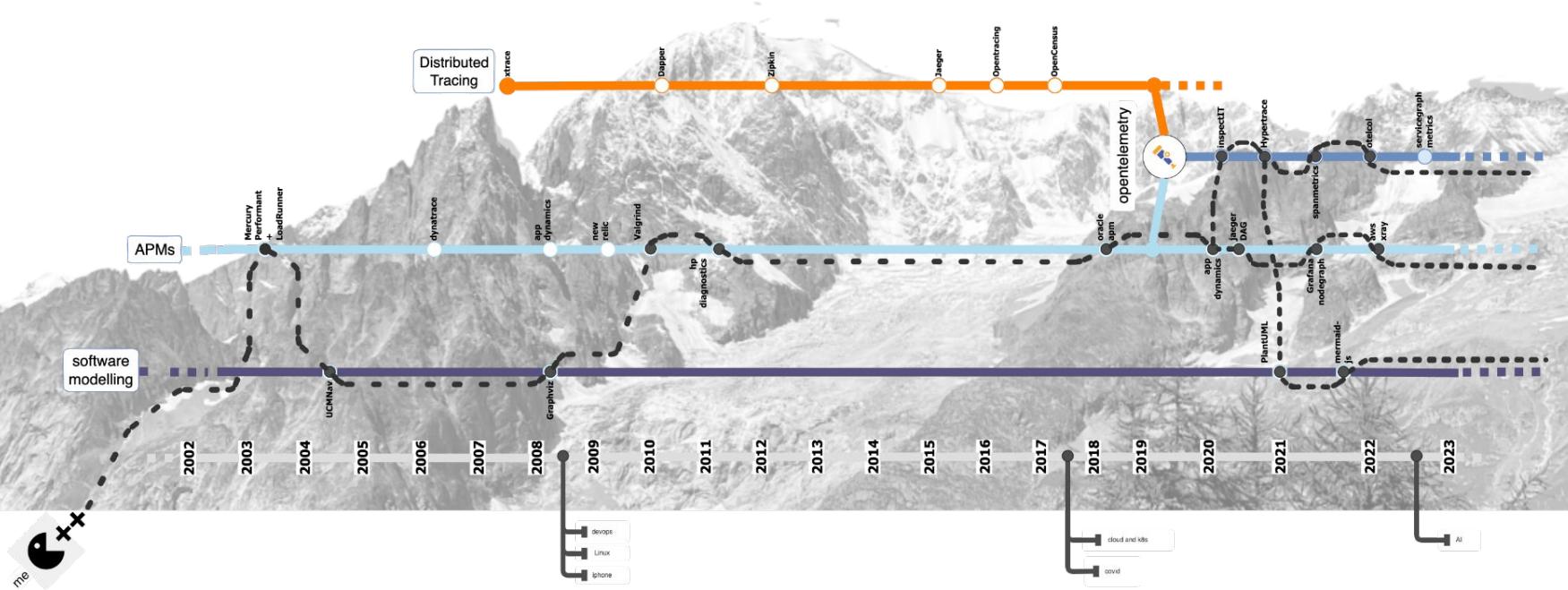


Observability Visualization in the Age of OpenTelemetry

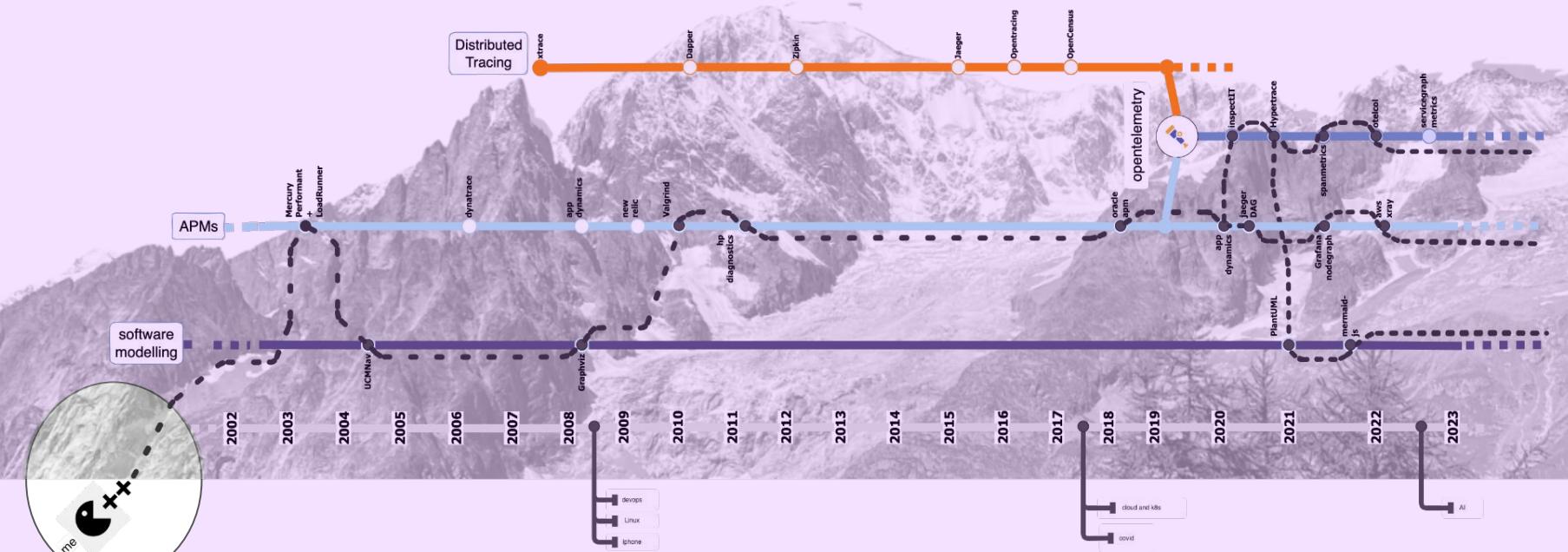
Devrim Demiroz

Rocky Trail

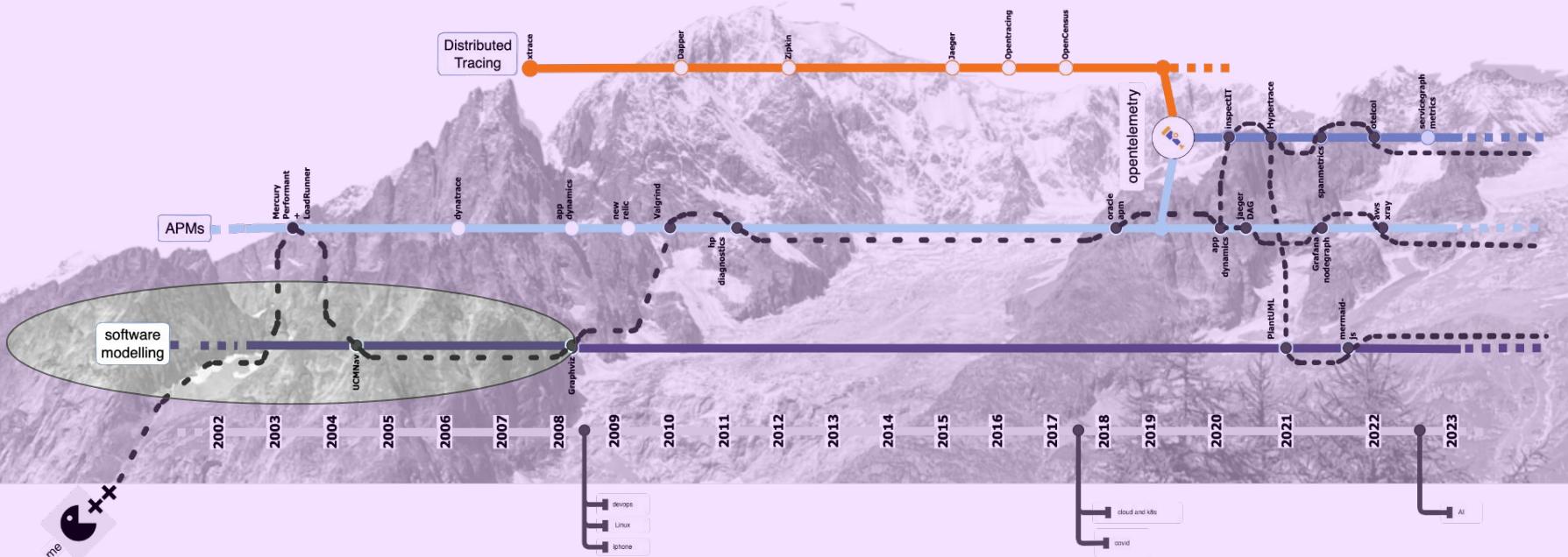
A Brief and Personal History of Visualization in Understanding Complex Systems



