

# OpenTelemetry

Vers un standard pour surveiller  
vos applications

@b\_viguier

platform.sh



# STANDARD

# HOW STANDARDS PROLIFERATE:

(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC)

SITUATION:  
THERE ARE  
14 COMPETING  
STANDARDS.

14?! RIDICULOUS!  
WE NEED TO DEVELOP  
ONE UNIVERSAL STANDARD  
THAT COVERS EVERYONE'S  
USE CASES.



YEAH!

SOON:

SITUATION:  
THERE ARE  
15 COMPETING  
STANDARDS.

<https://xkcd.com/927/>



**blackfire.io**

A Platform.sh product

# Le Monitoring

De quoi parle-t-on ?

@b\_viguier

platform.sh



Est ce que  
ça marche ?

Pourquoi  
ça ne marche  
pas ?



Avez-vous  
besoin de  
*Monitoring* ?



Combien de temps  
votre application  
peut-elle rester  
en panne ?

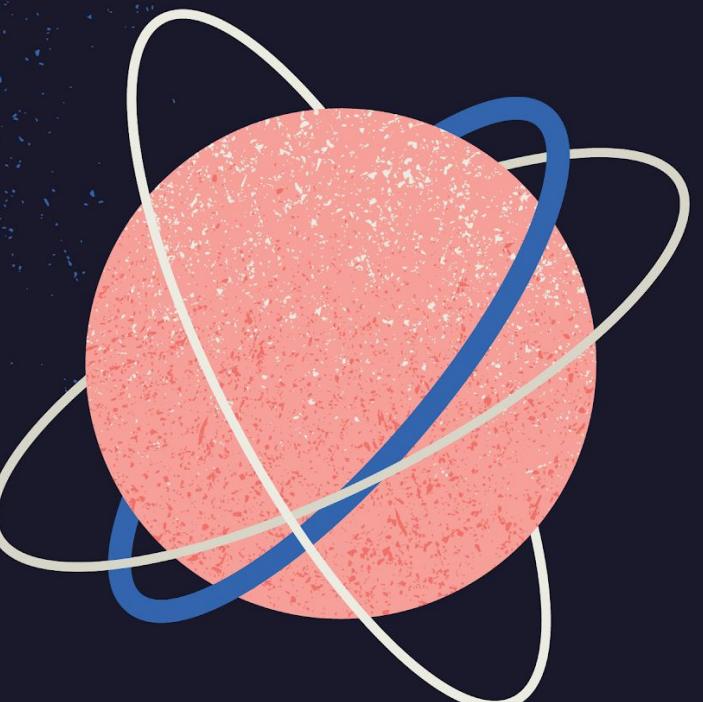
# Par où commencer?

Quelques pistes

@b\_viguier

platform.sh

**FORUM PHP**  
PARIS 2022



# **Solution Analytics**

Le plus connu



# Solution Analytics

## Avantages

- Simple
- Orienté *Business*

## Inconvénients

- Orienté *Business*
- Lié au *frontend*

# Sonde HTTP

Le moins intrusif



TIME PICKER  
Last 30 mins

Filter locations

Tokyo, JP

Columbus, OH, USA

Portland, OR, USA

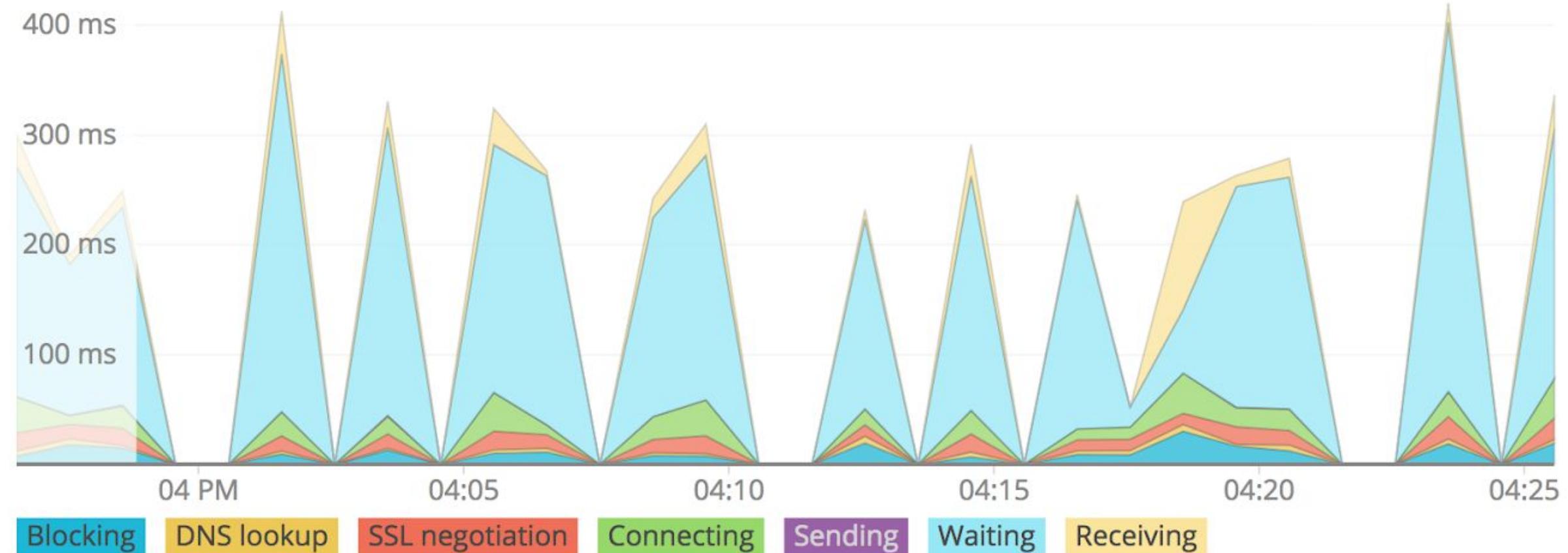
SORT BY

Duration (desc) ▾

include failed results

Tokyo, JP 25 minutes ago	16.1 s
Portland, OR, USA 3 minutes ago	14.6 s
Portland, OR, USA 23 minutes ago	14.6 s
Tokyo, JP 6 minutes ago	12.6 s
Columbus, OH, USA 20 minutes ago	12.1 s
Columbus, OH, USA 25 minutes ago	12 s

## Network timings



# Sonde HTTP

## Avantages

- *Plug&Play*
- Marche partout
- Scénarios

## Inconvénients

- Peu de détails
- Scénarios à écrire

# Les Logs

Le plus détaillé



Search... (e.g. status:200 AND extension:PHP)

