Service Mesh
Virtual Meetup

CLOUD NATIVE
COMPUTING FOUNDATION

ServiceMesher

Apache SkyWalking 在 Service Mesh 中的可观察性应用

高洪涛

Tetrate 创始工程师

Who

高洪涛

美国S ervice Mesh 服务商 Tetrate 创始工程师。原华为软件开发云技术专家，对云原生产品有丰富的设计，研发与实施经验。对分布式数据库，容器调度，微服务，ServicMesh 等技术有深入的了解。

目前为 Apache ShardingSphere 和 Apache SkyWalking 核心贡献者, Istio 贡献者。

/01 SkyWalking 简介

SkyWalking 历史和特点

/02 遇到的挑战

ServiceMesh 场景下 SkyWalking 面临的挑战

/03 应用方案

针对 Mesh 场景方案的演化

/01

SkyWalking 简介

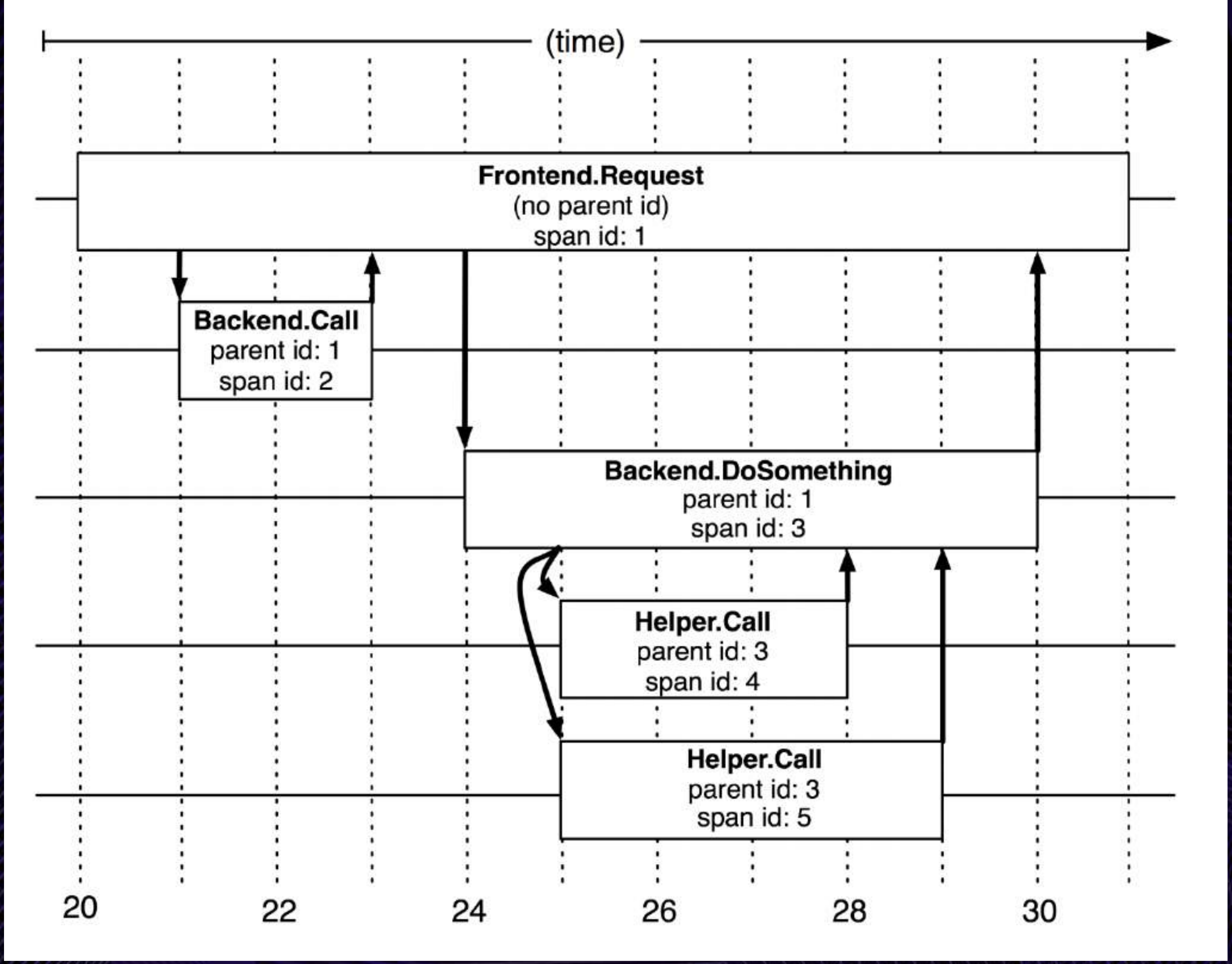
SkyWaling 的历史和特点

Micro Service

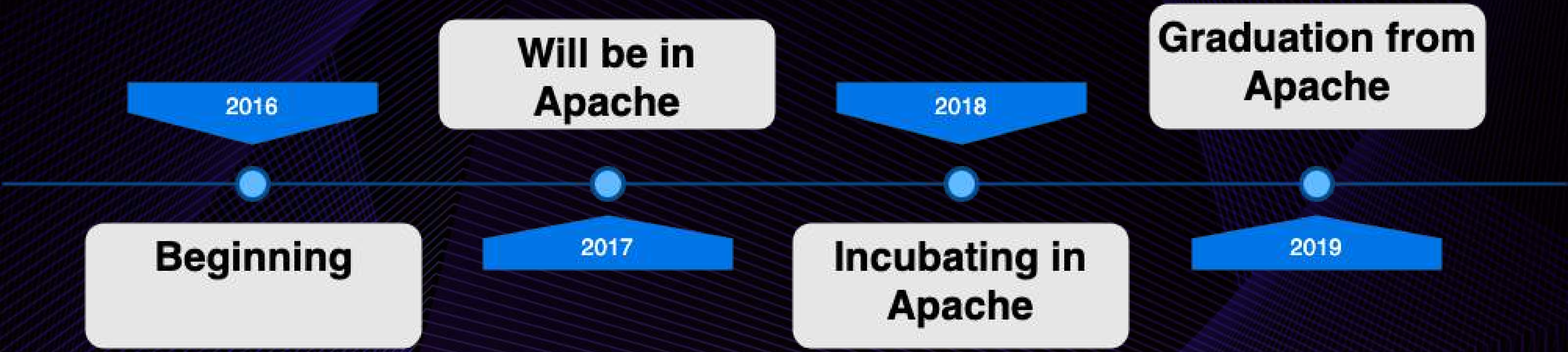
CLOUD NATIVE COMPUTING FOUNDATION

ServiceMesher

End to End Distributed Tracing



Apache Way



2016

Beginning

2017

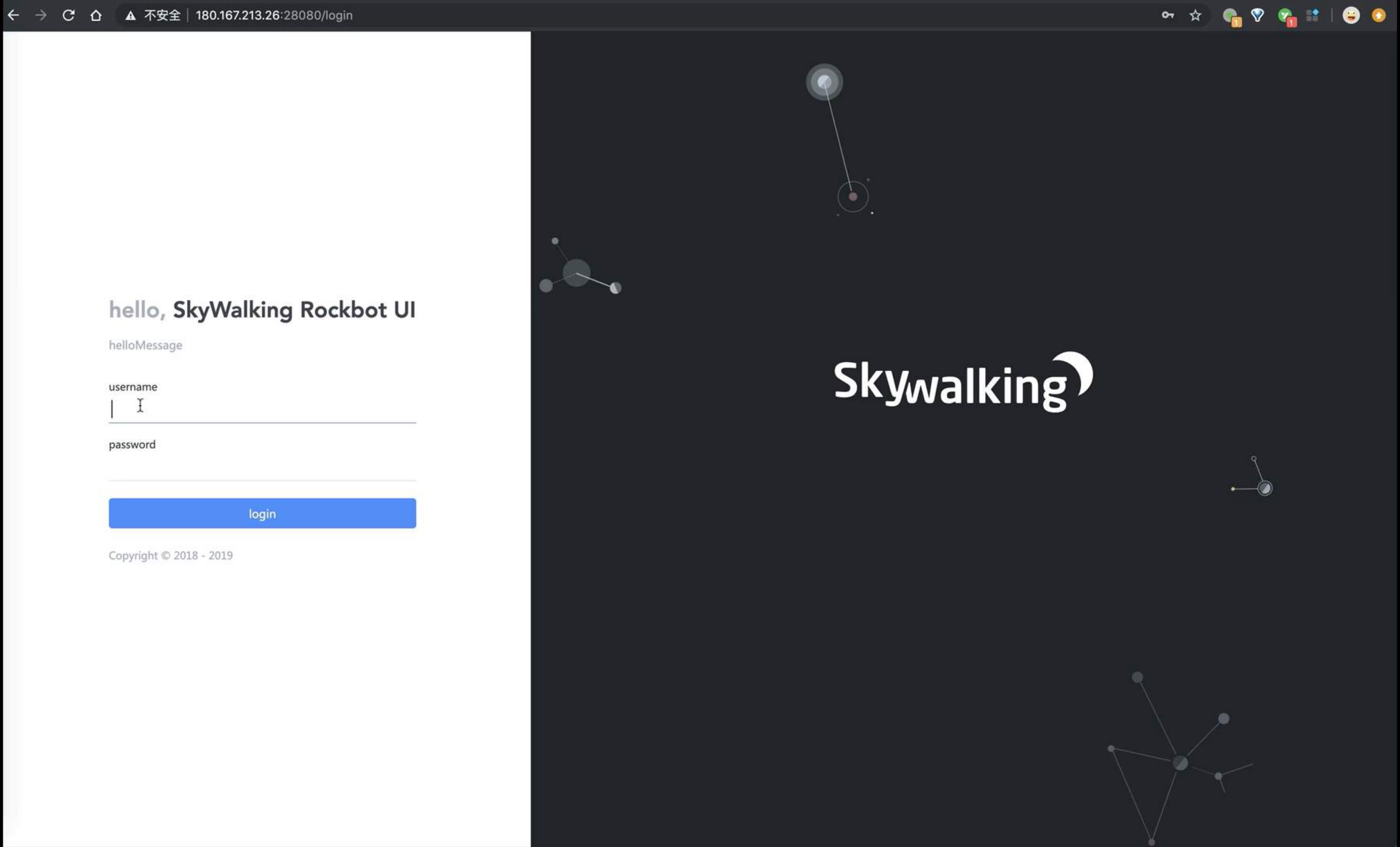
Will be in Apache

2018

Incubating in Apache

2019

Graduation from Apache



hello, SkyWalking Rockbot UI

helloMessage

username

password

login

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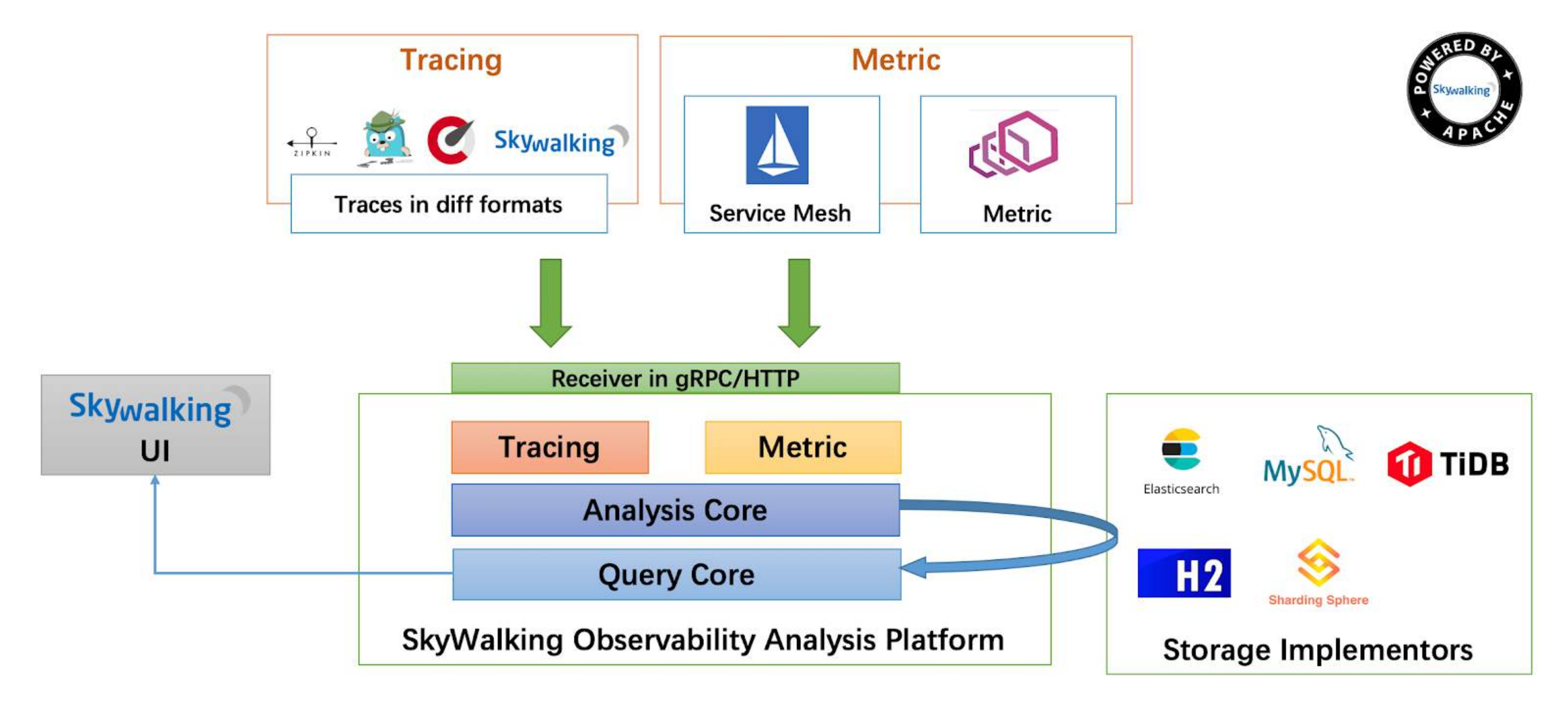
Architecture



