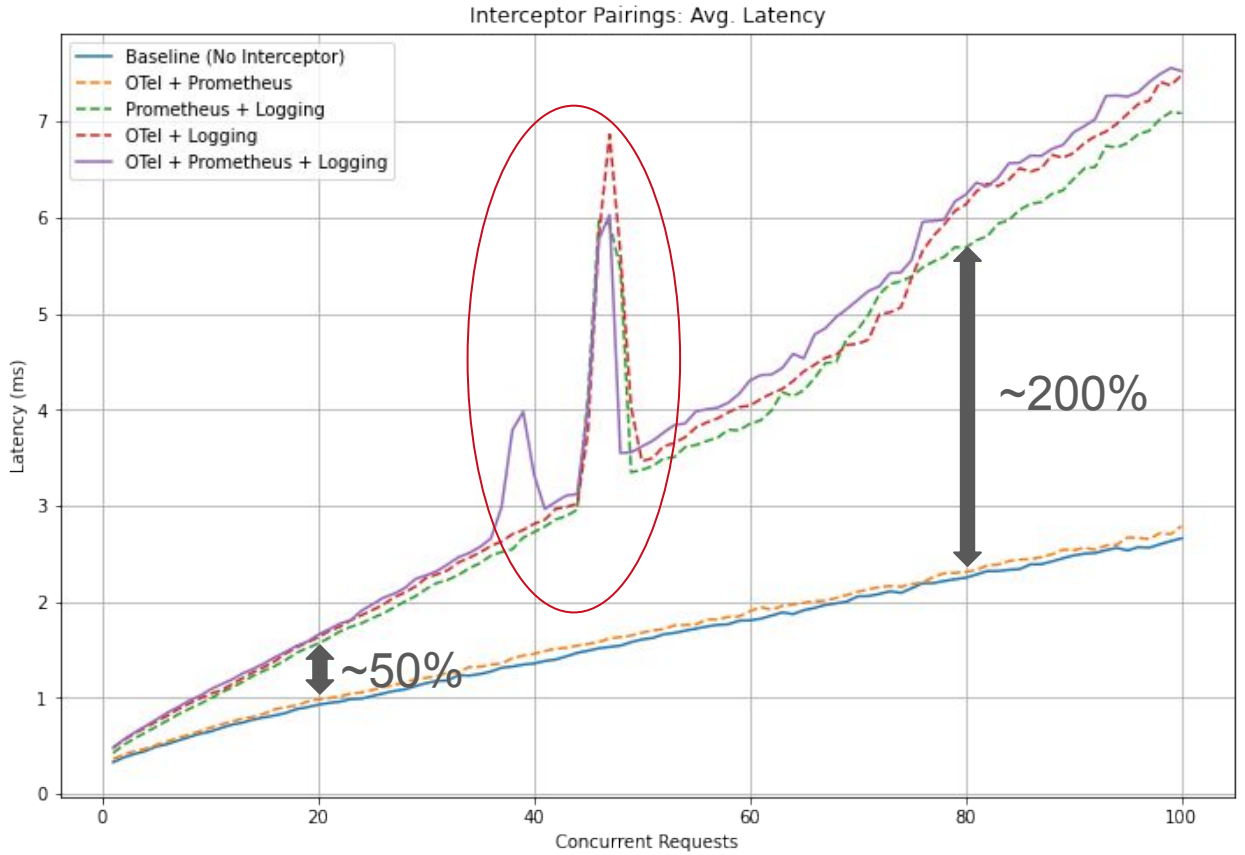
Results: Effect of each **single** interceptor on latency