Uses lucene query syntax

lucene ▾



Discover

Add a filter +

Visualize

logstash-\*



Dashboard

Timelion

Machine Learning

Graph

Dev Tools

Monitoring

Management

Selected Fields

? \_source

Available Fields



Popular

# bytes

t machine.os

Top 5 values in 454 / 500 records

win 8



25.3%

win 7



23.3%

win xp



22.2%

ios



18.7%

osx



10.4%

t url

# url\_count

t @message

t @tags

⌚ @timestamp

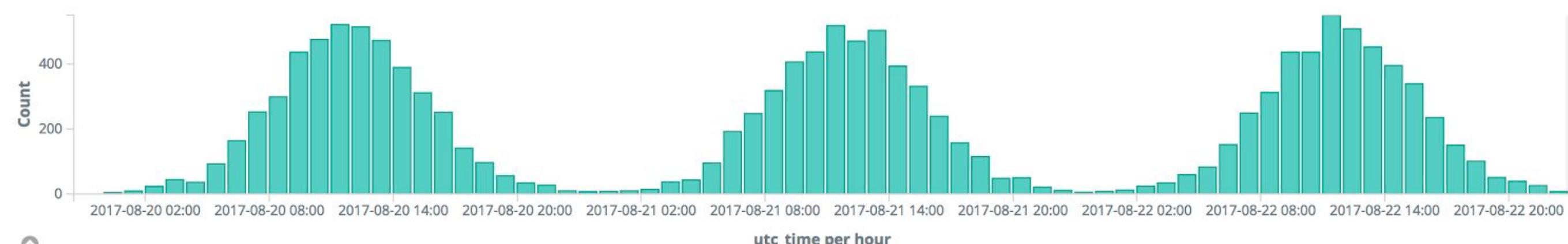
t \_id

t \_index

# \_score

t \_type

August 19th 2017, 22:32:12.111 - August 22nd 2017, 22:47:08.997 — Auto



Time ▾

\_source

- ▶ August 22nd 2017, 22:41:50.090 index: logstash-0 @timestamp: August 22nd 2017, 22:41:50.090 ip: 55.149.159.66 extension: jpg response: 200 geo.coordinates: { "lat": 36.68827778, "lon": -78.05447222 } geo.src: PH geo.dest: IN geo.srcdest: PH:IN @tags: success, info utc\_time: August 22nd 2017, 22:41:50.090 referer: http://www.slate.com/error/claudie-nicollier agent: Mozilla/5.0 (X11; Linux x86\_64; rv:6.0a1) Gecko/20110421 Firefox/6.0a1 clientip: 55.149.159.66 bytes: 7.226KB host: media-for-the-masses.theacademyofperformingartsandscience.org request: /uploads/catherine-coleman.jpg url: https://media-for-the-masses.theacademyofperformingart
- ▶ August 22nd 2017, 22:36:47.459 index: logstash-0 @timestamp: August 22nd 2017, 22:36:47.459 ip: 52.32.151.209 extension: jpg response: 200 geo.coordinates: { "lat": 38.57072444, "lon": -90.15622111 } geo.src: MX geo.dest: CN geo.srcdest: MX:CN @tags: success, info utc\_time: August 22nd 2017, 22:36:47.459 referer: http://nytimes.com/success/jos-hern-ndez agent: Mozilla/5.0 (X11; Linux x86\_64; rv:6.0a1) Gecko/20110421 Firefox/6.0a1 clientip: 52.32.151.209 bytes: 7.266KB host: media-for-the-masses.theacademyofperformingartsandscience.org request: /uploads/robert-springer.jpg url: https://media-for-the-masses.theacademyofperformingartsandscience.org
- ▶ August 22nd 2017, 22:27:22.677 index: logstash-0 @timestamp: August 22nd 2017, 22:27:22.677 ip: 73.157.198.34 extension: png response: 200 geo.coordinates: { "lat": 30.77883333, "lon": -86.52211111 } geo.src: CN geo.dest: DZ geo.srcdest: CN:DZ @tags: success, security utc\_time: August 22nd 2017, 22:27:22.677 referer: http://facebook.com/success/alexander-poleshchuk agent: Mozilla/5.0 (X11; Linux i686) AppleWebKit/534.24 (KHTML, like Gecko) Chrome/11.0.696.50 Safari/534.24 clientip: 73.157.198.34 bytes: 2.772KB host: media-for-the-masses.theacademyofperformingartsandscience.org request: /uploads/karen-nyberg.png url: https://media-for-the-masses.theacademyofperformingartsandscience.org
- ▶ August 22nd 2017, 22:20:58.781 index: logstash-0 @timestamp: August 22nd 2017, 22:20:58.781 ip: 59.186.215.45 extension: jpg response: 200 geo.coordinates: { "lat": 45.04993556, "lon": -110.7466008 } geo.src: MM geo.dest: BF geo.srcdest: MM:BF @tags: success, info utc\_time: August 22nd 2017, 22:20:58.781 referer: http://twitter.com/success/robert-curbbeam agent: Mozilla/5.0 (X11; Linux i686) AppleWebKit/534.24 (KHTML, like Gecko) Chrome/11.0.696.50 Safari/534.24 clientip: 59.186.215.45 bytes: 7.205KB host: media-for-the-masses.theacademyofperformingartsandscience.org request: /uploads/frederick-gregory.jpg url: https://media-for-the-masses.theacademyofperformingartsandscience.org
- ▶ August 22nd 2017, 22:13:34.096 index: logstash-0 @timestamp: August 22nd 2017, 22:13:34.096 ip: 251.72.207.227 extension: jpg response: 200 geo.coordinates: { "lat": 35.85714286, "lon": -70.66666667 } geo.src: US geo.dest: US geo.srcdest: US:US @tags: success, info utc\_time: August 22nd 2017, 22:13:34.096 referer: http://www.pbs.org/superteachersworld/agent-of-change/agent-of-change.html agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/60.0.3112.113 Safari/537.36 clientip: 251.72.207.227 bytes: 1.048KB host: media-for-the-masses.theacademyofperformingartsandscience.org request: /uploads/agent-of-change.jpg url: https://media-for-the-masses.theacademyofperformingartsandscience.org

Collapse

# Logs

## Avantages

- Très détaillés
- Simples
- Portables

## Inconvénients

- Trop détaillés
- Volume
- Hétéroclytes

# Les métriques

Le plus visuel



# Métriques

## Avantages

- Agrégation
- Évolution dans le temps
- *Alerting*

## Inconvénients

- Peu de détails
- Intégration

# Golden Metrics

# Golden Metrics



Charge



Performance



Erreurs

# Tracing

Le rayon-X

## ▼ frontend: HTTP GET /dispatch 4737e2c



Start December 16, 2018 5:19 PM | Duration 700.68ms | Services 6 | Depth 5 | Total Spans 50

175.17ms

350.34ms

525.51ms

700.68ms

Service & Operation	▼ > ▽ ▷	0ms	175.17ms	350.34ms	525.51ms	700.68ms
frontend HTTP GET /dispatch						
frontend HTTP GET: /customer				310.74ms		
▼ frontend HTTP GET				310.73ms		
customer HTTP GET /customer			310.4ms			
mysql SQL SELECT			310.31ms			
frontend Driver::findNearest				199.4ms		
▼ driver Driver::findNearest				199.08ms		
redis FindDriverIDs					18.81ms	
redis GetDriver					10.55ms	
redis GetDriver				34.14ms		
redis GetDriver					9.27ms	
redis GetDriver					9.83ms	
redis GetDriver					9.84ms	
redis GetDriver					10.25ms	
redis GetDriver					15.86ms	
redis GetDriver					13.55ms	
redis GetDriver					12.29ms	
redis GetDriver					36.42ms	
redis GetDriver					7.35ms	
redis GetDriver					10.37ms	

# Tracing

## Avantages

- Précis & Global
- Micro-services
- Contexte (logs)