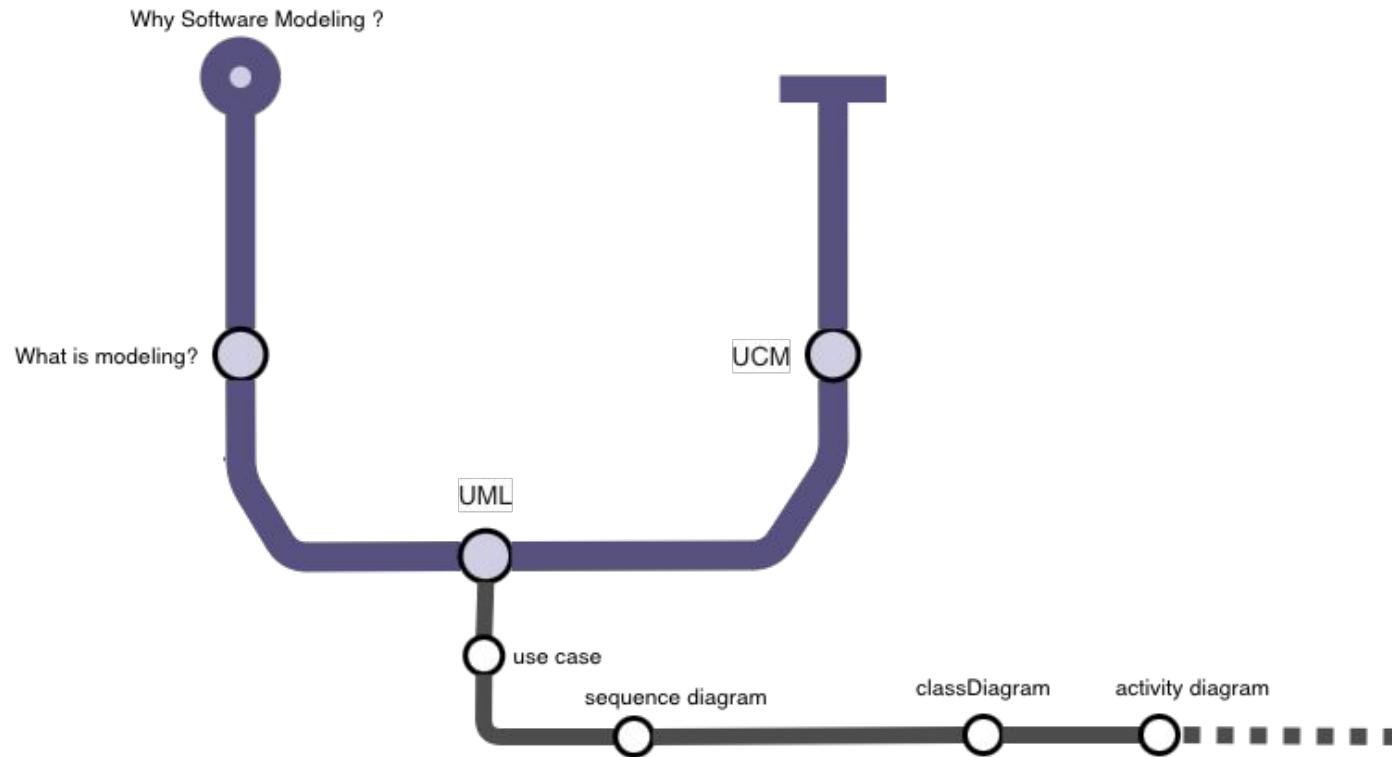
Rocky Trail



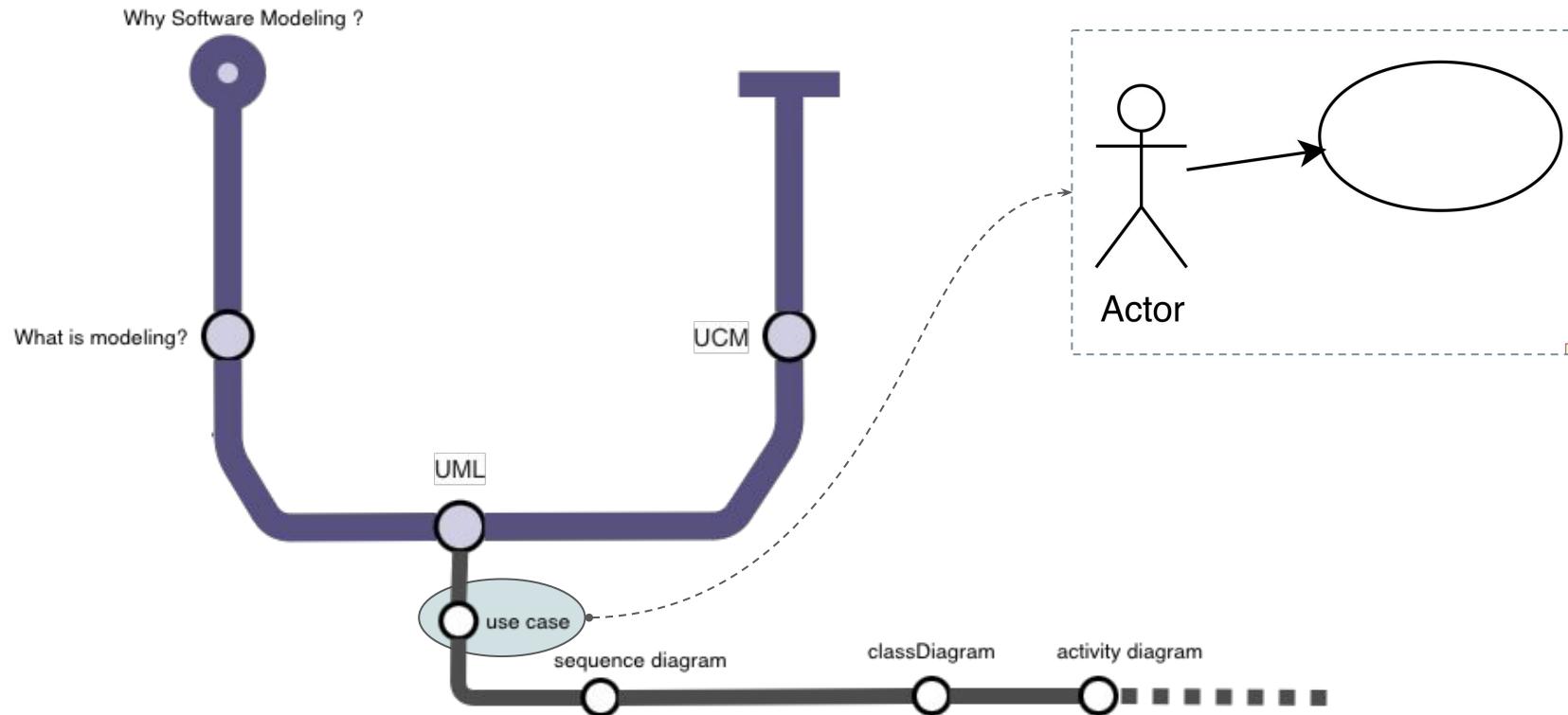
Software Modeling Hype



Software Modeling Hype



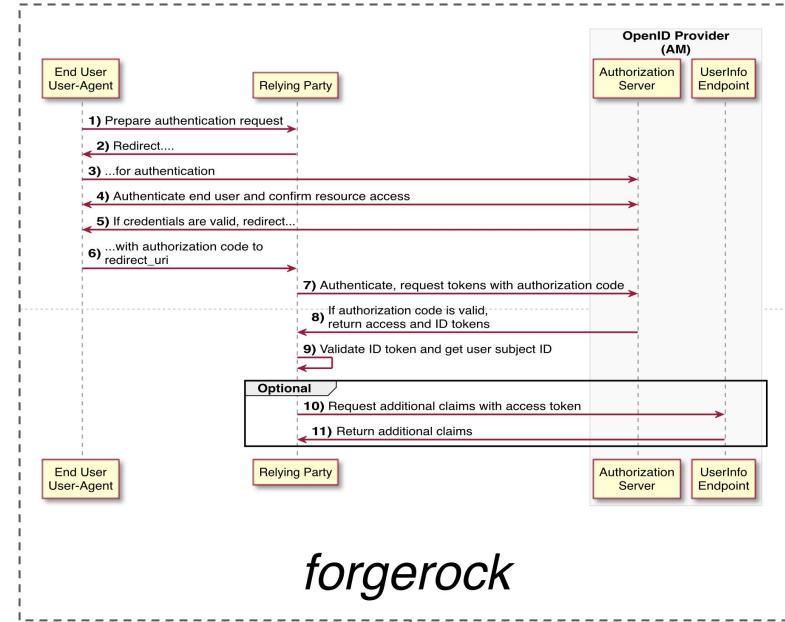
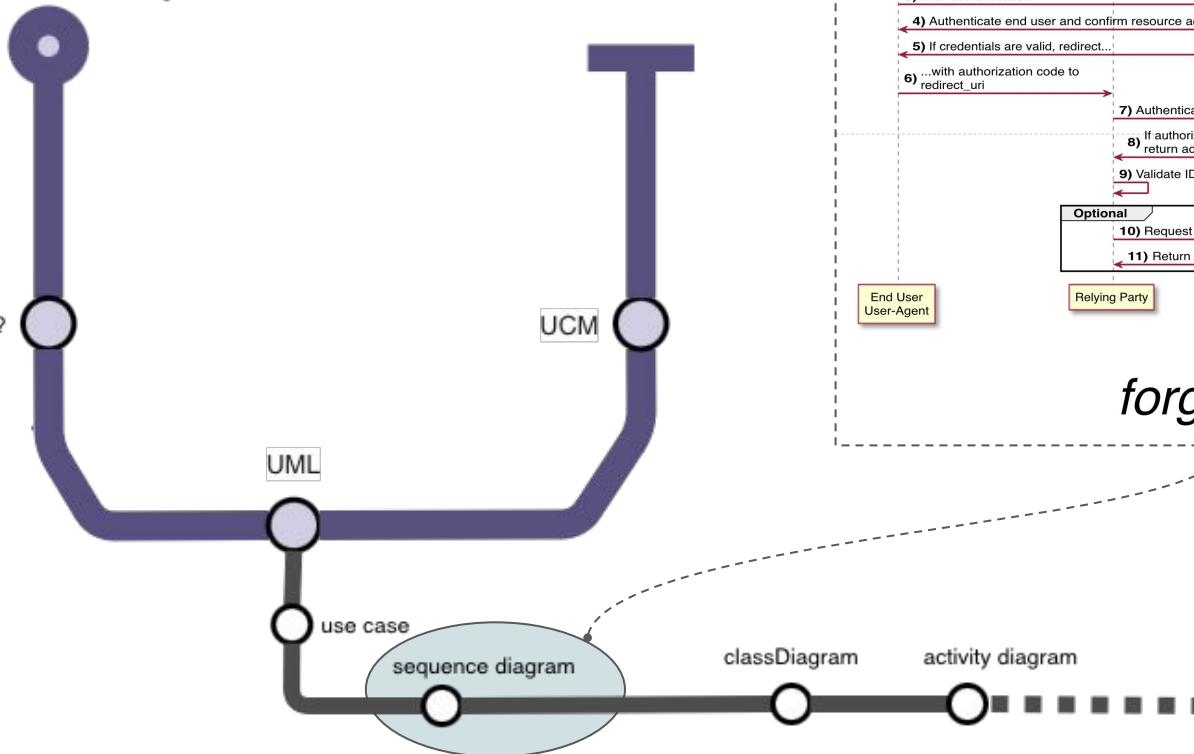
UML & Use Case Diagram



Sequence Diagrams

Why Software Modeling ?

What is modeling?



Class Diagram

Why Software Modeling ?

What is modeling?

UML

UCM

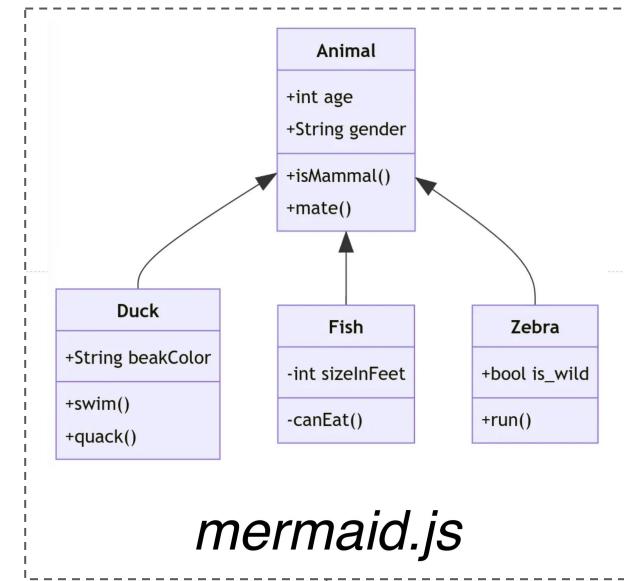
use case

sequence diagram

classDiagram

activity diagram

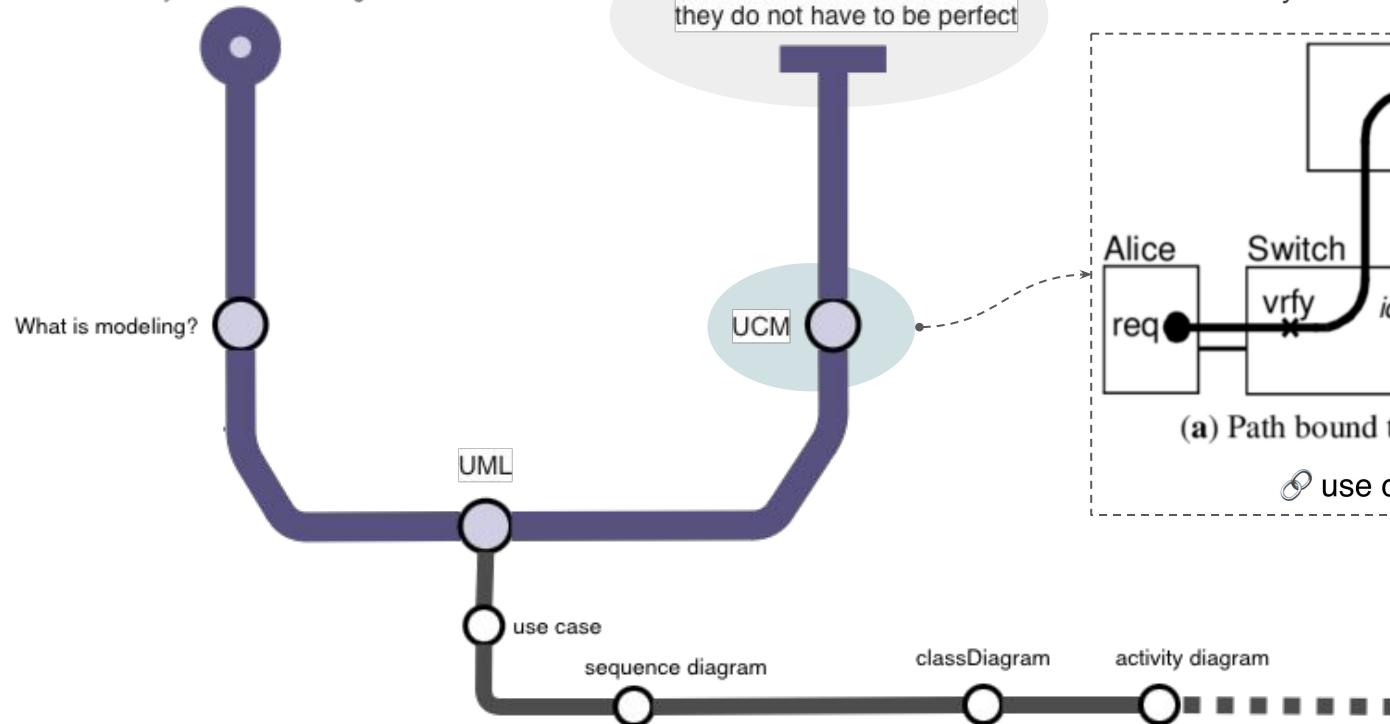
mermaid.js



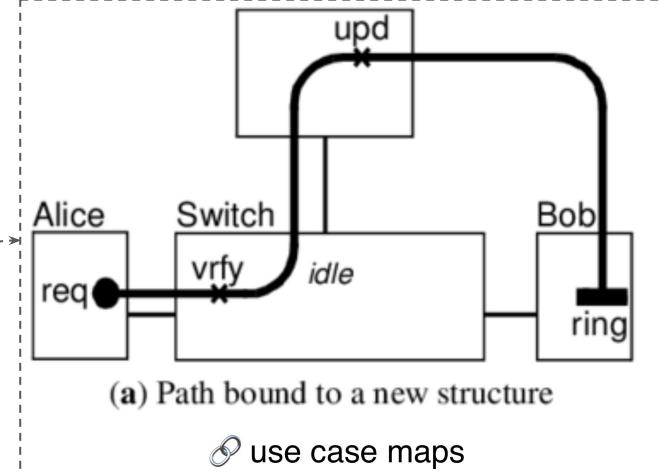
Use Case Maps

Why Software Modeling ?

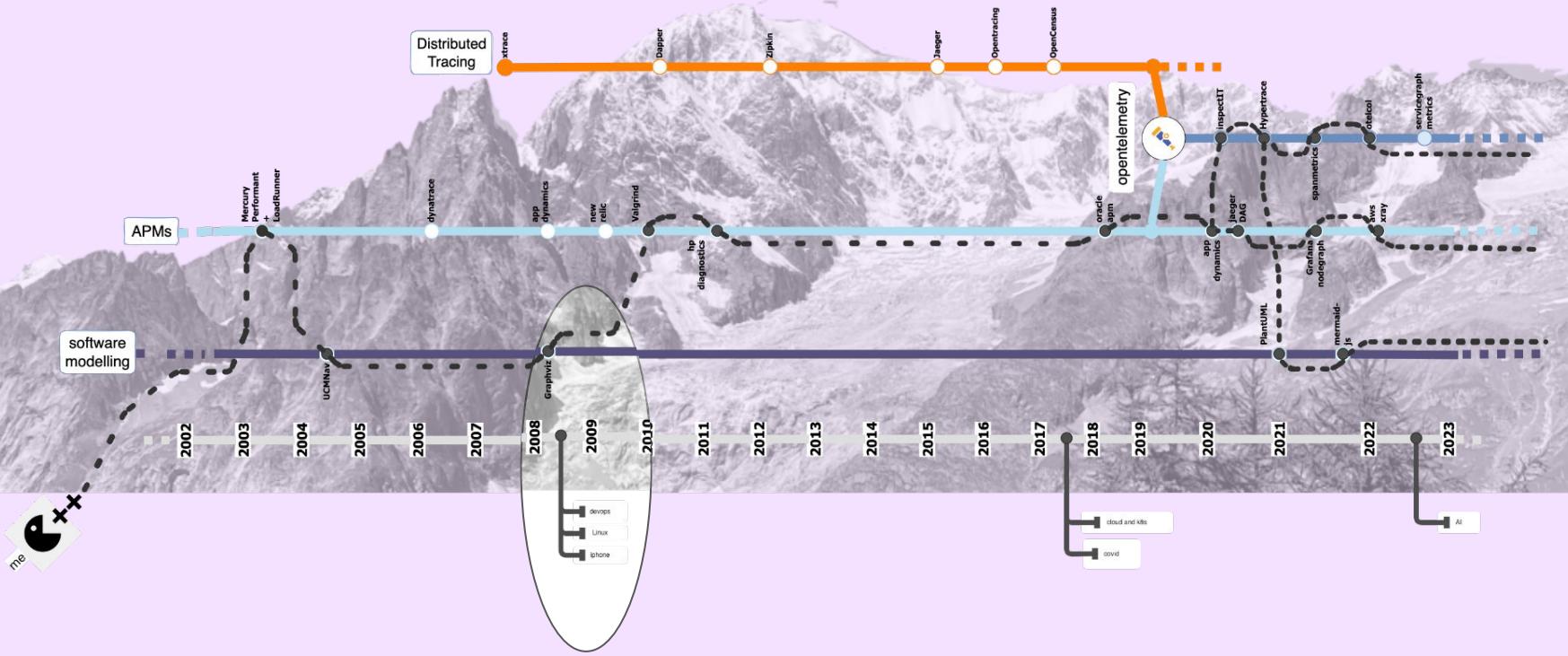
models are necessary
they do not have to be perfect