观察维度

分享主题：字号

分享嘉宾

Service

服务

抽象概念，用于汇集指标

Instance

实例

进程，容器，Pod

Endpoint

端点

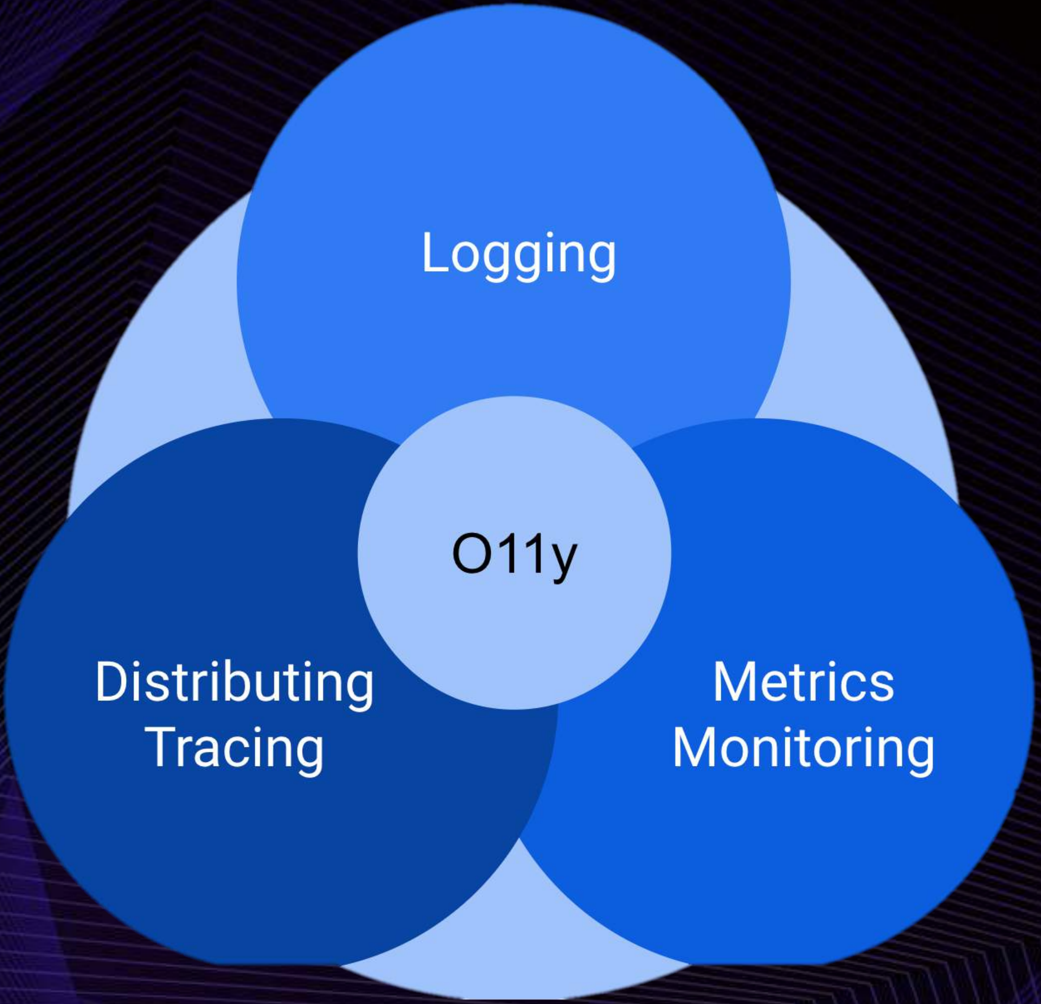
URL，RPC，函数

/02

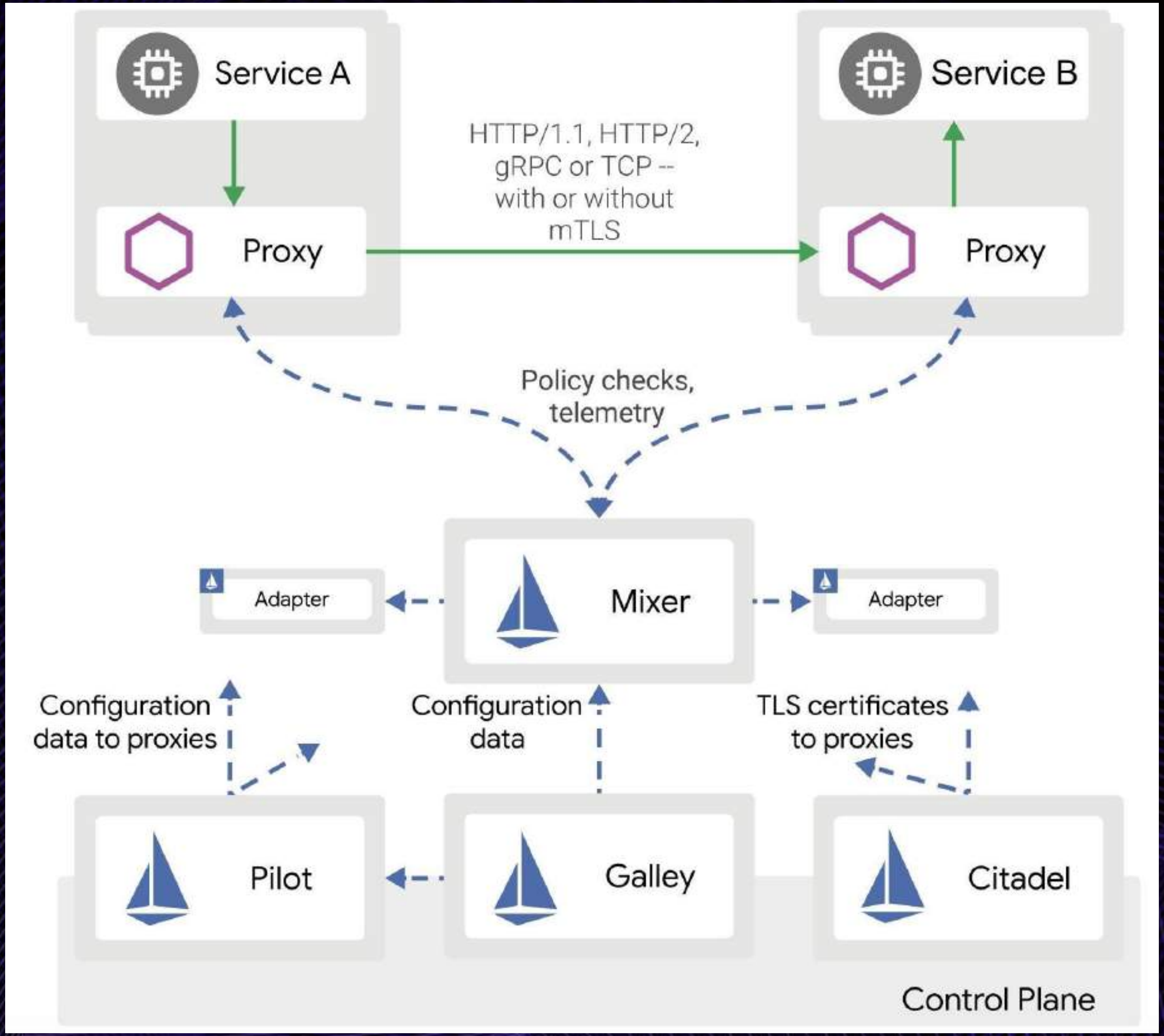
遇到的挑战

Service Mesh 场景下 SkyWalking 面临的挑战 (Istio)

可观测性



Istio 1.5 架构图


Service A
Service B
HTTP/1.1, HTTP/2, gRPC or TCP -- with or without mTLS
Proxy
Proxy
Policy checks, telemetry
Adapter
Mixer
Adapter
Configuration data to proxies
Configuration data
TLS certificates to proxies
Pilot
Galley
Citadel
Control Plane