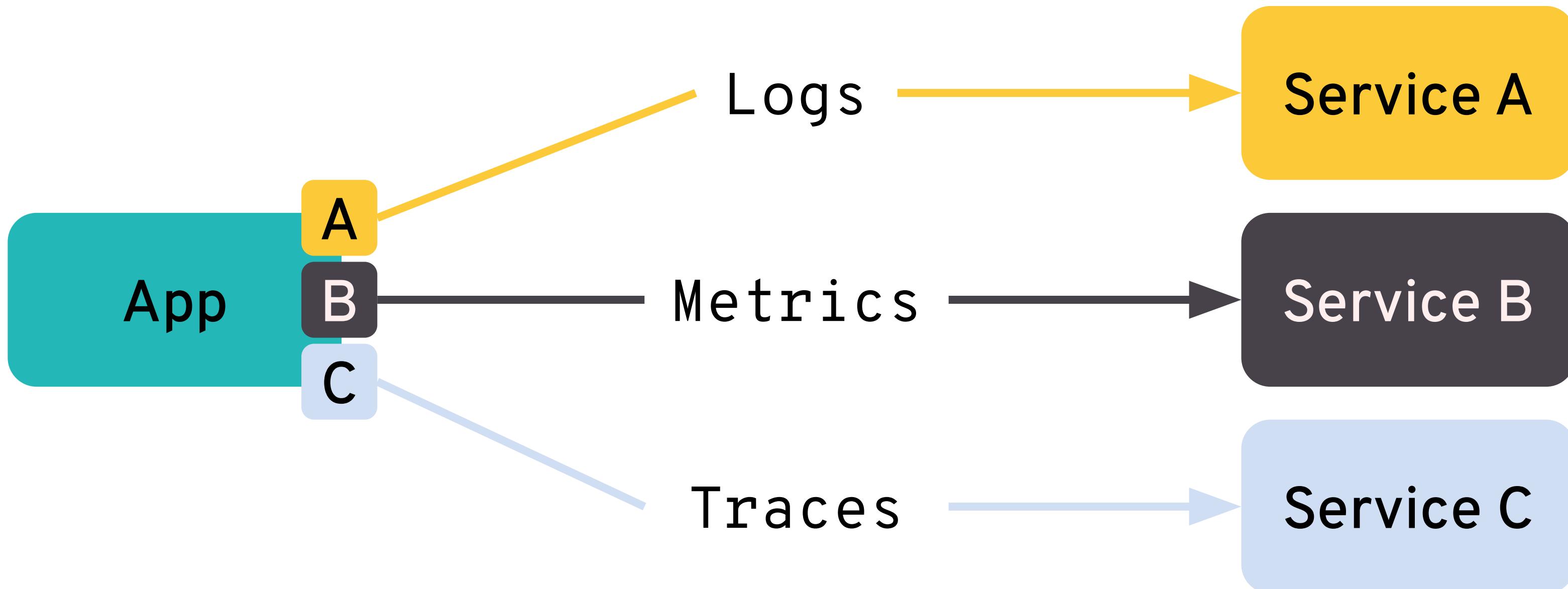
## Inconvénients

- Intégration poussée



# Les 3 piliers

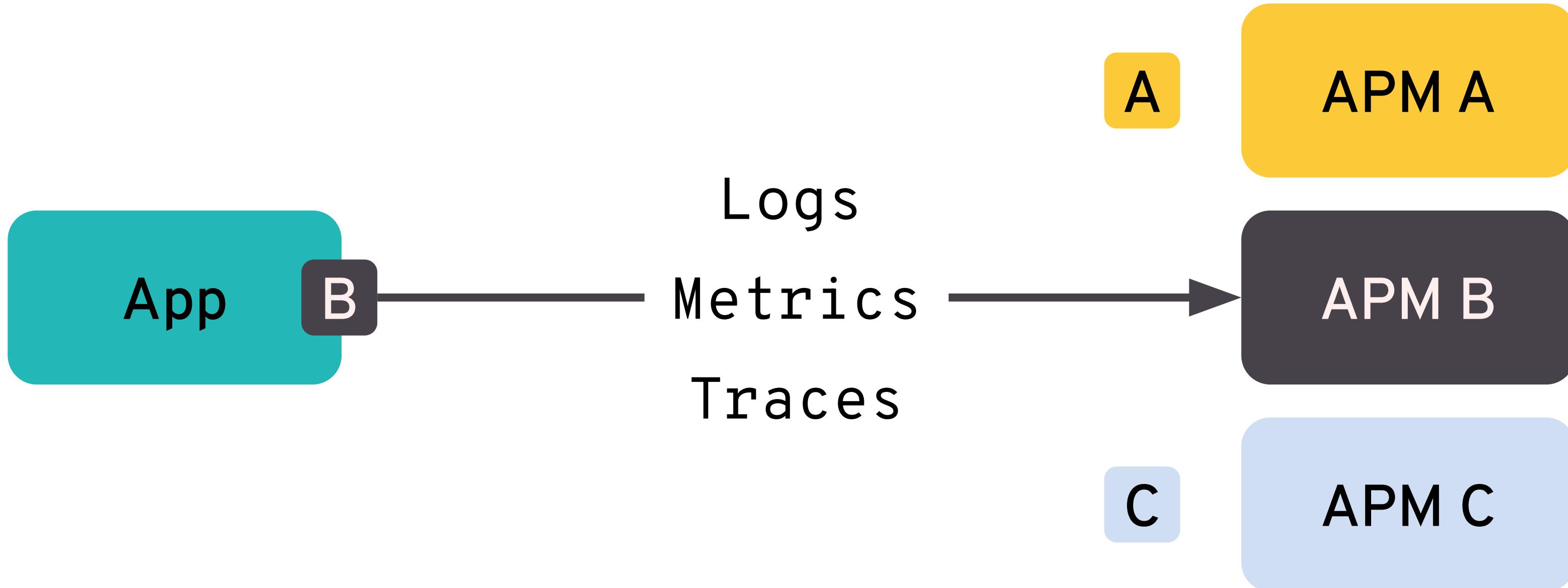
# Signaux



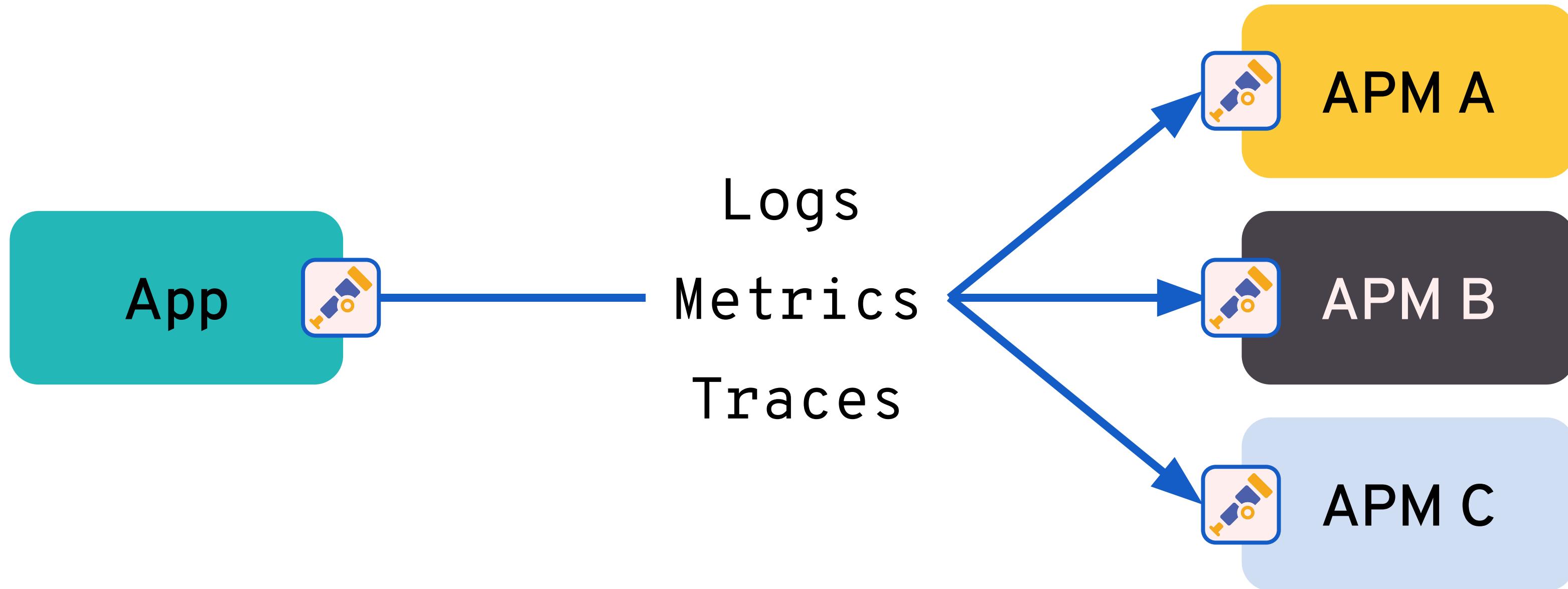
# APM

*Application Performance  
Management*

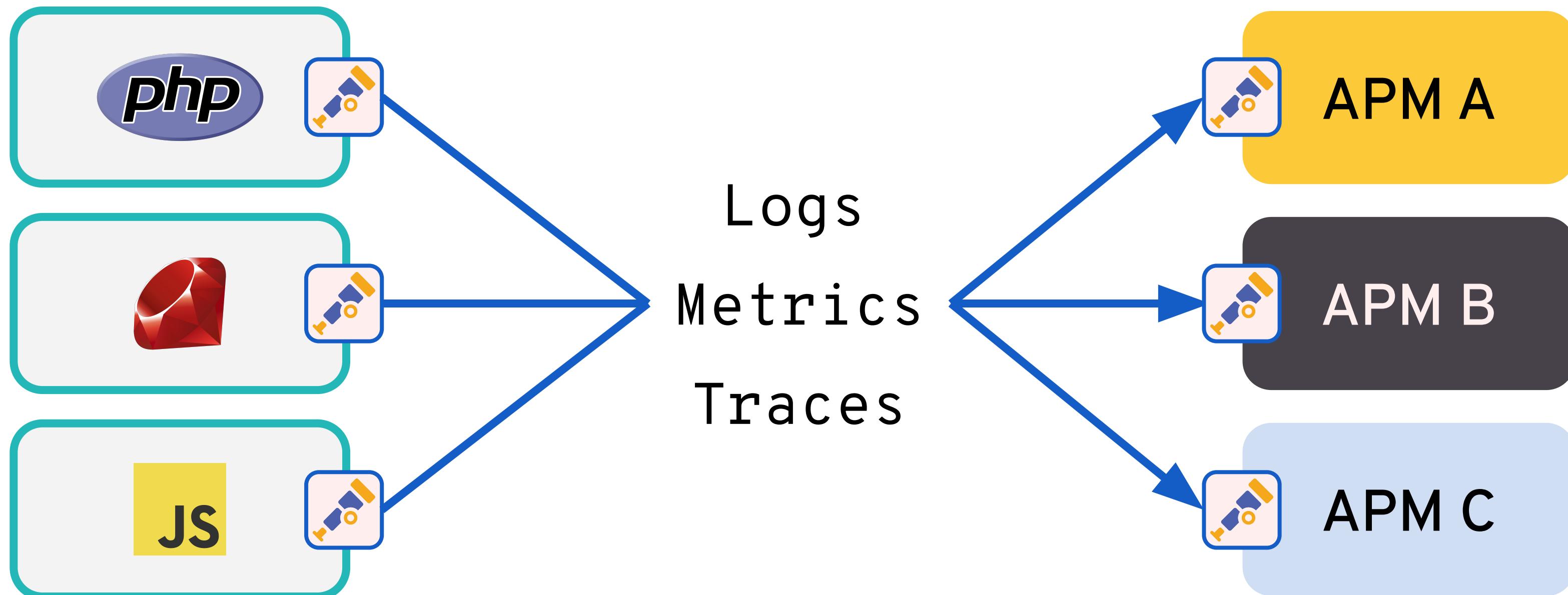
# Intégration d'un APM



# OpenTelemetry: la promesse



# OpenTelemetry: la promesse (2)





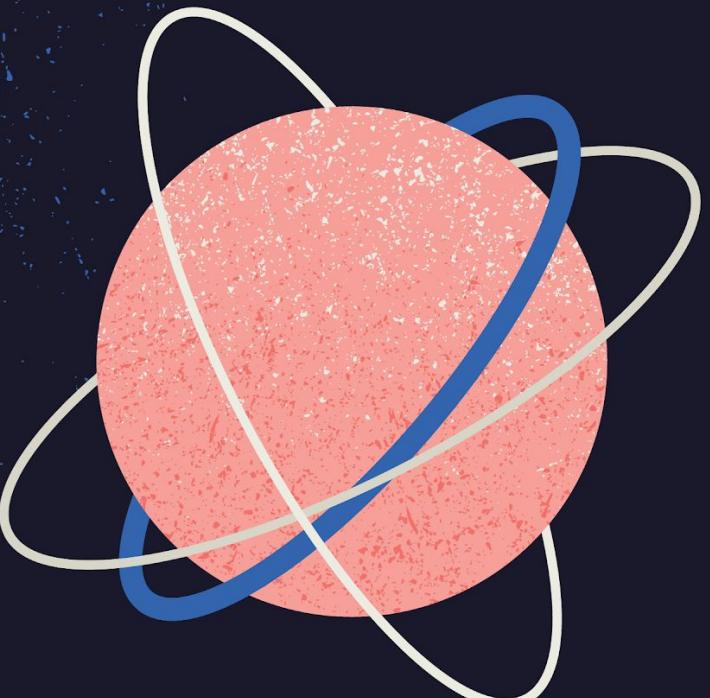
