云原生社区
Cloud Native Community

SHANGHAI

云原生社区Meetup第一期

主办方 云原生社区 Cloud Native Community

承办方 UCLOUD优刻得 云原生社区上海站 Cloud Native Community Shanghai

赞助商 tetrate 万科海外 Broadview

2020-11-28 上海站

高洪涛 tetrate

Tetrate创始工程师

原华为软件开发云技术专家，对云APM有深入的理解，并有丰富的APM产品设计，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。

云原生社区Meetup
第一期·上海站

云原生社区
Cloud Native Community

Apache SkyWalking Adapter for HPA

演讲人：高洪涛
gaohontao Tetrate

目录

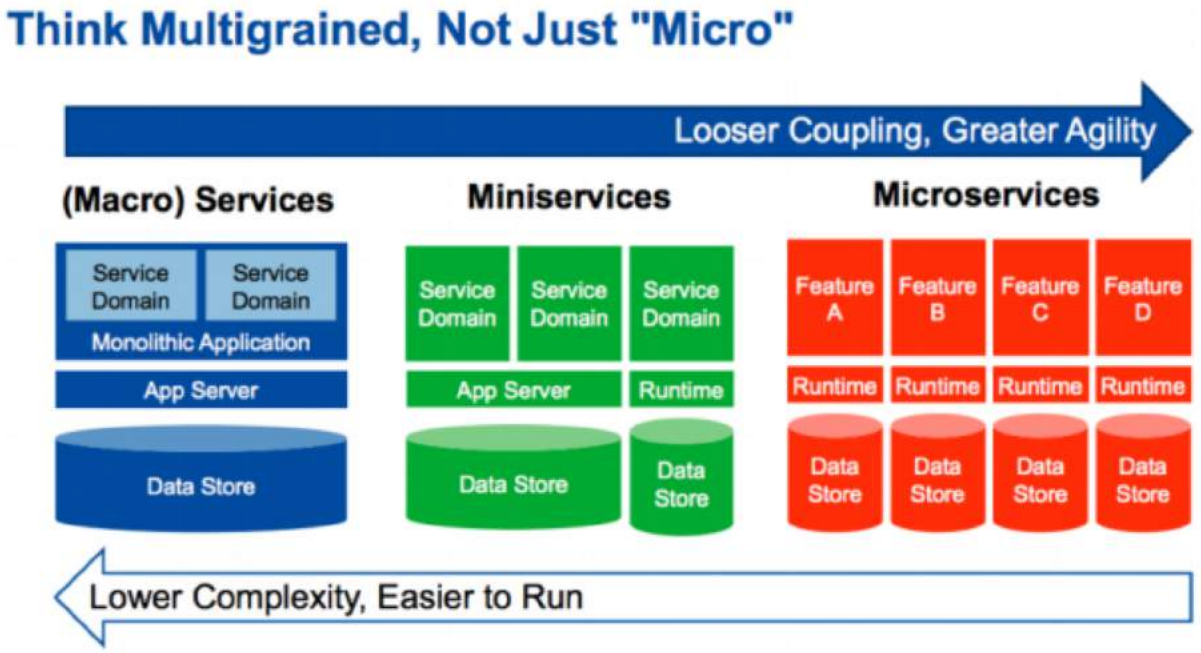
章节一 Apache SkyWalking

章节二 Kubernetes HPA

章节三 Apache SkyWalking Adapter

Apache SkyWalking

Service in real world



Independent

Loosely coupled

Multiple layers

O11Y

Tracing

SW Native Agent
Nginx & Envoy

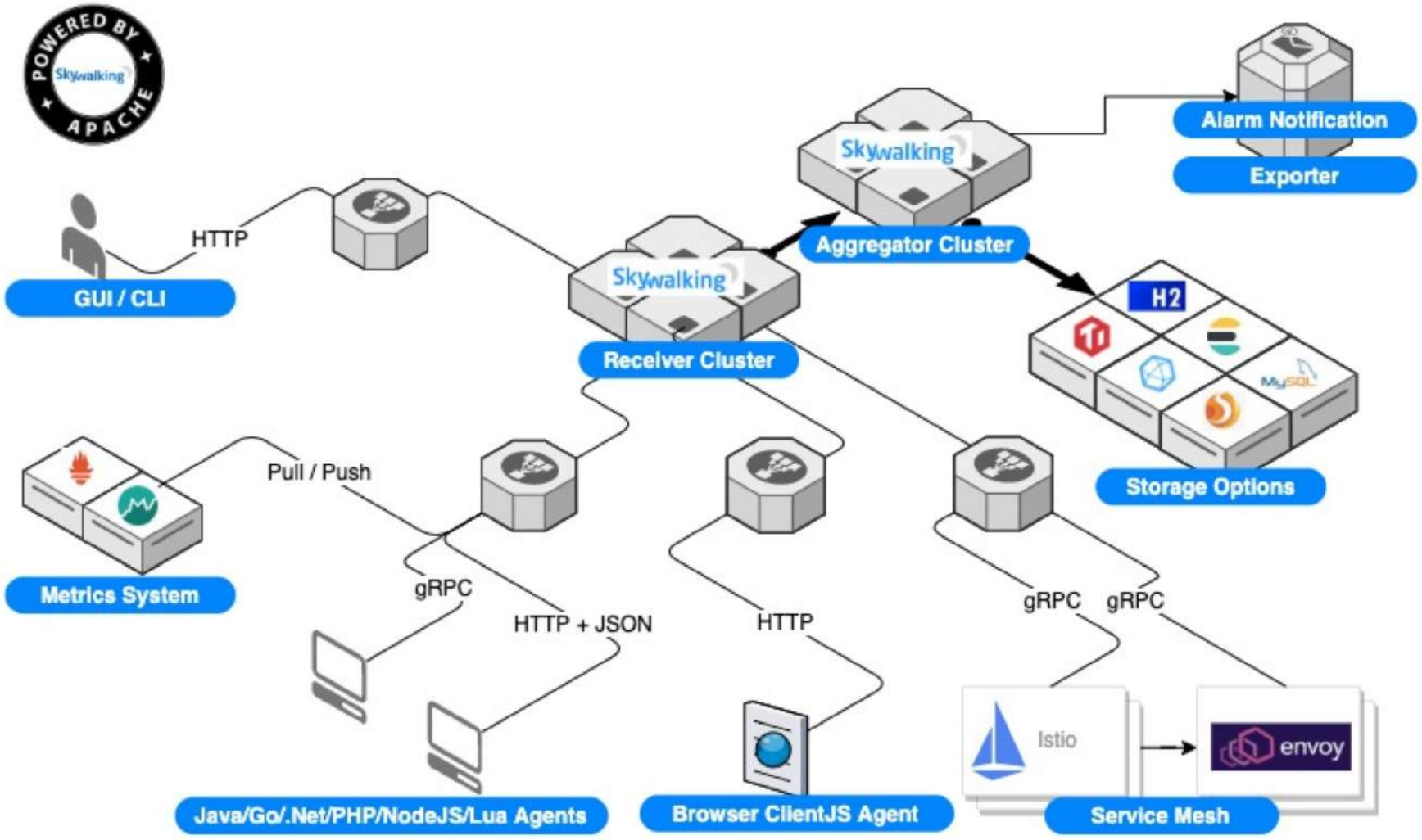
Metrics

Meter & MAL
system

Logging

By Tracing
Satellite

Arch


POWERED BY
Skywalking
APACHE
HTTP
GUI / CLI
Skywalking
Aggregator Cluster
Alarm Notification
Exporter
Skywalking
Receiver Cluster
H2
MySQL
Storage Options
Pull / Push
Metrics System
gRPC
HTTP + JSON
HTTP
gRPC
gRPC
Istio
envoy
Java/Go/.Net/PHP/NodeJS/Lua Agents
Browser ClientJS Agent
Service Mesh

Cloud Native

云原生社区
Cloud Native Community

Istio analyzer

Helm Chart

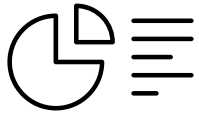
SWCK

Cloud on Kubernetes

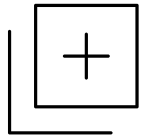
云原生社区
Cloud Native Community

Not just running, but living with Kubernetes

Operator

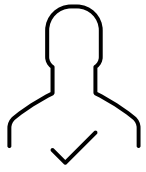


K8S O11Y

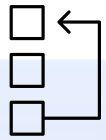


HPA, VPA

Istio



User friendly



More...

