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全球开源技术峰会

THE GLOBAL OPENSOURCE TECHNOLOGY CONFERENCE

OPEN SOURCE , OPEN WORLD

「综合技术」专场

本期议题：云原生的可观测与Apache SkyWalking

高洪涛 2021年08月01日

1. 可观测性一撇
2. OpenTelemetry
3. 云原生实践
4. SkyWalking与云原生

可观测性一撇

可观测性一撇

可观察性定义

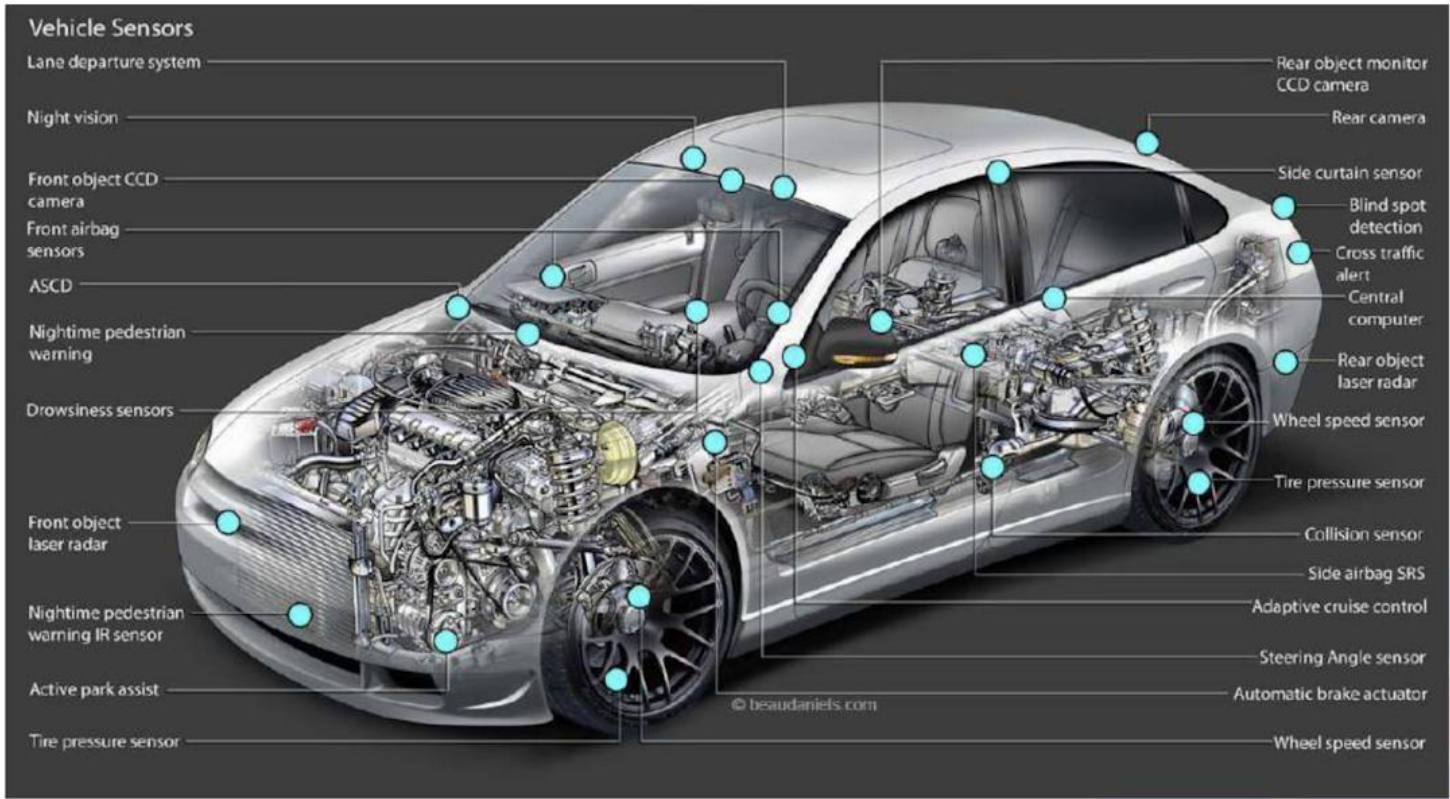
A system is said to be **observable** if, for any possible evolution of state and control vectors, the current state can be estimated using only the information from outputs.

One can determine the behavior of the entire system from the system's outputs.

If the system is **not observable**, there are state trajectories that are not distinguishable by only measuring the outputs.