# OpenTelemetry

<https://opentelemetry.io>

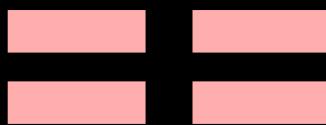
@b\_viguier

platform.sh

**FORUM PHP**  
PARIS 2022



# OpenTelemetry



## Documentation (+ un peu de code)

# Status

## Tracing

- **API**: stable, feature-freeze
- **SDK**: stable
- **Protocol**: stable

## Metrics

- **API**: stable
- **SDK**: mixed
- **Protocol**: stable

## Logging

- **API**: draft
- **SDK**: draft
- **Protocol**: stable

# Protocol

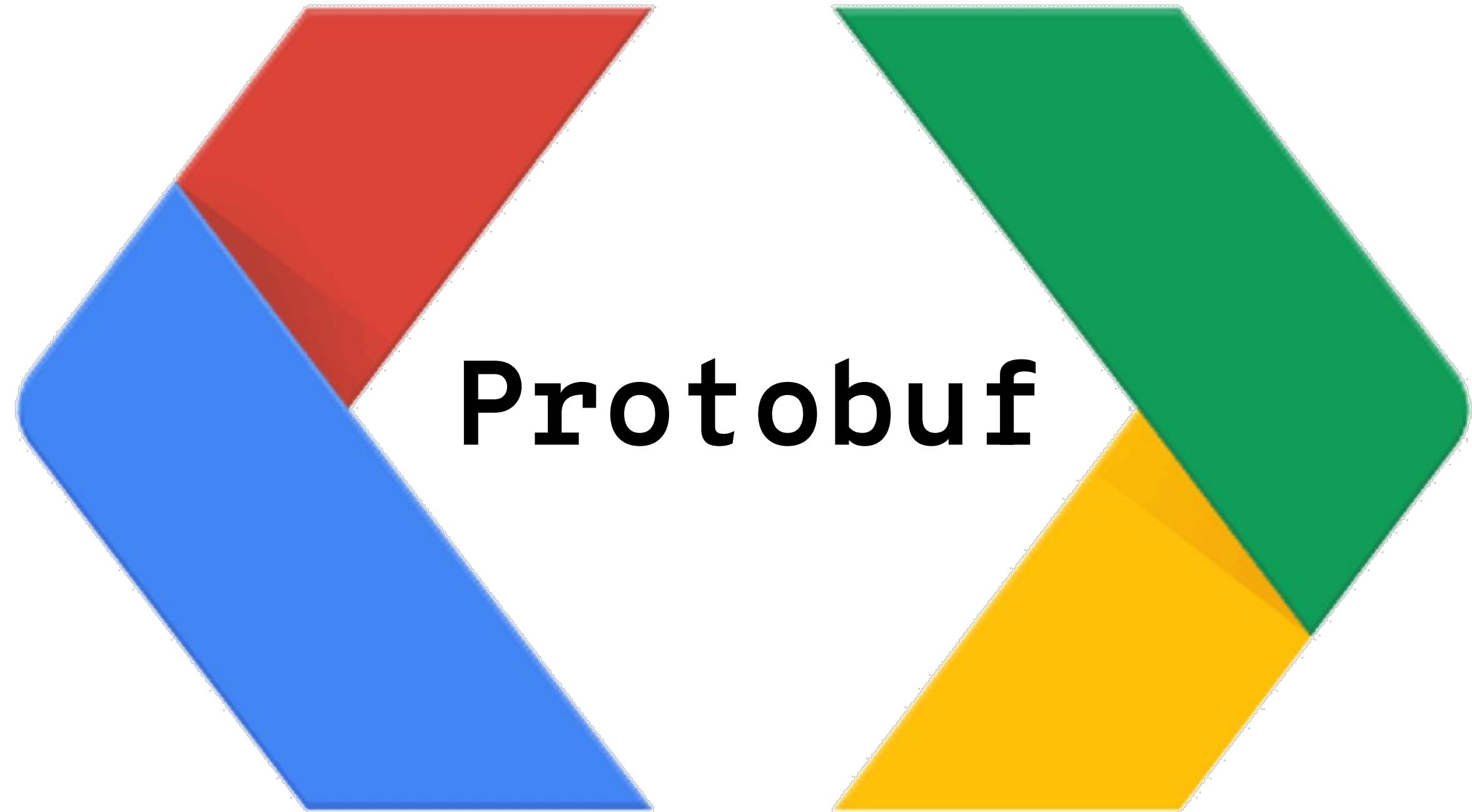
Transport

↑GRPC↓



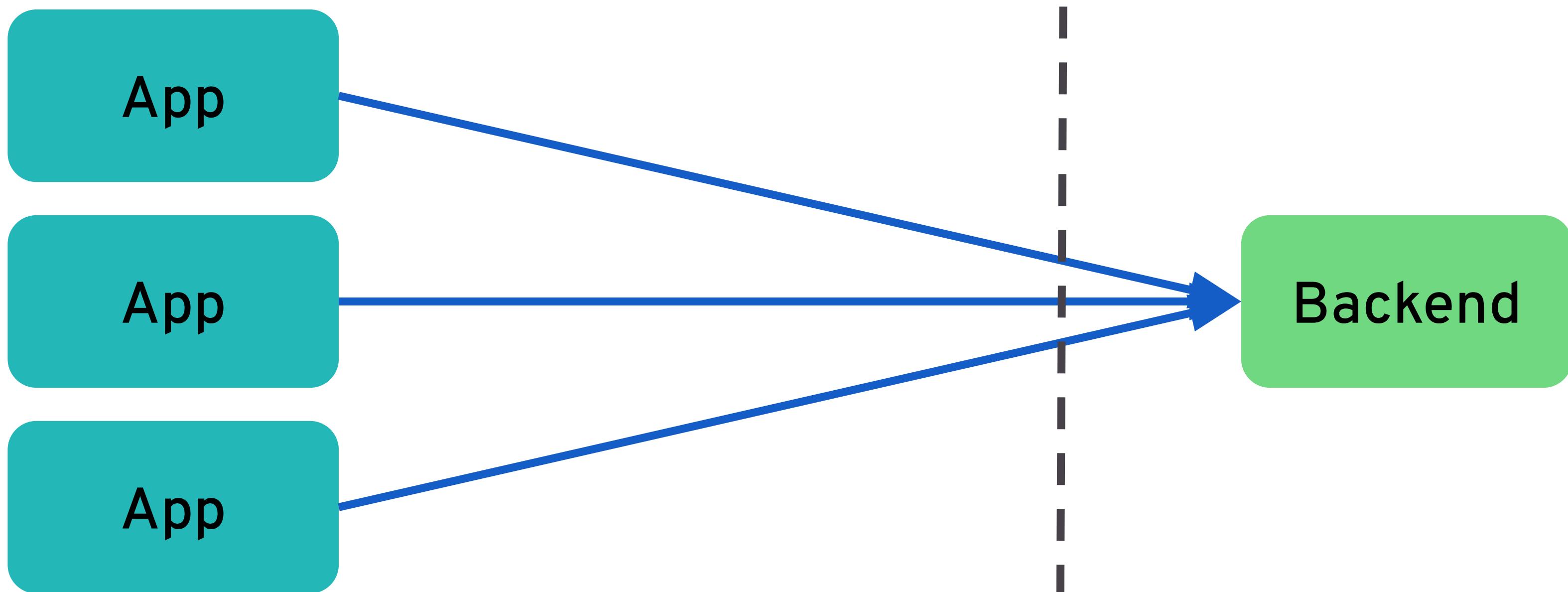
# Protocol

Format

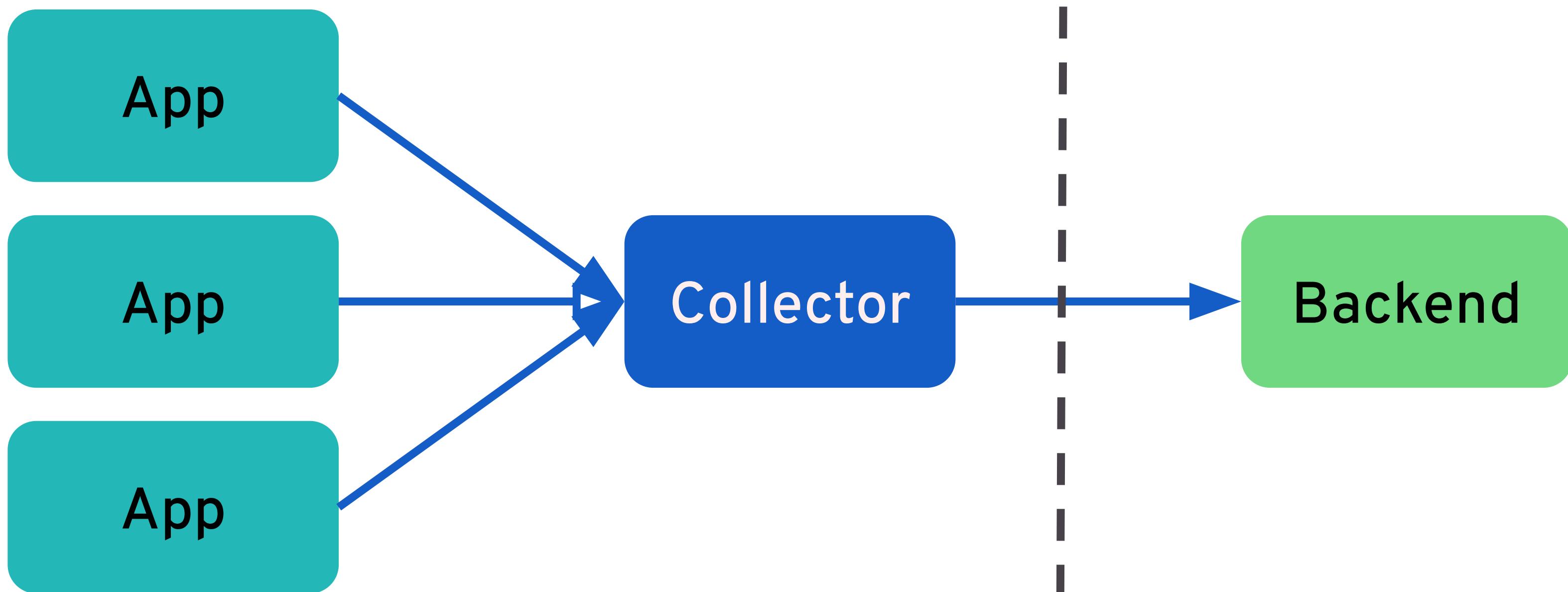


{JSON}

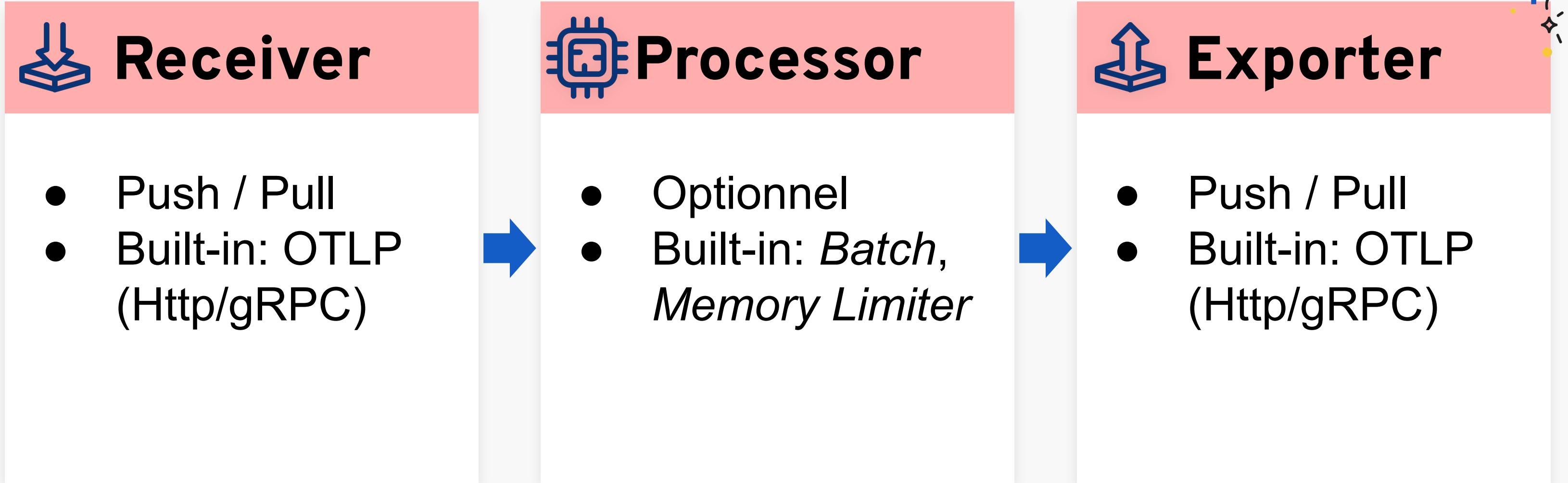
# Architecture



# Architecture



# Le Collector



# Tracing

En gros plan

@b\_viguier

platform.sh



# Span

Il se passe quelque chose...