Query Interface

云原生社区
Cloud Native Community

SWCTL

User friendly

Imported by Go

CLI

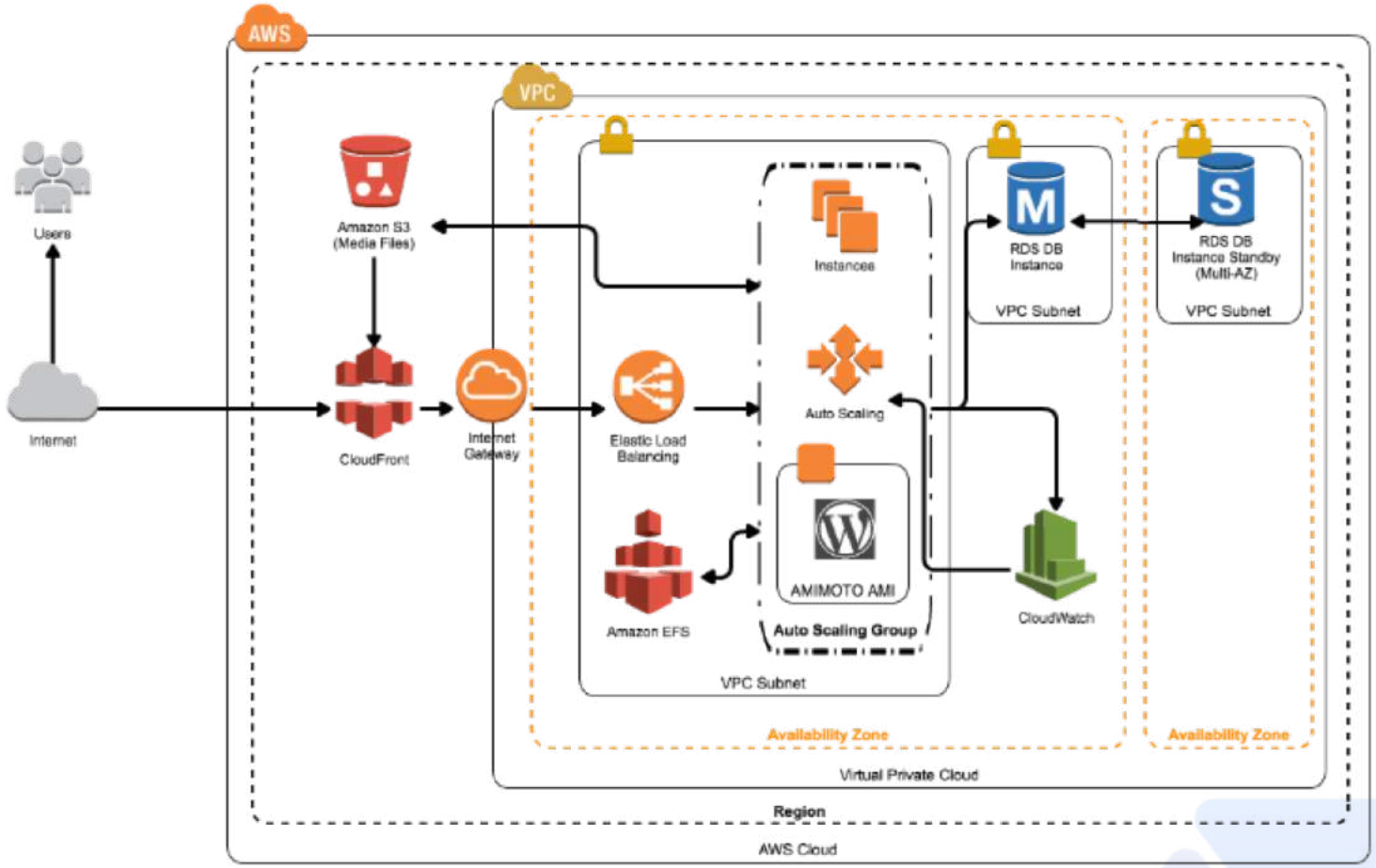
UI

GraphQL

Aggregation
Strongly typed

Kubernetes HPA

VM Auto-scaling



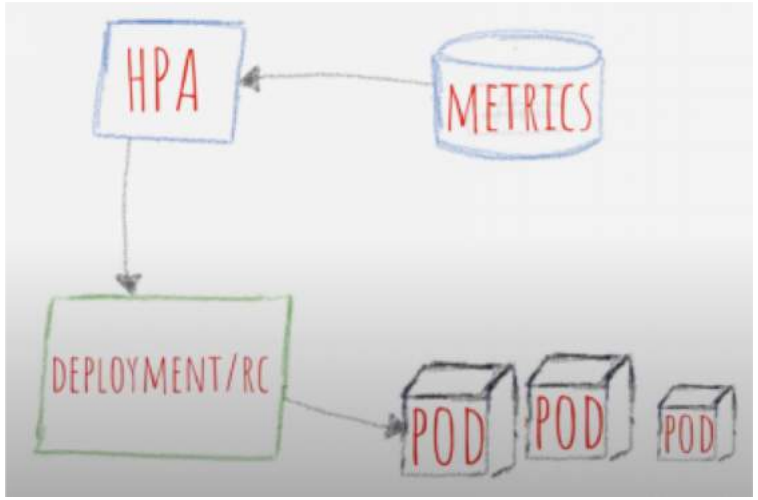
