

Shift Into An Observability Mindset With OpenTelemetry

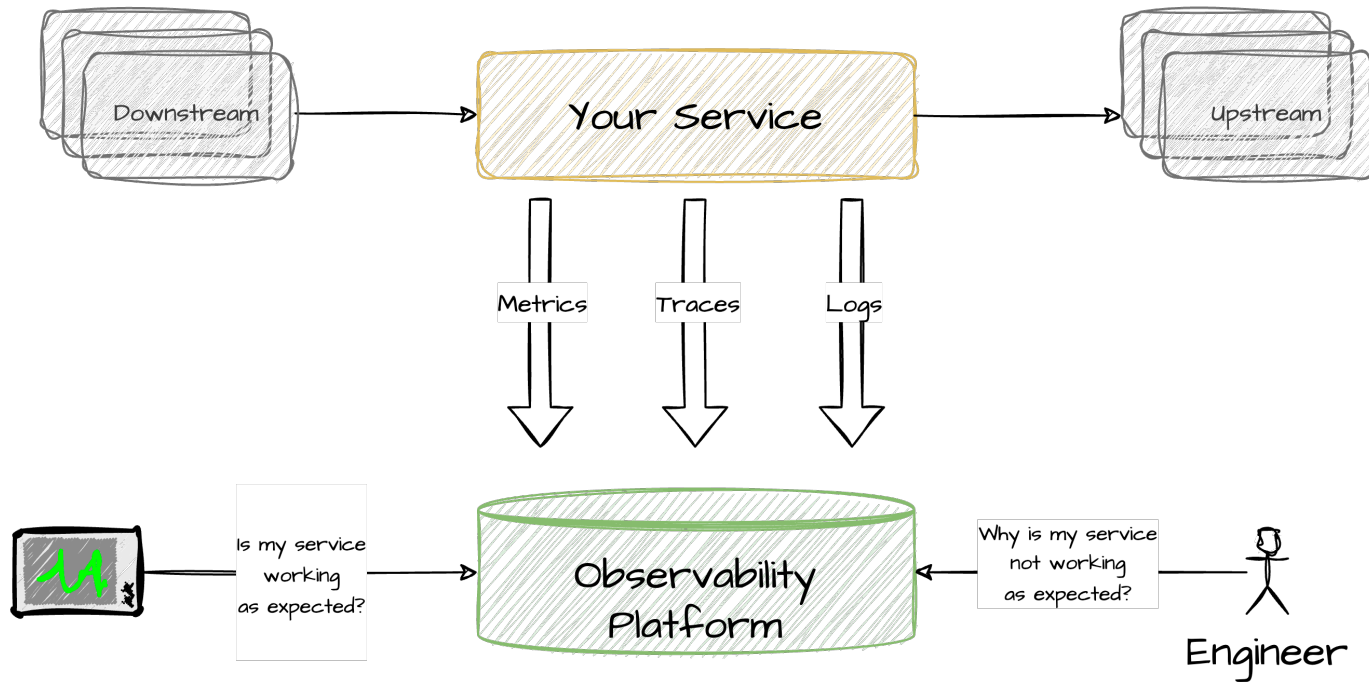
Daniel Gomez Blanco

Principal Software Engineer, Skyscanner
OpenTelemetry Governance Committee Member

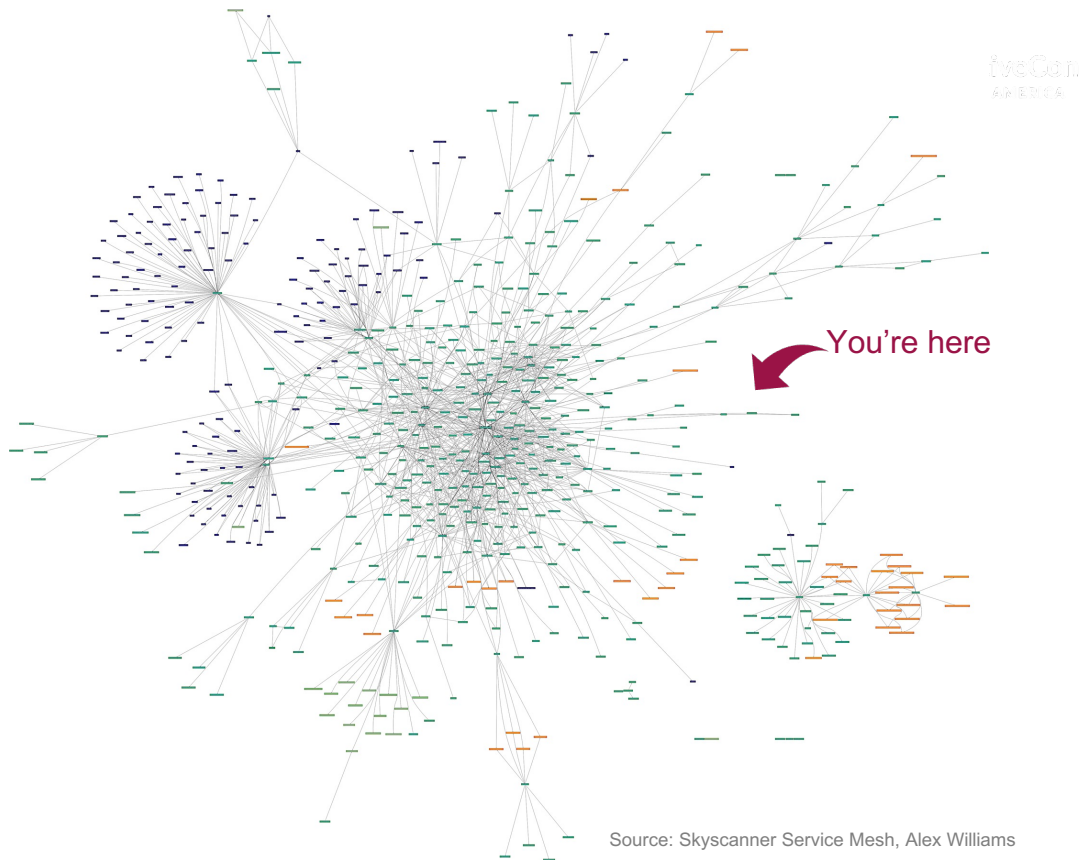
To enable
effective observability
by making
high-quality, portable
telemetry ubiquitous

We tend to focus on our service...