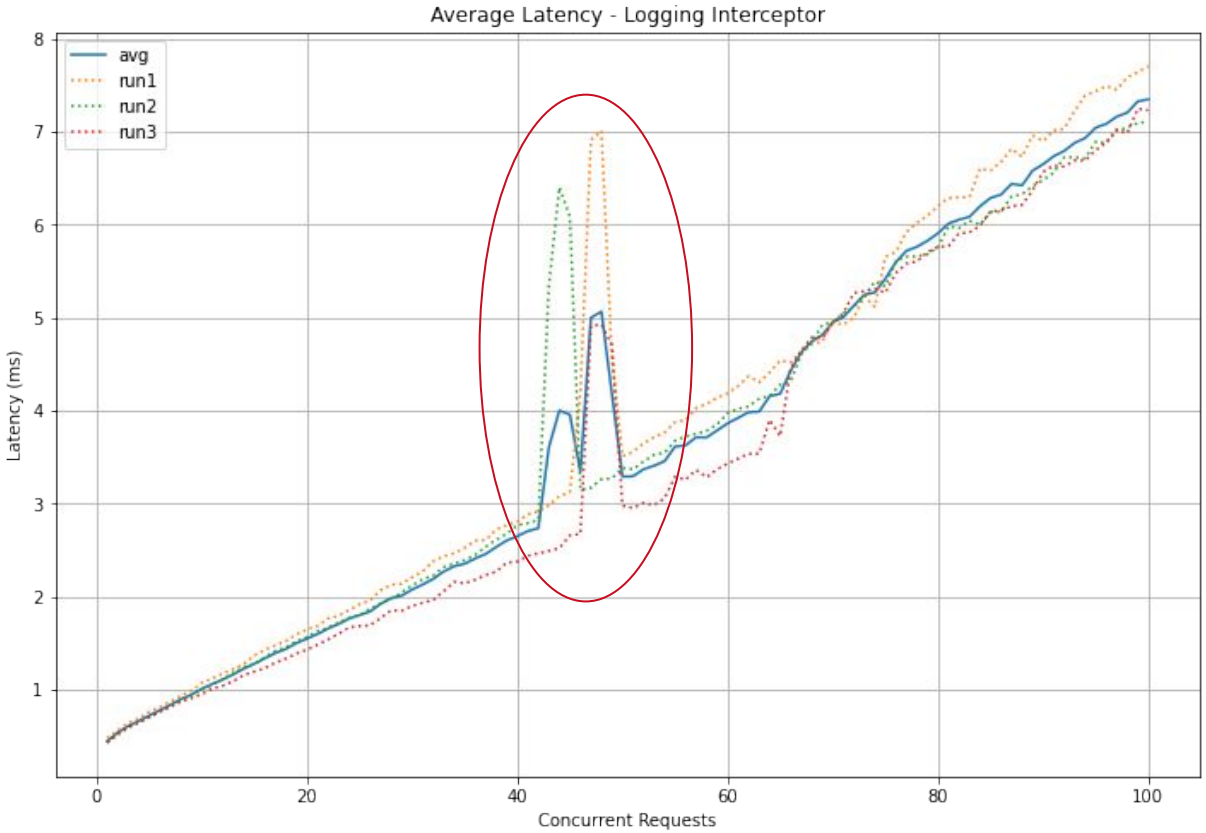
Results: Effect of interceptor **combinations** on latency