挑战1：技术路线多变

Mixer

基于 Log

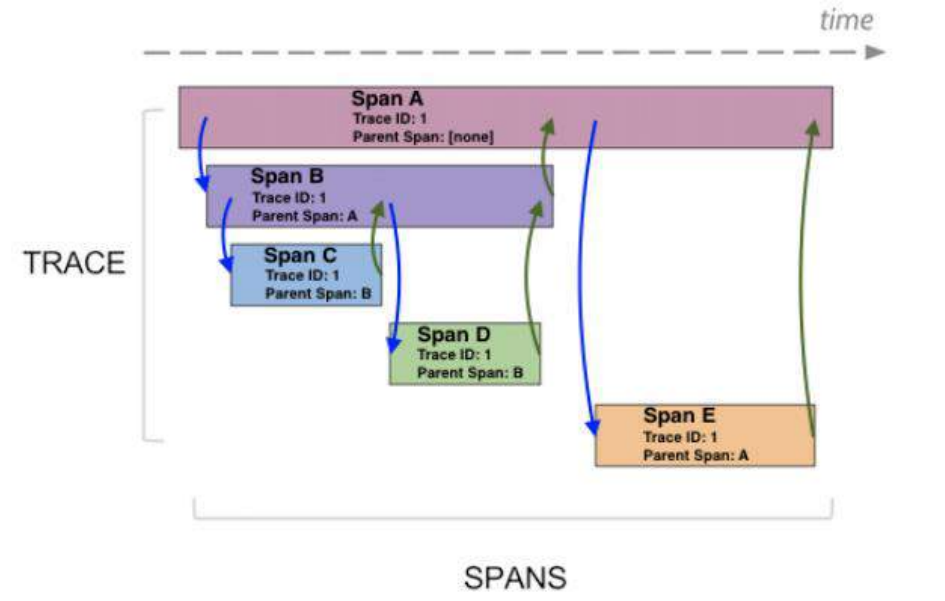
成熟、但性能低

Mixerless

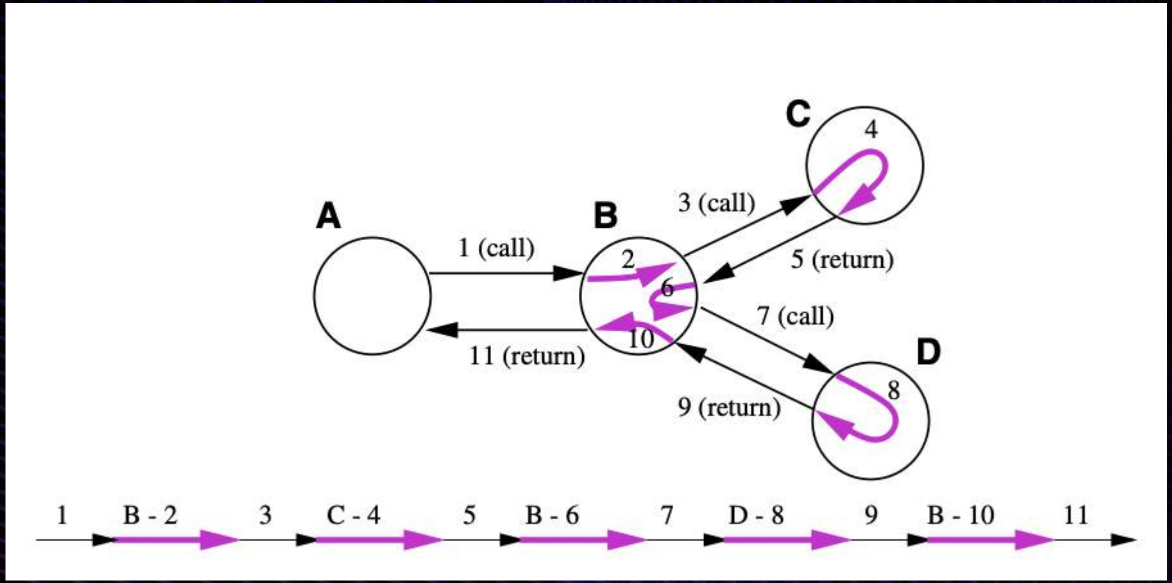
基于 Metric

高效、但技术门槛高

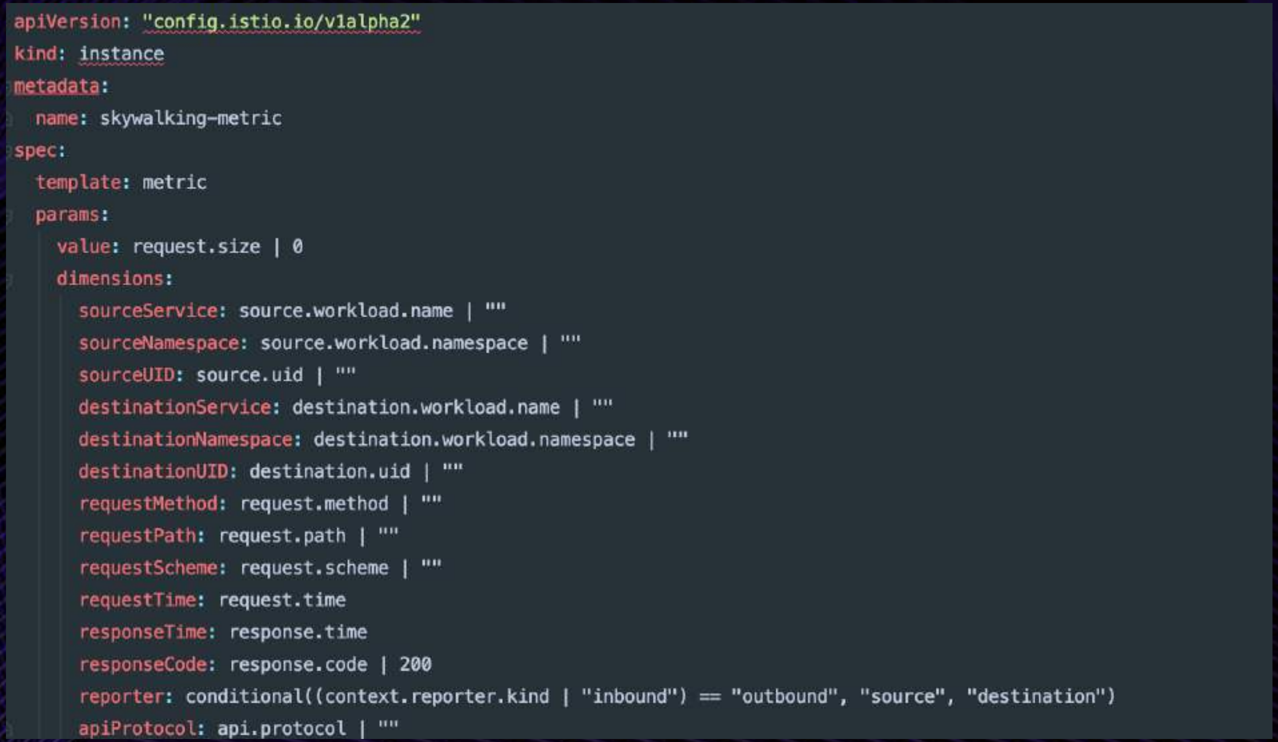
挑战2：无 Tracing



VS



挑战3：维度匹配-Mixer



```yaml
apiVersion: "config.istio.io/v1alpha2"
kind: instance
metadata:
  name: skywalking-metric
spec:
  template: metric
  params:
    value: request.size | 0
    dimensions:
      sourceService: source.workload.name | ""
      sourceNamespace: source.workload.namespace | ""
      sourceUID: source.uid | ""
      destinationService: destination.workload.name | ""
      destinationNamespace: destination.workload.namespace | ""
      destinationUID: destination.uid | ""
      requestMethod: request.method | ""
      requestPath: request.path | ""
      requestScheme: request.scheme | ""
      requestTime: request.time
      responseTime: response.time
      responseCode: response.code | 200
      reporter: conditional((context.reporter.kind | "inbound") == "outbound", "source", "destination")
      apiProtocol: api.protocol | ""
```