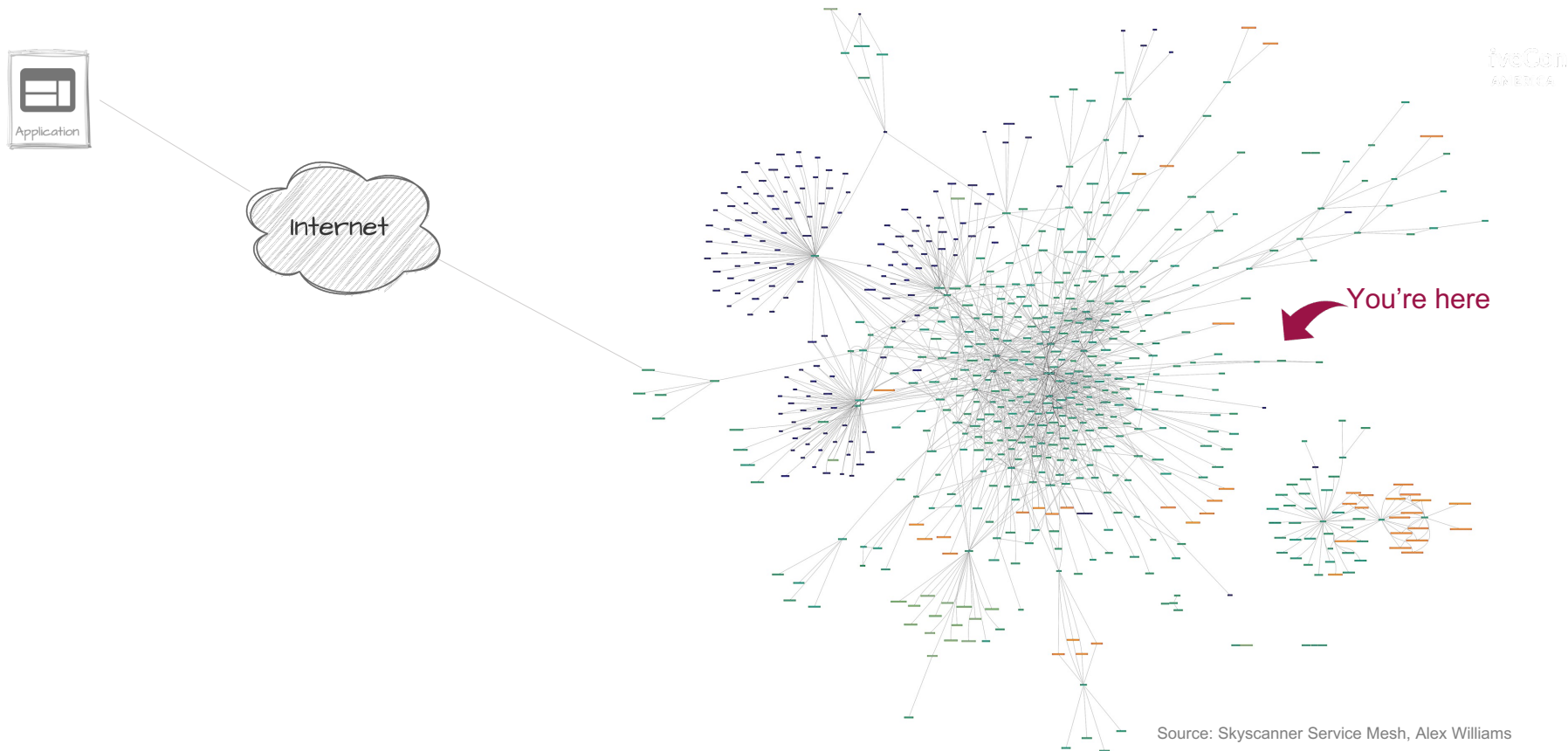
Observability Day
EUROPE



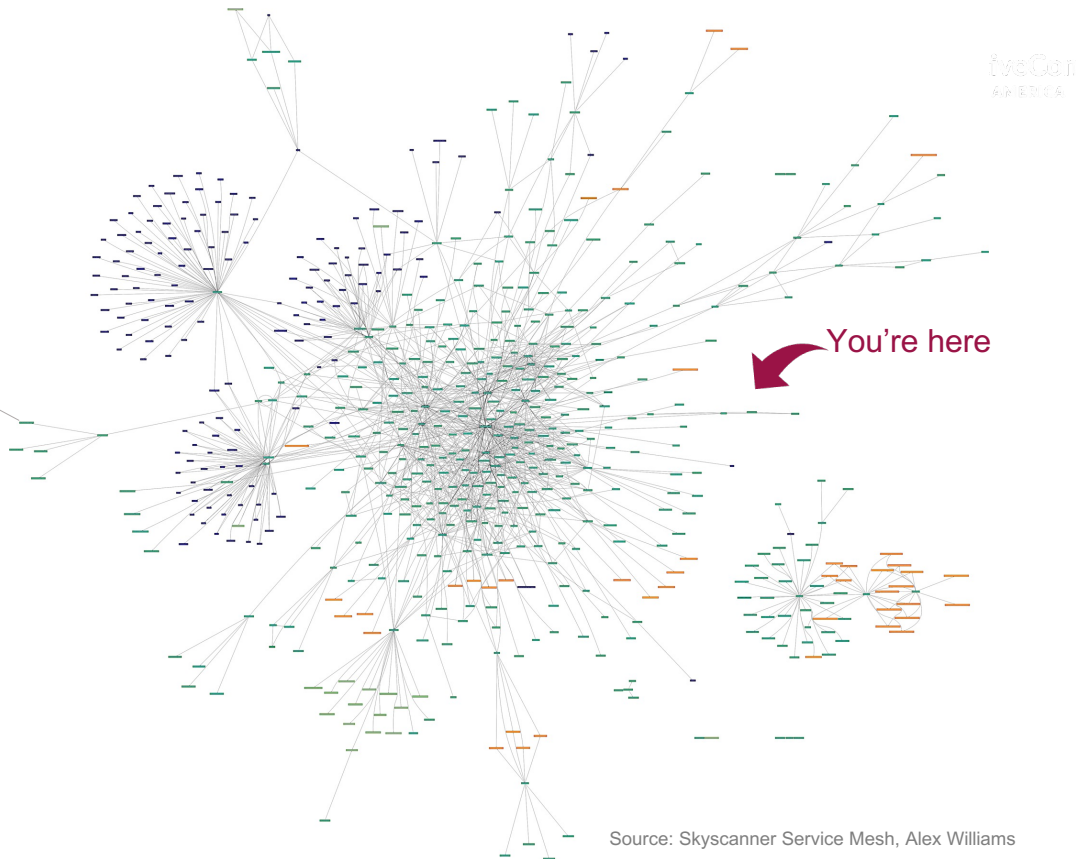
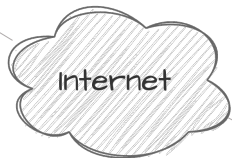
...and we forget the system



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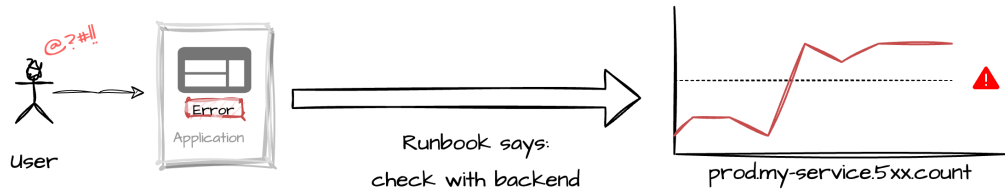


Who am I?

