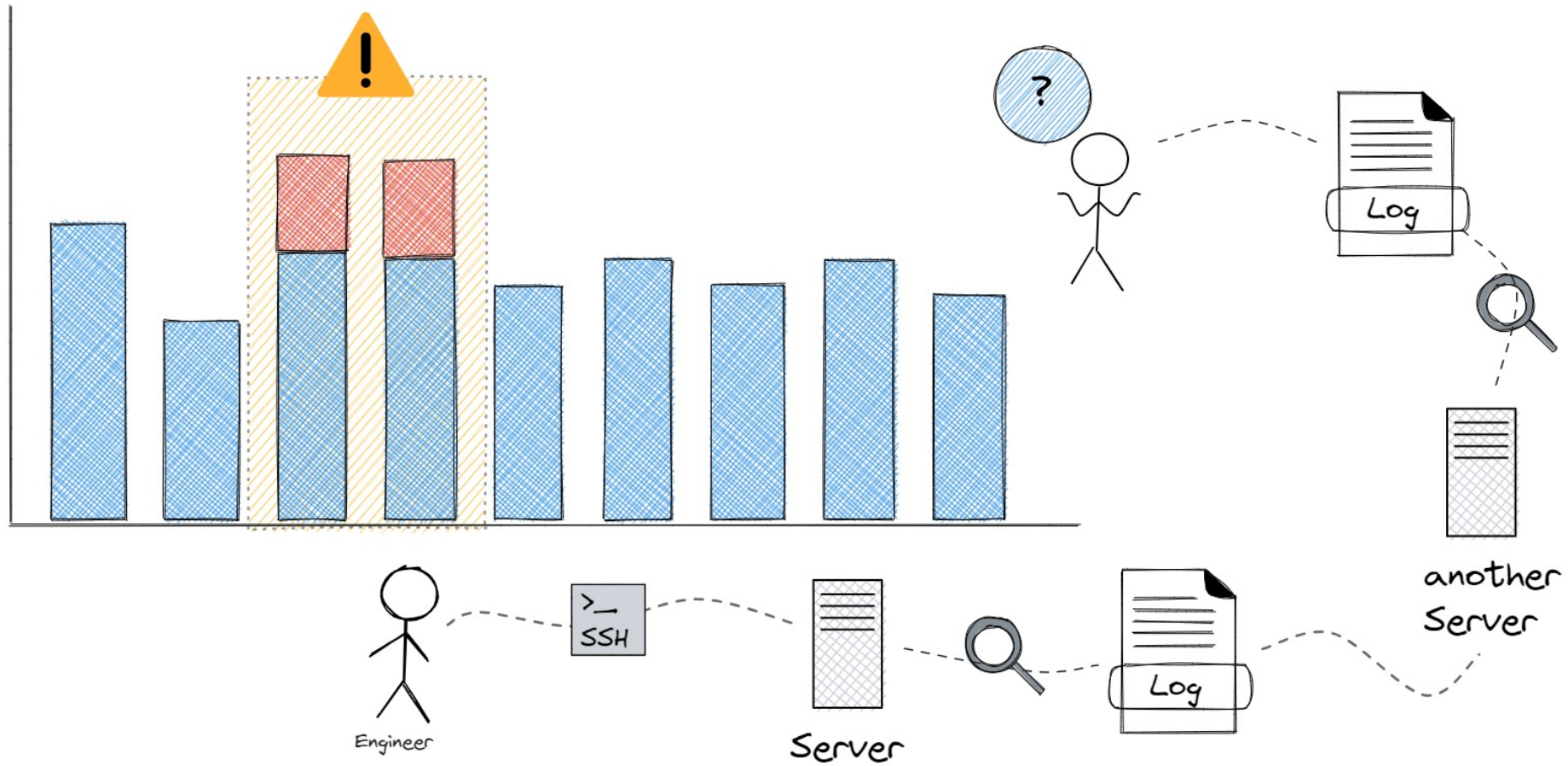


MODERN OBSERVABILITY WITH OPENTELEMETRY

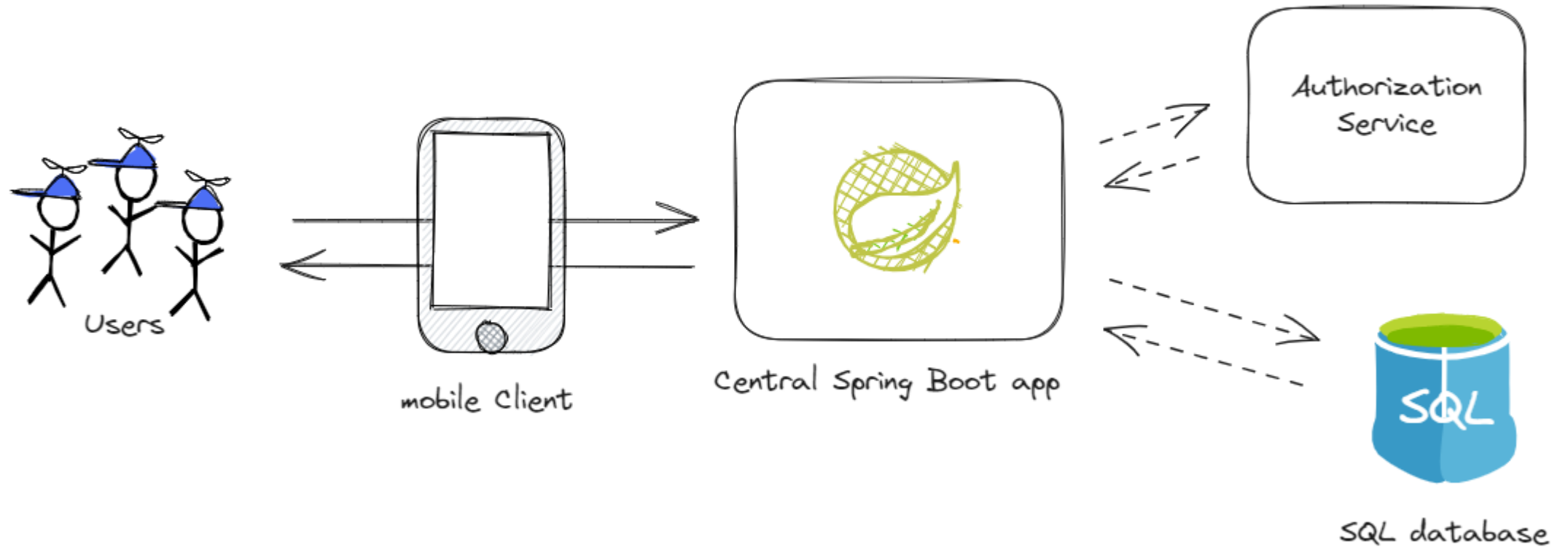


Georg Pirklbauer
Team OpenTelemetry
Dynatrace

HTTP Response codes



Complicated, even for “simple” systems



Today's systems are bit more complex....



TELEMETRY DATA


```
2023-06-21T14:30:00.305+02:00 INFO 877 --- [main] c.e.a.AccessingDataMysqlApplication : Starting AccessingDataMysqlApplication v0.0.1-SNAPSHOT using Java 17.0.4 with PID 877
ar started by gp in /mnt/c/workspaces/java-meetup-otel/gs-accessing-data-mysql)
2023-06-21T14:30:00.333+02:00 INFO 877 --- [main] c.e.a.AccessingDataMysqlApplication : No active profile set, falling back to 1 default profile: "default"
2023-06-21T14:30:03.791+02:00 INFO 877 --- [main] s.d.r.c.RepositoryConfigurationDelegate : Bootstrapping Spring Data JPA repositories in DEFAULT mode.
2023-06-21T14:30:03.975+02:00 INFO 877 --- [main] s.d.r.c.RepositoryConfigurationDelegate : Finished Spring Data repository scanning in 147 ms. Found 1 JPA repository interfaces.
```