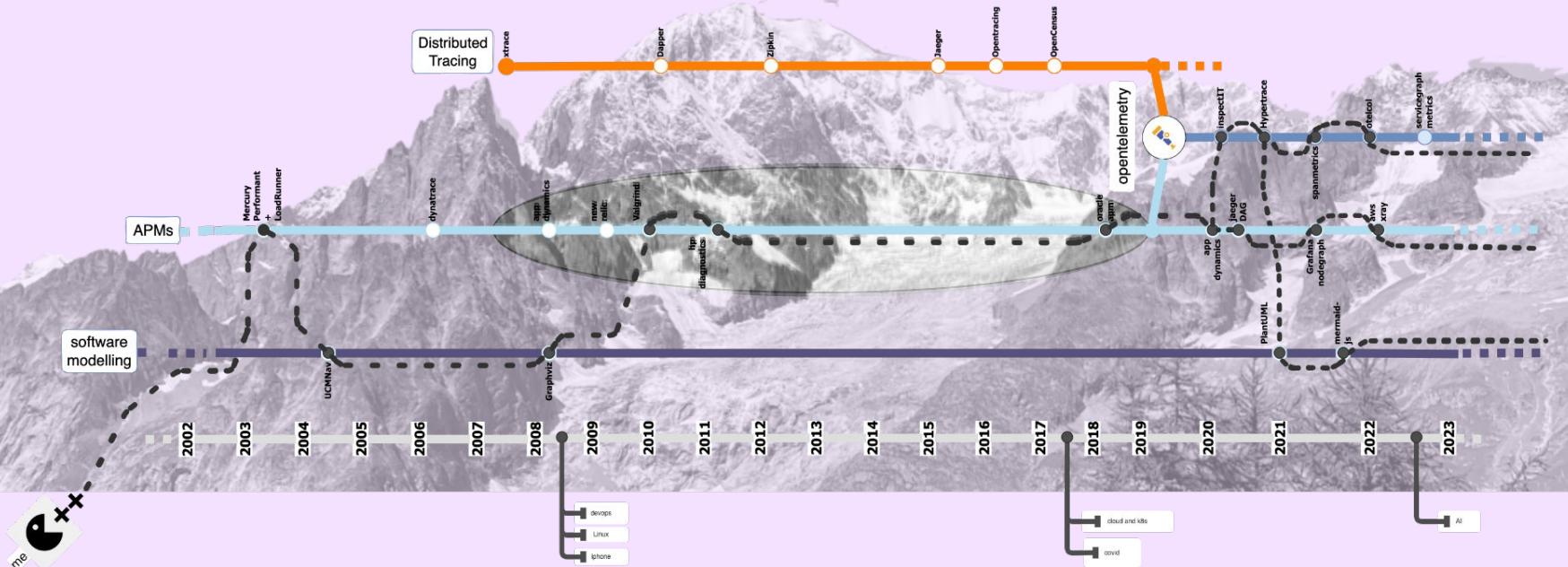
By Daniel Amyot , University of Ottawa



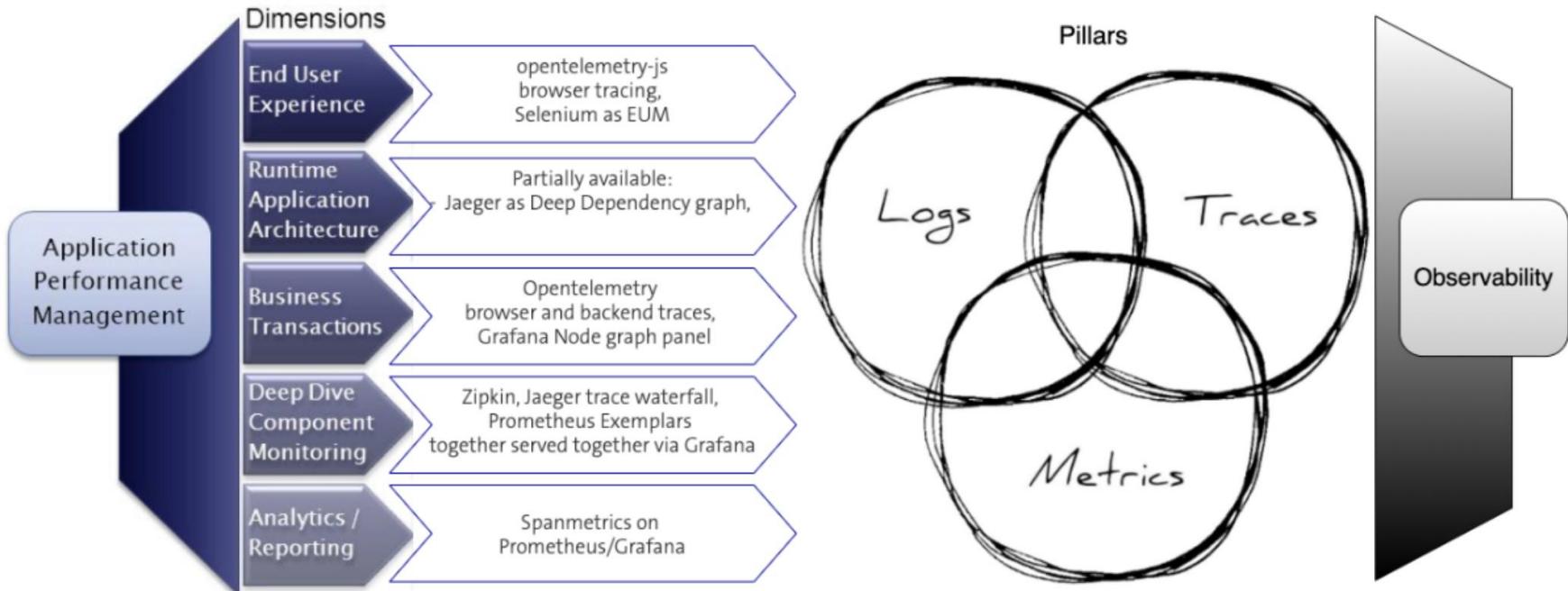
Annotation 1 - linux, devops and iphone



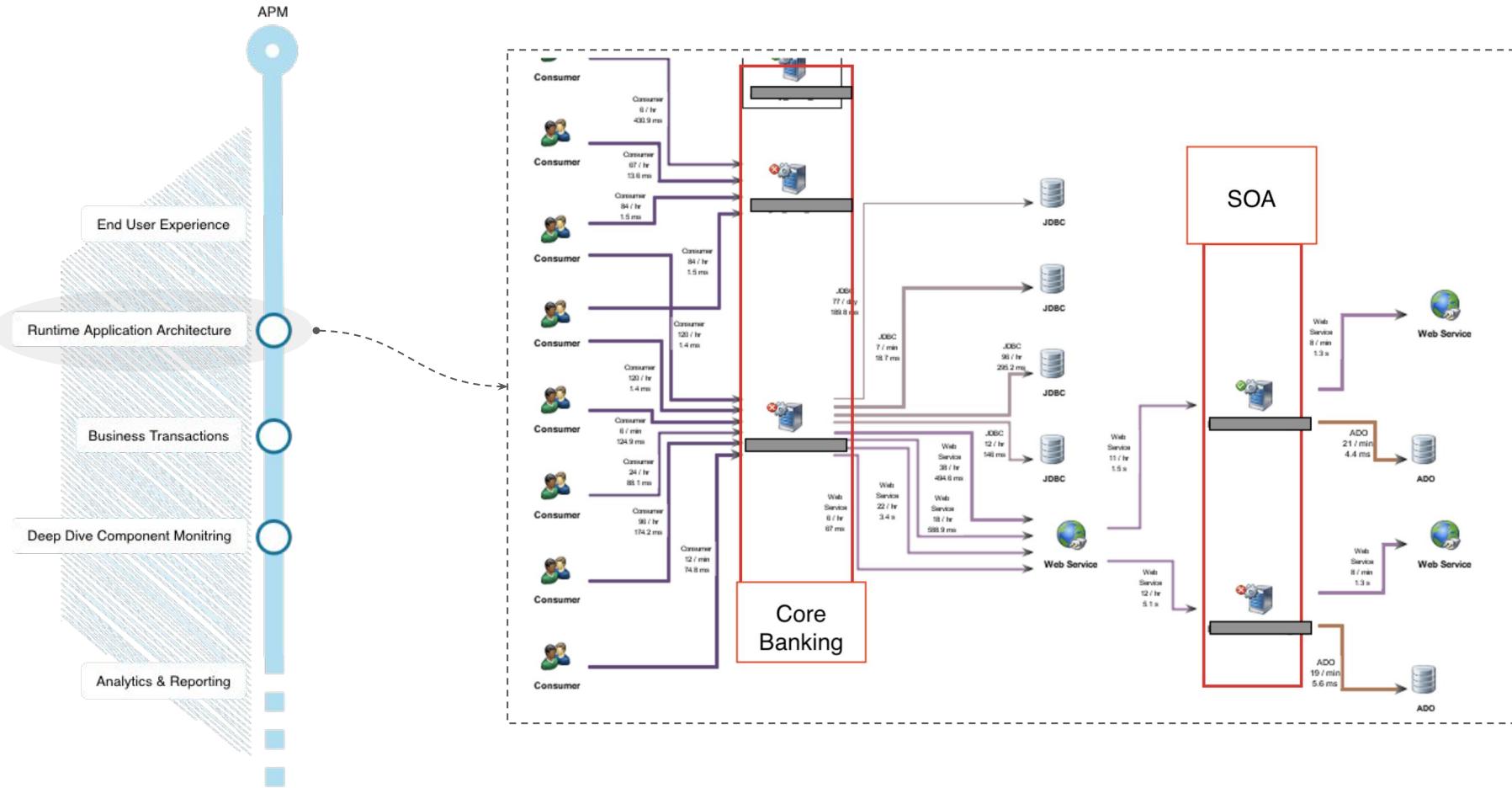
APM Plateau



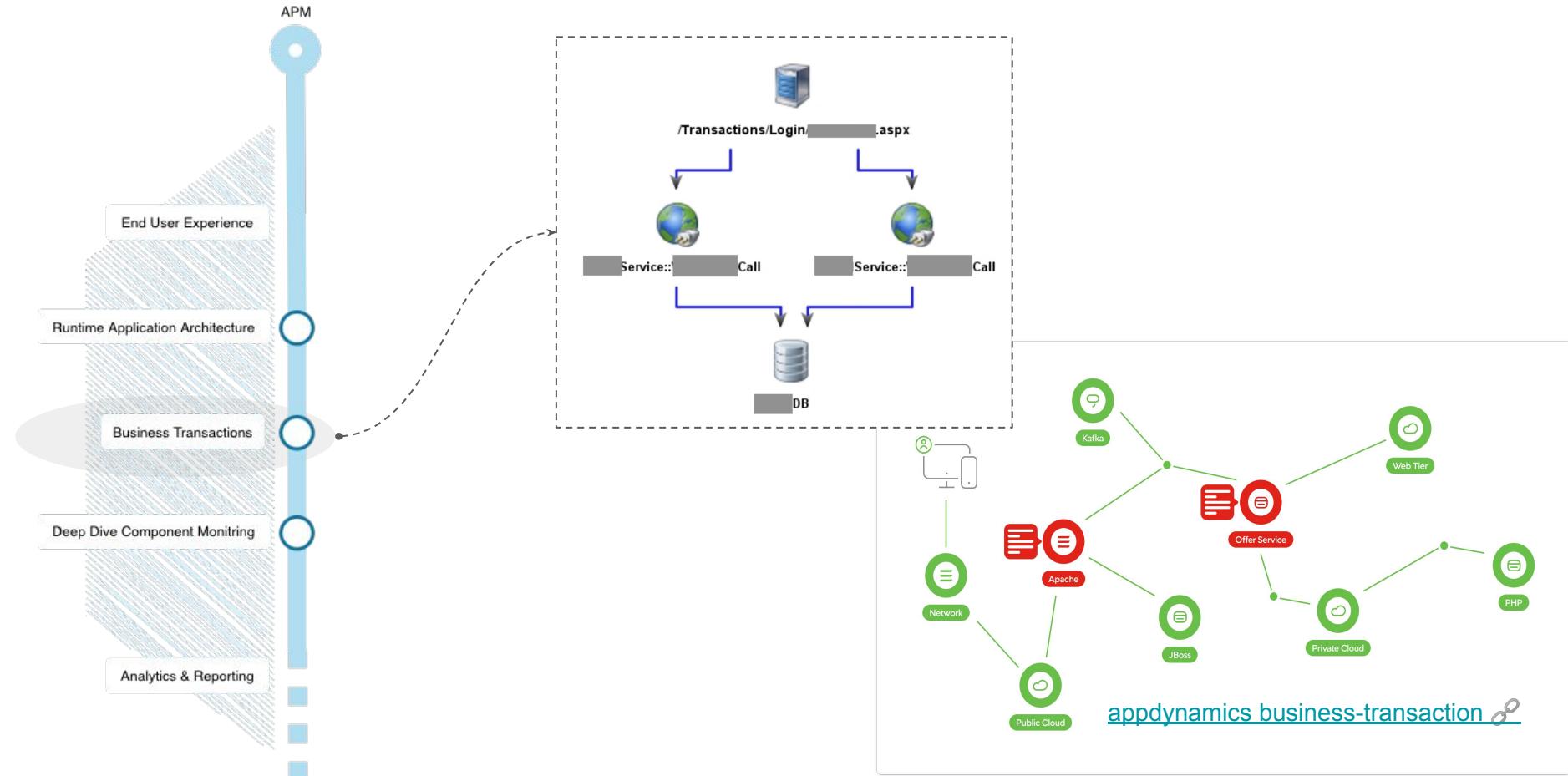
APM Best practice reincarnation



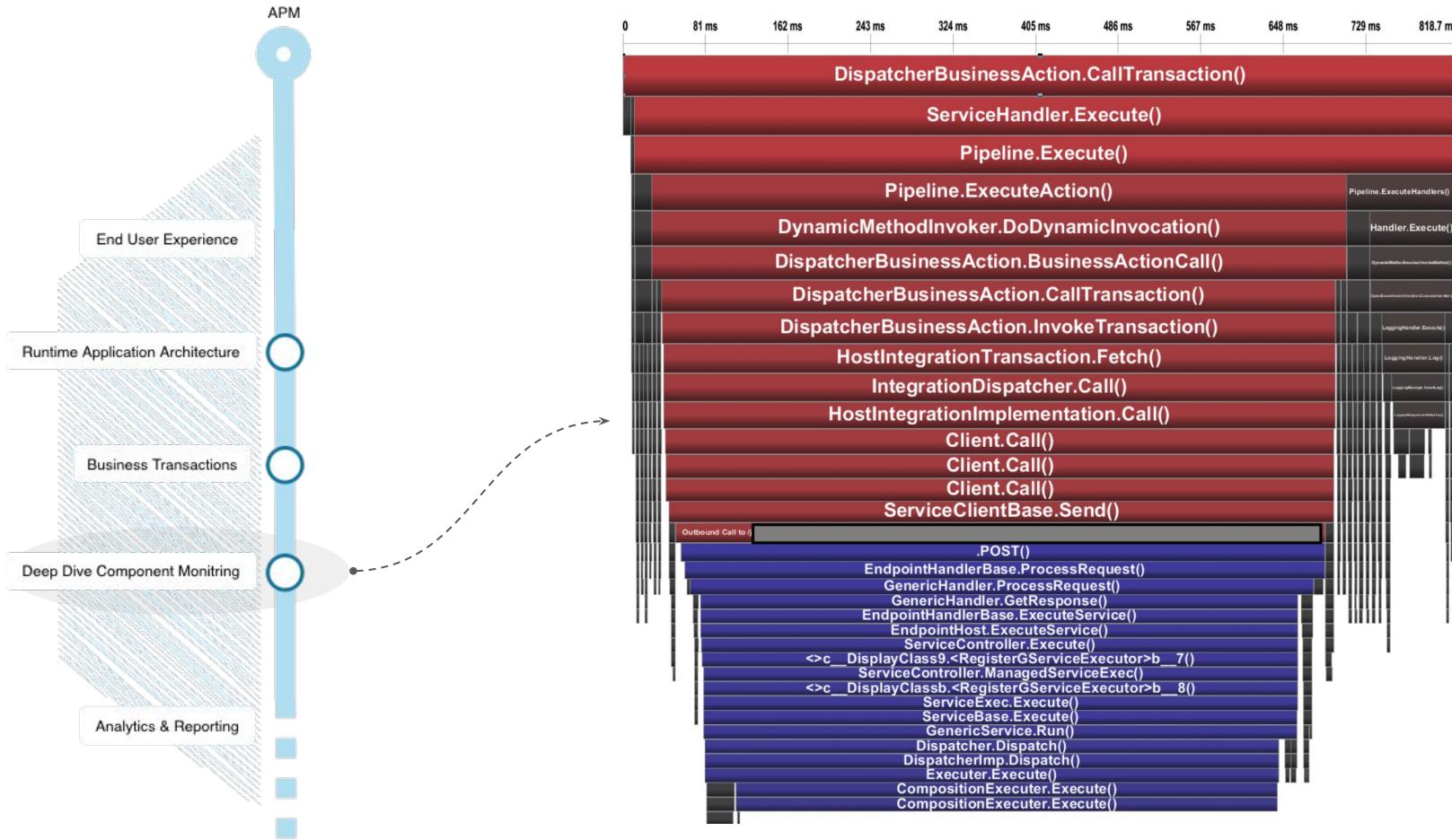
Runtime Application Architecture



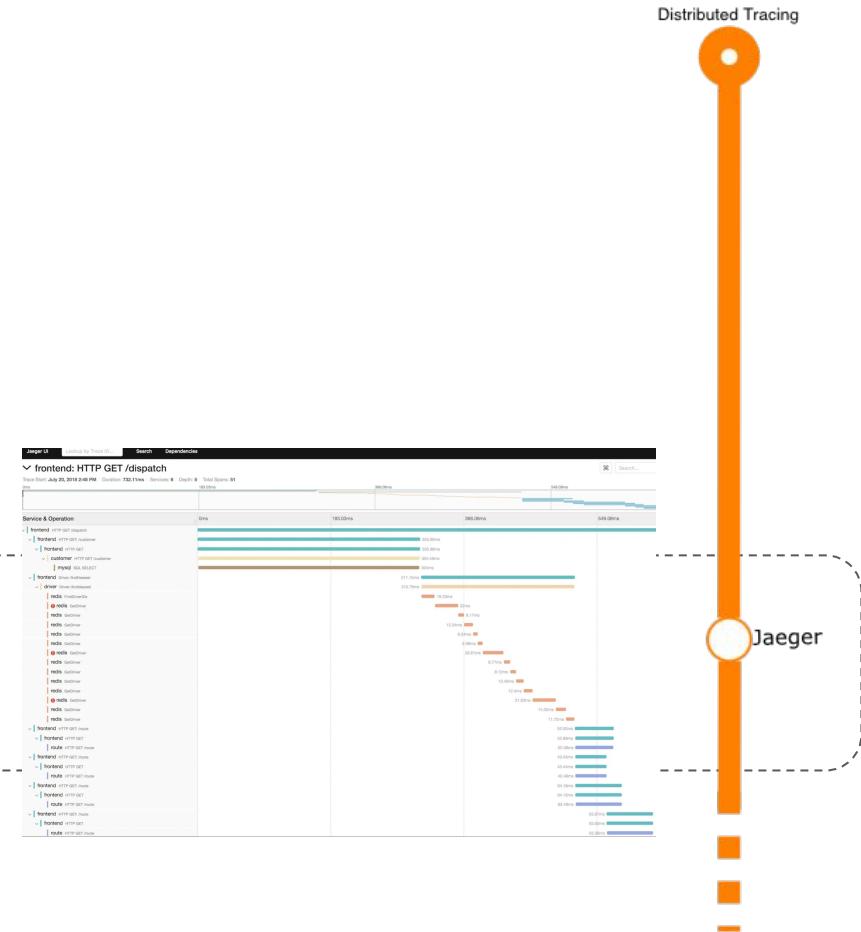
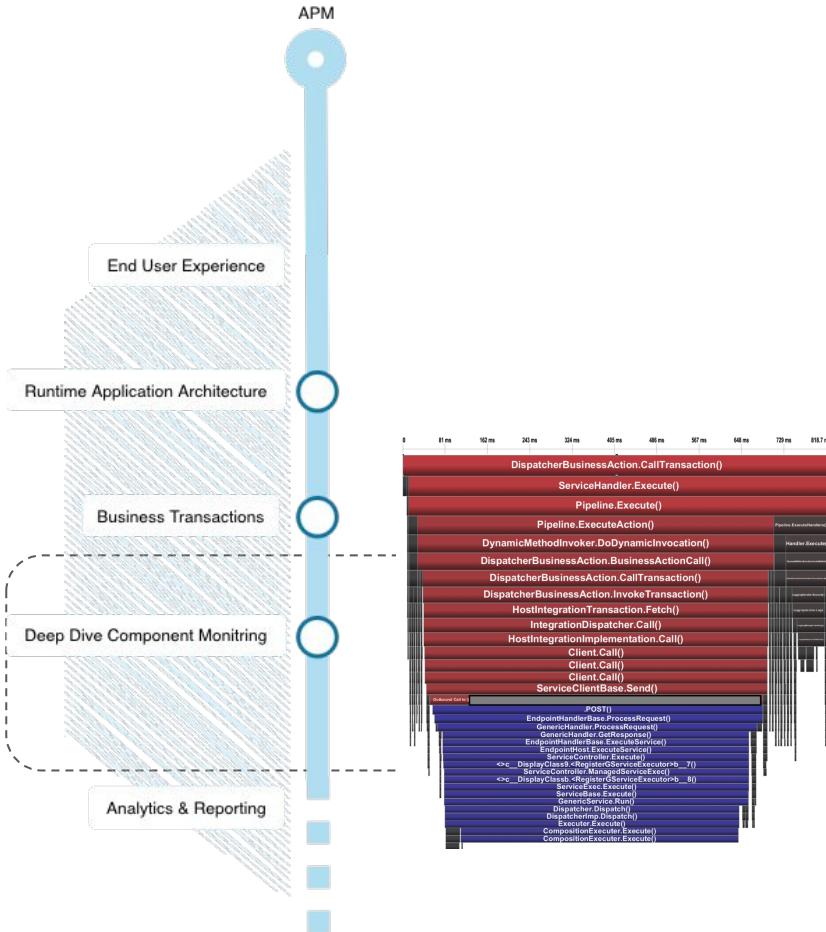
Business Transactions