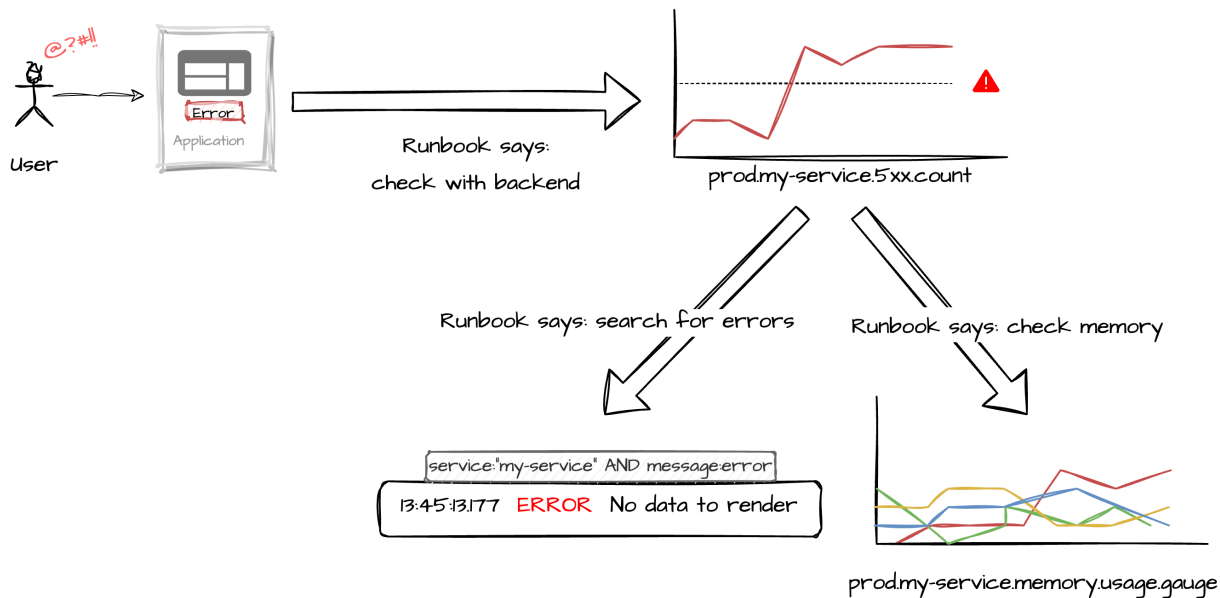
- Principal Engineer at Skyscanner leading observability since 2020
- Joined in 2018 to work on client-side performance and K8s resource optimisation
- Platform engineer in organisations of all sizes for 13 years
- OpenTelemetry Governance Committee member since November 2023
- Author of Practical OpenTelemetry: Adopting Open Observability Standards Across Your Organization (Apress, 2023)