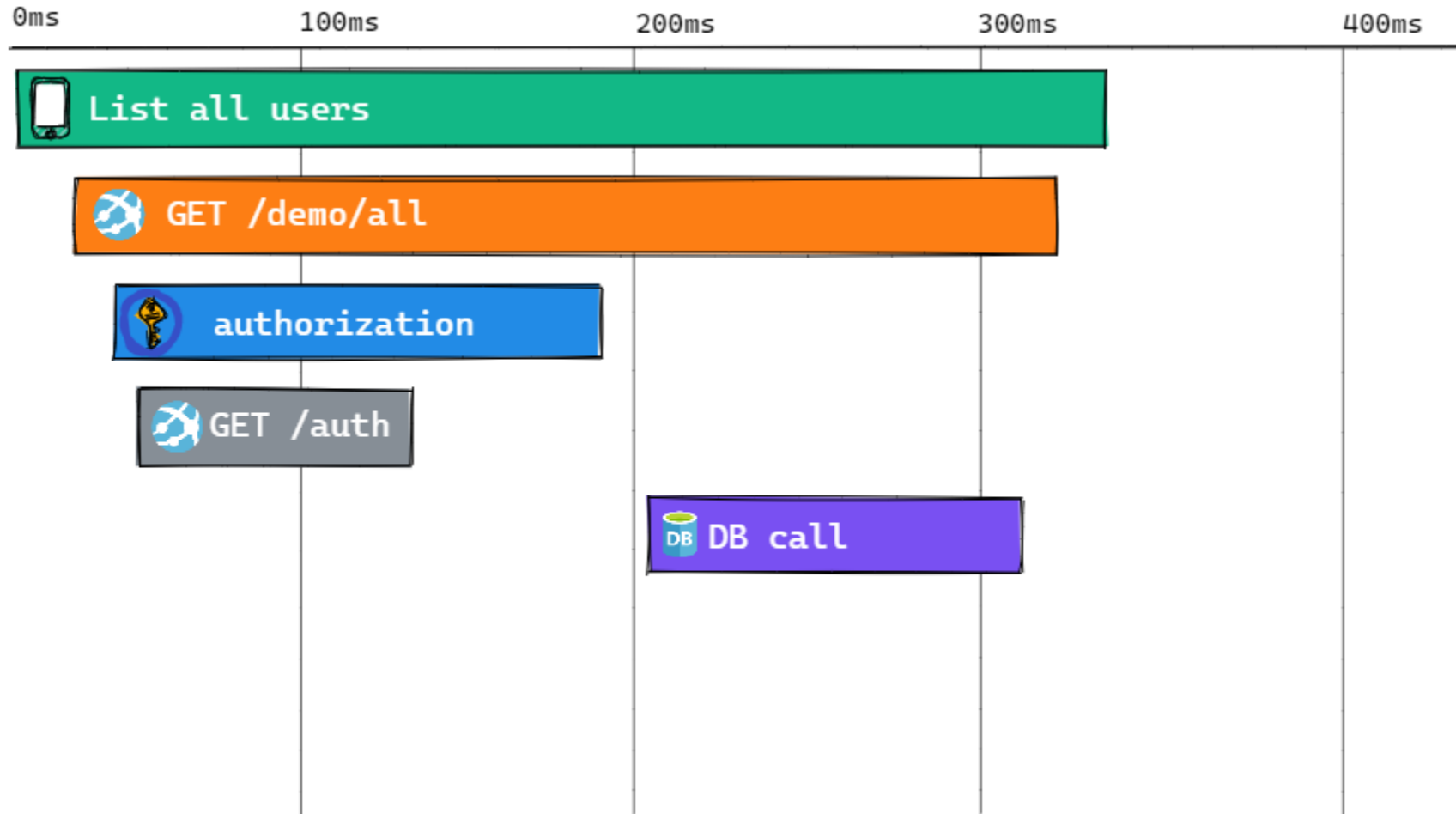
```

    orders-service /purchase-order
  ✓ |
    |
  ✓ | orders-service /user/verify
    |
  ✓ | | users-service /user/verify
    | |
  ✓ | | | users-service /user/verify
    | | |
  ✓ | | | | users-service /.well-known/jwks.json
    | | | |
  ✓ | orders-service /update-stock?cartid=448971
    |
  ✓ | | stock-service /update-stock
    | |
  ✓ | | | stock-service /update-stock
    | | |