What’s auto scaling

Autoscaling on an abstract level:

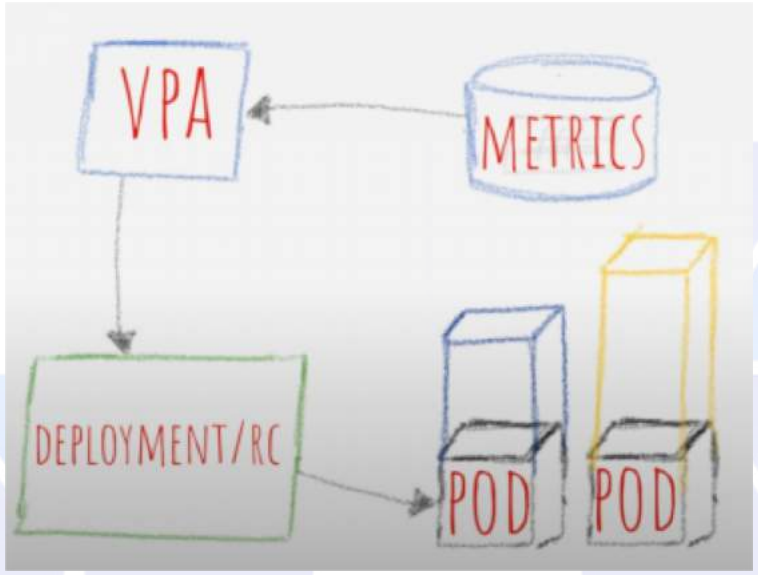
- Calculate resources to cover demand
- Demand measured by metrics
  - Metrics must be collected, stored and made queriable
  - fulfill SLO