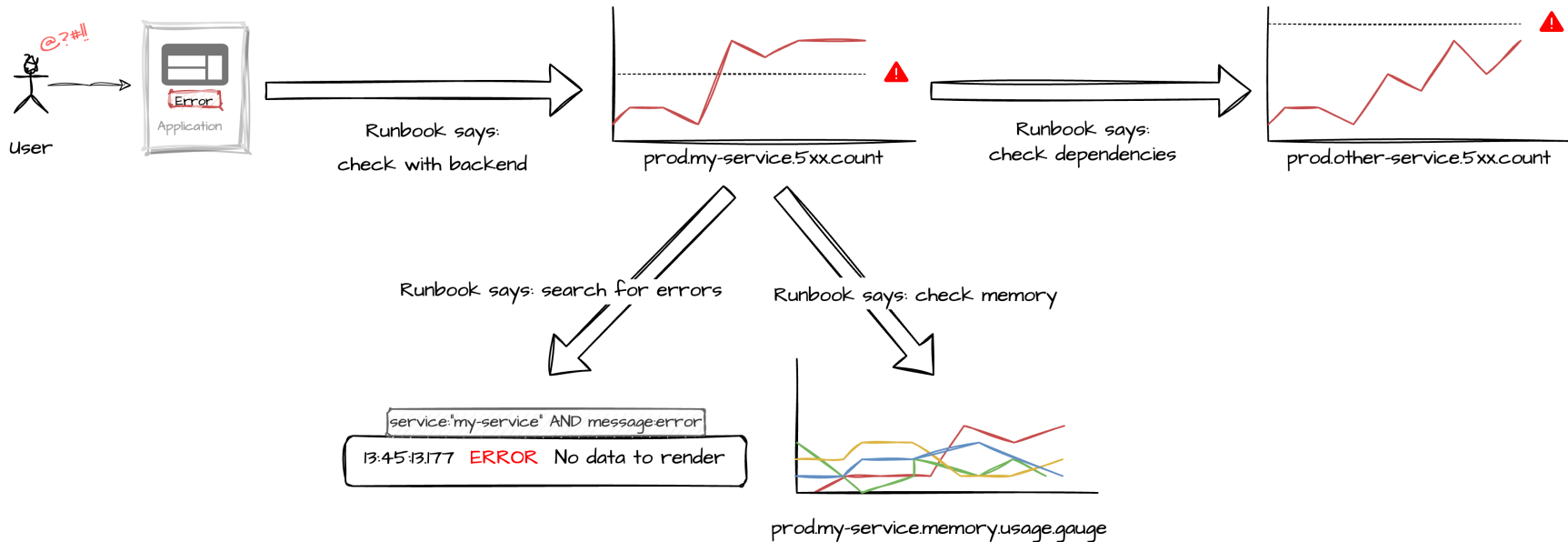
Debugging with no context → Intuition



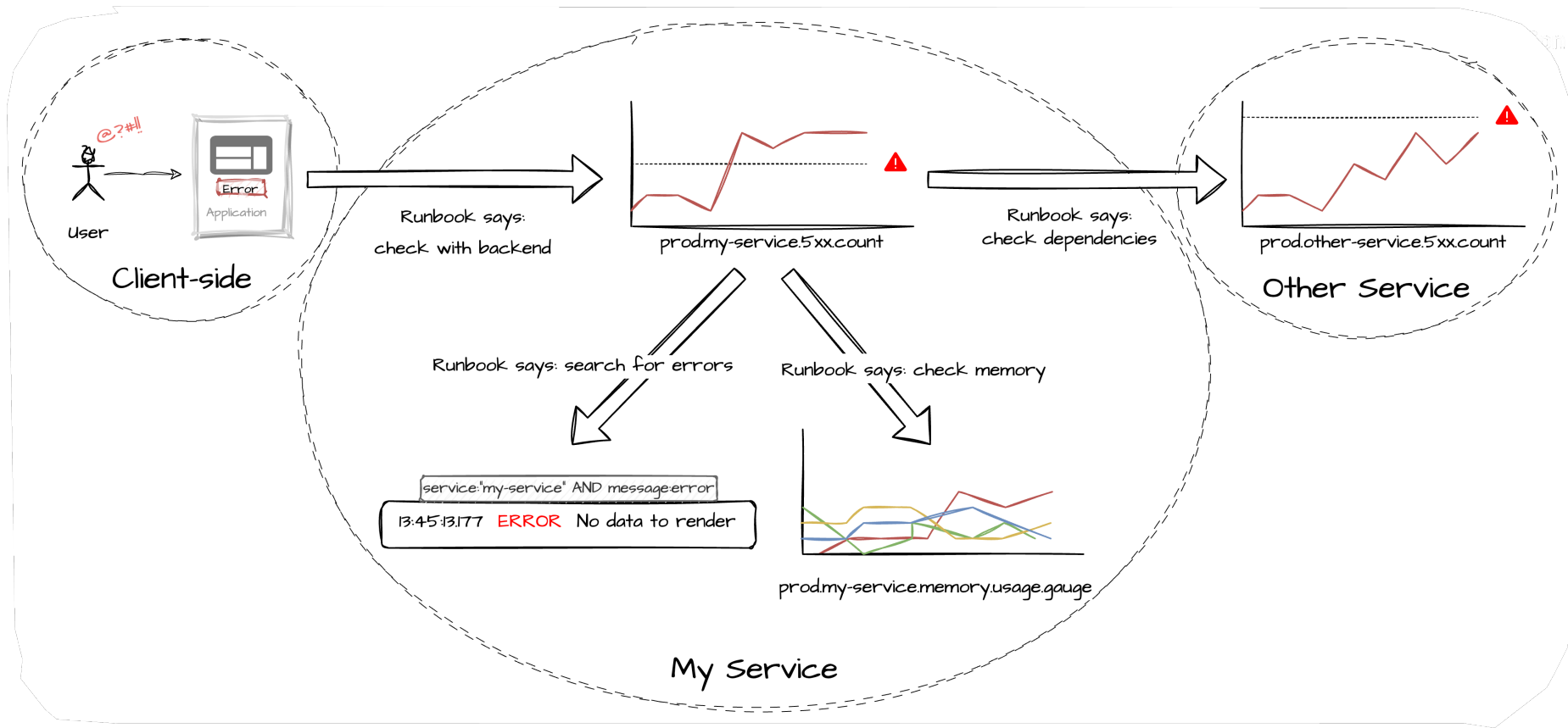
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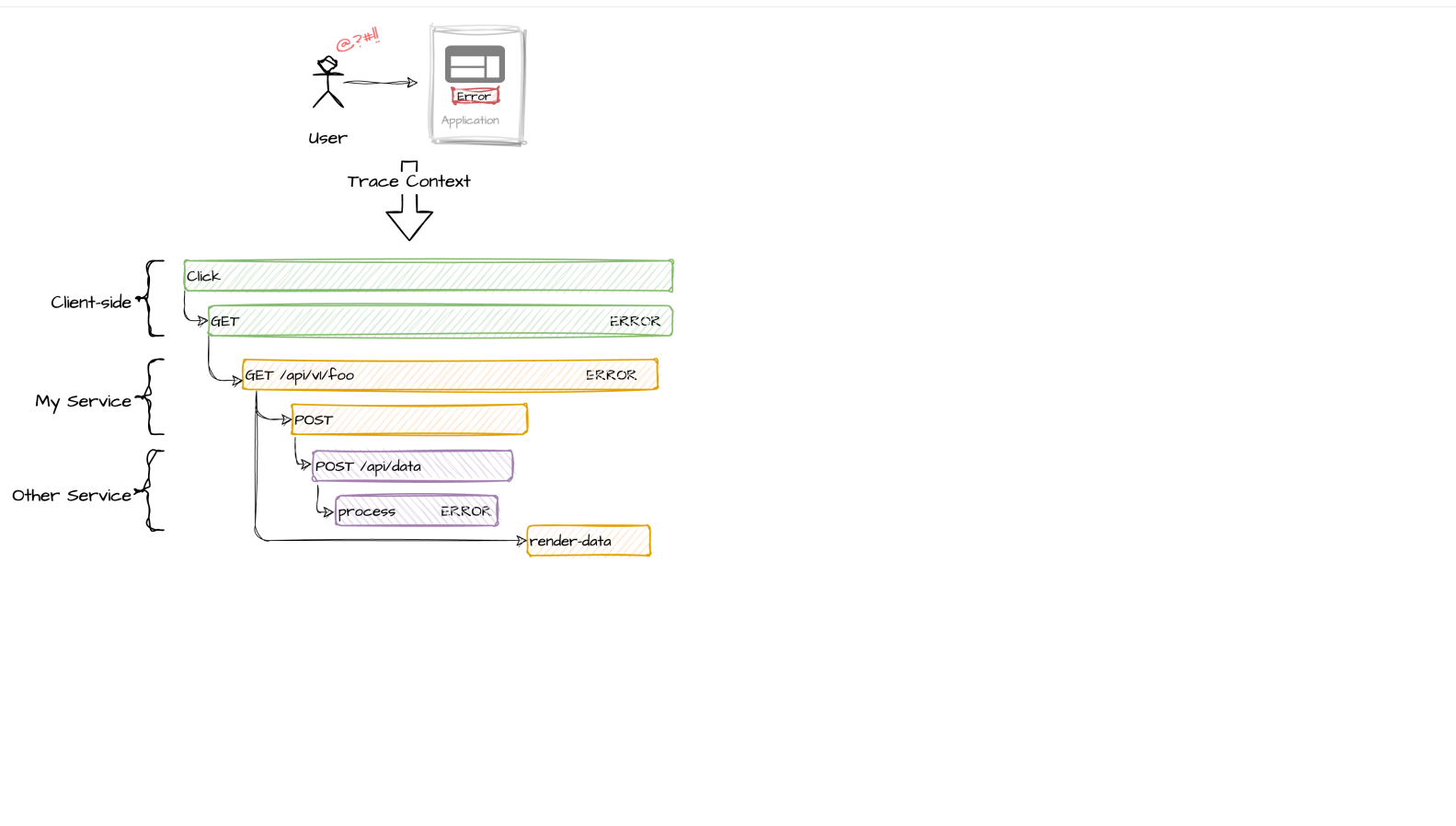