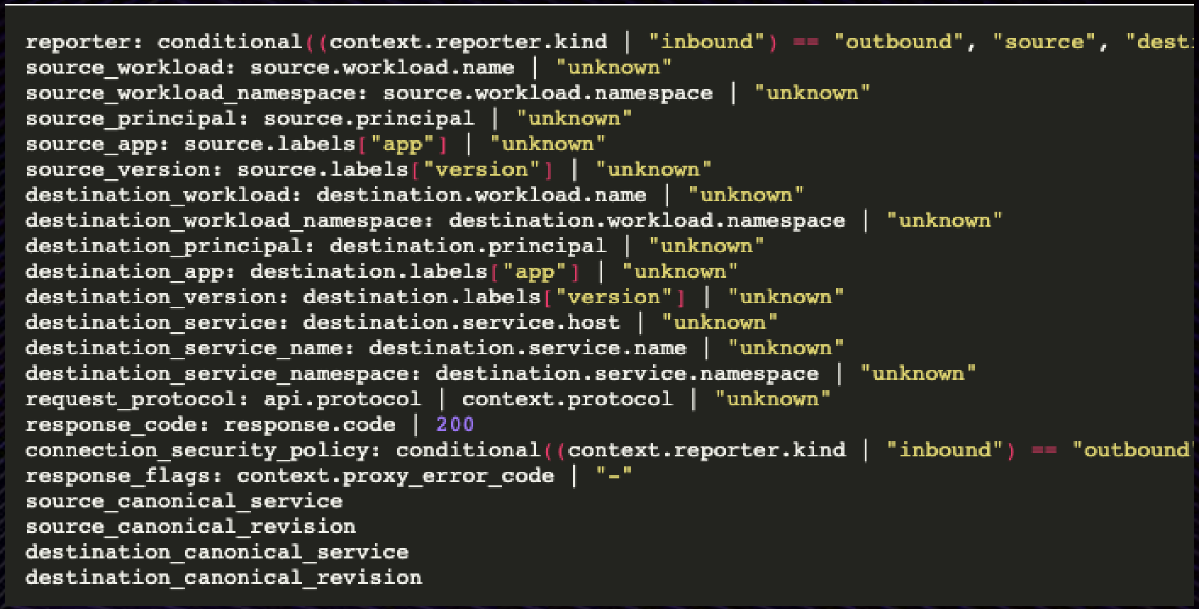
Instance

Endpoint

Service

挑战3：维度匹配-Telemetry2

Instance



```
reporter: conditional((context.reporter.kind | "inbound") == "outbound", "source", "dest
source_workload: source.workload.name | "unknown"
source_workload_namespace: source.workload.namespace | "unknown"
source_principal: source.principal | "unknown"
source_app: source.labels["app"] | "unknown"
source_version: source.labels["version"] | "unknown"
destination_workload: destination.workload.name | "unknown"
destination_workload_namespace: destination.workload.namespace | "unknown"
destination_principal: destination.principal | "unknown"
destination_app: destination.labels["app"] | "unknown"
destination_version: destination.labels["version"] | "unknown"
destination_service: destination.service.host | "unknown"
destination_service_name: destination.service.name | "unknown"
destination_service_namespace: destination.service.namespace | "unknown"
request_protocol: api.protocol | context.protocol | "unknown"
response_code: response.code | 200
connection_security_policy: conditional((context.reporter.kind | "inbound") == "outbound
response_flags: context.proxy_error_code | "-"
source_canonical_service
source_canonical_revision
destination_canonical_service
destination_canonical_revision
```

Endpoint

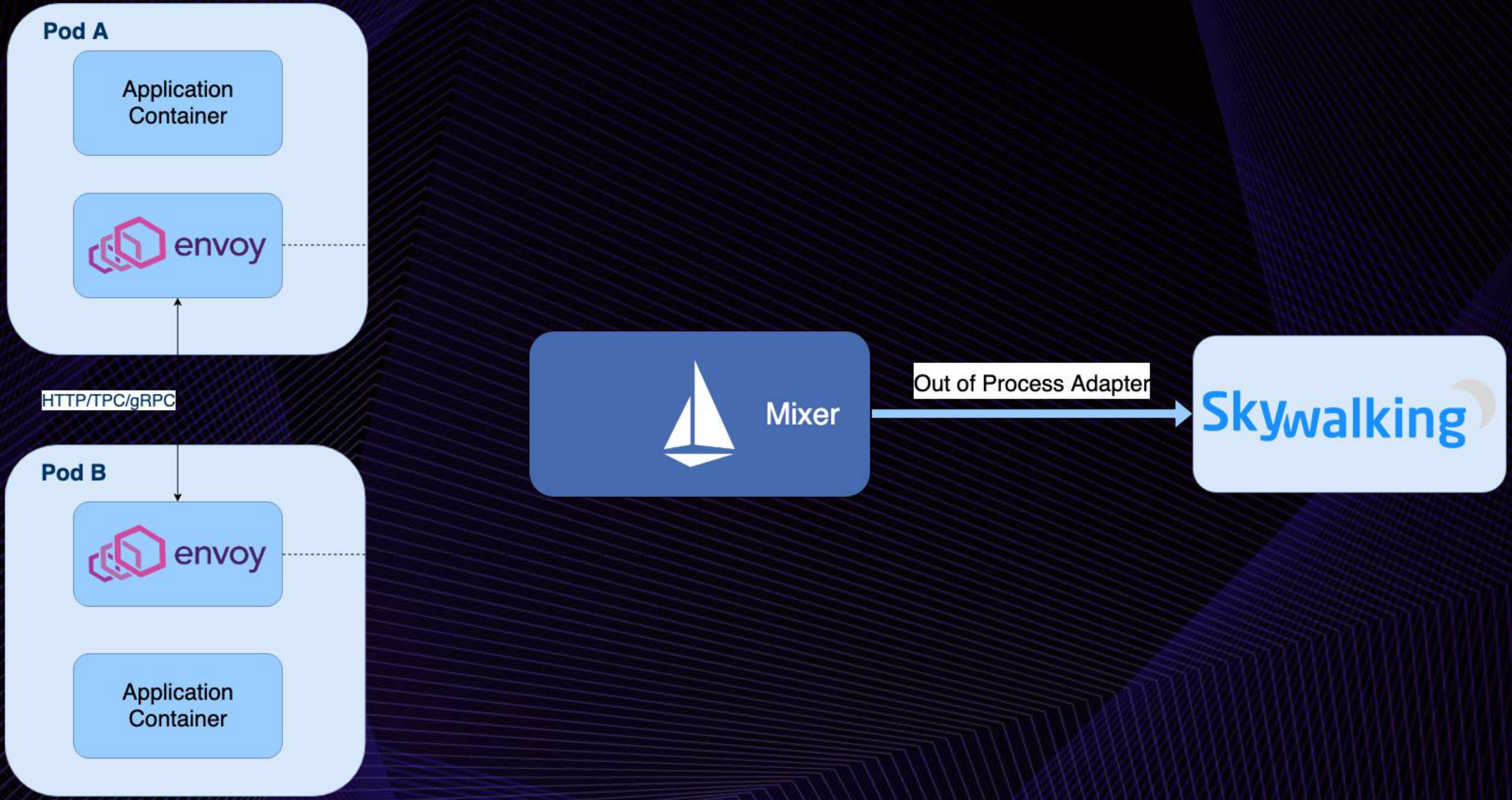
Service

/03

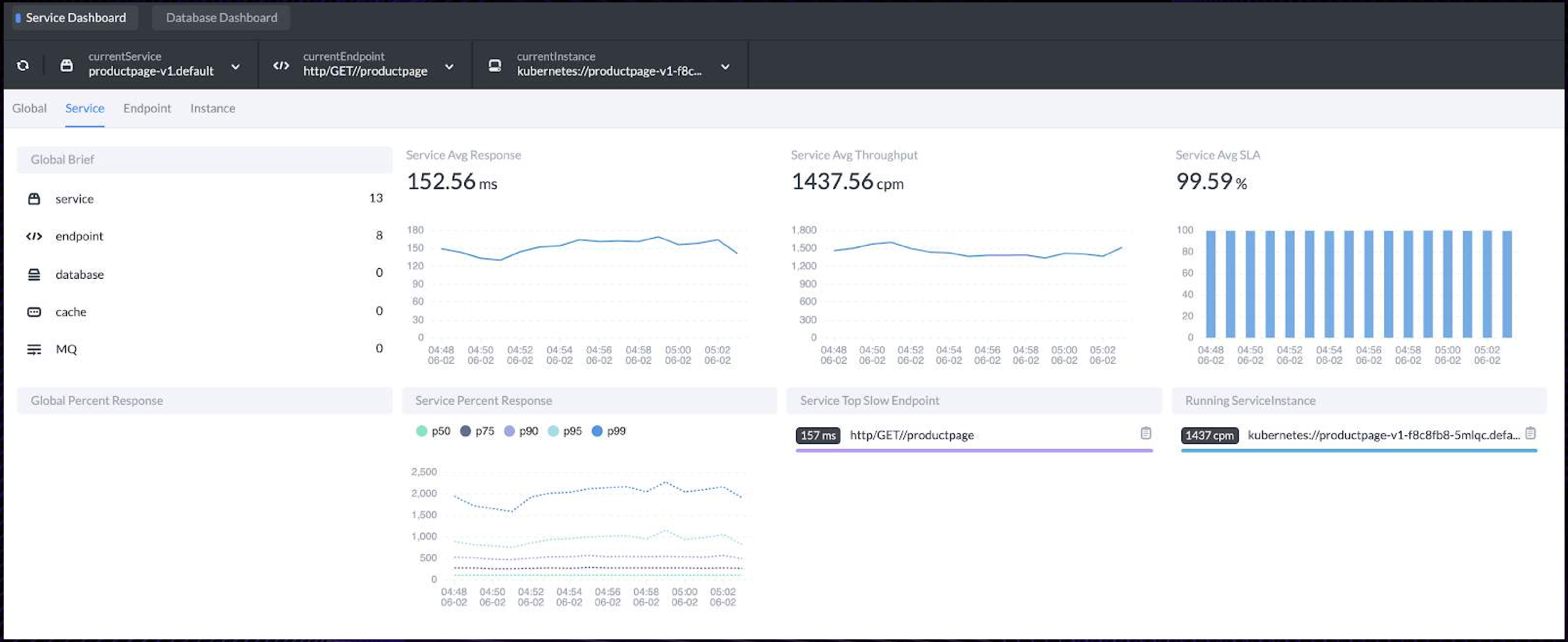
应用方案

针对 Mesh 场景下的方案演化

技术路线全覆盖-Mixer



技术路线全覆盖-Mixer



Service Dashboard | Database Dashboard

currentService productpage-v1.default

currentEndpoint http/GET//productpage

currentInstance kubernetes://productpage-v1-f8c...