```



Distributed traces



Traces consist of spans

 GET /demo/all

trace id: bda522143f4c7f689f059f716e59a0c5

span id: f23f751724e9f74c

parent span id: 11eeab5518e99c99

Attributes

service.name: users-service

http.method: GET

http.target: /demo/all

http.status_code: 200

Events

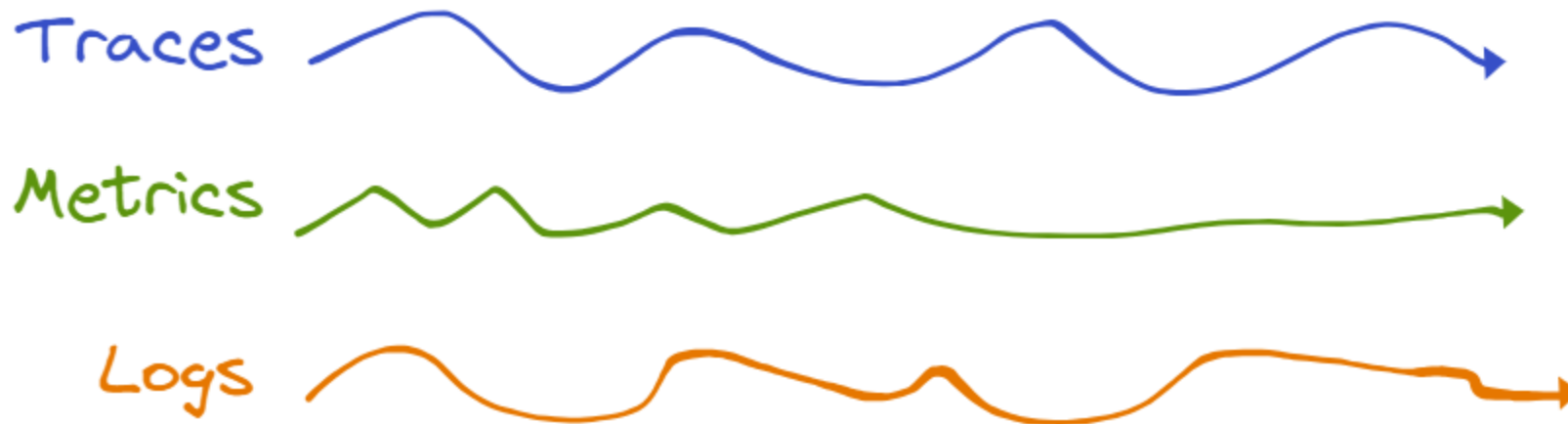
...

Errors

...