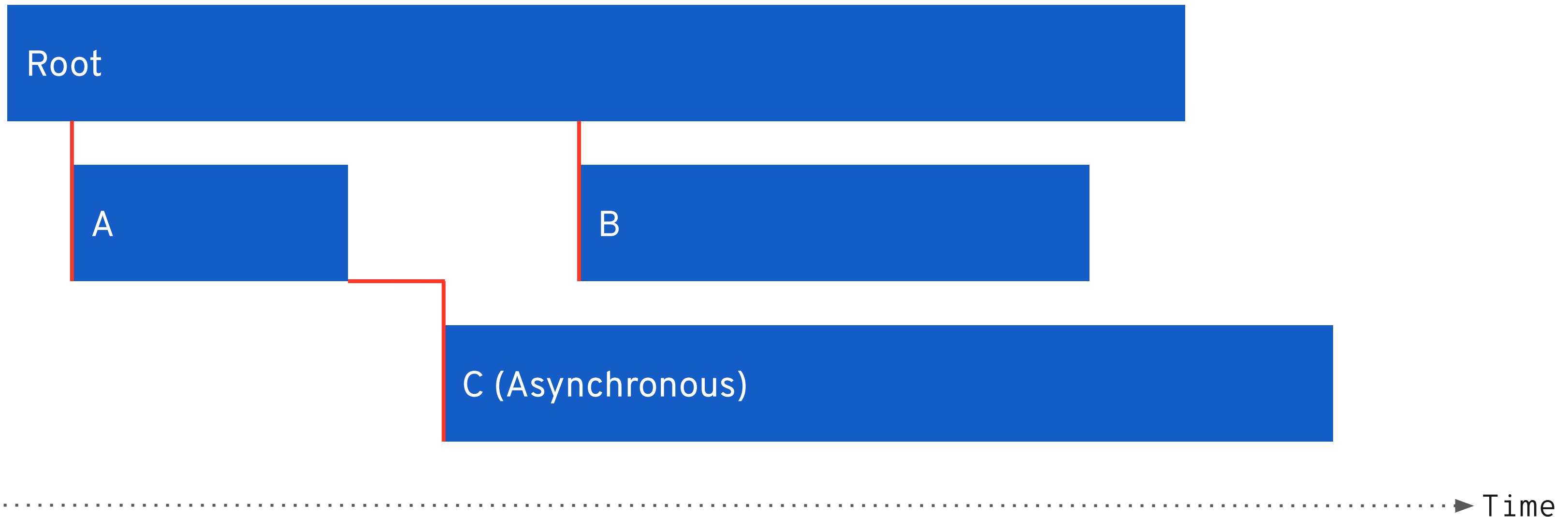
# Span

## Nommage

Span Name	Guidance
get	
get_account/42	
get_account	
get_account/{accountId}	

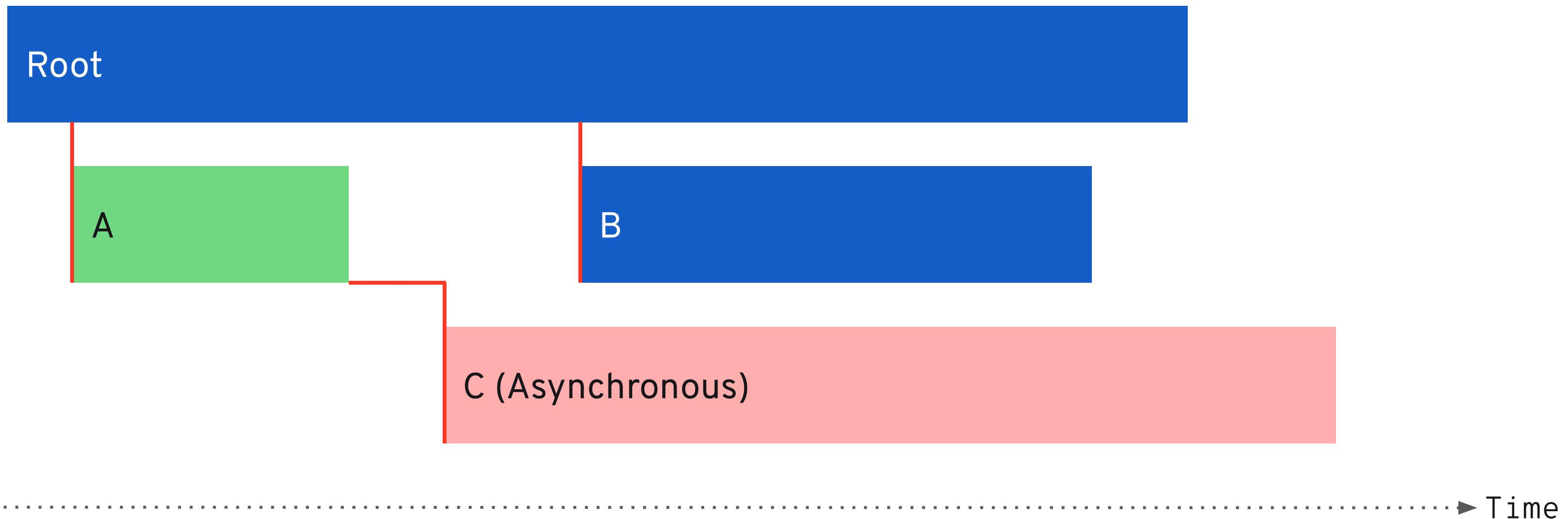
# Spans

## Parents et enfants



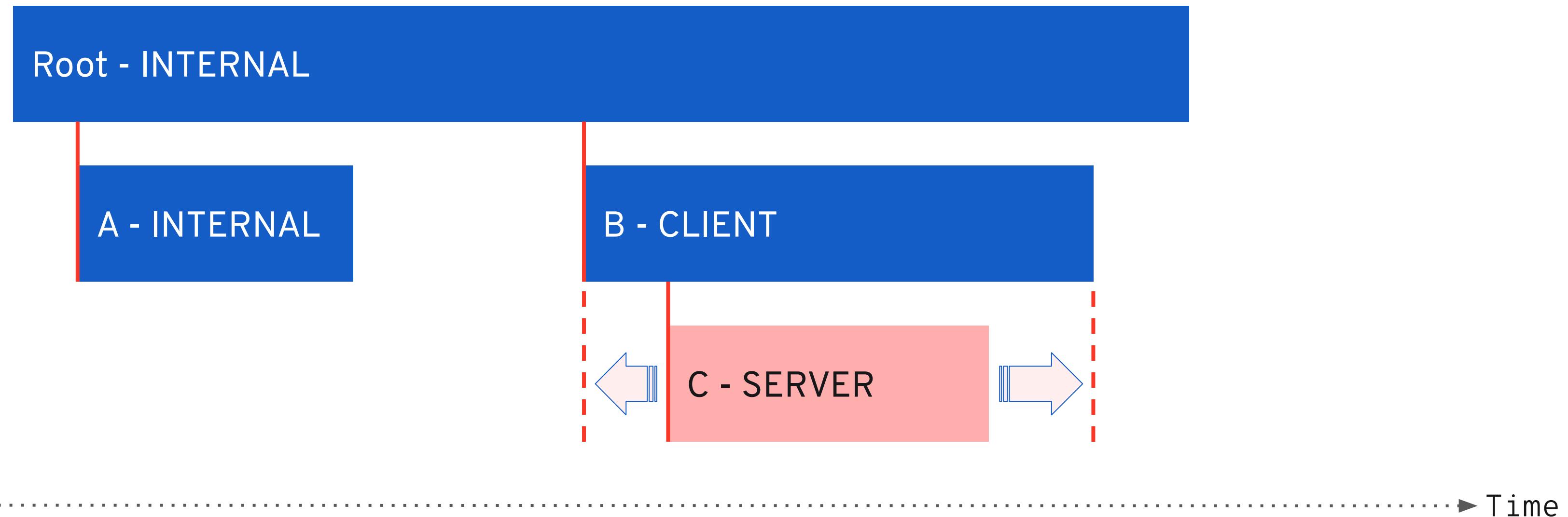
# Spans

## Multi services



# SpanKind

INTERNAL, CLIENT, SERVER, ...