Global | Service | Endpoint | Instance

Global Brief

service	13
endpoint	8
database	0
cache	0
MQ	0

Service Avg Response
152.56 ms

Service Avg Throughput
1437.56 cpm

Service Avg SLA
99.59 %

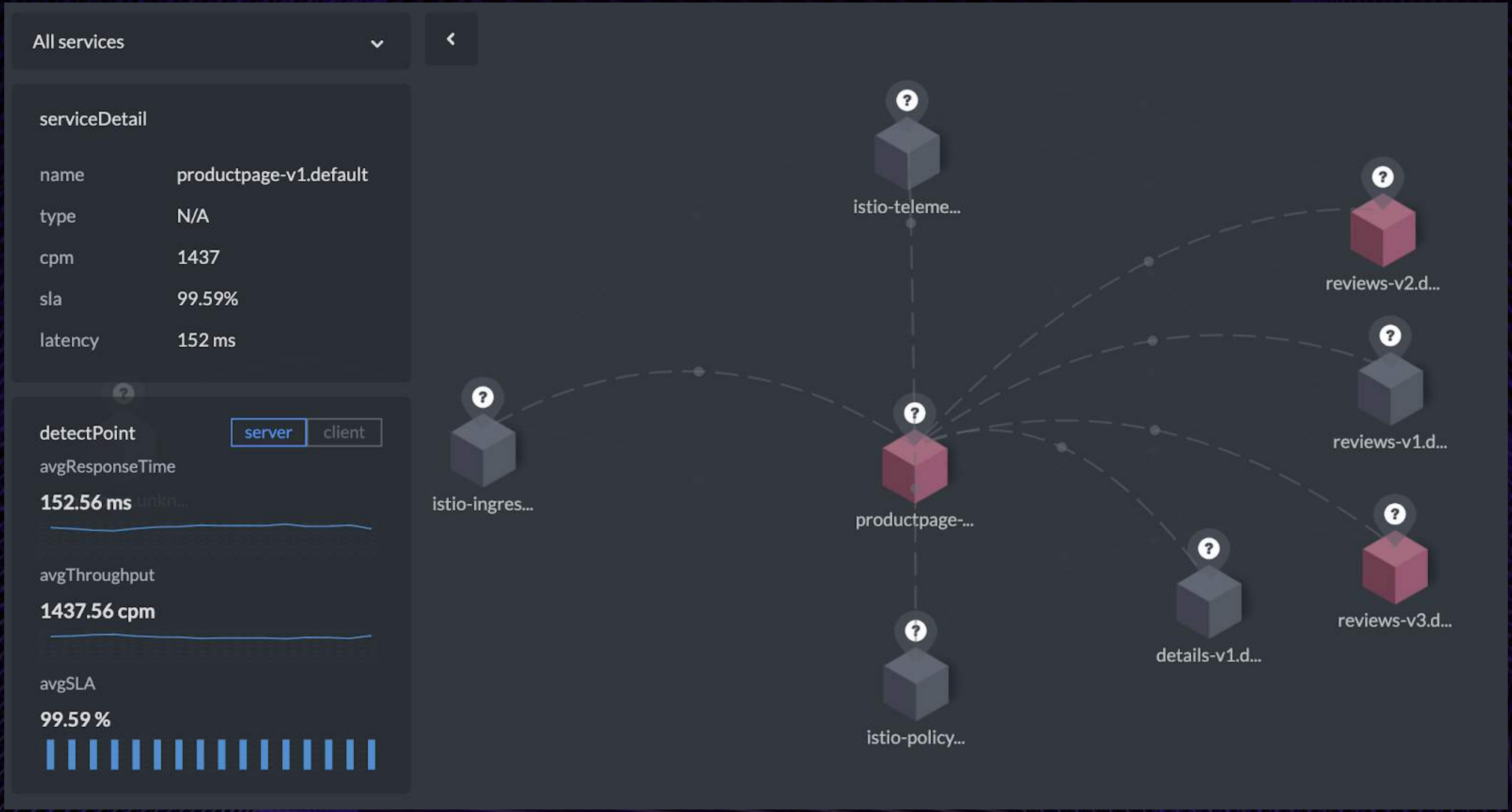
Global Percent Response

Service Percent Response

Service Top Slow Endpoint
157 ms http/GET//productpage

Running ServiceInstance
1437 cpm kubernetes://productpage-v1-f8c8fb8-5mlqc.defa...