可观测性一撇

现实世界的可观察性



电瓶没电
没油了
水温过高
胎压低

定速巡航
主动安全
自主泊车

自动驾驶

可观测性一撇

自动驾驶的核心



丰富数据源



数据集中化

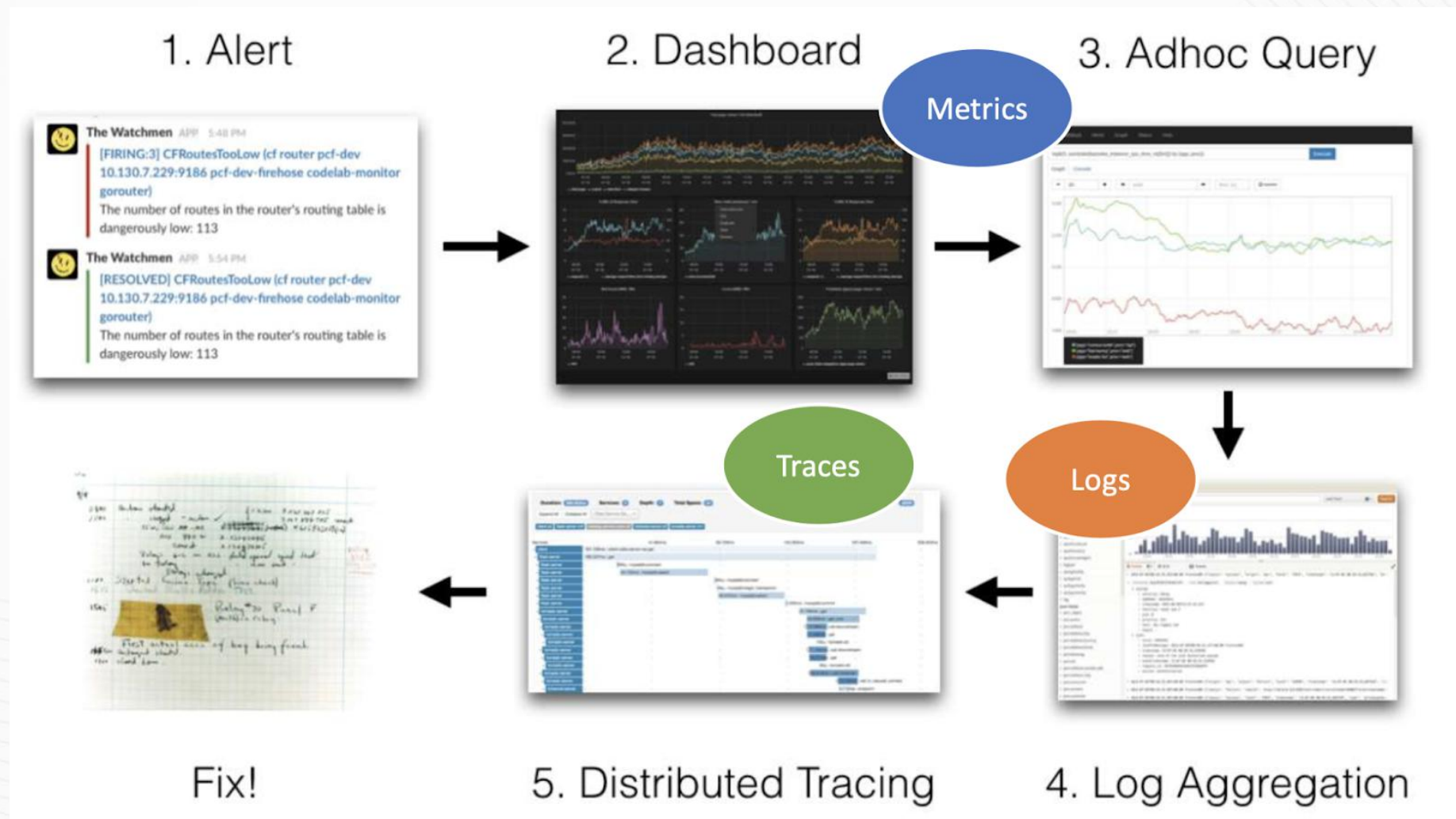


强大算力



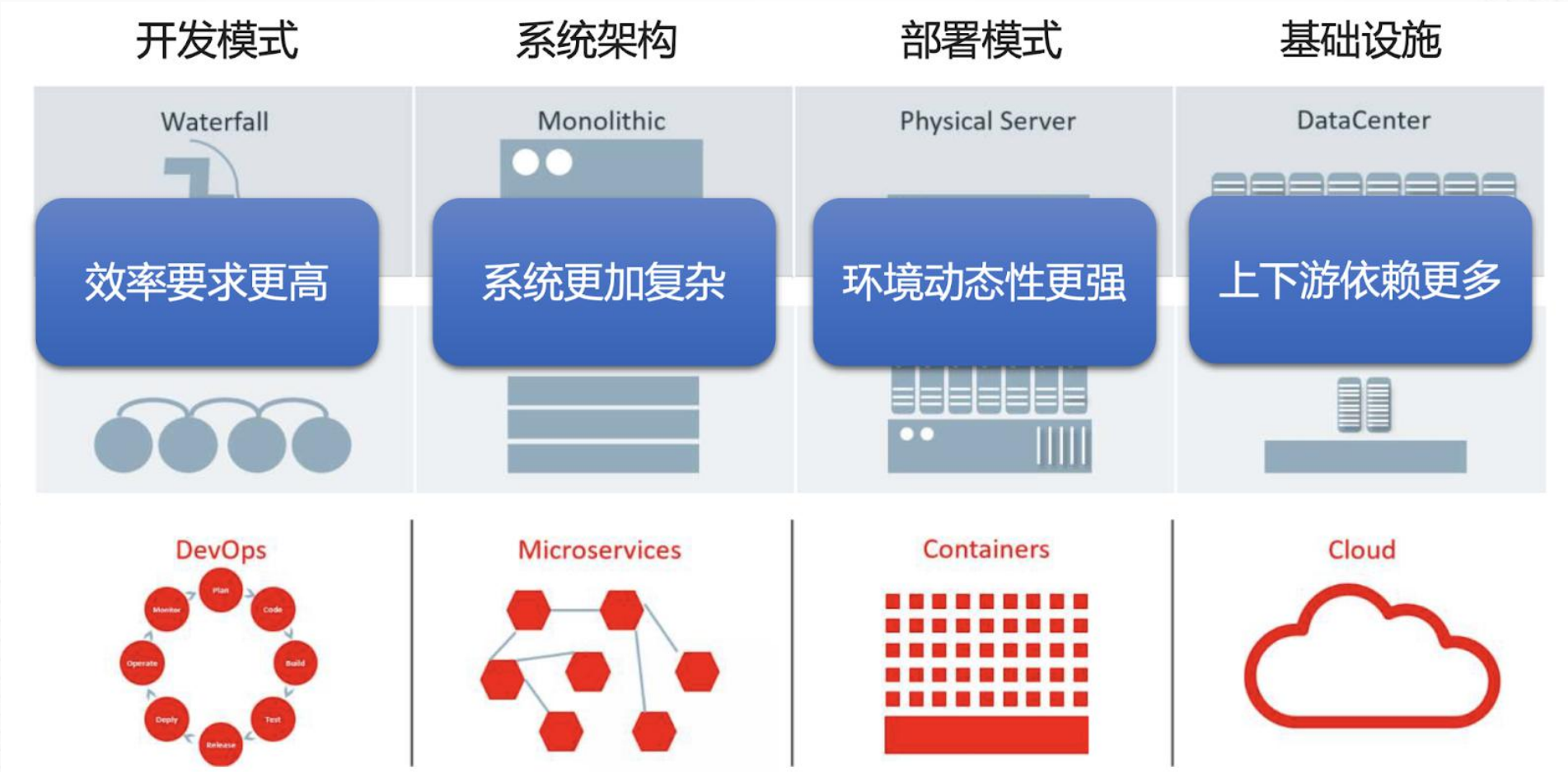
软件迭代

IT系统的可观测性



可观测性一撇

云原生的挑战



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OpenTelemetry

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可观测家谱



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Traces Metrics Logs

Create and **collect** telemetry data from your services and software, then **forward** them to a variety of analysis tools.