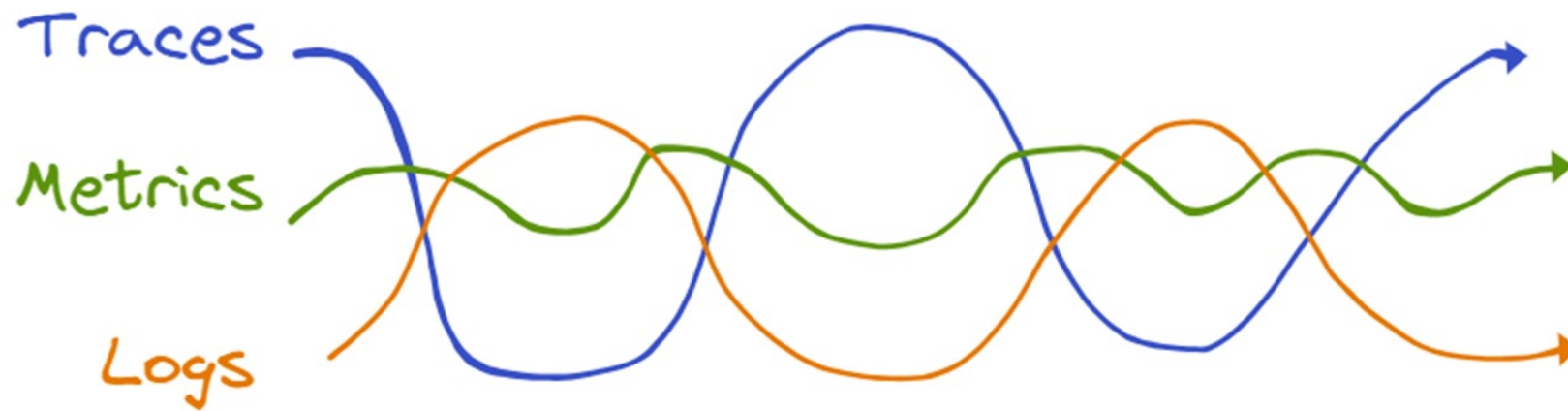
**I THOUGHT THIS TALK
WAS ABOUT
OBSERVABILITY!**

Telemetry data



Often stored in silos, and require manual correlation after the fact

Observability

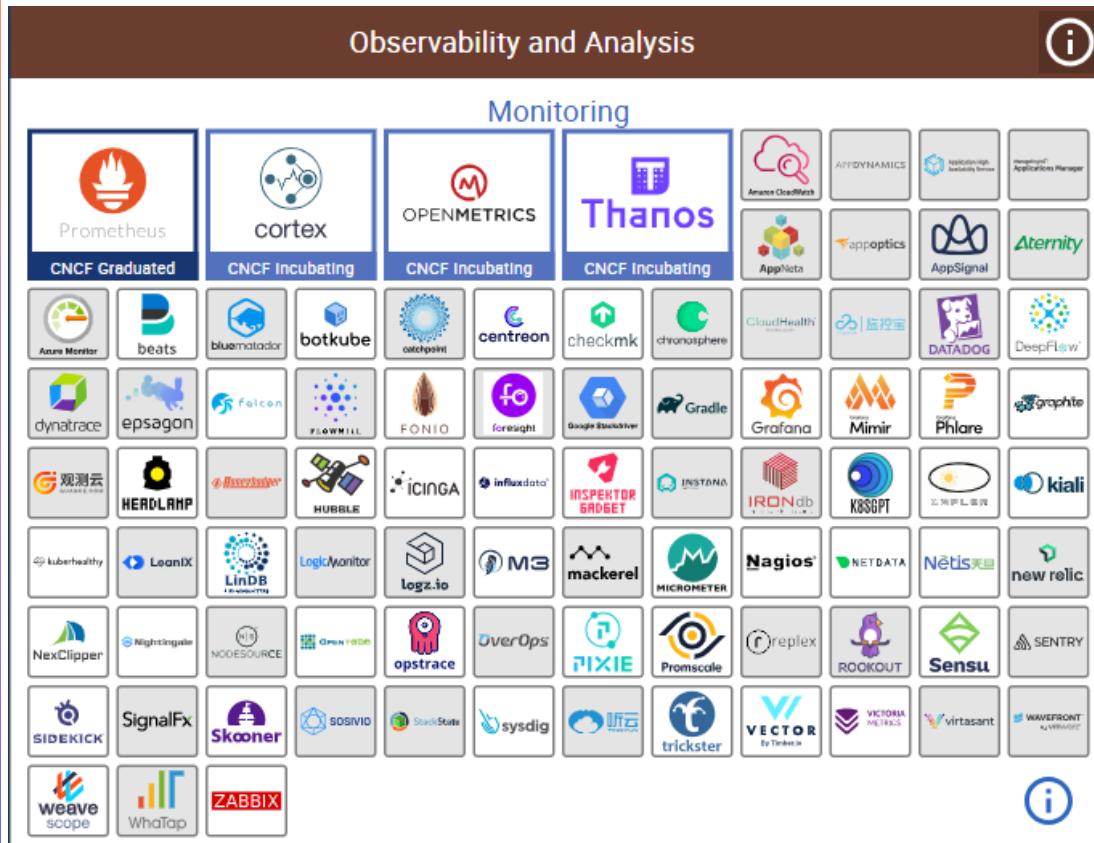


Observability puts telemetry signals in context

BUT WHY OPENTELEMETRY?



CNCF cloud native landscape



<https://landscape.cncf.io/>



- Many tools
- Often focused on one telemetry signal
- Often incompatible
- Vendor lock-in