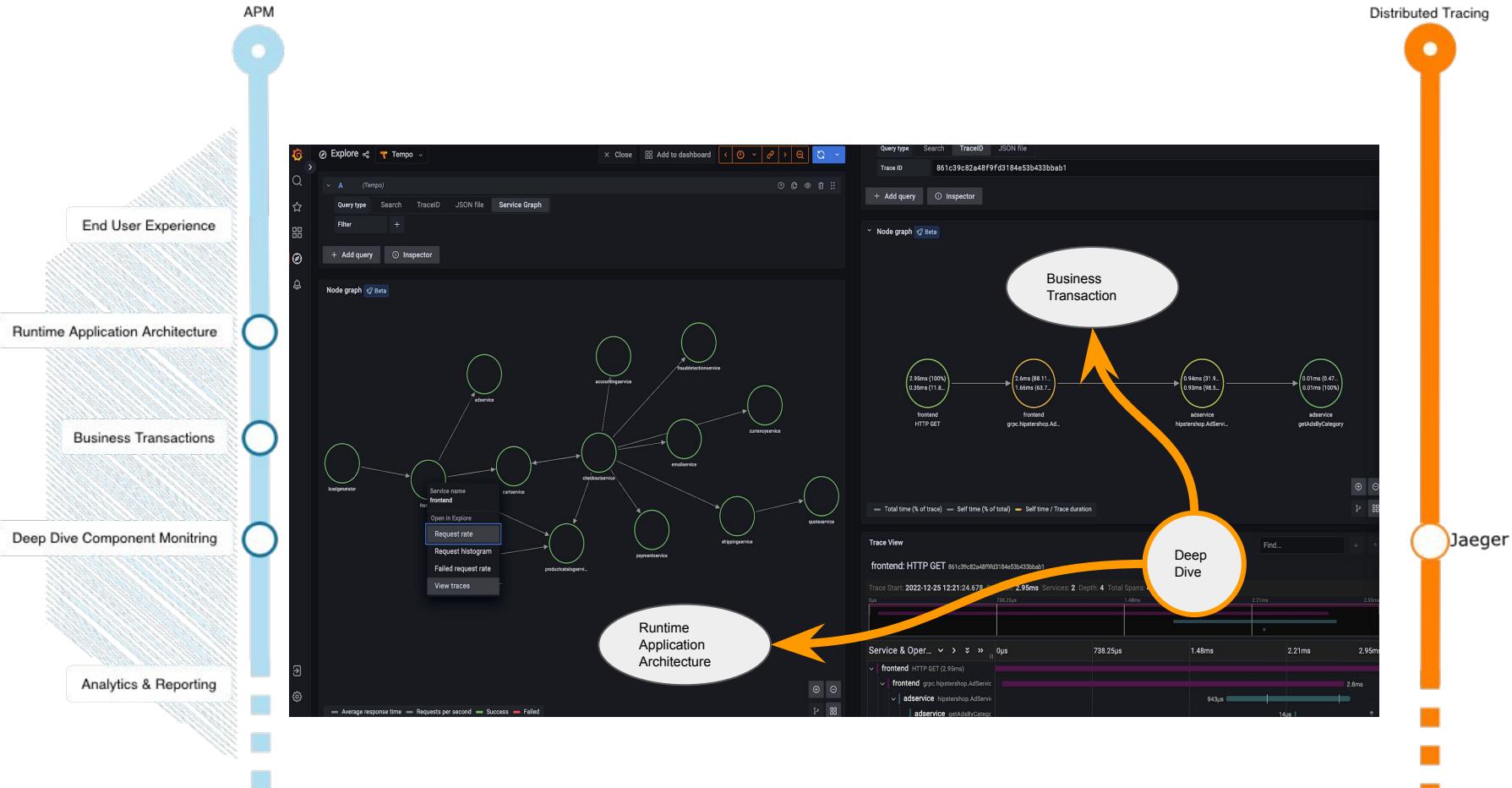
Deep Dive



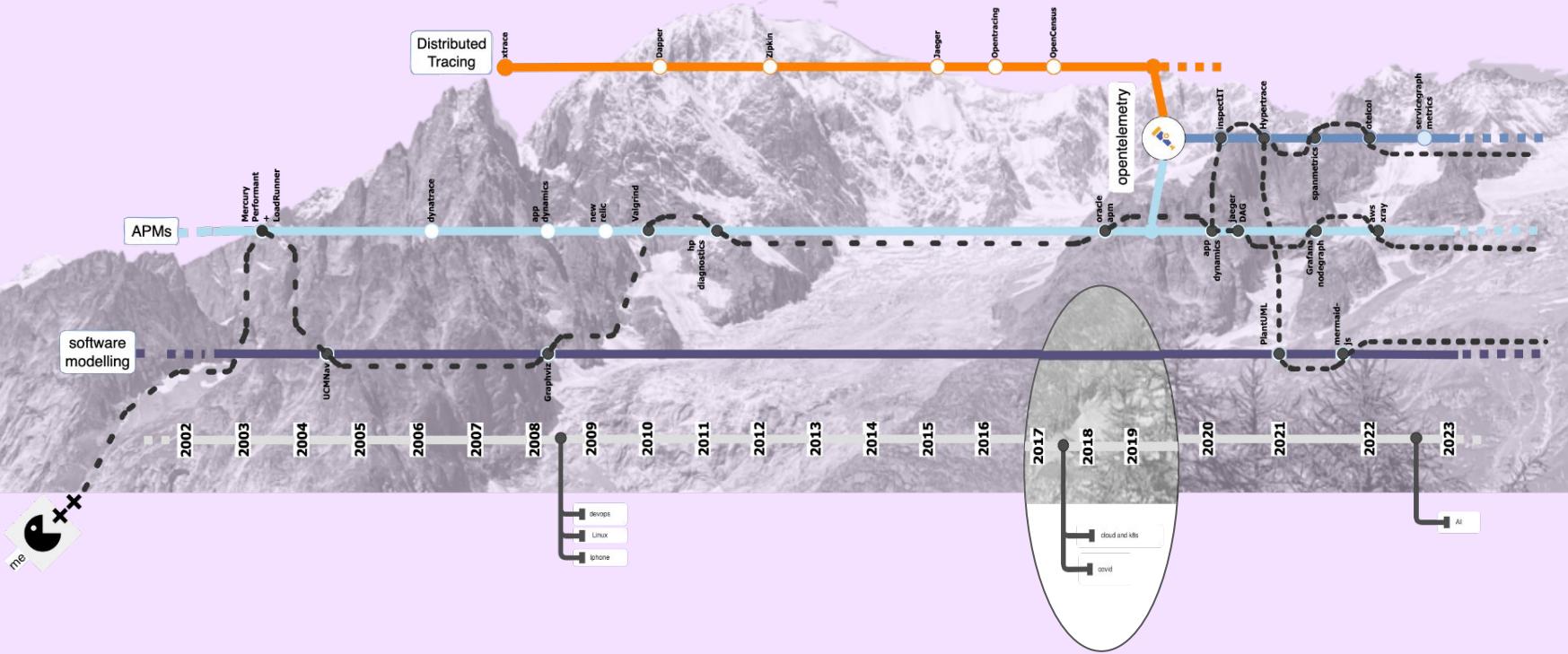
Trace as Data



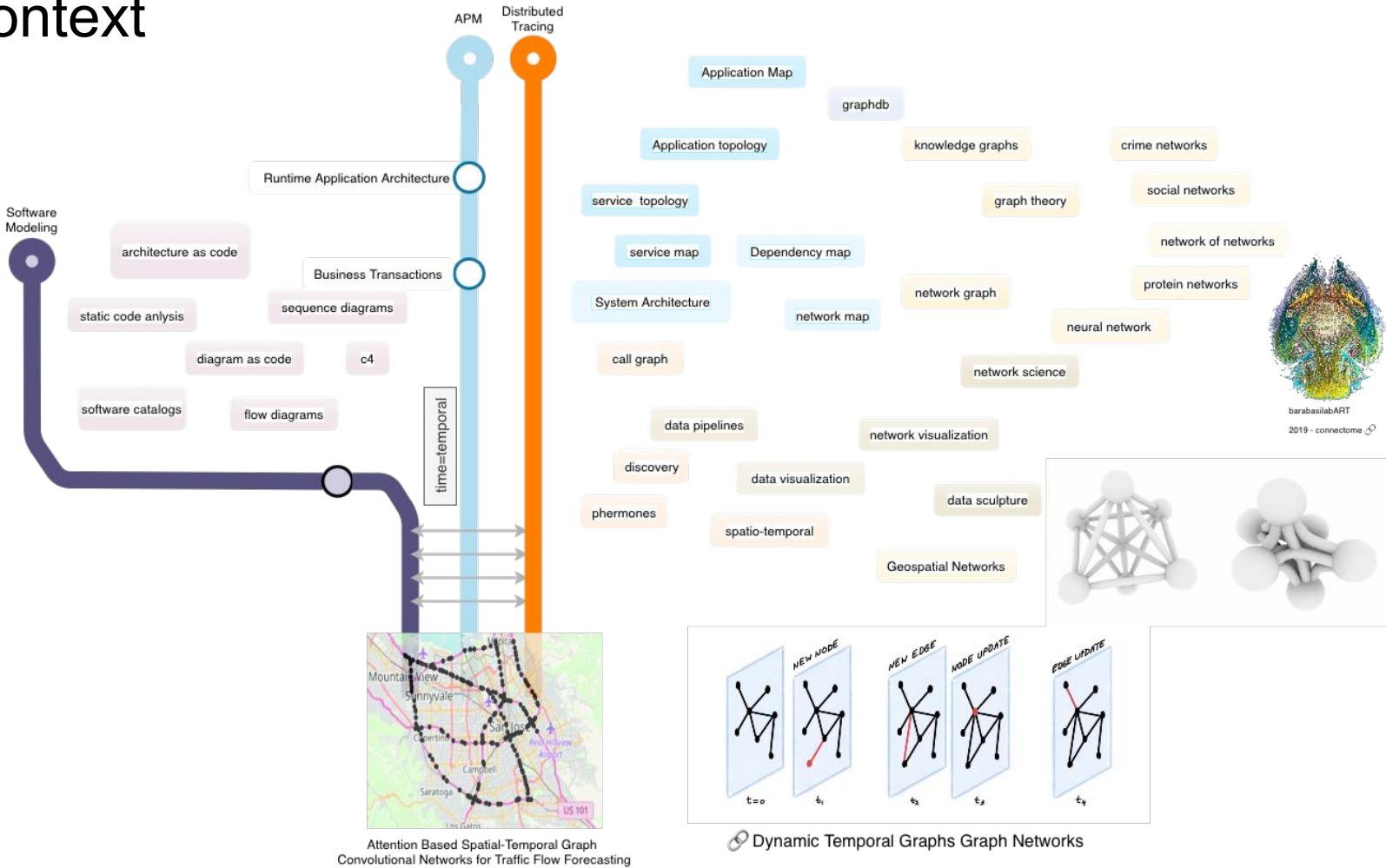
Trace as Data, spanid



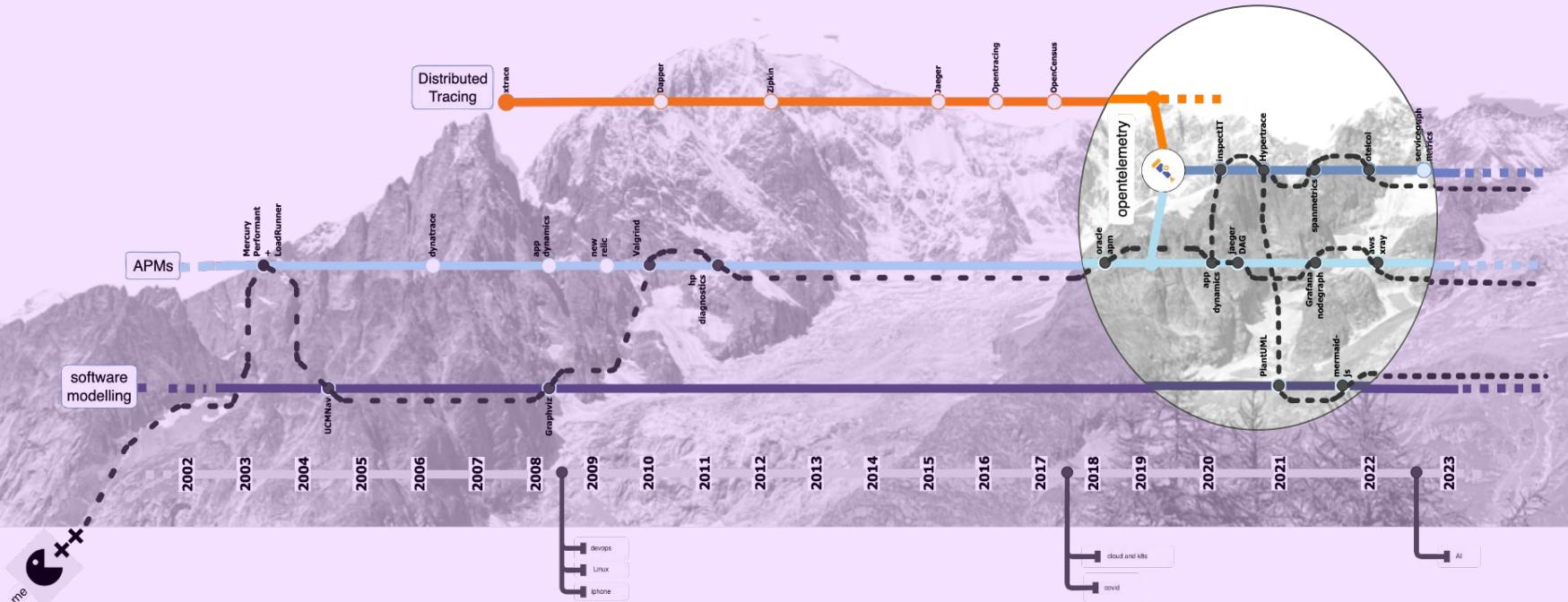
Annotation 2 - cloud/k8s & covid



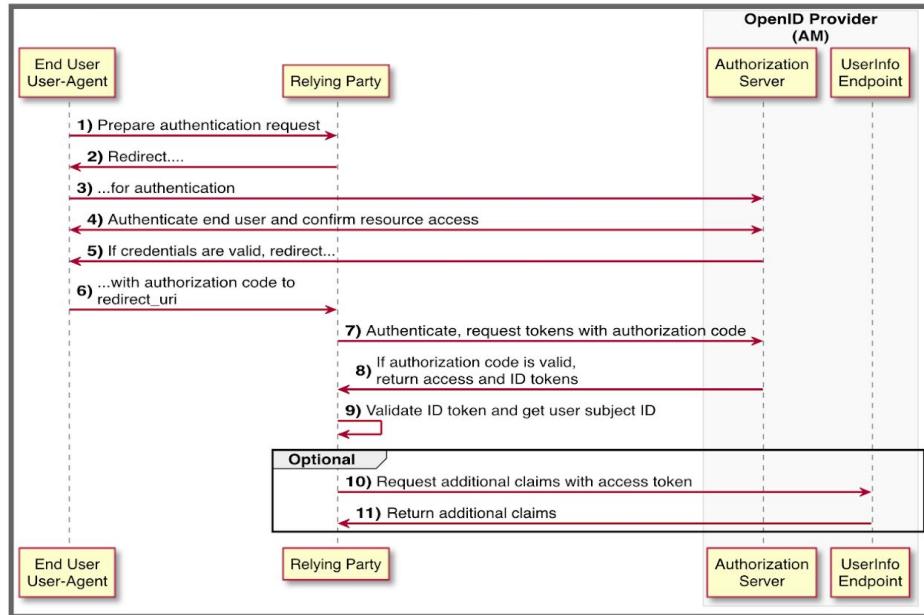
Context



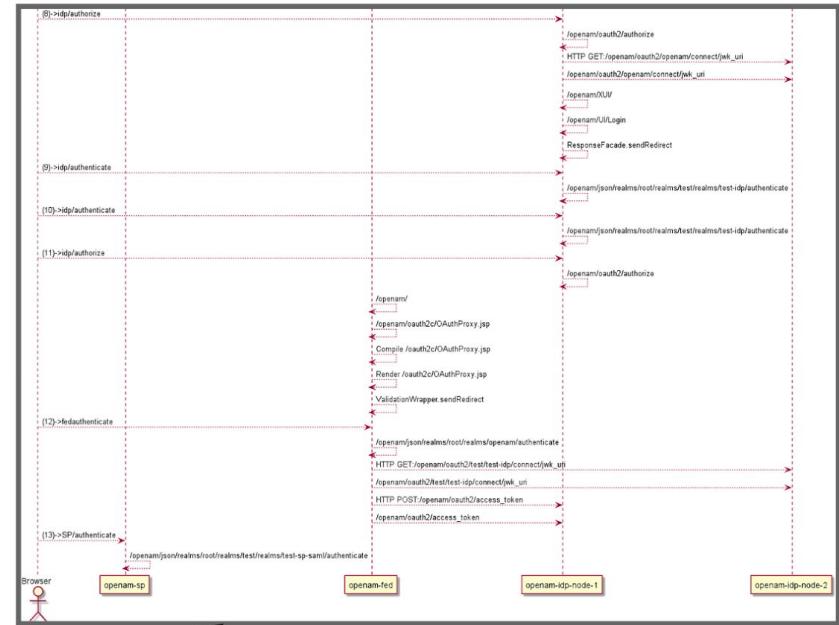
OpenTelemetry as Revolution



Sequence Diagram Extract using Opentelemetry



forgerock

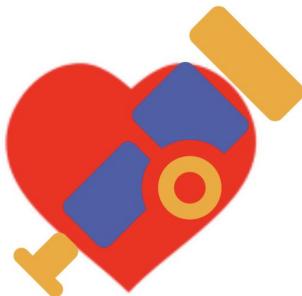


devrimdemiroz.gitlab.io

Opentelemetry FTL



peace.



love.

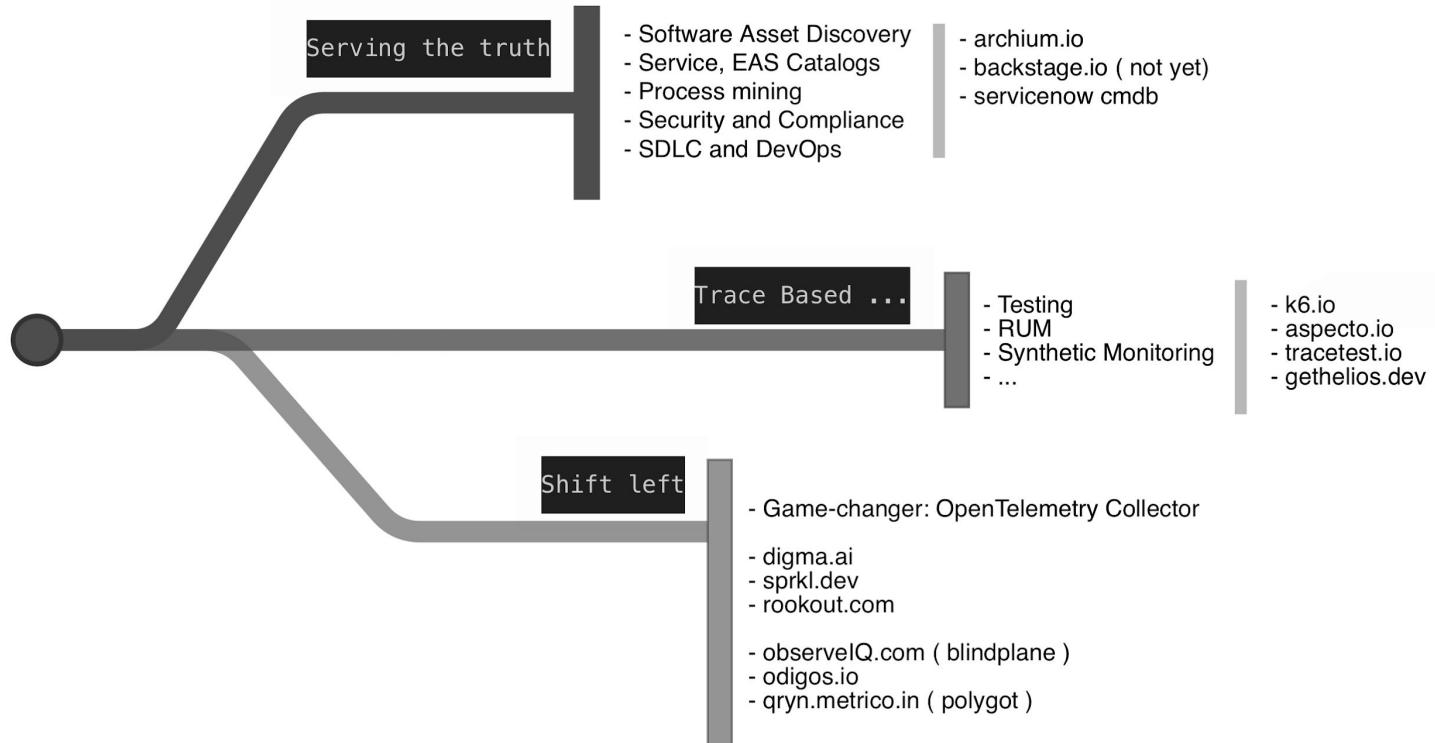


community.

October 2022:

- is the **2nd** most active project in CNCF after kubernetes
- is ~**2,5** years old