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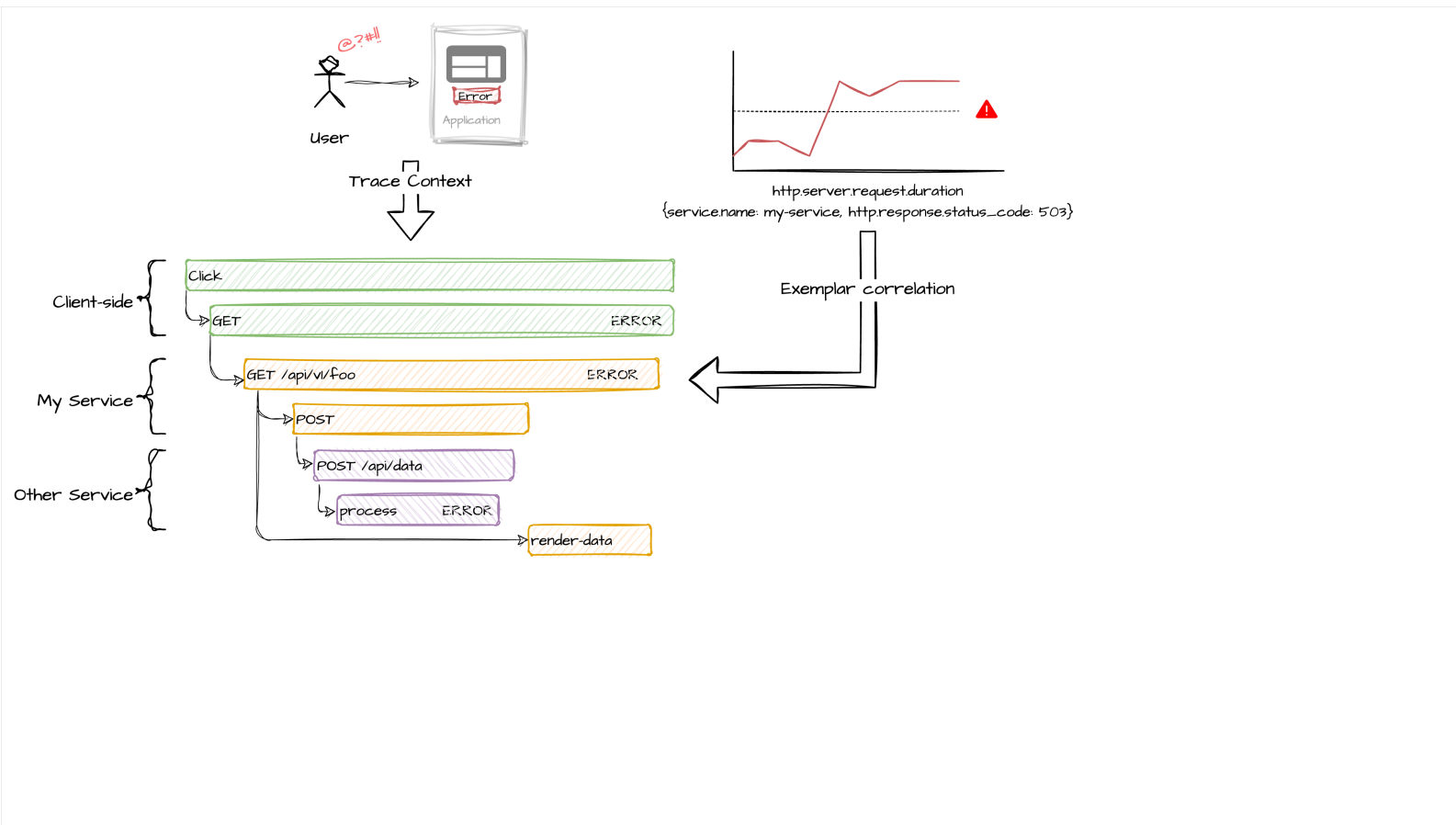