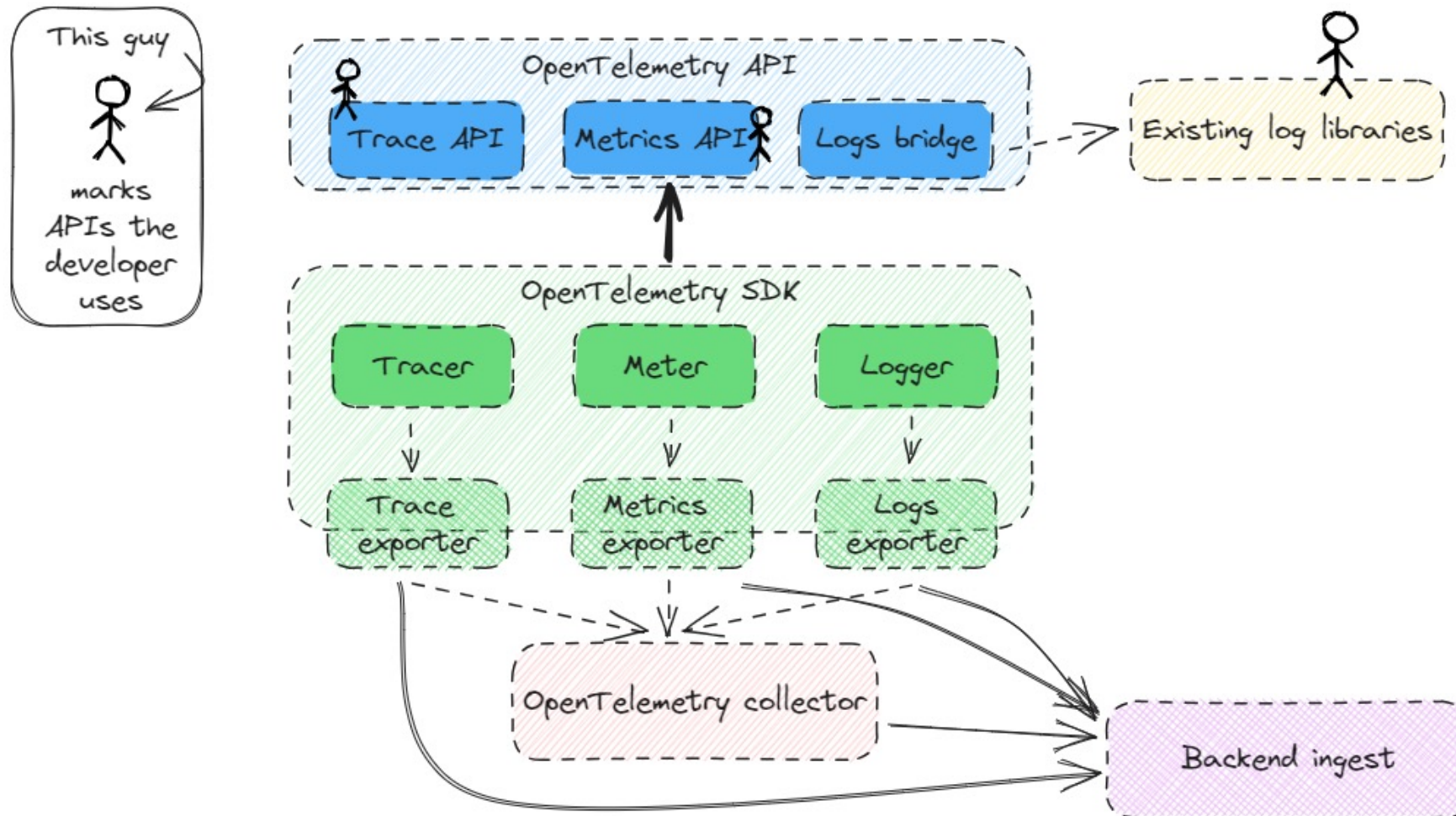
OpenTelemetry

- **a vendor-neutral, open-source** Observability framework for instrumenting, generating, collecting, and exporting telemetry data
- the de-facto standard for telemetry data
- **not a backend!**
- Logs, Metrics, Traces are stable in OTLP (the OpenTelemetry Protocol)
- More signals are in the works (real user monitoring, profiling,...)