现状

- 开发者
 - 来自45+公司、40+国家的100多位member
 - 660+ contributors、60K+ commit
- 厂商支持
 - AWS、Azure、GCP、AlibabaCloud、Datadog、Elastic、Dynatrace、Lightstep、New Relic、Splunk、Honeycomb
- CNCF项目
 - Fluentbit : 未来Log采集器
 - Jaeger : 未来迁移到OpenTelemetry
 - Prometheus : 兼容Prometheus input、exporter

意义



统一协议

一套系统、数据关联



统一Agent

资源占用、架构



云原生

云厂商、Kubernetes



厂商无关

不倾向与任何厂商

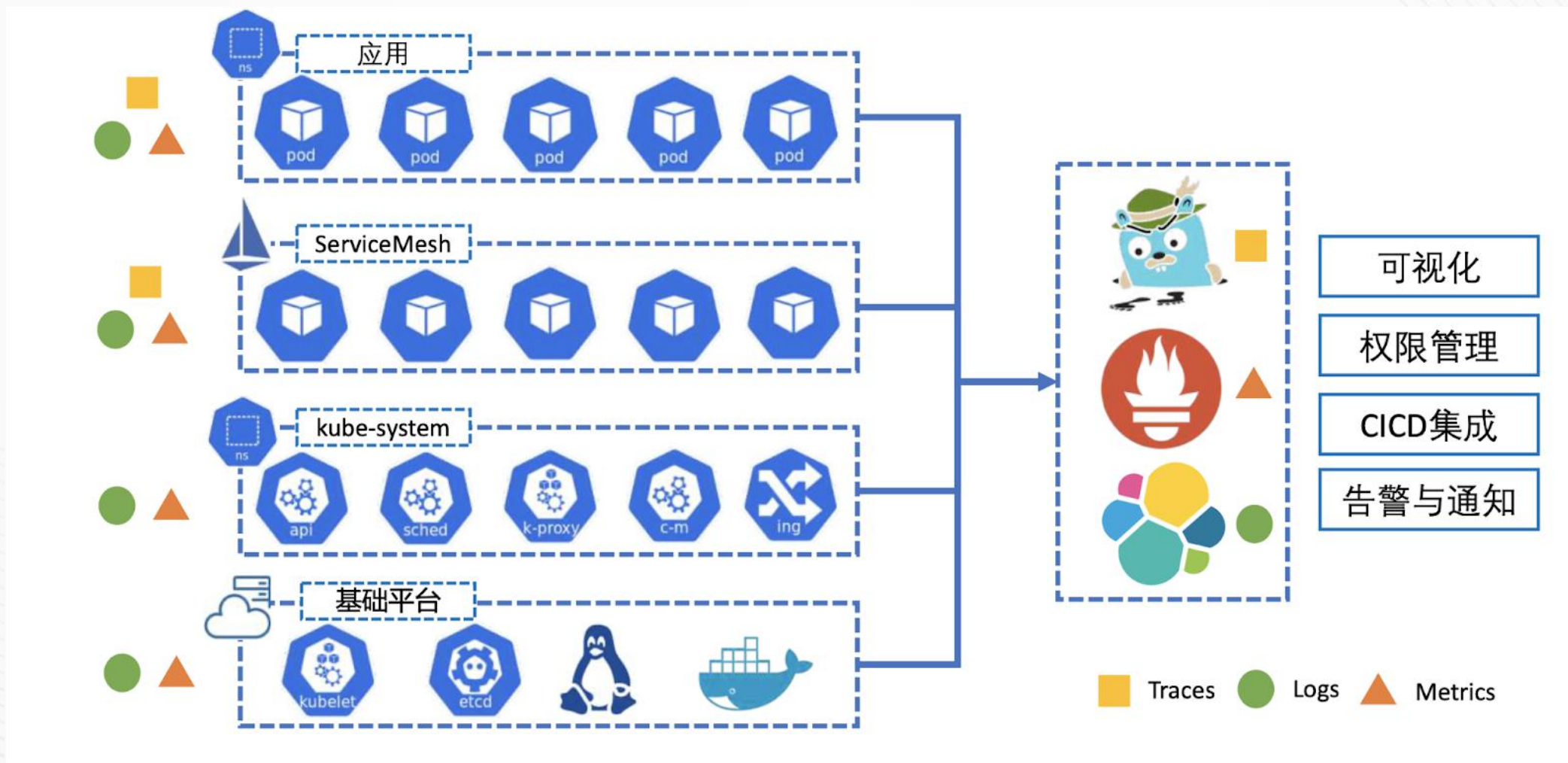


兼容性

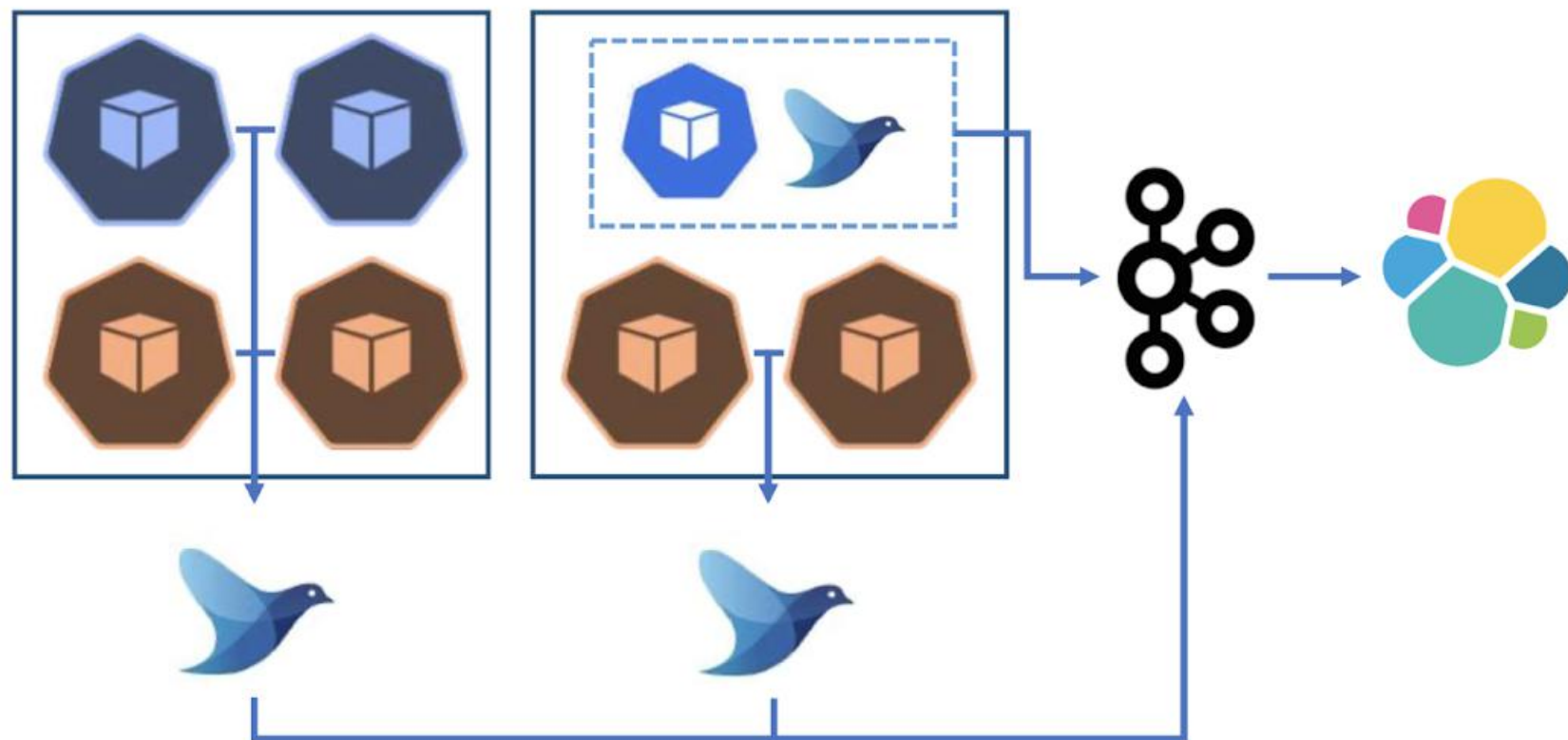
OpenTracing、OpenCensus、Prometheus...