技术路线全覆盖-Mixer



All services

serviceDetail

name	productpage-v1.default
type	N/A
cpm	1437
sla	99.59%
latency	152 ms

detectPoint server client

avgResponseTime

152.56 ms

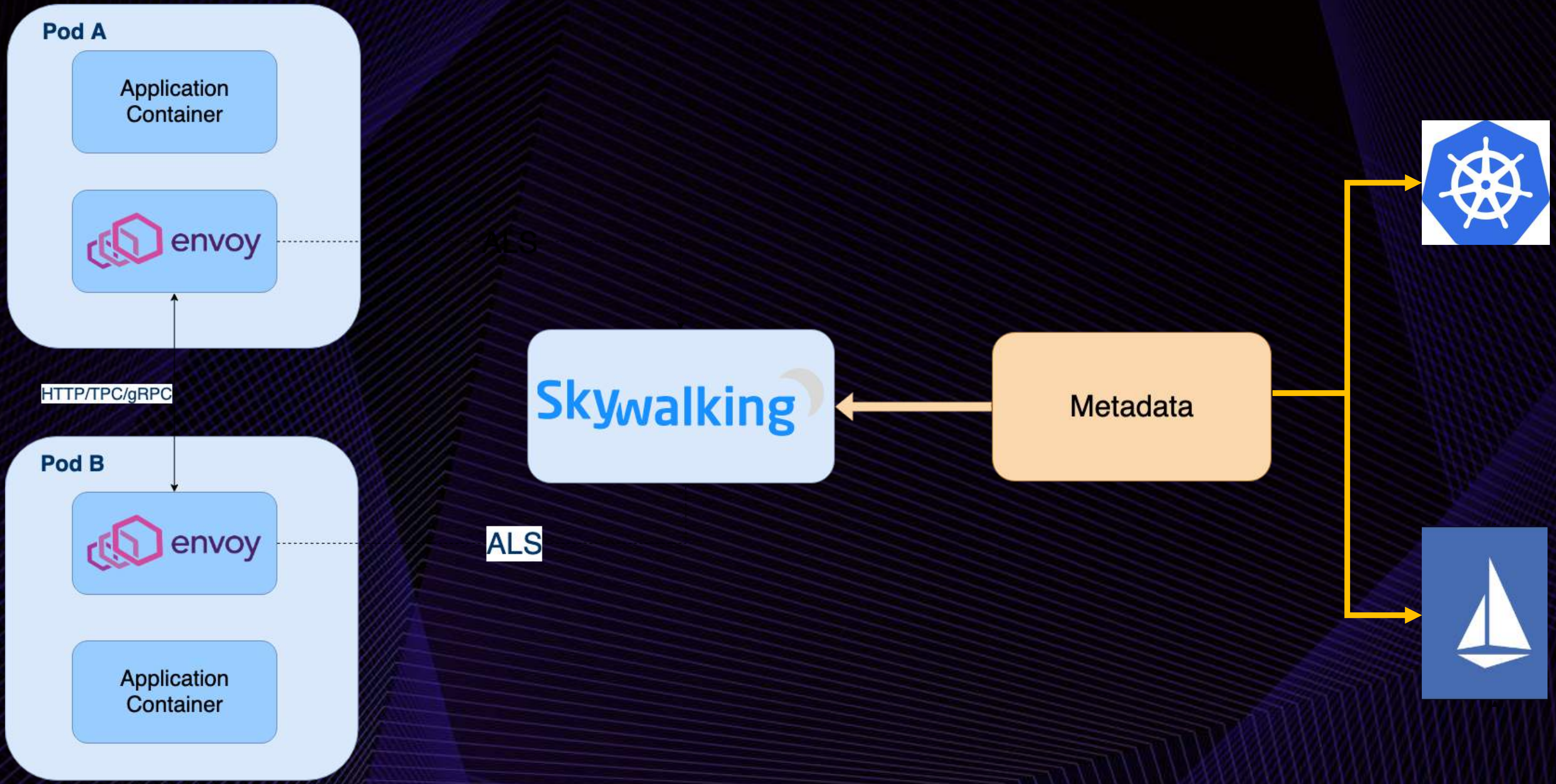
avgThroughput

1437.56 cpm

avgSLA

99.59 %