Source: <https://imgflip.com/i/8j8o2>

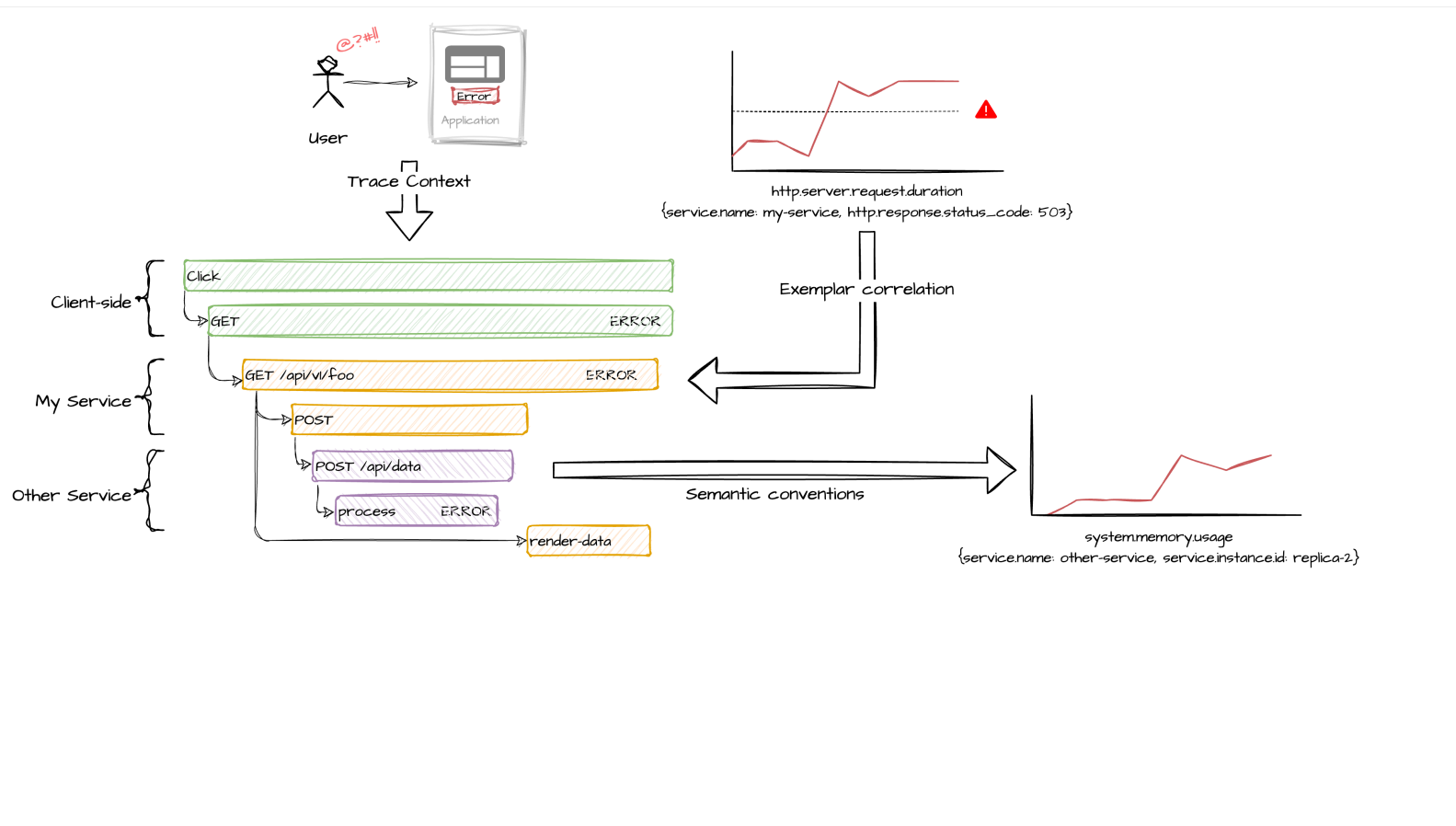
Context & standards → Evidence



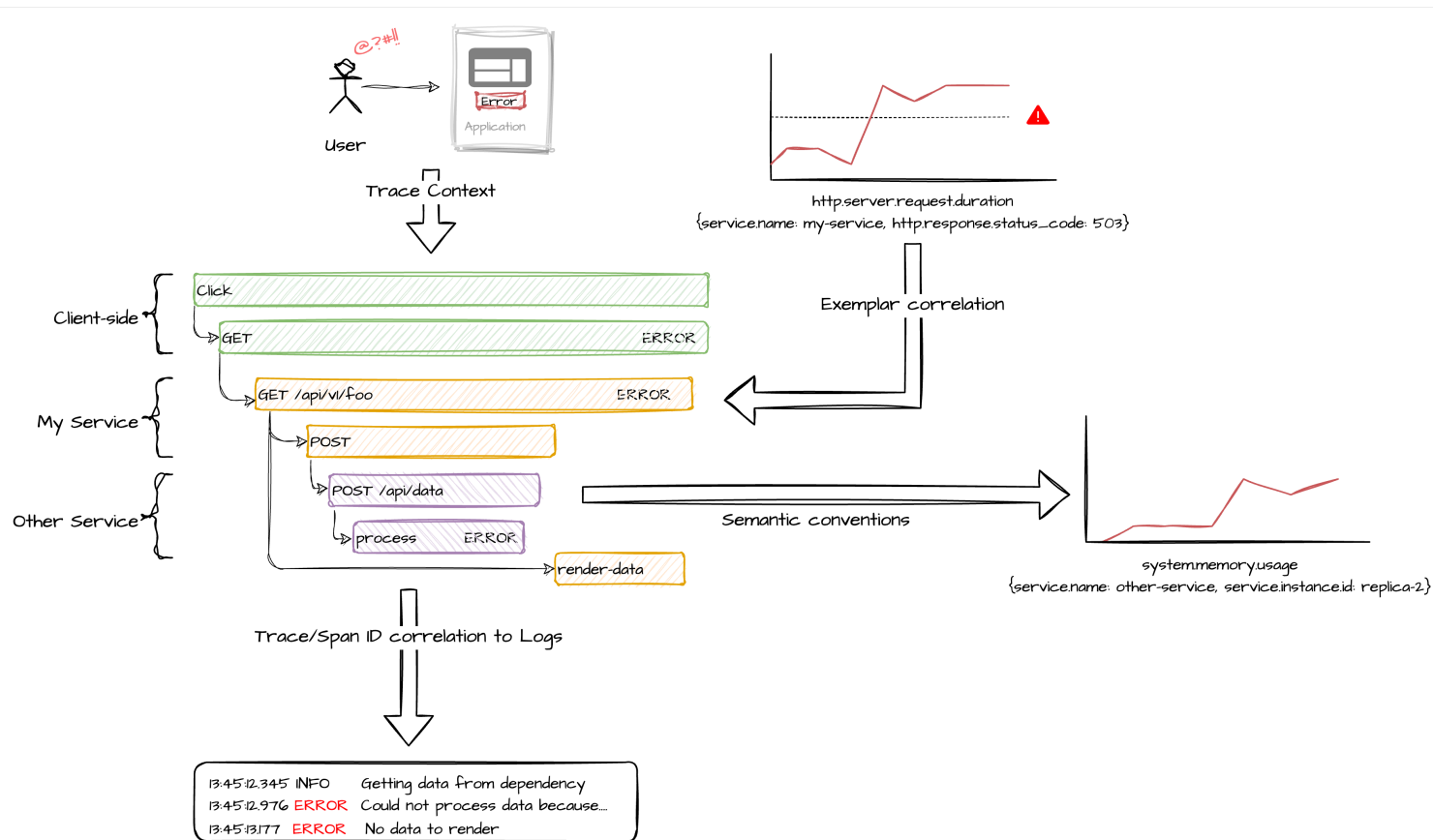
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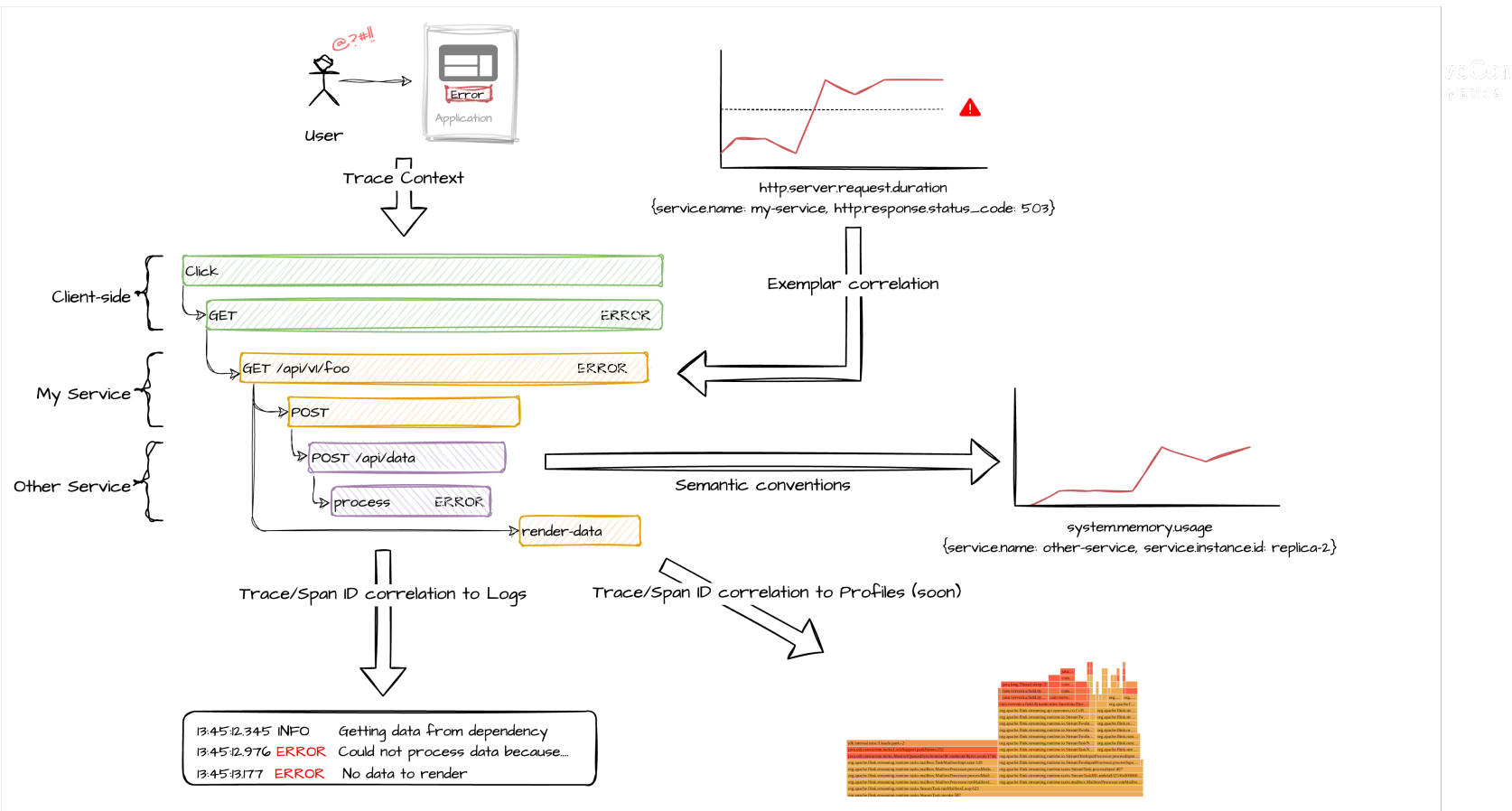
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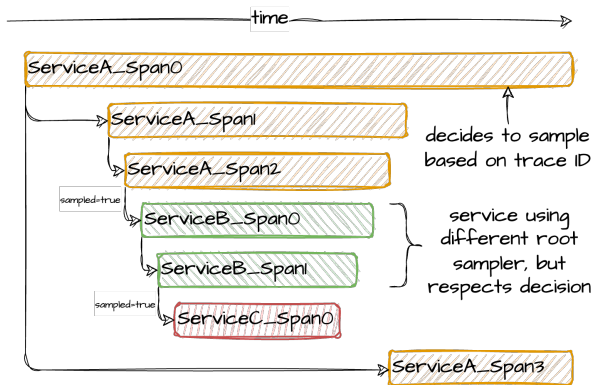