# Span Attributes

## HTTP, exemple Client

Attribute	Value
<code>http.method</code>	"GET"
<code>http.flavor</code>	"1.1"
<code>http.url</code>	" <code>https://example.com:8080/webshop/articles/4?s=1</code> "
<code>net.peer.ip</code>	"192.0.2.5"
<code>http.status_code</code>	200

# Span Attributes

Database, exemple MySql

Attribute	Value
<b>db.system</b>	"mysql"
<b>db.operation</b>	"SELECT"
<b>db.user</b>	"billing_user"
<b>db.name</b>	"ShopDb"
<b>db.statement</b>	"SELECT * FROM orders WHERE order_id = 'o4711'"

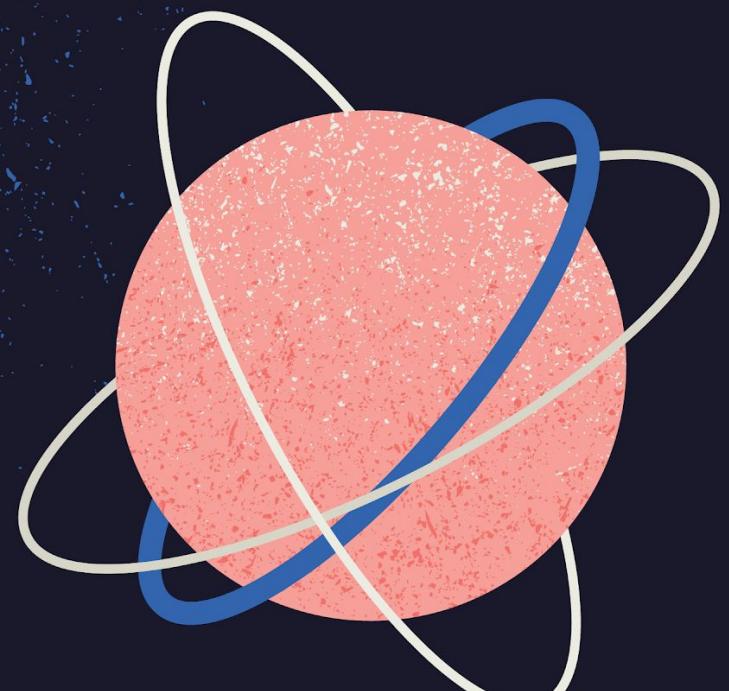
# OpenTelemetry et PHP

Eco-système et exemples

@b\_viguier

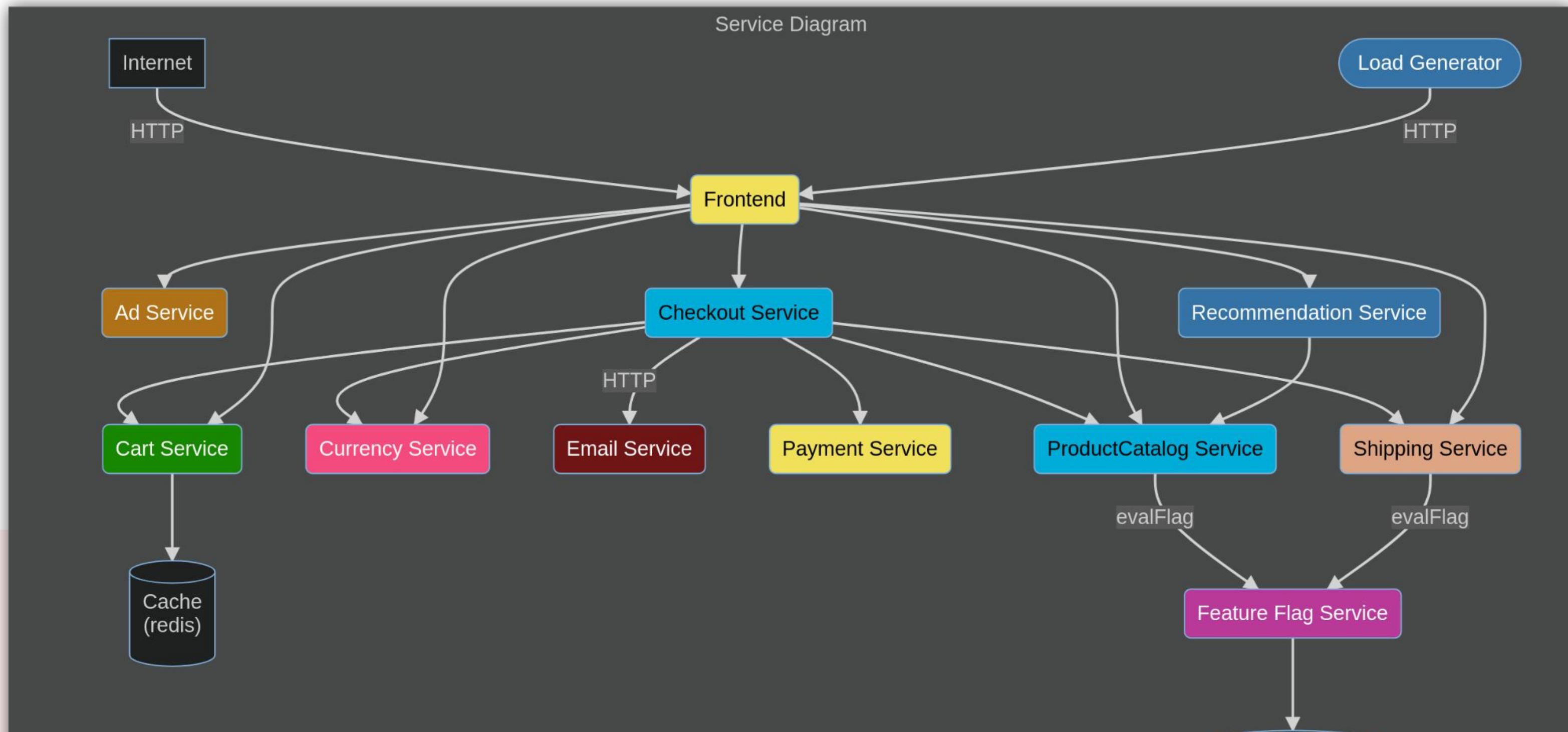
platform.sh

**FORUM PHP**  
PARIS 2022



# OpenTelemetry Demo

<https://github.com/open-telemetry/opentelemetry-demo>



# Exemple *all inclusive*

- <https://github.com/open-telemetry/opentelemetry-demo>
- docker compose up (☕☕☕☕☕☕)
- Demo: <http://localhost:8080/>
- Jaeger: <http://localhost:16686>
- Grafana: <http://localhost:3000>