技术路线全覆盖-Envoy AccessLogService



技术路线全覆盖-Envoy AccessLogService

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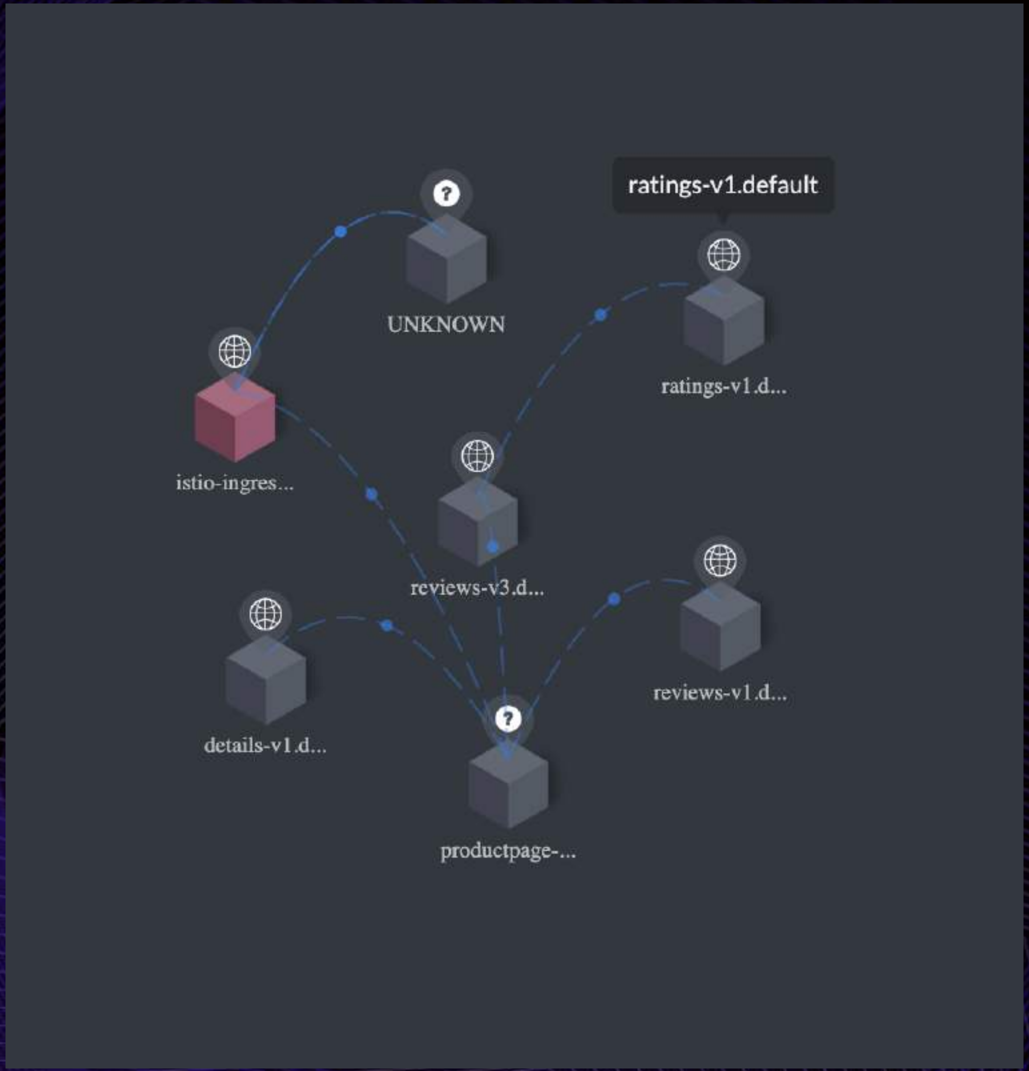
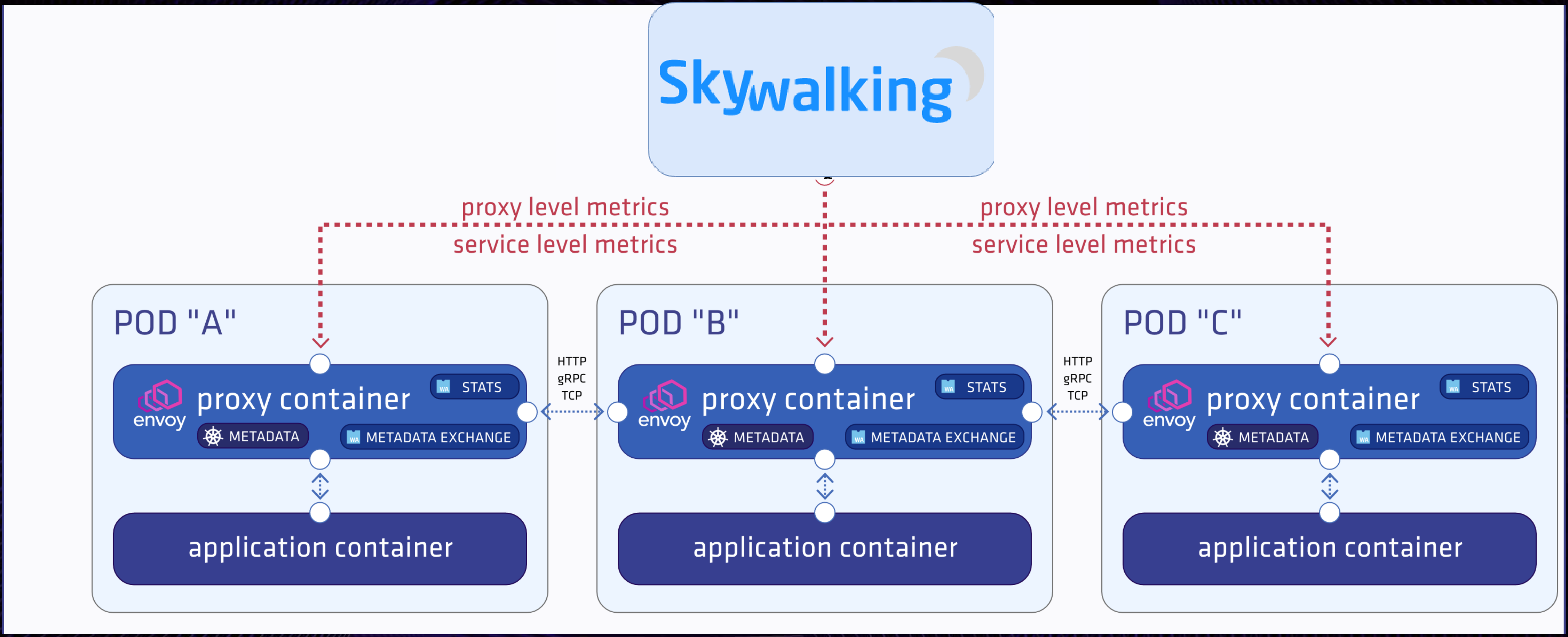
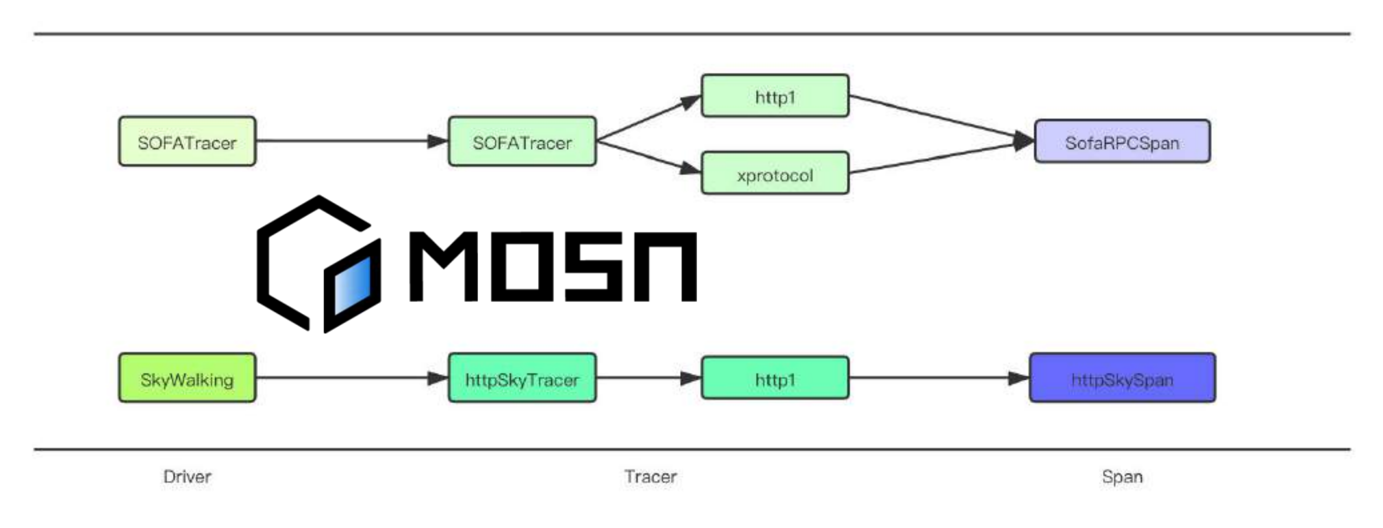
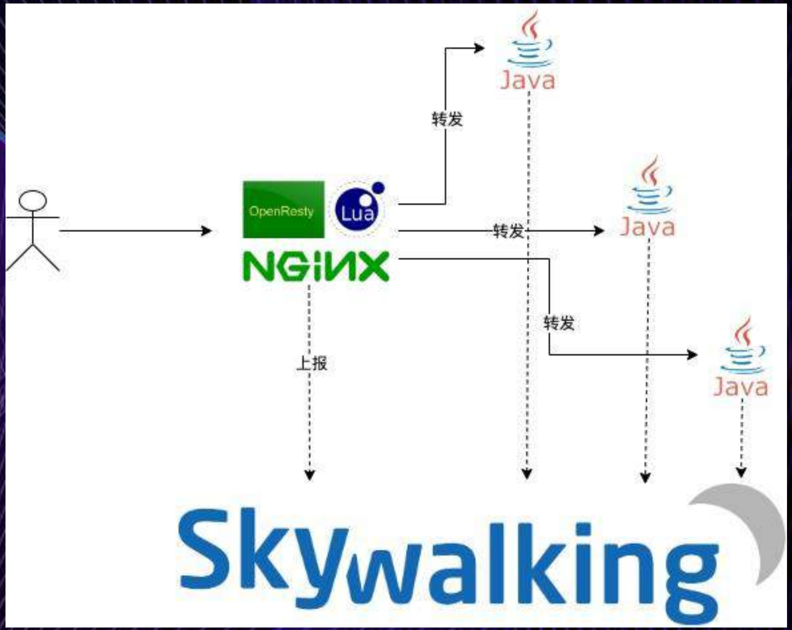