云原生实践

CNCF方案

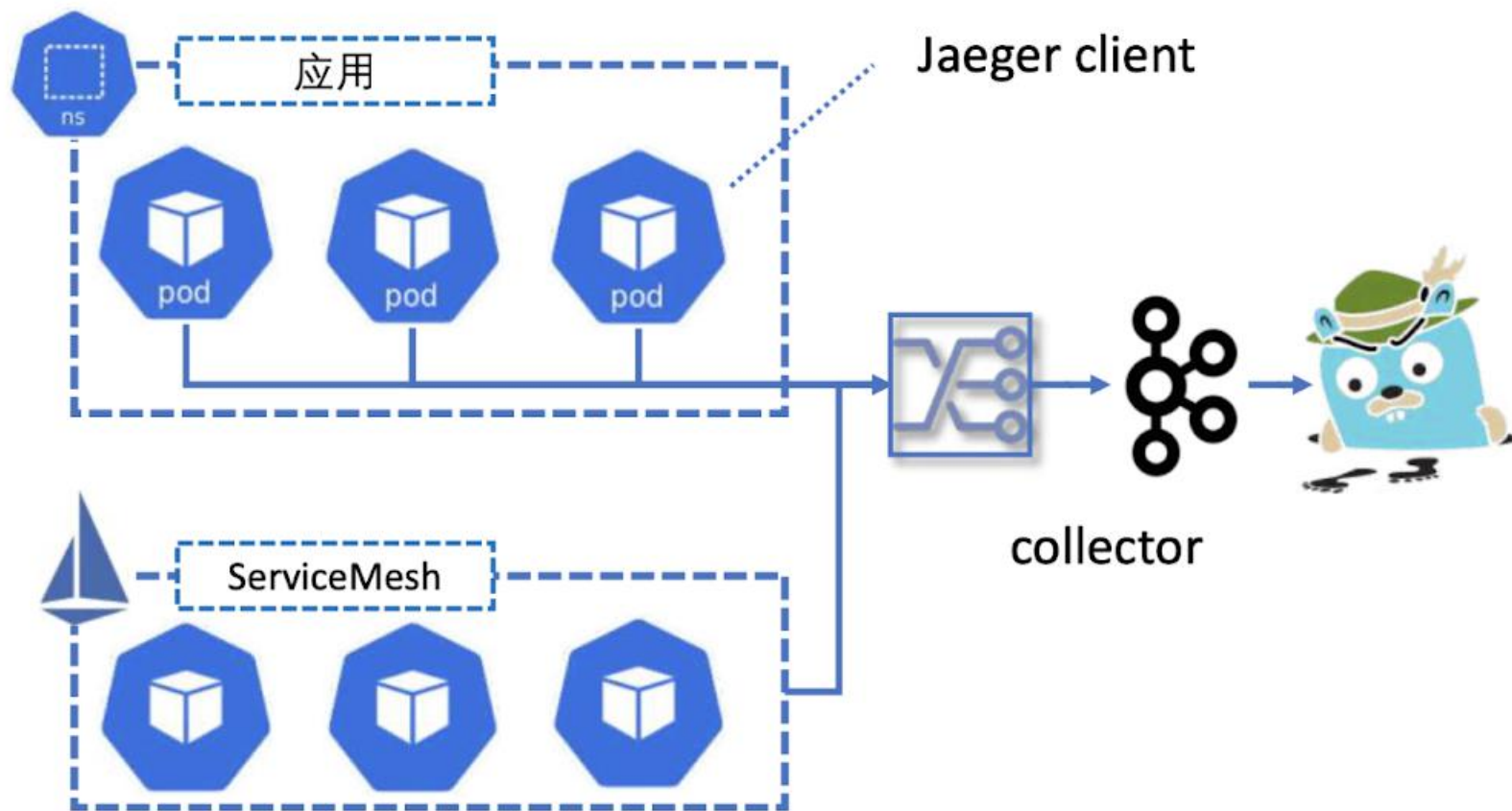


- DaemonSet
- 采集日志资源消耗小
- Sidecar
- 采集核心日志
- 复杂应用使用文件输出
- 日志格式规范化
- 使用Logging Operator
- 使用数据队列