Results: Effect of interceptor **combinations** on latency

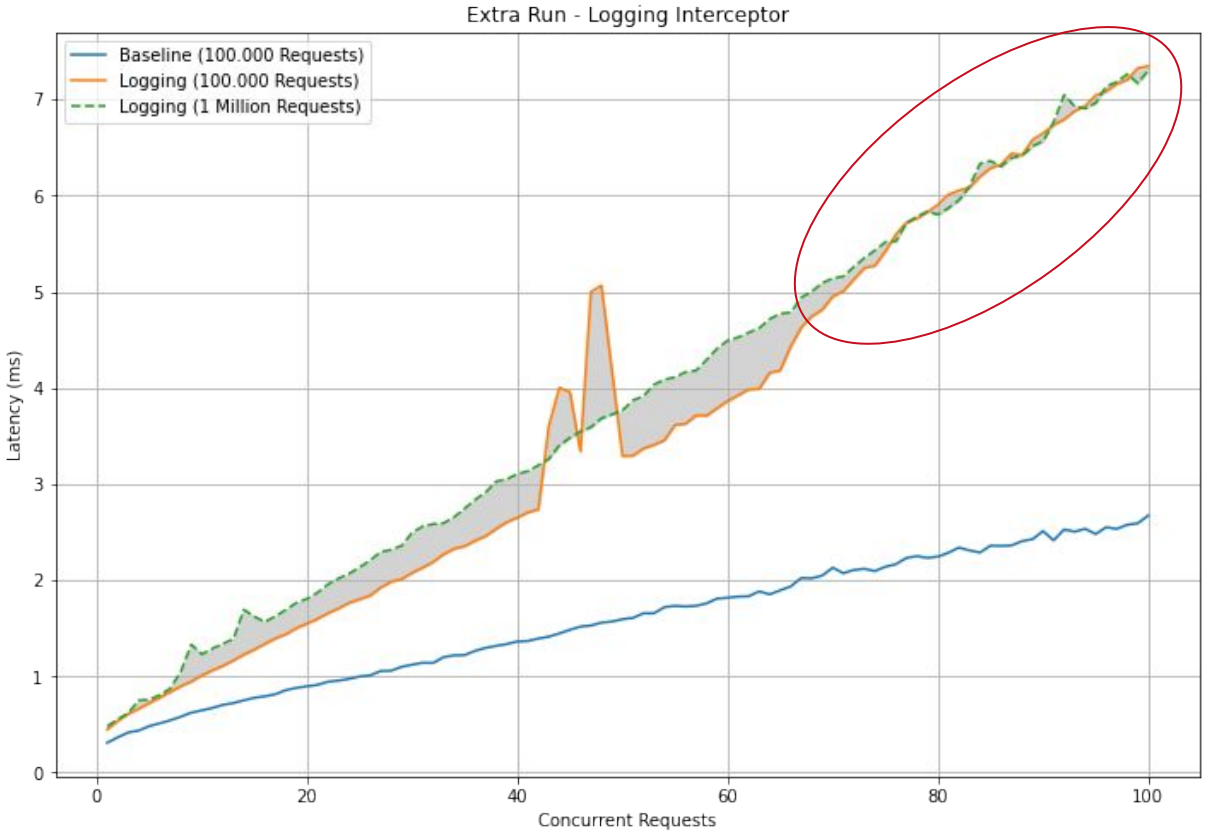


Discussion: Logging-Interceptor



- Observation: Repeatable peak
- Hypothesis: Garbage collection
- Future Work: Find source of outliers

Discussion: Logging-Interceptor



- Observation: Repeatable peak
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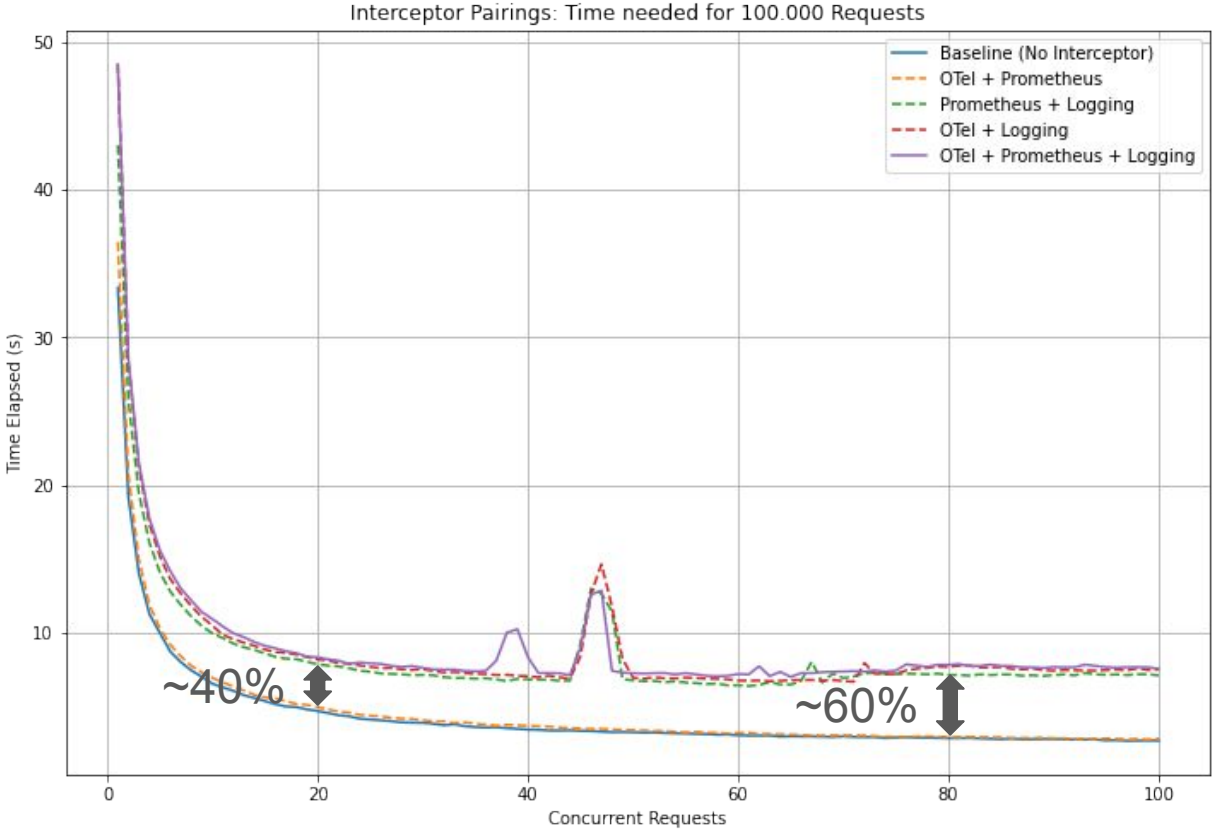
RQ: How do gRPC interceptors affect throughput & latency in microservice communication?