技术路线全覆盖-TelemetryV2(WIP)



Tracing-协议支持

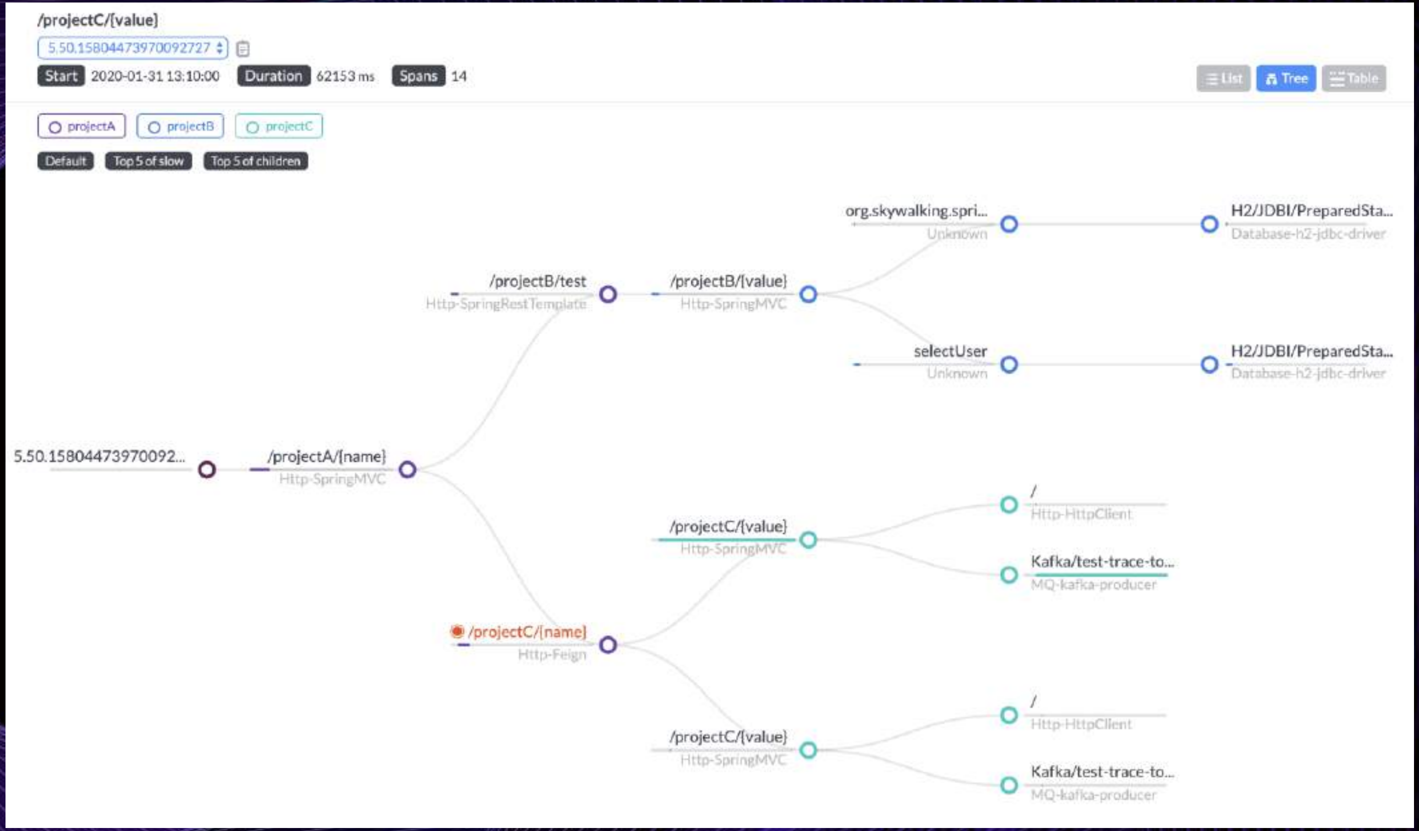




Tracing

SkyWalking 8.0之前
Tracing，Metrics 只能二选一

SkyWalking8.0
Tracing，Metrics 可以同时支持



维度匹配

SkyWalking	Mixer	Mixerless
Service	App without version	同左
Instance	Work load	同左
Endpoint	Path	-

维度匹配-service 命名规则

Version|App|Namespace|Cluster

v1|projuctpage|bookinfo|product-demo

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