Trace

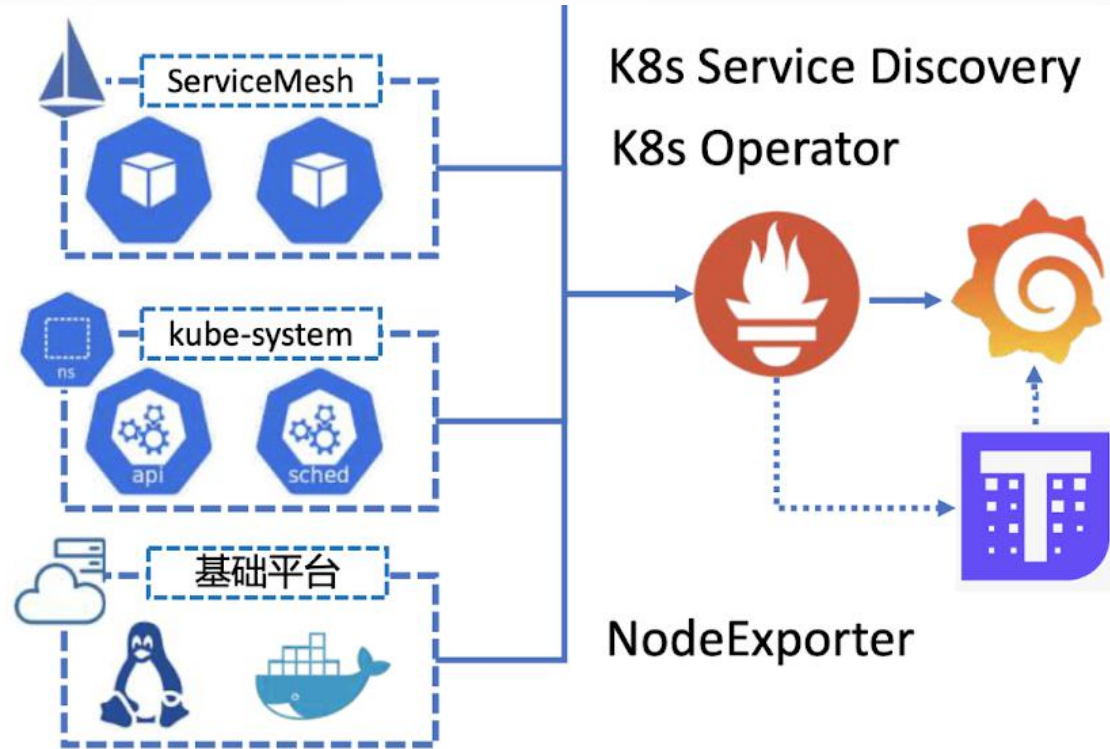
- OpenTracing规范
- No All-in-One
- Collector配置HPA
- Jaeger Operator
- 使用数据队列
- 后端可靠性方案
- 不要全靠ServiceMesh



云原生实践

Metrics

- 事实标准：Prometheus
- 可视化：Grafana
- Prometheus Operator
- Prometheus可靠性
- Thanos
- Prometheus RunBook
- 给足够的内存



SkyWalking与 云原生

► SkyWalking与云原生

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Apache SkyWalking

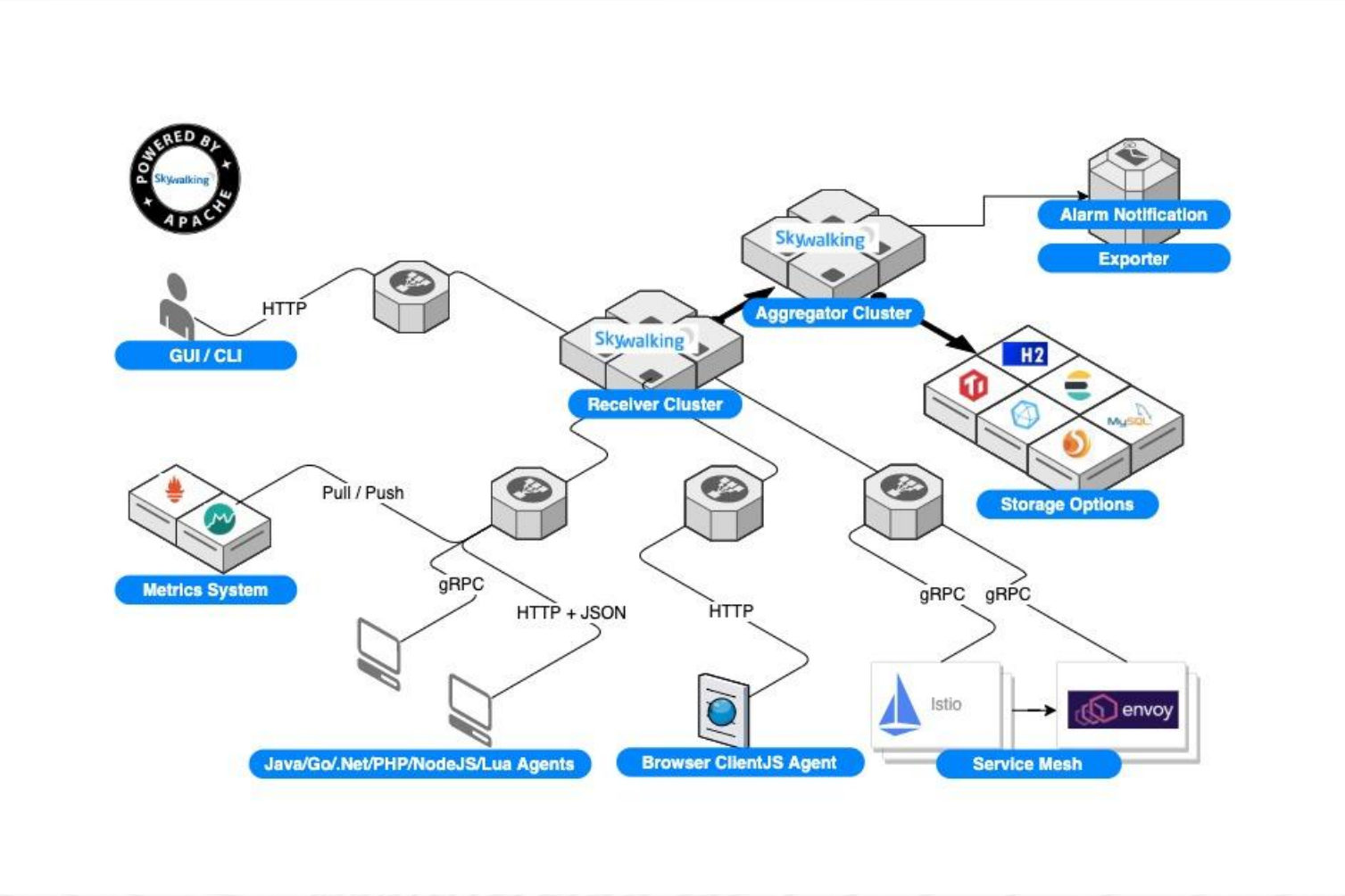
Application performance monitor tool for distributed systems, especially designed for microservices, cloud native and container-based (Docker, Kubernetes) architectures.