<https://opentelemetry.io/docs/>

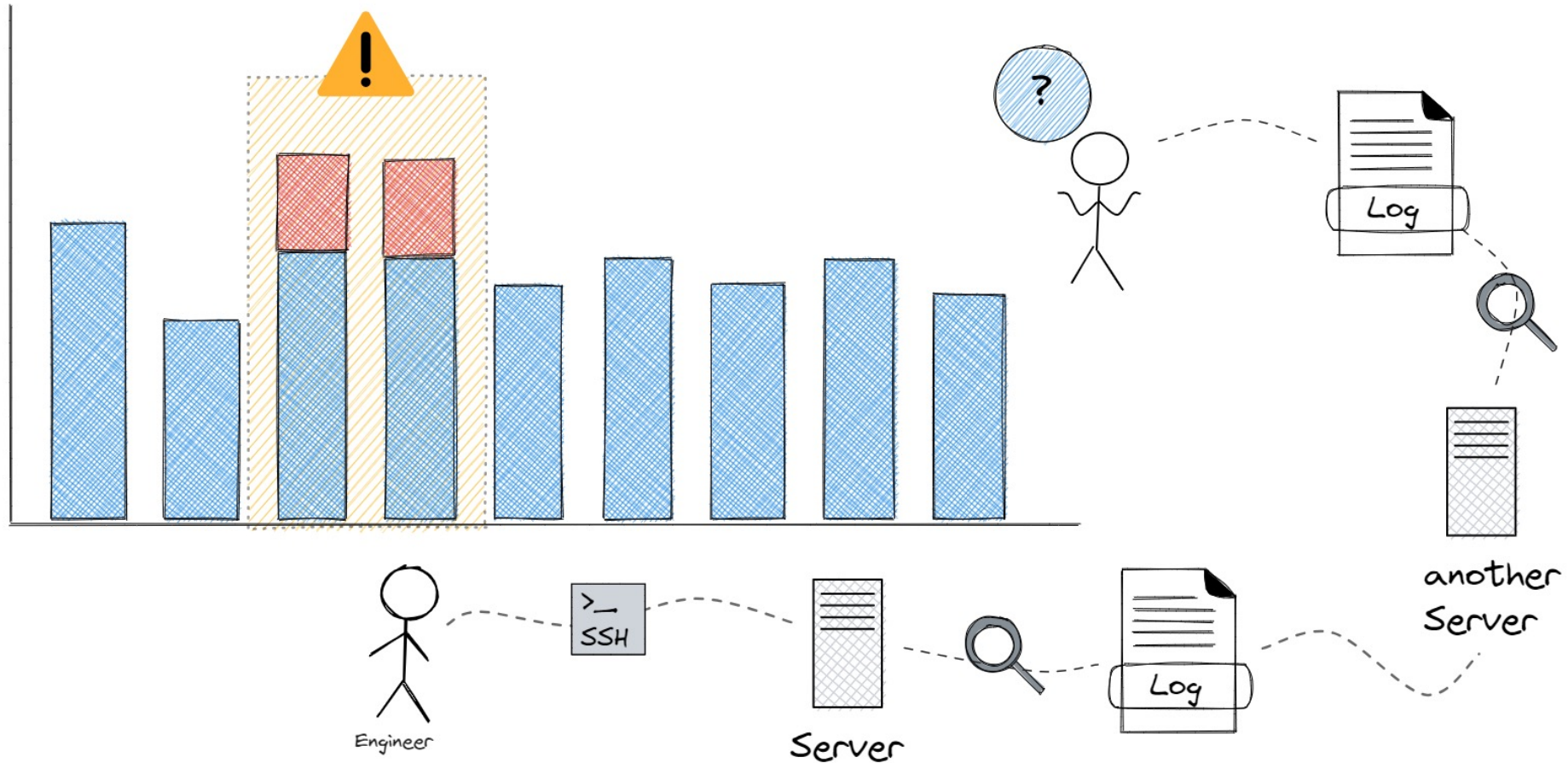
OTel architecture



+ COOL! BUT HOW DOES +
• THAT HELP ME? •
○

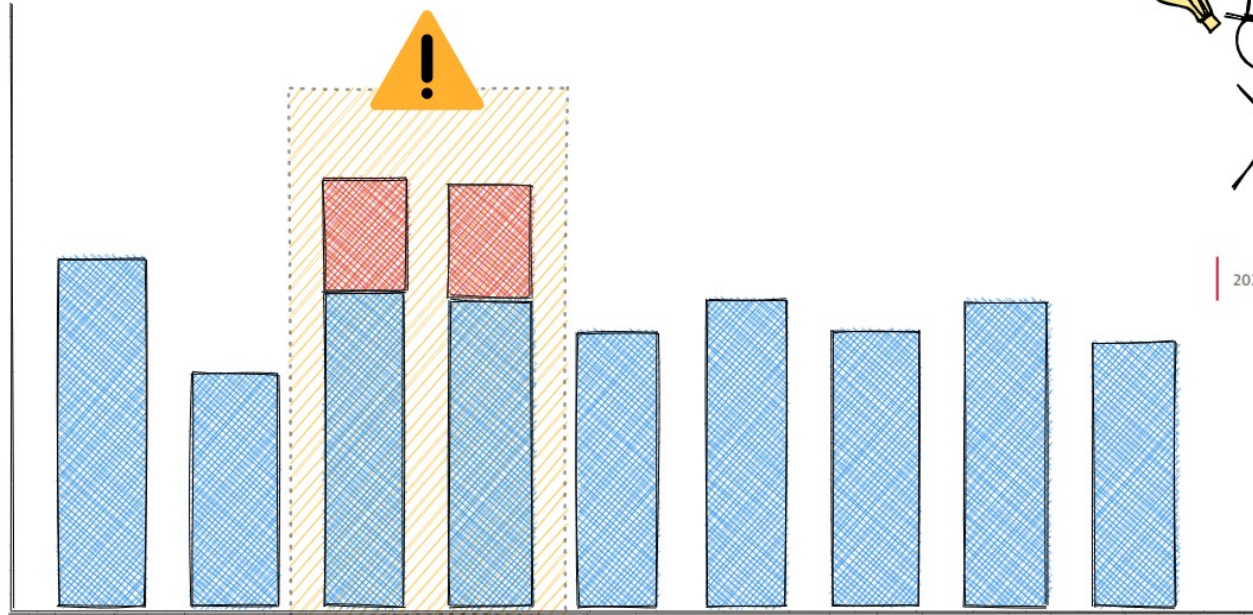
From this

HTTP Response codes



To this

HTTP Response codes



Metrics show an anomaly



2023-06-26, 11:16:22

ERROR

Unexpected character '@' in username.