Context & standards → Evidence



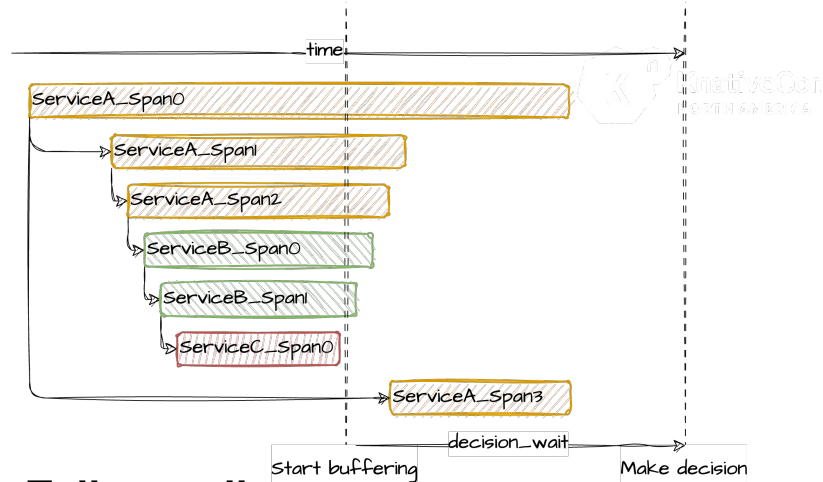
Most
telemetry data
gathered for
debugging
purposes
is **never used**

Trace sampling to keep the useful data



Head sampling

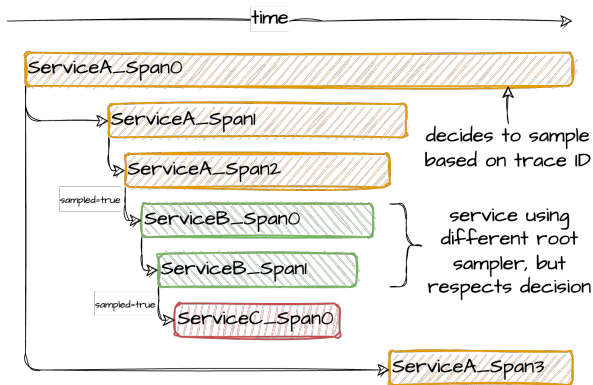
- Trace Context can propagate sampling decisions
- Easy configuration and maintenance
- Efficient resource utilisation
- Probabilistic (i.e. cannot consider whole trace)



Tail sampling

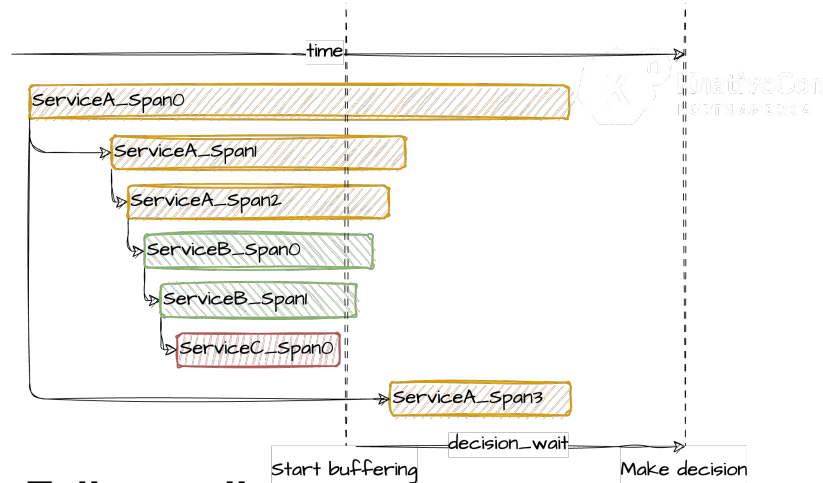
- More complex to implement and operate
- Can consider whole trace in sampling decision
- OpenTelemetry Collectors or vendor-specific features