- **4** Signals as Traces, Metrics, Logs, Baggage
- **4,607** developers, **58** repositories
- **699+** companies like Amazon, Dynatrace, Google, Honeycomb, Lightstep, Microsoft, Splunk, Uber, ...
- **11** languages like Rust , Swift, Go, Javascript,C++
...
- Collector **77** receivers , **46** exporters, **24** processors, **19** extensions, **6+** deployment patterns, **2.4K** stars.
- **407** libraries, plugins, integrations, and other useful tools for extending available in Registry
- **23** Vendor natively support OpenTelemetry in their commercial products like AWS, Grafana, Datadog,

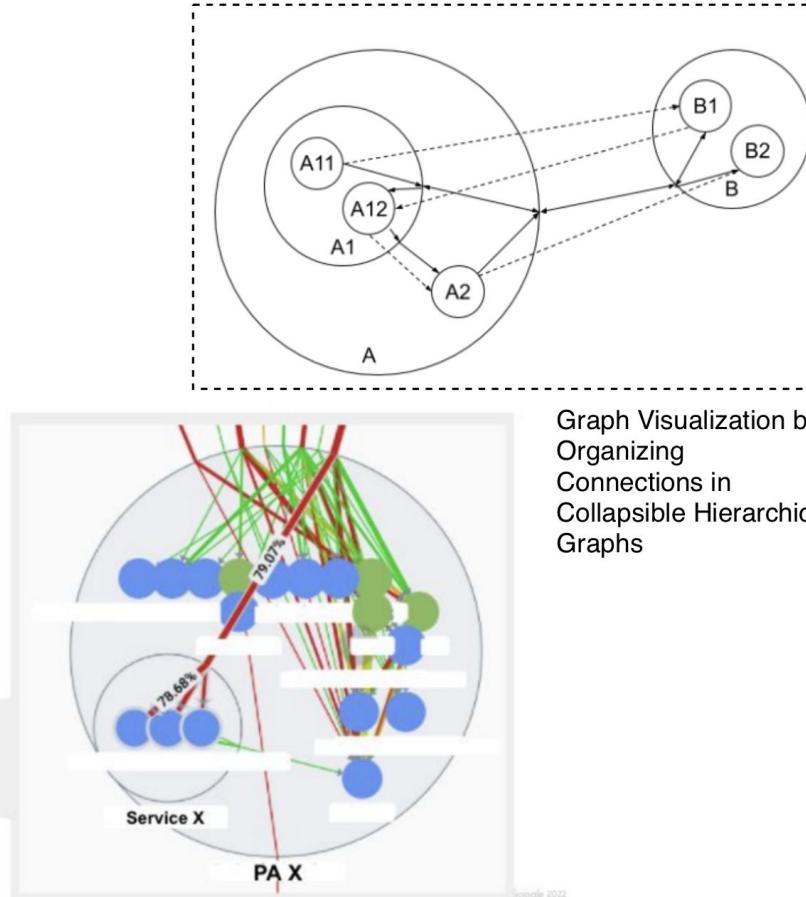
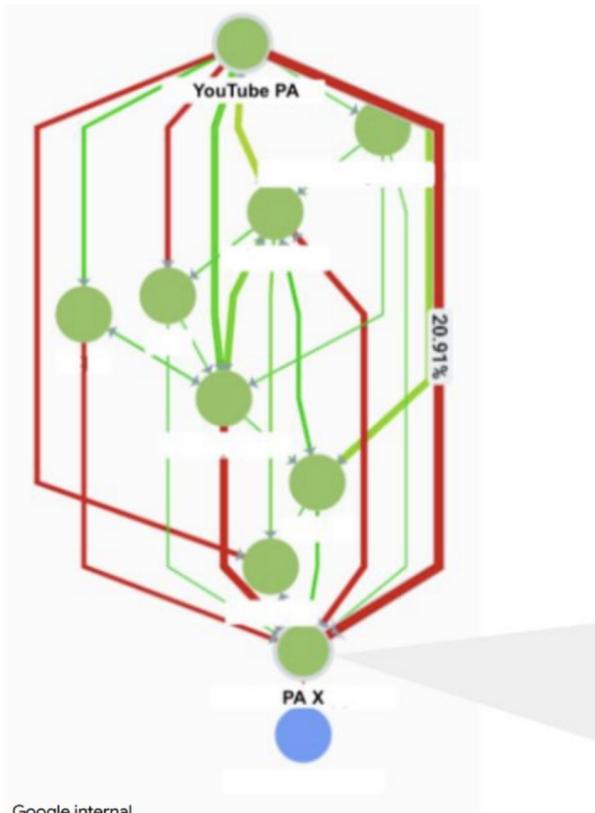
Innovation & Emerging Techniques