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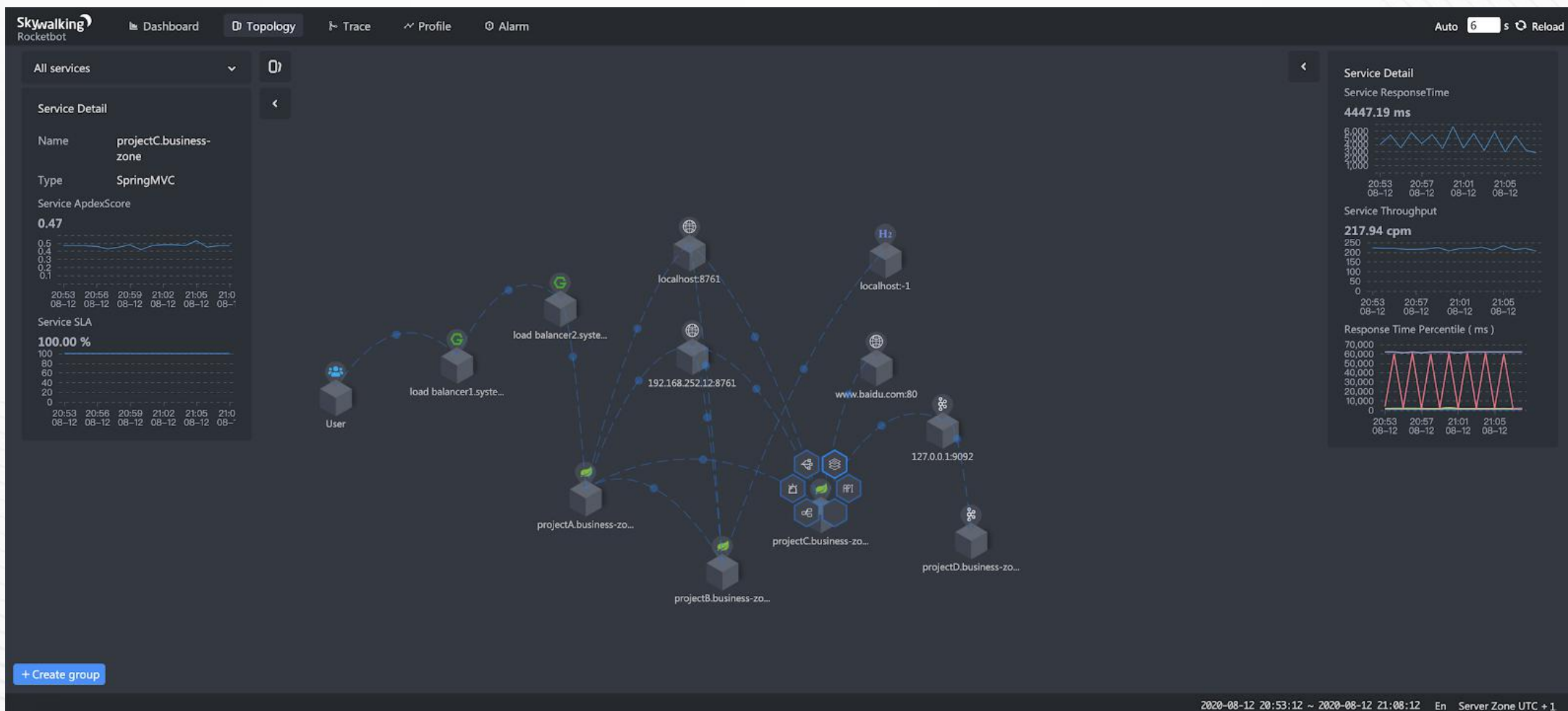
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SkyWalking与云原生

Apache SkyWalking 架构



拓扑关系



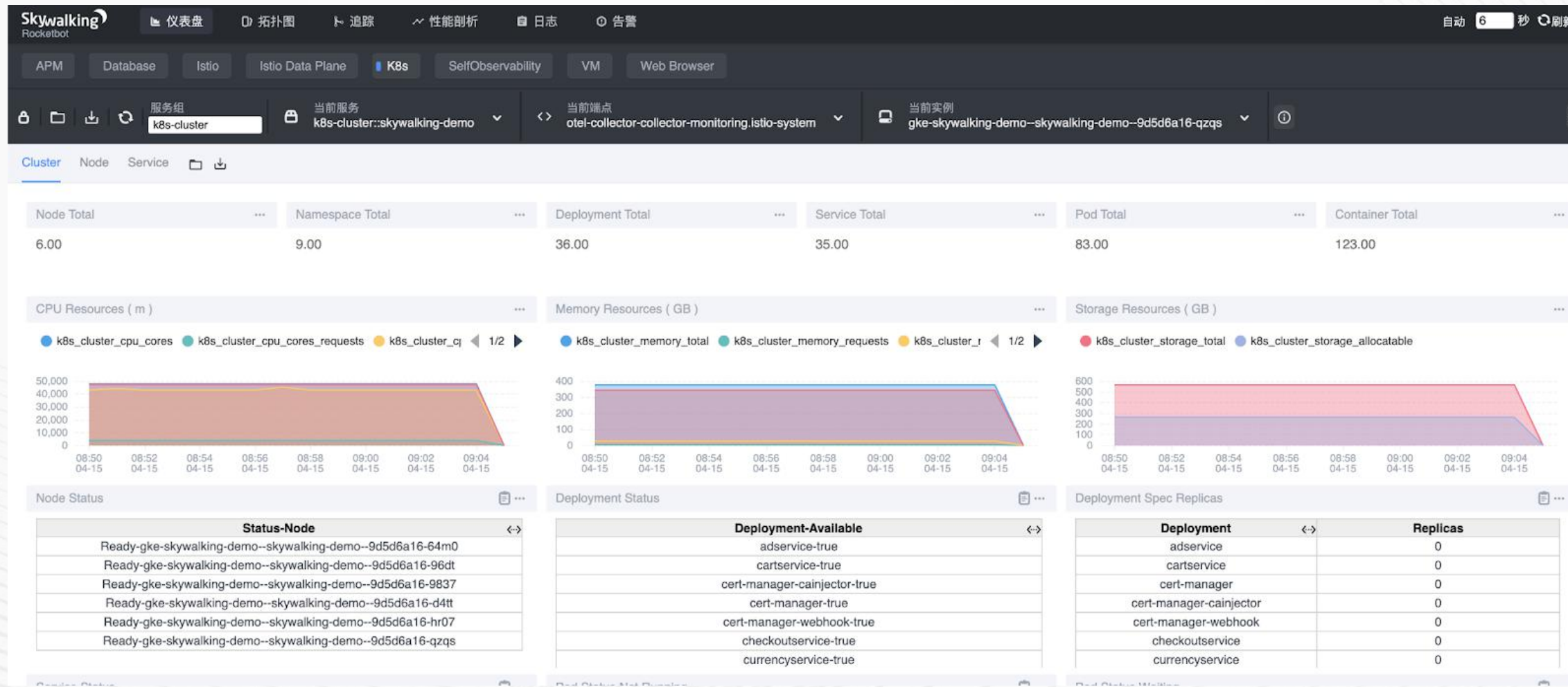
Metric

- MAL-metrics analysis language
- 数据抓取:
 - Prometheus
 - OpenTelemetry
 - Spring sleuth