A: All interceptors worsen latency & throughput. While there are interceptors that marginally worsen both metrics, other interceptors can decrease latency & throughput profoundly. The worst performing interceptor determines a chains latency & throughput.

Results: Execution Time Increase



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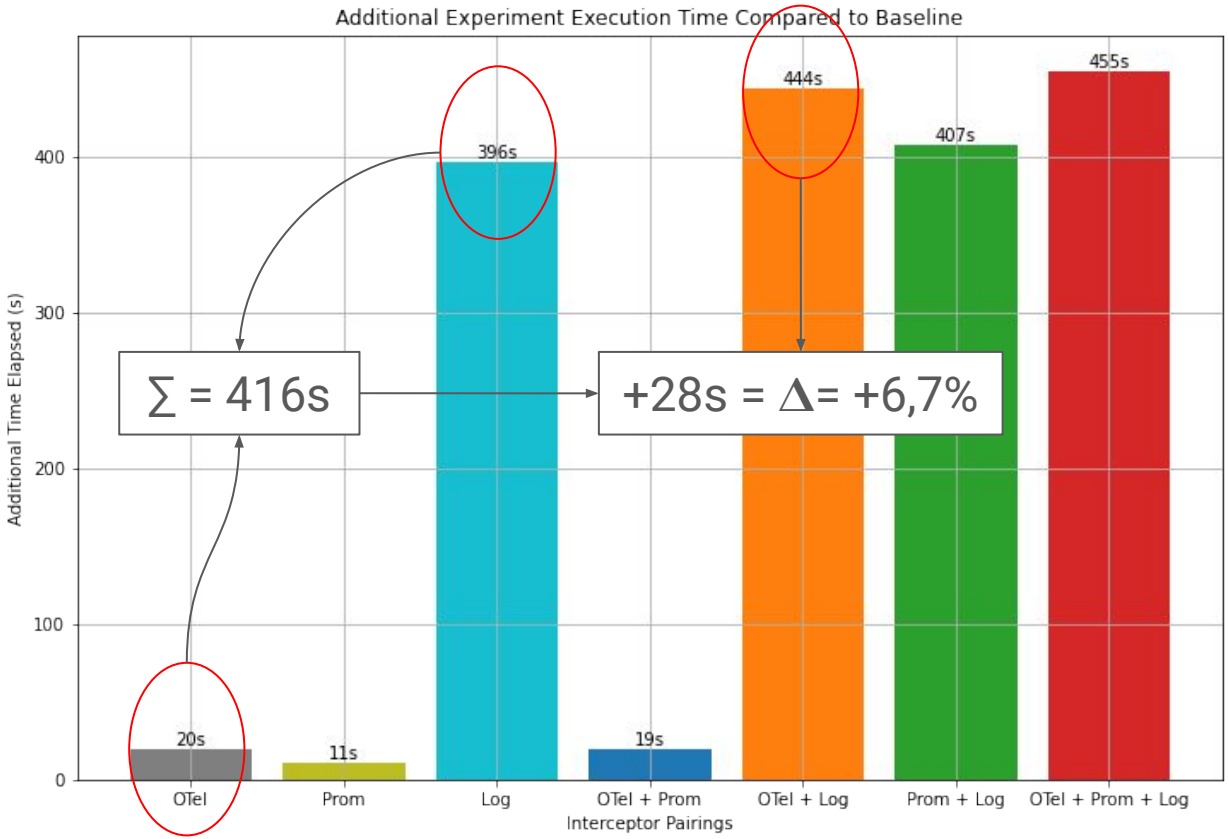

Interceptor-chains can worsen the performance more than the sum of its parts.