Beyond Distributed Tracing

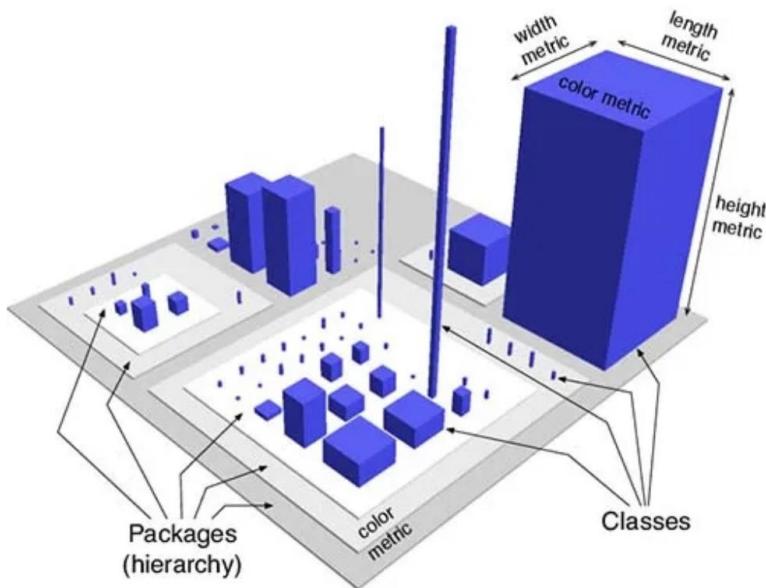
By Kyusoon Lee, Google

The Critical User Interaction (CUI)

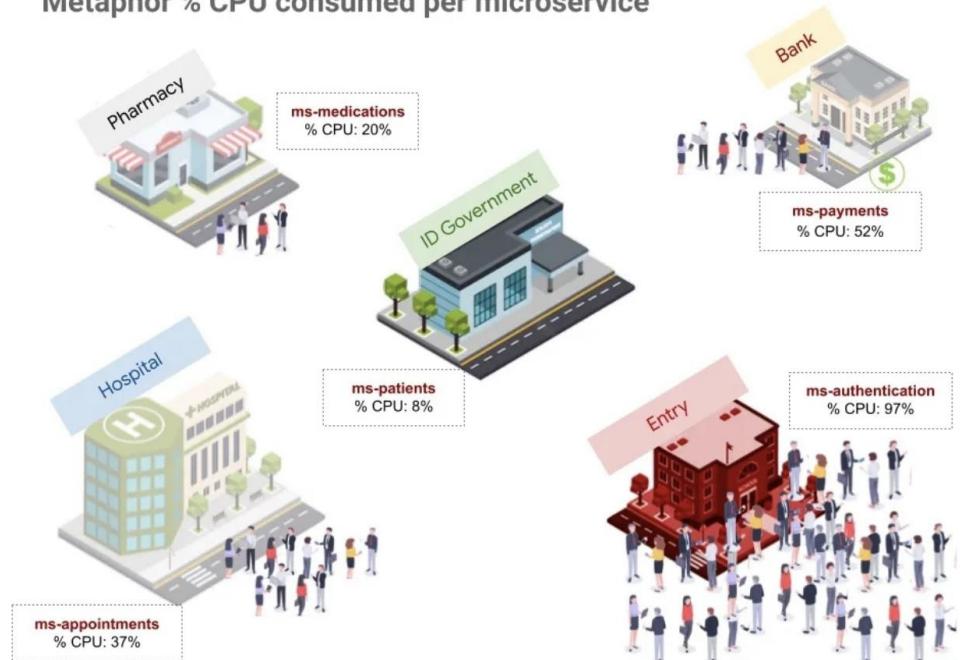


The Art of Metaphors

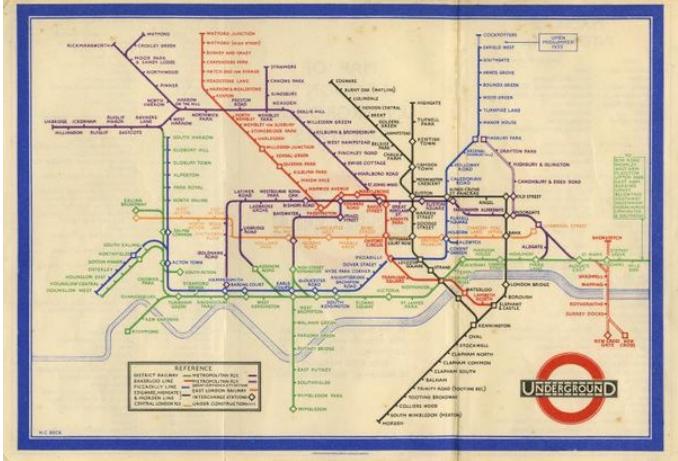
Yury Niño Roa, Google



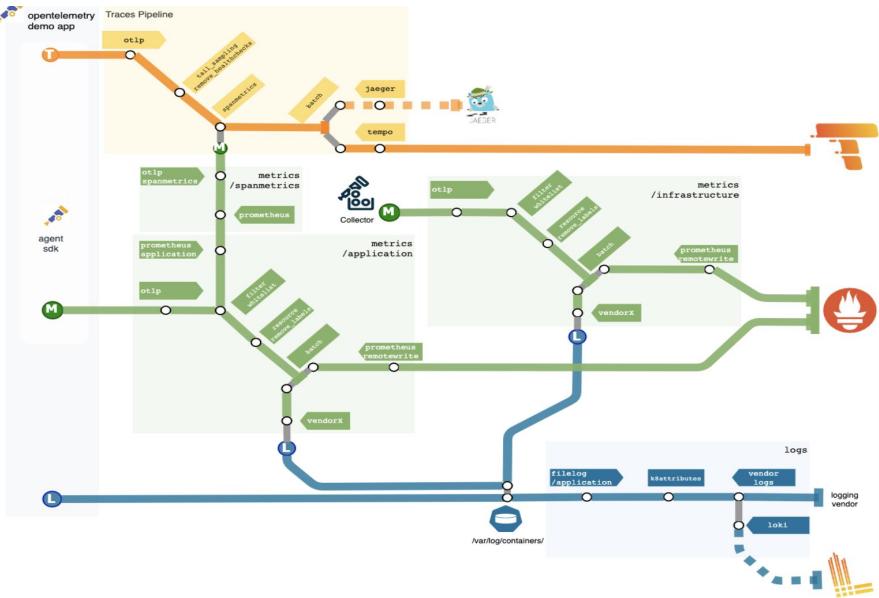
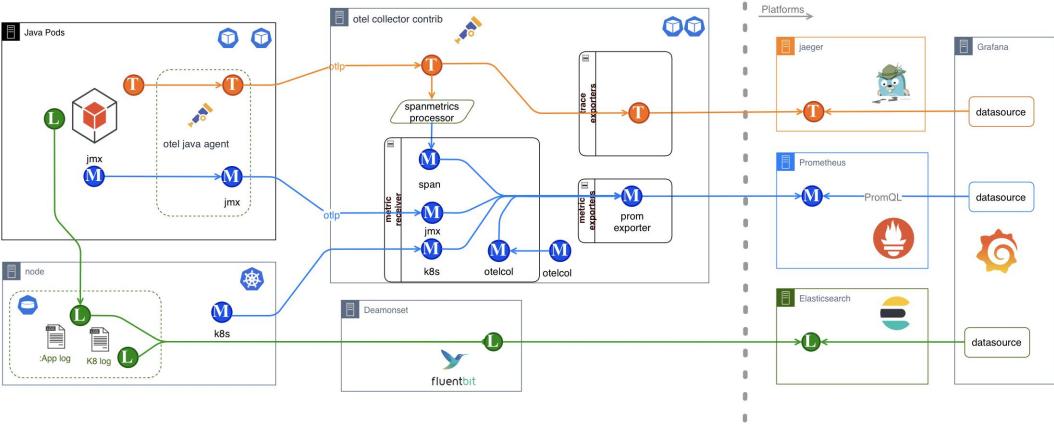
Metaphor % CPU consumed per microservice



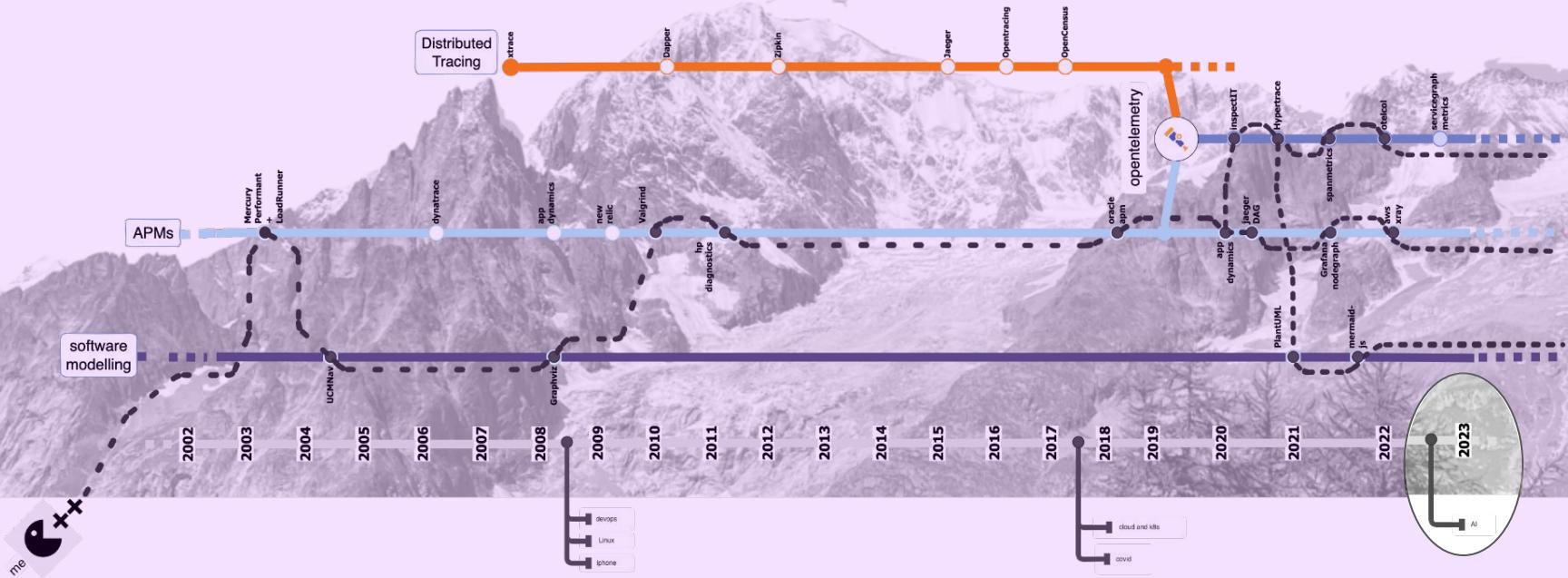
Transit Map Metaphor



Pocket Underground map, by Henry C Beck, January 1933

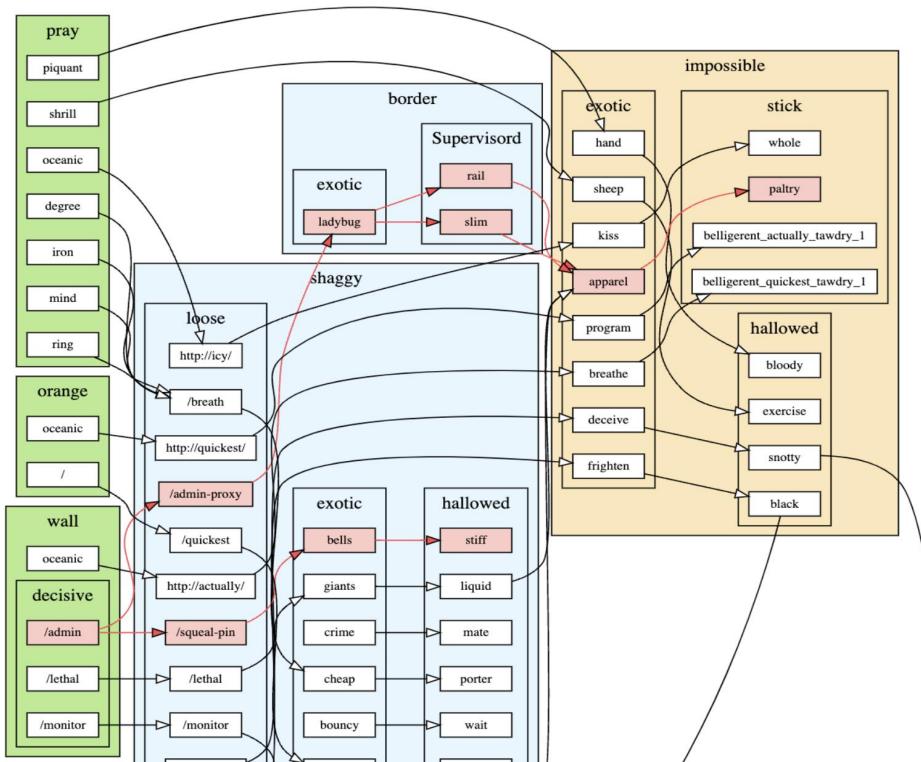


Annotation 3 - ai

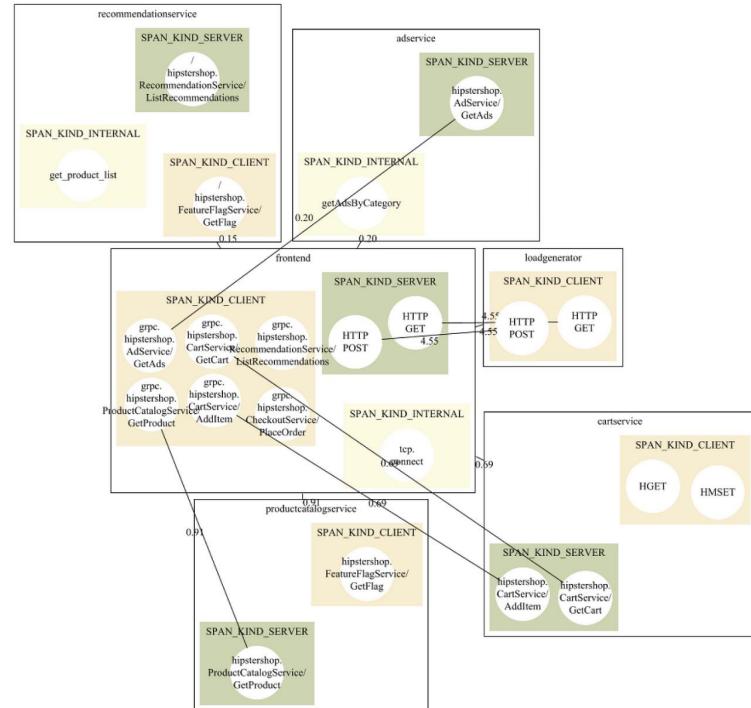
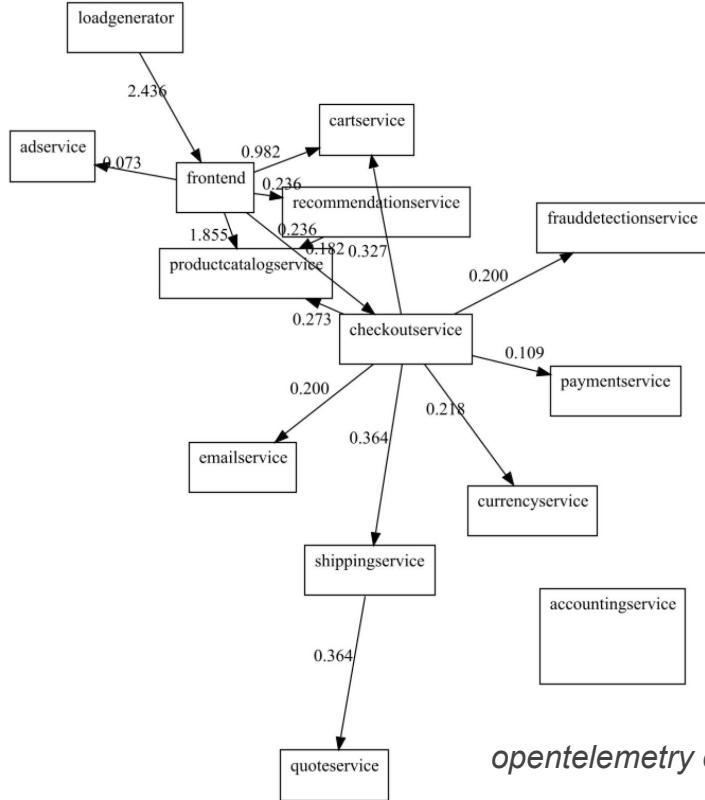