Trace

- Java agent sidecar (WIP)
- Zipkin receiver

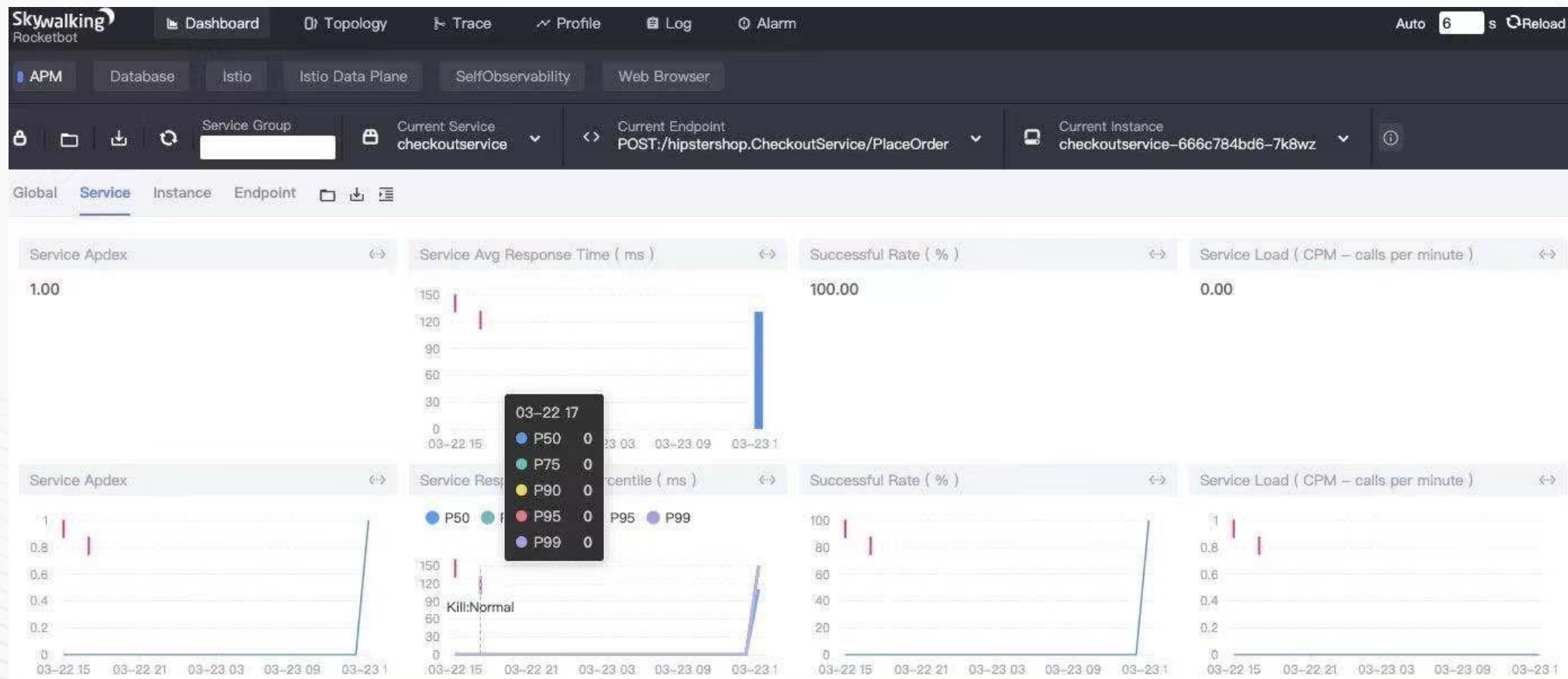
Metric-k8s



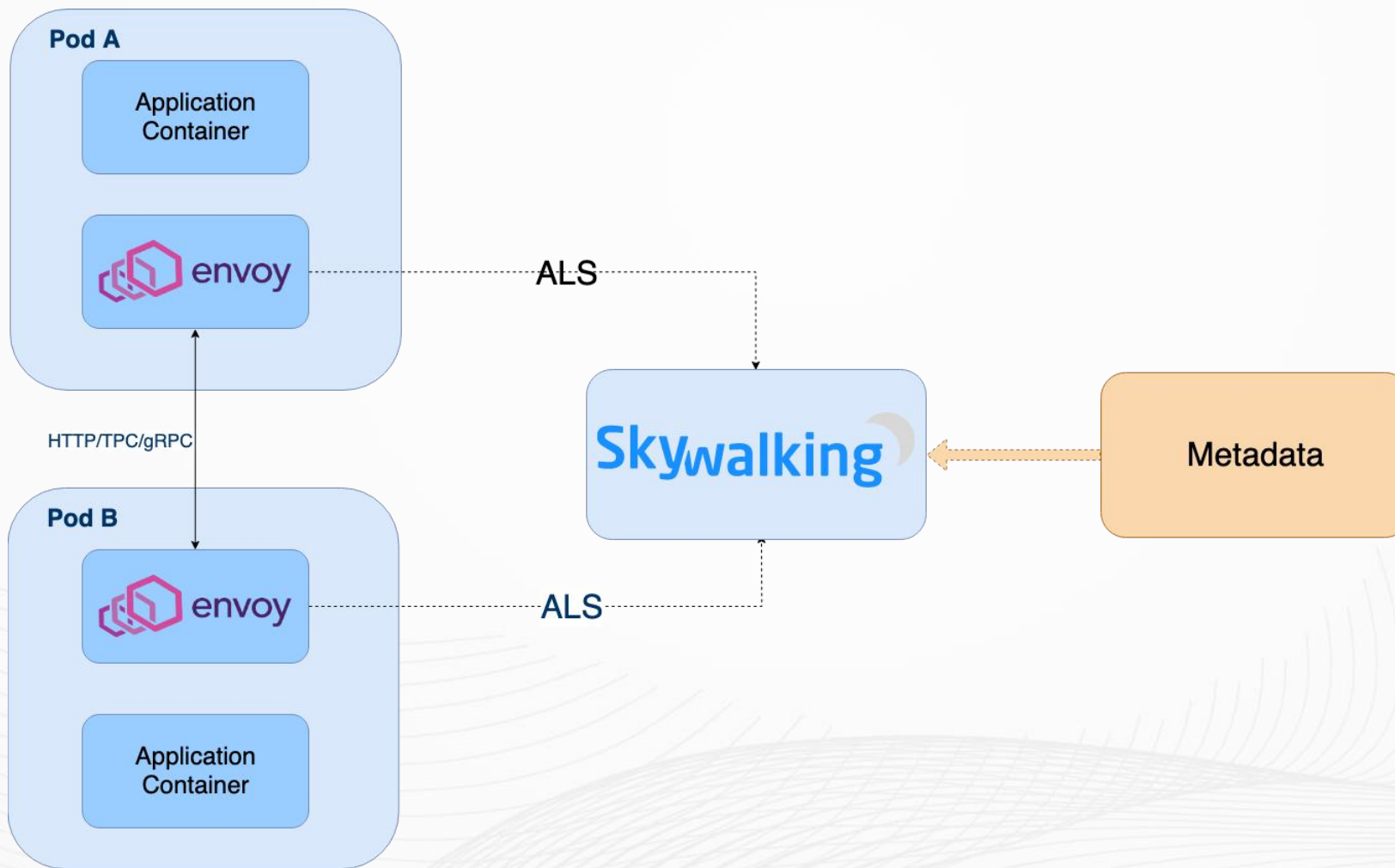
Log

- **采集:** java agent, skywaling-satillite, filebeat(WIP)
- **传输:** Kafka
- **分析:** LAL

Event



Istio-ALS



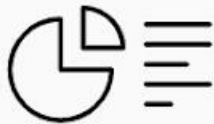
SkyWalking与云原生

SkyWalking Cloud On Kubernetes

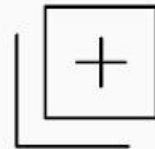
Not just running, but living with Kubernetes



Operator