Look only at the relevant Logs

authorization

GET /api/auth

Look at Traces

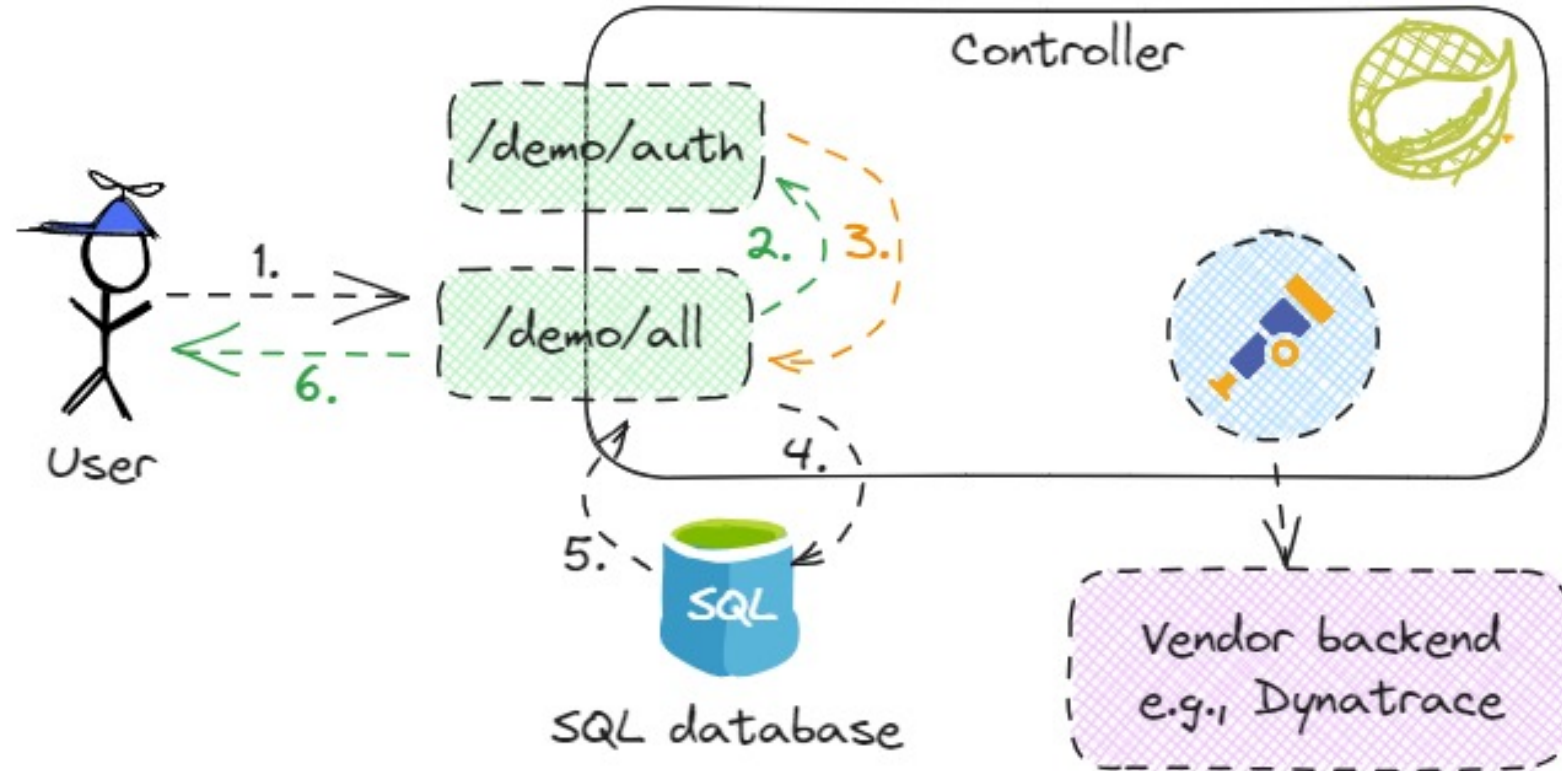


DEMO

Starting Point:

[Accessing Data with MySQL Spring Boot guide](#)

Demo app architecture



Finished example

Find it on my fork on GitHub:

<https://github.com/pirgeo/gs-accessing-data-mysql/>

- Branch [otel-java-meetup](#) for initial state
- Branch [otel-java-meetup-manual](#) for manual instrumentation
 - Contains SDK setup code
- Branch [otel-java-meetup-automatic](#) for auto-instrumentation
 - SDK automatically set up by javaagent
 - Can be extended with manual instrumentation