Traces over Architectural Topology

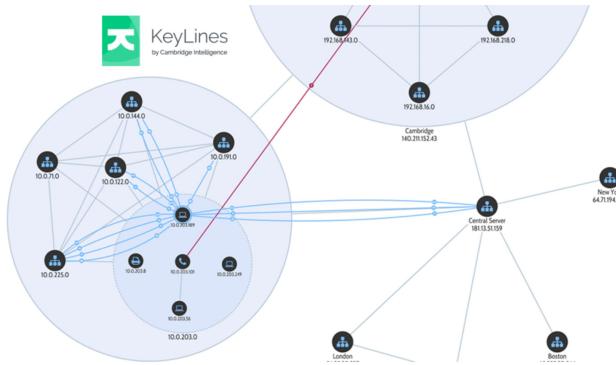
By Carlos Aguni, Unibanco



diagramming as code, graphviz

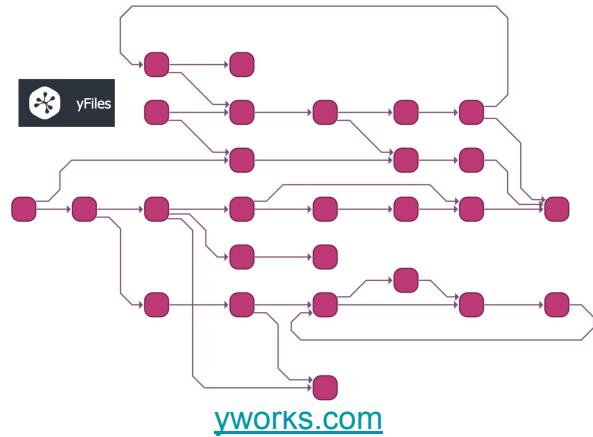


Visualization Libraries Uncovered



Cambridge-intelligence.com

Commercial



yworks.com



d3js.org

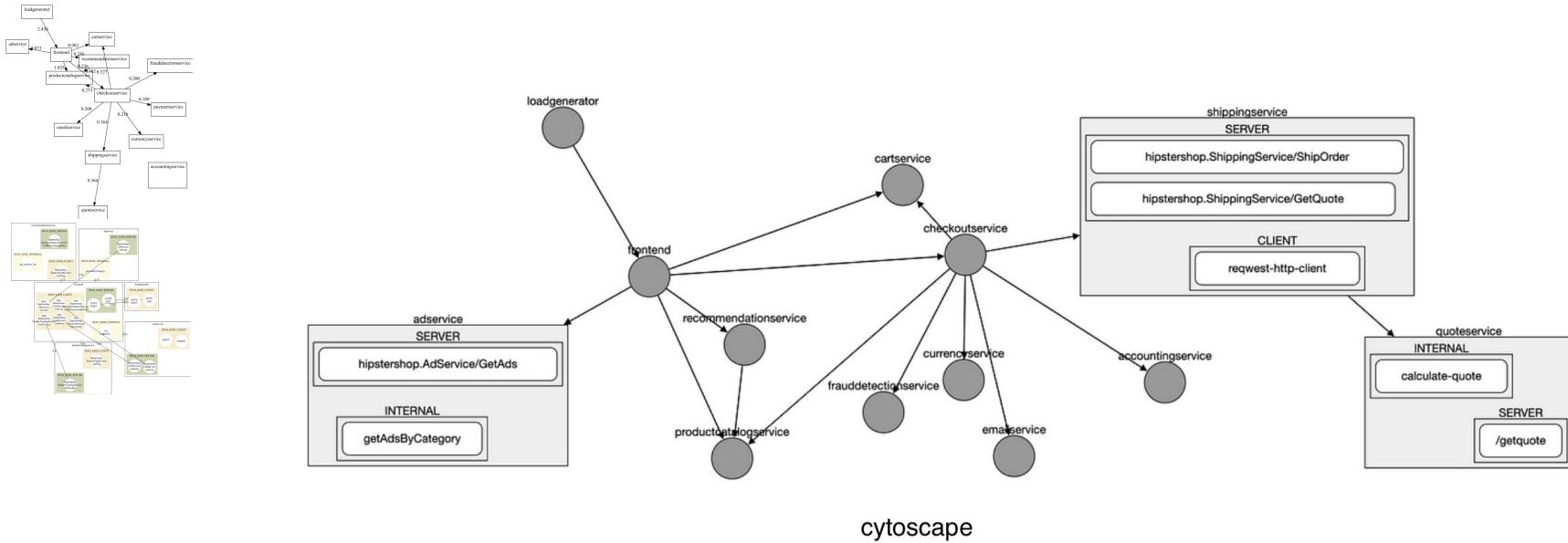
Opensource



cytoscape.js

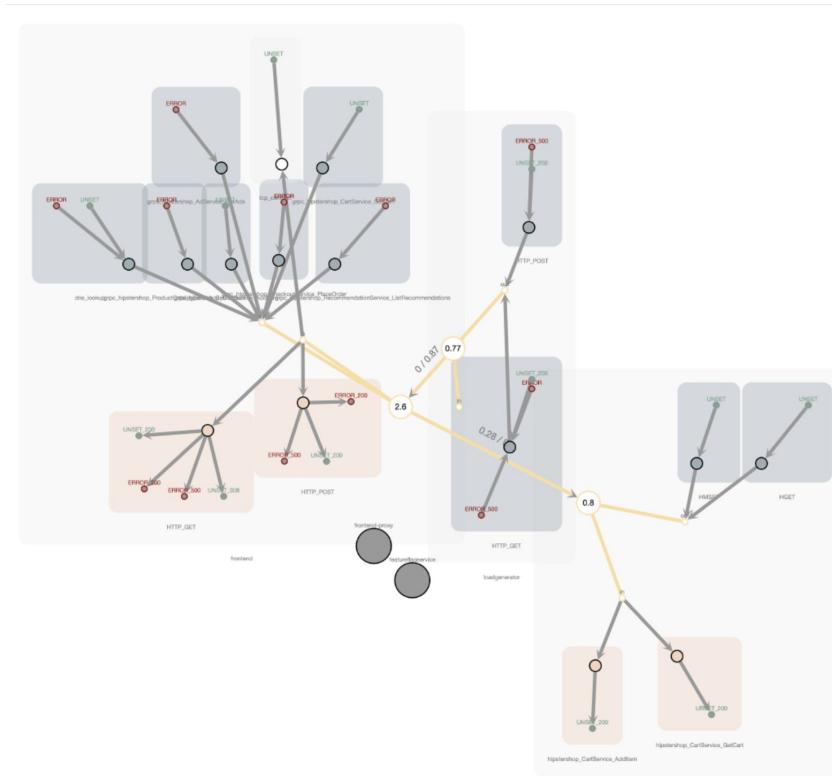
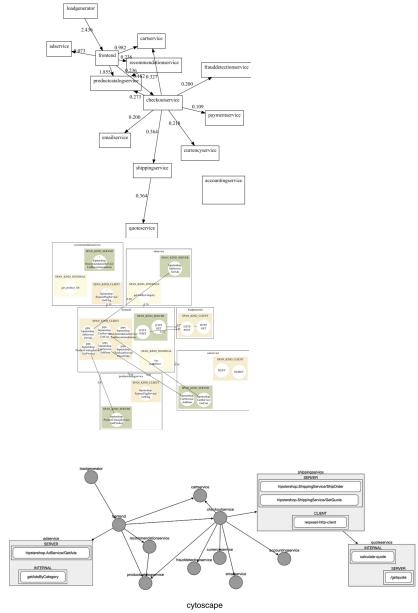
Pathways

Topology Capabilities and Limitations of Spanmetrics and Servicegraph Processors



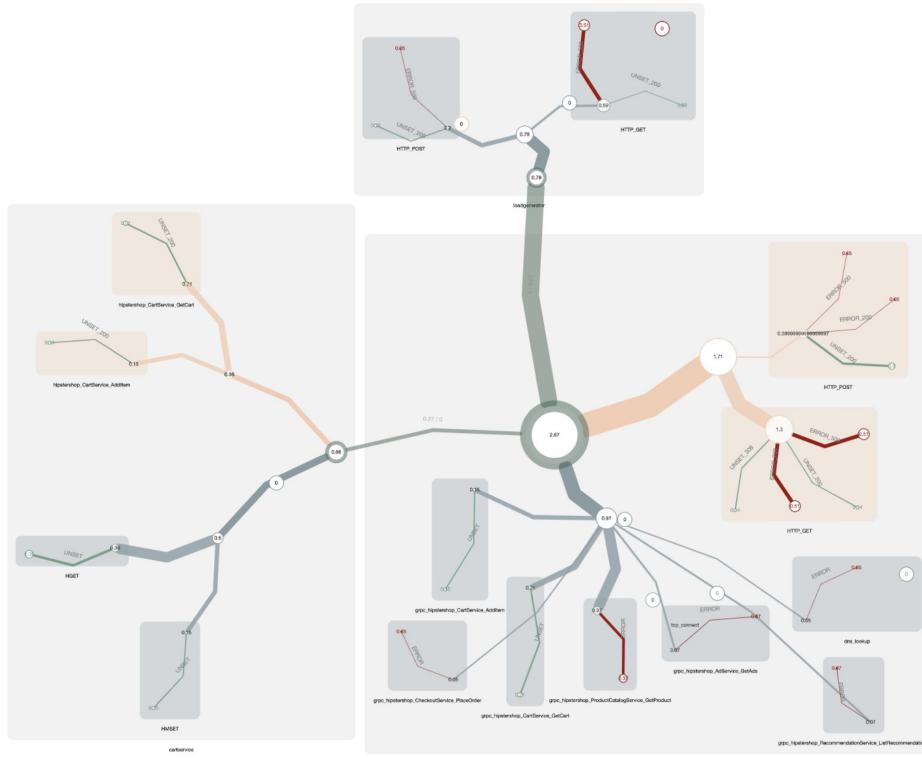
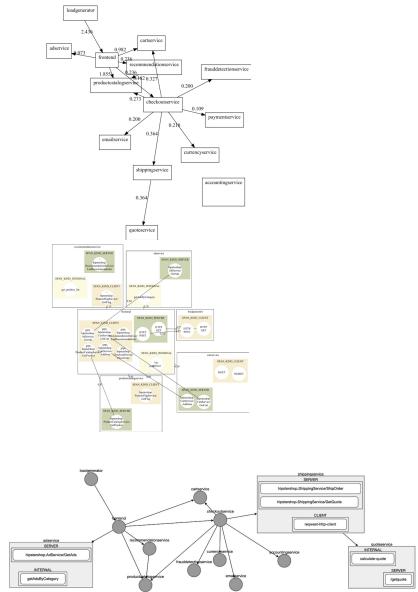
Pathways

Metrics to Traces



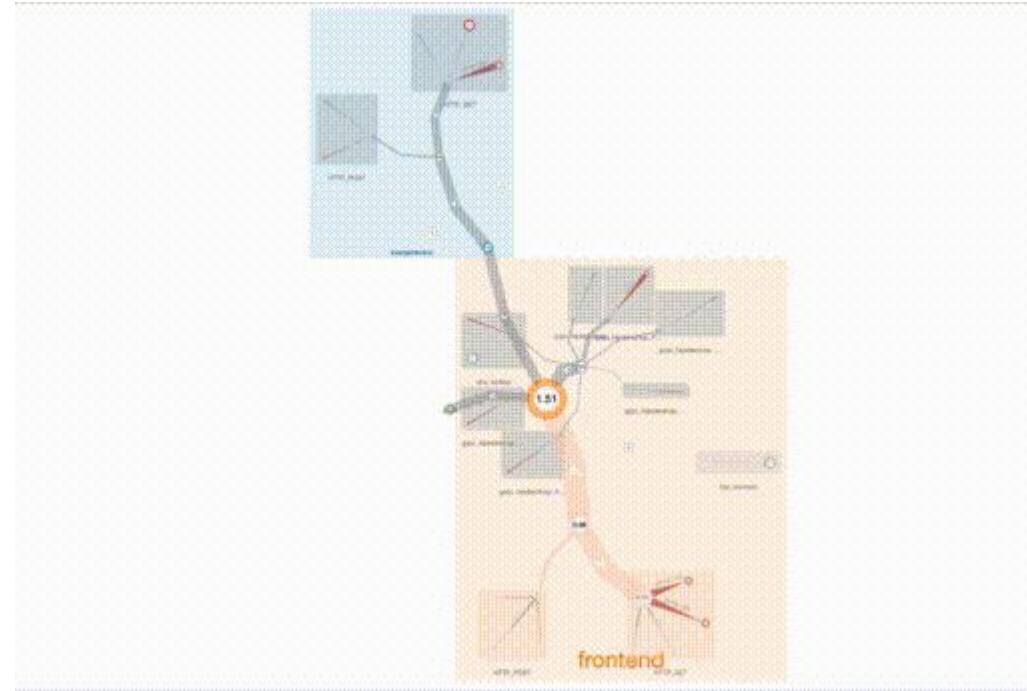
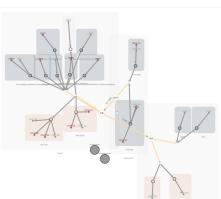
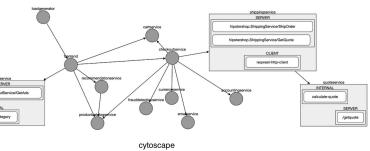
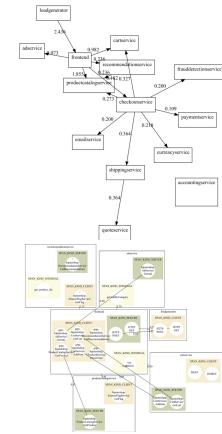
Pathways