K8S O11Y



HPA



Istio



**User
friendly**



More...

Apache SkyWalking in Action

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YOUR GUIDE TO OBSERVABILITY AT SCALE

Thanks!

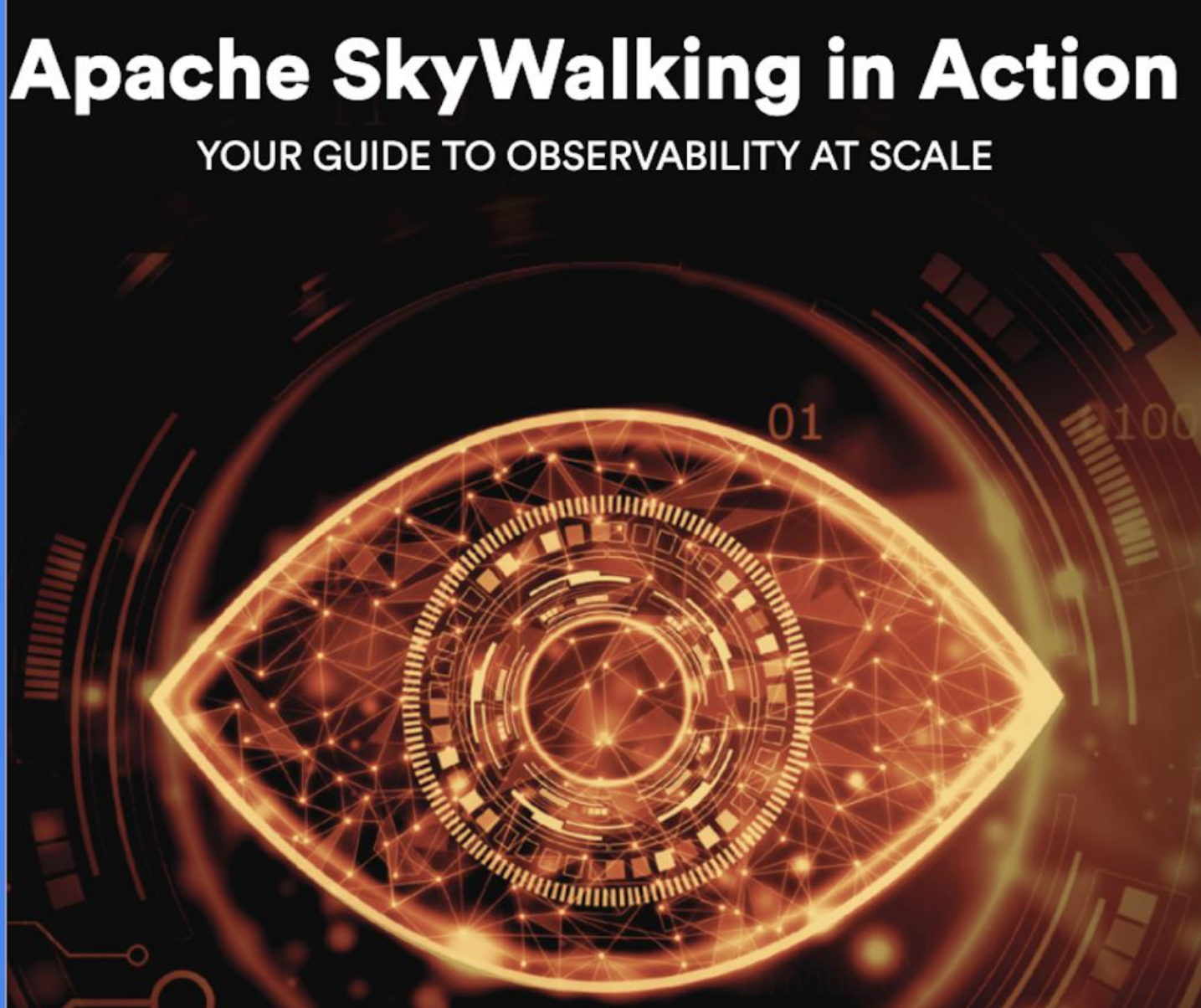
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<https://www.tetrade.io/apache-skywalking-ebook-tetrade/>



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THANKS

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