# Le Collector

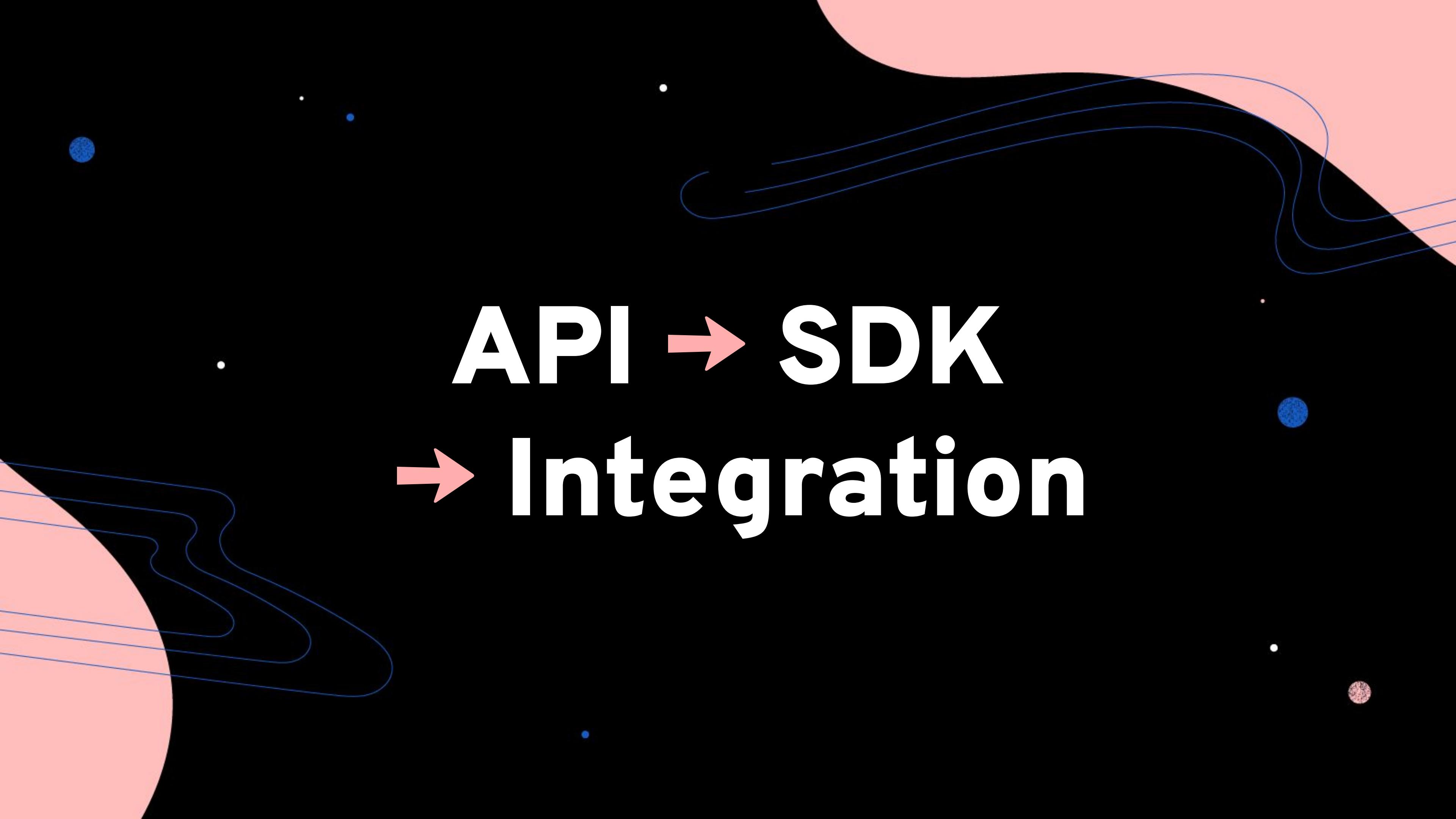
- .../open-telemetry/opentelemetry-collector-contrib
- otelcol-contrib -config=config.yaml

# Jaeger

```
docker run -it --rm \
-p 16686:16686 -p 14250:14250 \
jaegertracing/all-in-one
```



JAEGER



**API → SDK**  
→ Integration

# Php SDK

- <https://github.com/open-telemetry/opentelemetry-php>
- composer require open-telemetry/opentelemetry



- ext-protobuf
- Psr18 HttpClient, Psr17 HttpFactory
- ext-grpc

# Php SDK

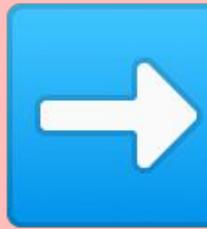
```
tracerProvider = new \OpenTelemetry\SDK\Trace\TracerProvider(  
    new \OpenTelemetry\SDK\Trace\SpanProcessor\BatchSpanProcessor(  
        new \OpenTelemetry\Contrib\OtlpHttp\Exporter(  
            $httpClient,  
            $httpFactory,  
            $httpFactory,  
        )  
    )  
) ;
```

# Php SDK

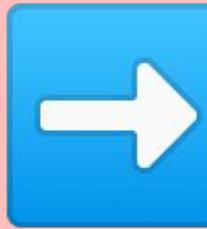
```
$tracer = $tracerProvider->getTracer('My-Demo');
$root = $tracer->spanBuilder("Span Name")->startSpan();
$root->activate();

\OpenTelemetry\SDK\Common\Util\ShutdownHandler::register(
    function() use($root, $tracerProvider) {
        $root->end();
        $tracerProvider->shutdown();
    }
);
```

# Mais aussi



Attributs



Propagation



Sampling

...

# Php Contrib

[.../open-telemetry/opentelemetry-php-contrib/](#)

- AWS
- Symfony OtelSdkBundle
- Symfony OtelBundle

# À suivre

... ... ...

@b\_viguier  
platform.sh≡

**FORUM PHP**  
PARIS 2022





**OpenTelemetry:**  
**Vers un standard**  
**pour surveiller vos**  
**applications ?**



# Instrumentation: changement de paradigme ?



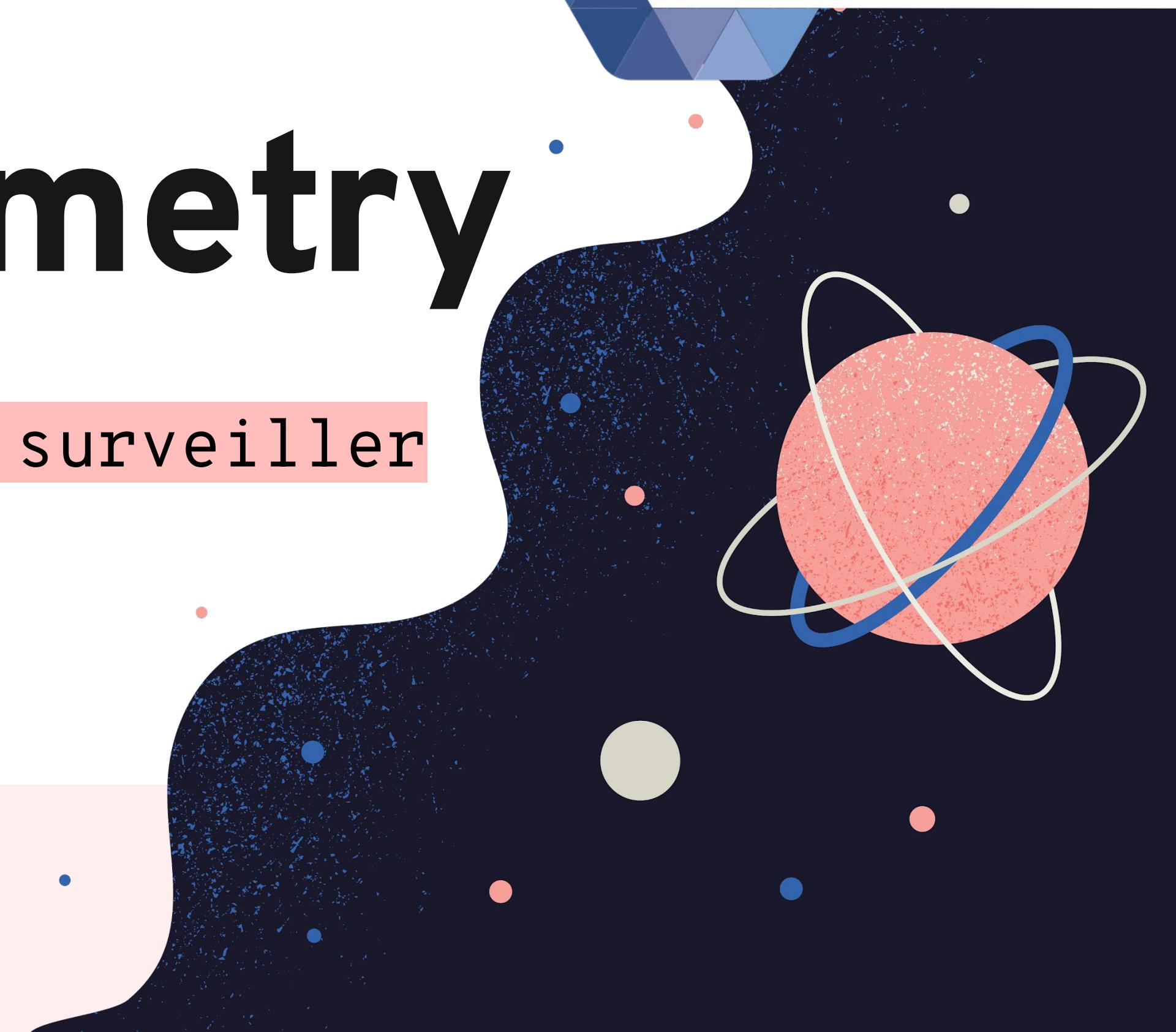
Community!

# OpenTelemetry

Vers un standard pour surveiller  
vos applications

@b\_viguier

platform.sh



# Feedback welcome!



@b\_viguier