Services, ingress/egress, operations/spans, status/attributes

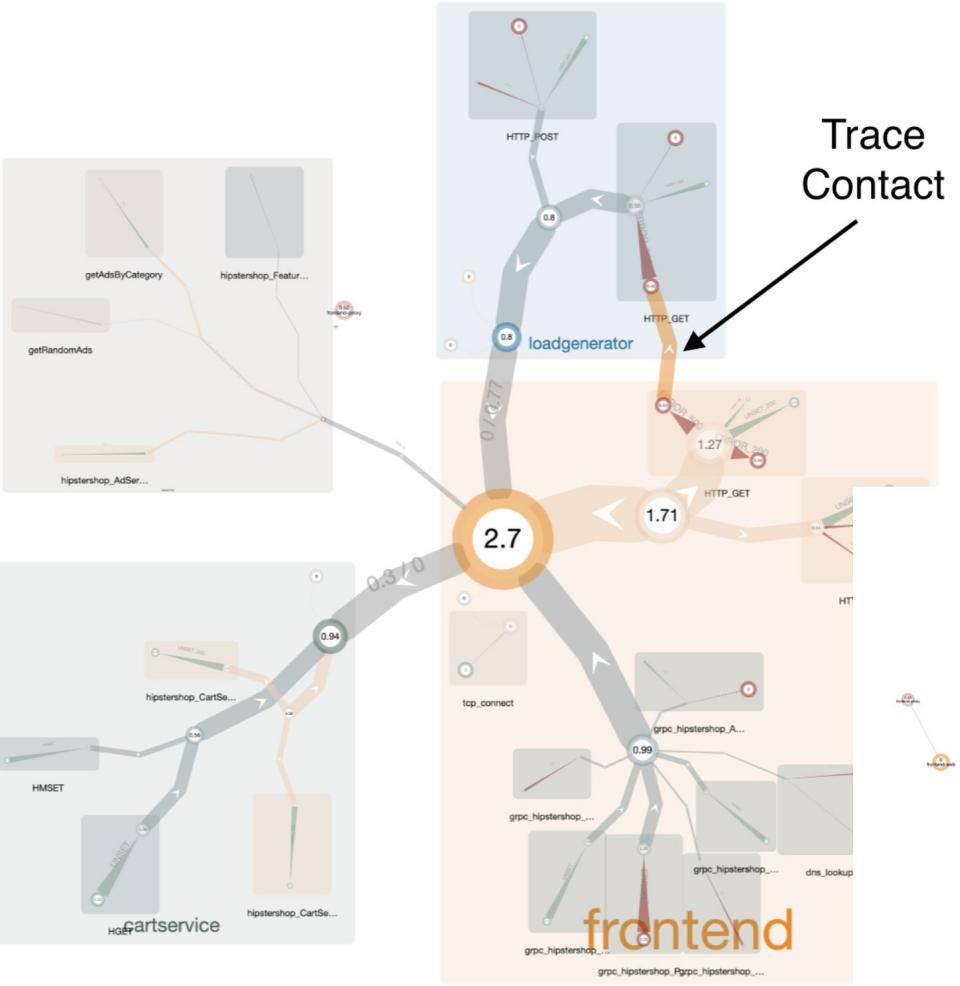
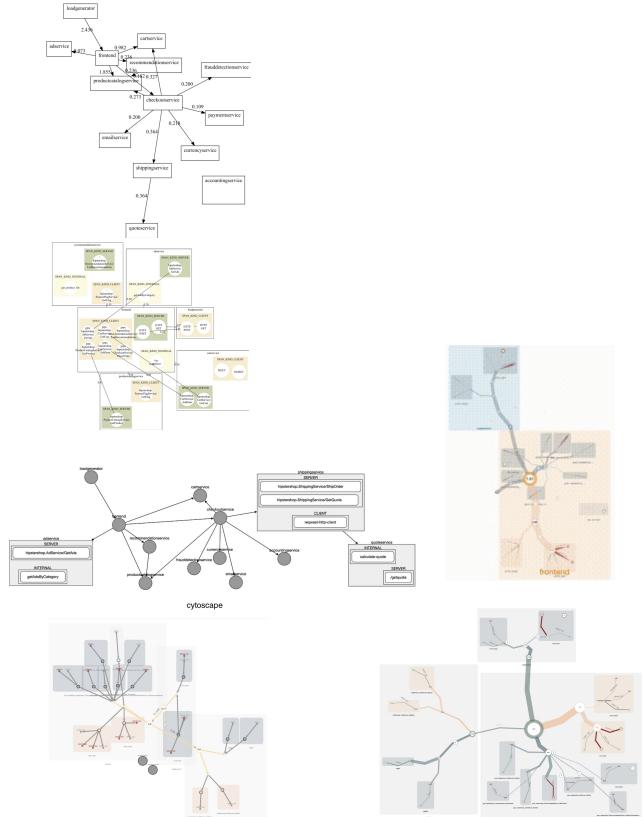


Pathways

Live 10 seconds refresh otel demo restarts

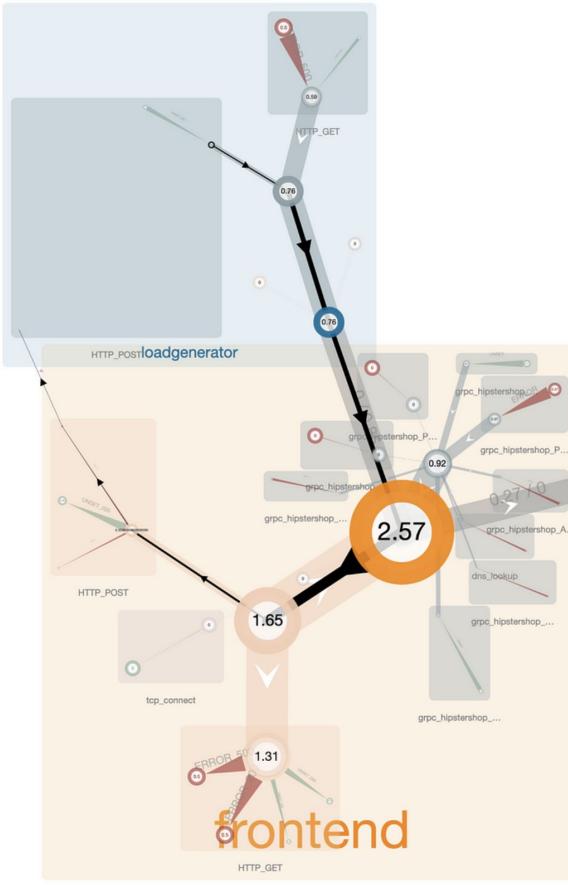
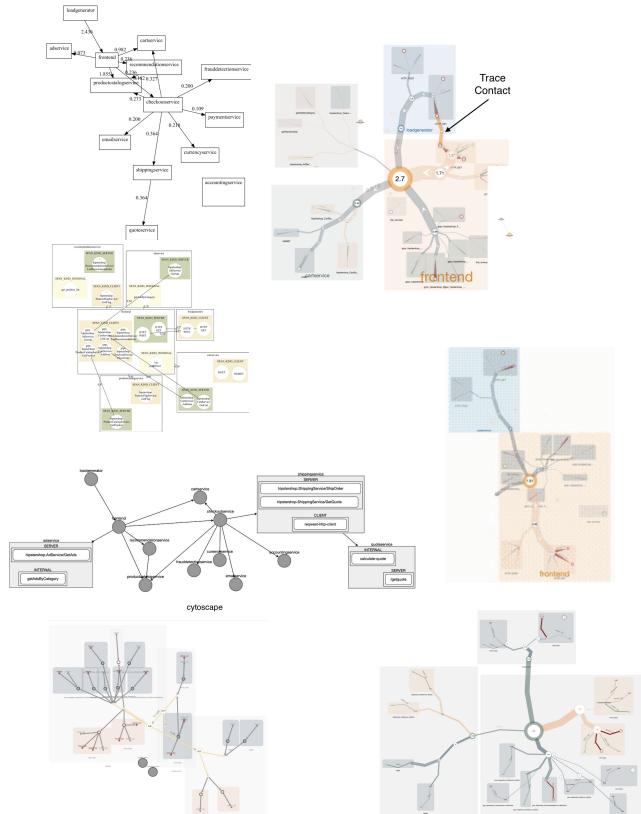


Pathways With traces



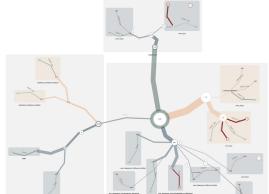
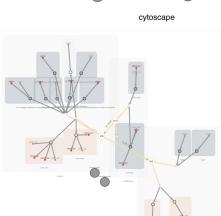
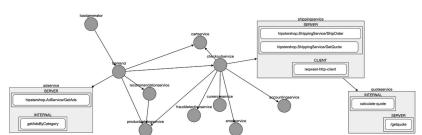
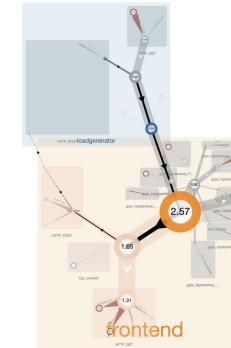
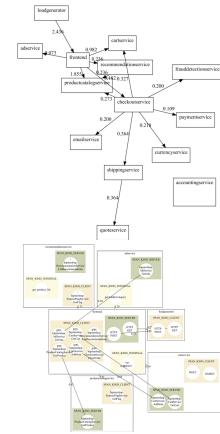
Pathways

Time embedded trace representation (UCM style)



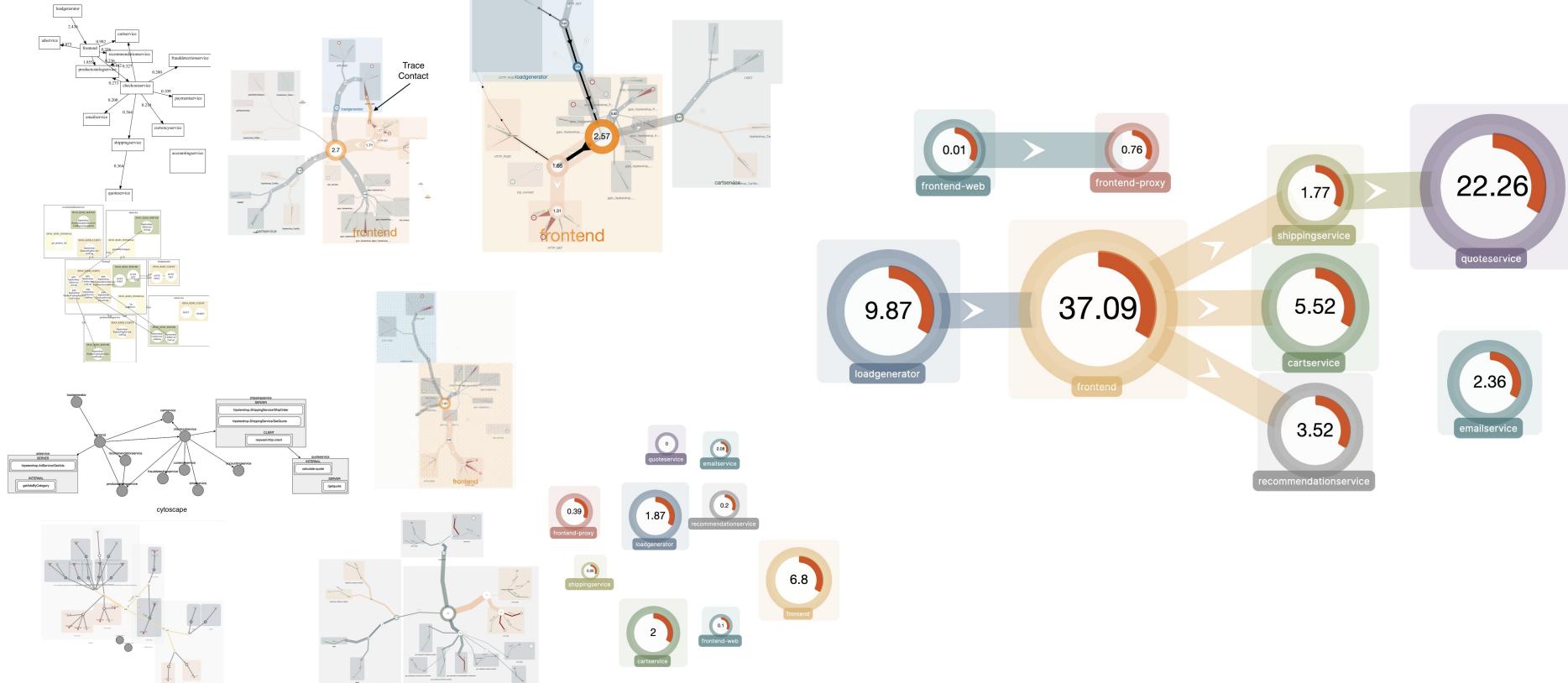
Pathways

Decluttering & Aesthetics

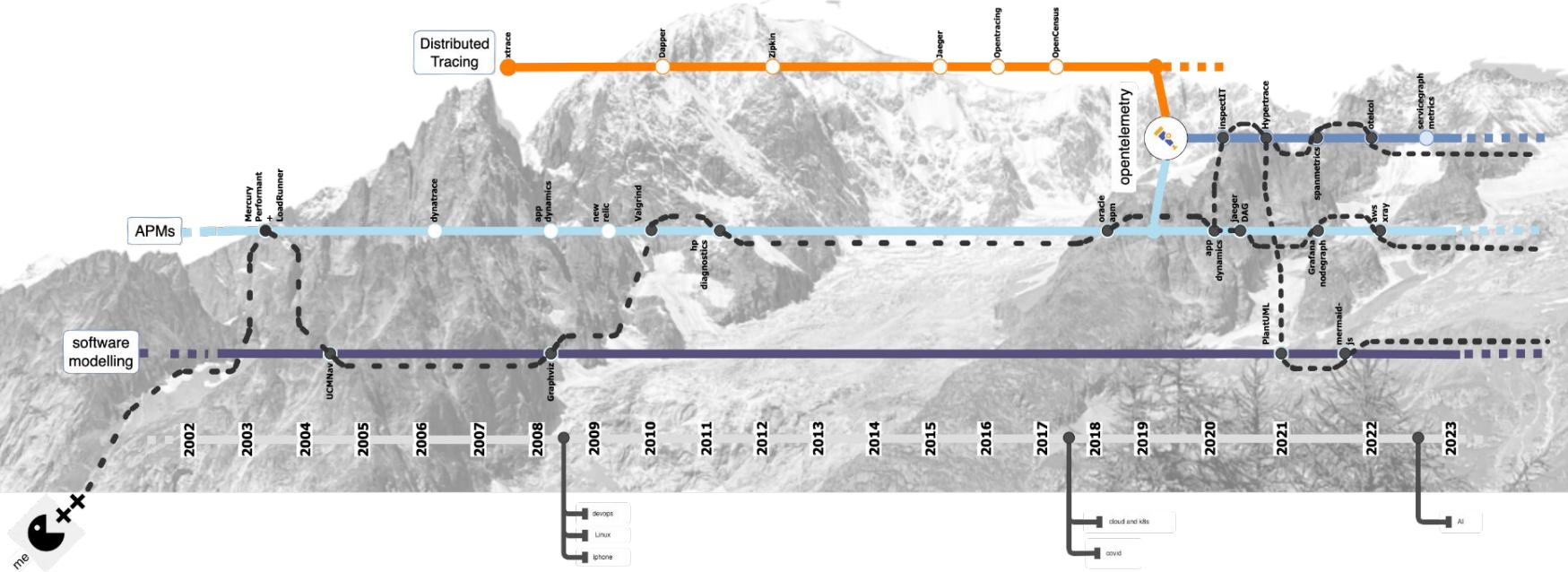


Pathways

Decluttering & Aesthetics



Further info available on my blog.  tractatus.one



Hierarchy Based 3D Visualization Of Large Software Structures

IEEE Visualization 2004, P. 4p-4p

Michael Balzer
Oliver Deussen



Visual Computing University
Konstanz