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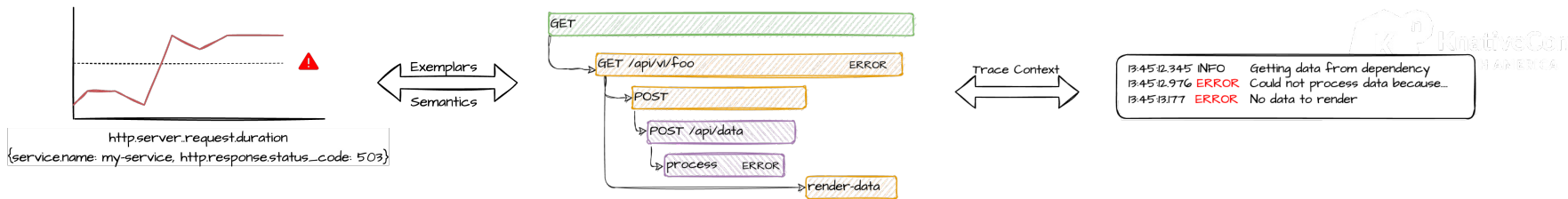
Tail sampling

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Skyscanner keeps ~5% of the 7.5M traces and 150M spans produced each minute

Context to rationalise data production



Metrics

- Stable signal → alerting and long-term trend analysis
- Lower volume can make exports more resilient
- Keep cardinality low and correlate to traces for granularity

Traces

- High granularity and context → debugging, optimisation, short-term analysis
- Queuing and retrying more expensive
- Possible to generate metrics from spans

Logs

- High volume, low context → when you can't use anything else??
- Background tasks, legacy libs
- Please structure them! Or use OpenTelemetry appenders
- Events API Interface for non-application logs

Metric Views to control streams



- Decouple measurements from their aggregation
 - OpenCensus concept
- Control of resulting metrics streams via SDK config
- Customise auto-instrumented metrics
 - Instrumentation libs
 - Library authors

```
meter_provider:  
  views:  
    # What instrument(s) does this apply to?  
    - selector:  
        instrument_name: http.server.request.duration  
        instrument_type: histogram  
    # What is the resulting stream(s)?  
    stream:  
      name: app.http.route.count  
      aggregation: sum  
      attribute_keys:  
        - http.route
```

Schema following <https://github.com/open-telemetry/opentelemetry-configuration>

How do you change the mindset?

Observability
engineer



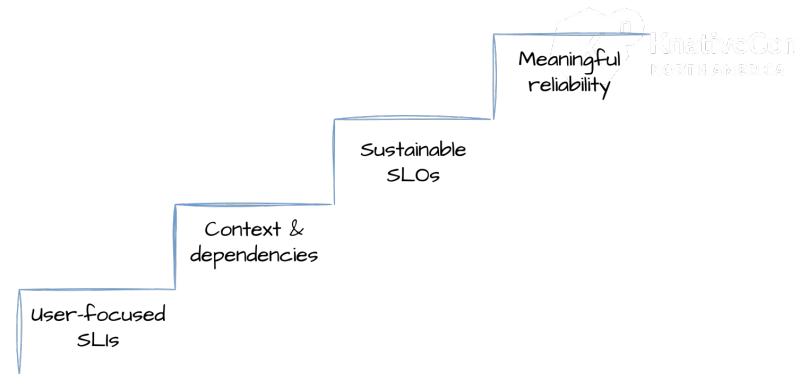
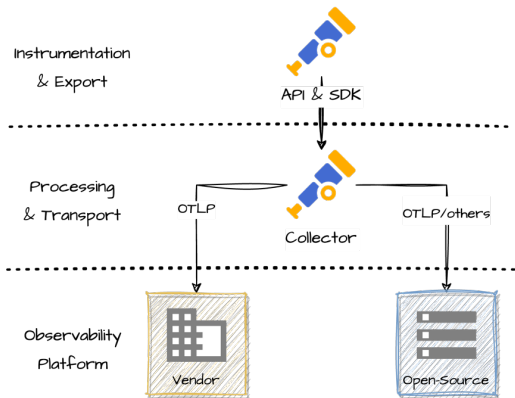
Rest
of the
company



imgflip.com

Source: <https://imgflip.com/u/8j8m6f>

Communicating value to leadership



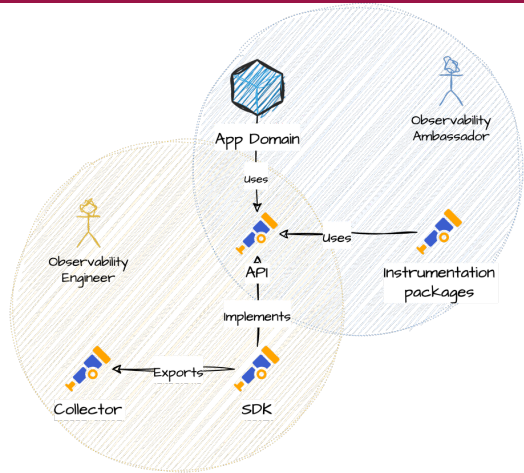
Simplification and future-proofing

- Future-proof stable API, decoupled from SDK
- Standard and efficient tooling for transport and processing
- Integration with vendors and open-source platforms

Correlation to business outcomes

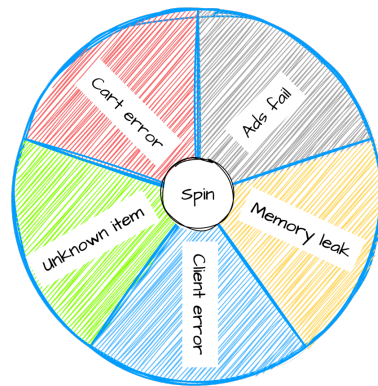
- Instrument SLIs that directly relate to user experience
- Context to identify dependencies and set realistic targets
- Effective observability to reduce time-to-resolve

Changing engineer mindset



Cross-organisation alignment

- Observability Engineers → Enablement
 - Implement company-wide standards out of the box
 - Maintain infra and SDK config
- Observability Ambassadors → Adoption
 - Evangelise and support engineers in their domain



Make it fun!

- Debugging is a skill, and it can be trained
- Gamifying root cause analysis (wheel of misfortune)
- OpenTelemetry Demo feature flags to simulate incidents
- My experience: teams that use context always win!

- **Context over intuition**
- **Right tool for the right job**
- **Observability as a cross-functional discipline**

Q&A

Catch me at OpenTelemetry Observatory in the Expo Hall!

Observability Day EUROPE



Please leave feedback at <https://sched.co/1YFjB>