Horizontal vs Vertical

HAP:
Increase replicas when necessary



VPA:
Increase resource request/limit when necessary



Problem of HPA v1

Loosely specified APIs

Unmaintained hipster

Problem of HPA v1

Loosely specified APIs

Unmaintained hipster

Resource and Custom metrics API

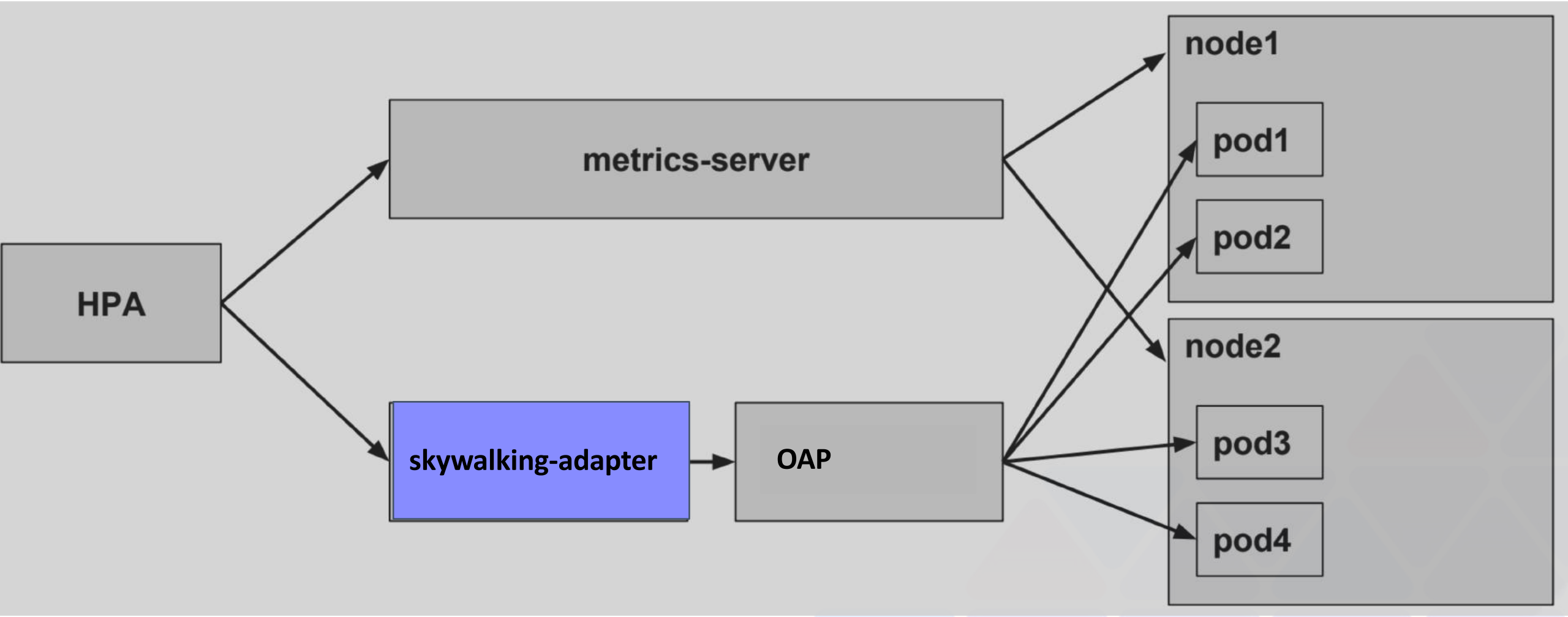
- An API specification
- Implemented and maintained by vendors
- Returns single value

Types of API

- Resource Metrics API
- Custom Metrics API
- External Metrics API

Apache SkyWalking Adapter

Adatper


node1
pod1
pod2
metrics-server
HPA
node2
pod3
pod4
skywalking-adapter
OAP

Metric Scope

Kubernetes	SkyWalking
Service/Deployment	Service
Pod	Instance

Provision

- Deploy SkyWalking backend cluster
- Deploy adapter

http://github.com/apache/skywalking-swck

Query type

- Linear: single dimension, throughput, latency
- Multi-linear: multiple dimension,histogram, percentile

Don’ t query the latest

- The value varies
- Affect the behavior of HPA

Demo

云原生社区
Cloud Native Community

```yaml
- type: External
  external:
    metric:
      name: service_percentile
      metricSelector:
        matchLabels:
           service: front_gateway
            # The index of [P50, P75, P90, P95, P99]. 2 is the index of P90(90%)
           label: "2"
    target:
      type: value
      value: 80
```

云原生社区
Cloud Native Community

云原生社区Meetup

第一期·上海站

Wechat: putao209764

Twitter: @hanahmily

Mail: hanahmily@gmail.com