

2023

Mi aplicación no funciona y no sé por qué

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Sponsors

NTT DATA **encamina**
PIENSA EN COLORES

**plain
concepts**

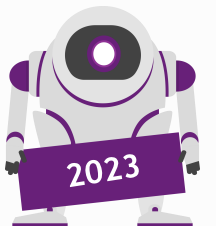
intelequia

Verne
TECHNOLOGY GROUP

TOKIOTA

ilitia

#netcoreconf



Agenda

#netcoreconf

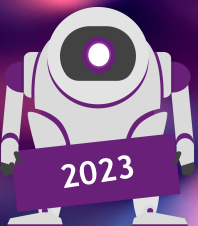
01 Observabilidad. 3 pilares

02 The Neteros way

03 Tools everywhere

04 OTEL

05 Demos

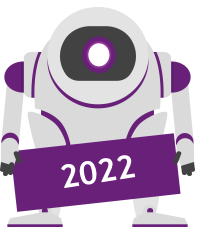
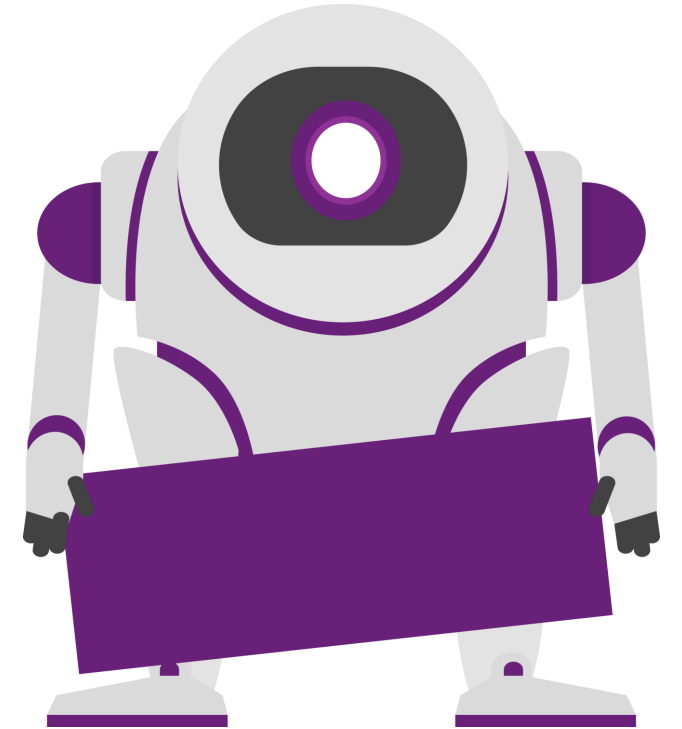


Observability / o11y

En la teoría del control, la observabilidad se define como la forma en que los ingenieros pueden inferir los estados internos de un sistema a partir del conocimiento de las salidas externas de ese sistema.

Software Cloud: la observabilidad es cómo los ingenieros pueden comprender el estado actual de un sistema a partir de los datos que este genera

Observabilidad != monitoring



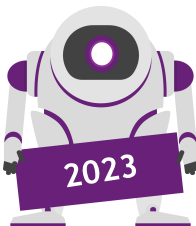
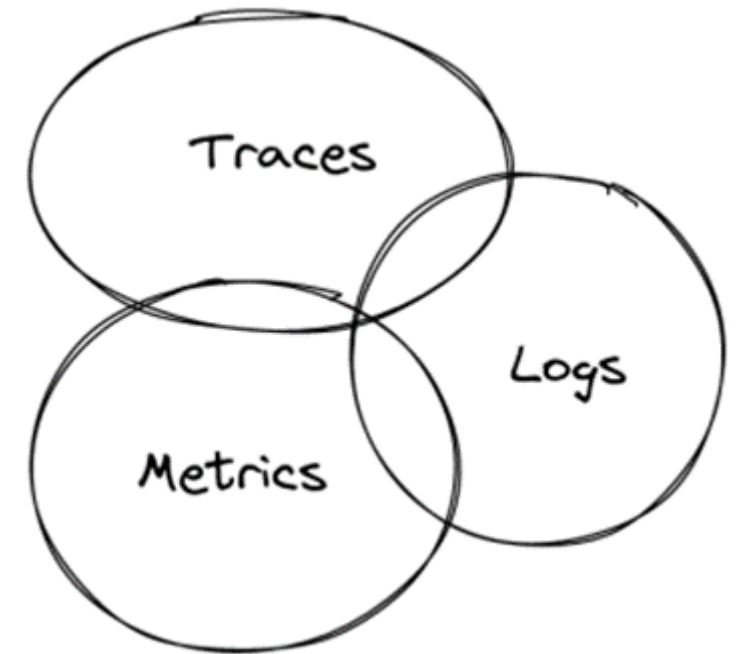
3 pilares: Logs

- ❖ Mecanismo más común y extendido de emitir información de lo acontecido internamente
- ❖ Son fáciles de recolectar
- ❖ Voluminosos => caros de retener
- ❖ Estructurados y no estructurados (texto libre)
- ❖ Formatos comunes: Logfmt o json. Propuesta OTEL

```
var position = new { Latitude = 25, Longitude = 134 };  
var elapsedMs = 34;  
  
log.Information("Processed {@Position} in {Elapsed:000} ms.", position, elapsedMs);
```

```
{"Position": {"Latitude": 25, "Longitude": 134}, "Elapsed": 34}
```

```
09:14:22 [Information] Processed { Latitude: 25, Longitude: 134 } in 034 ms.
```

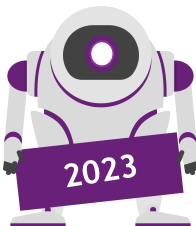
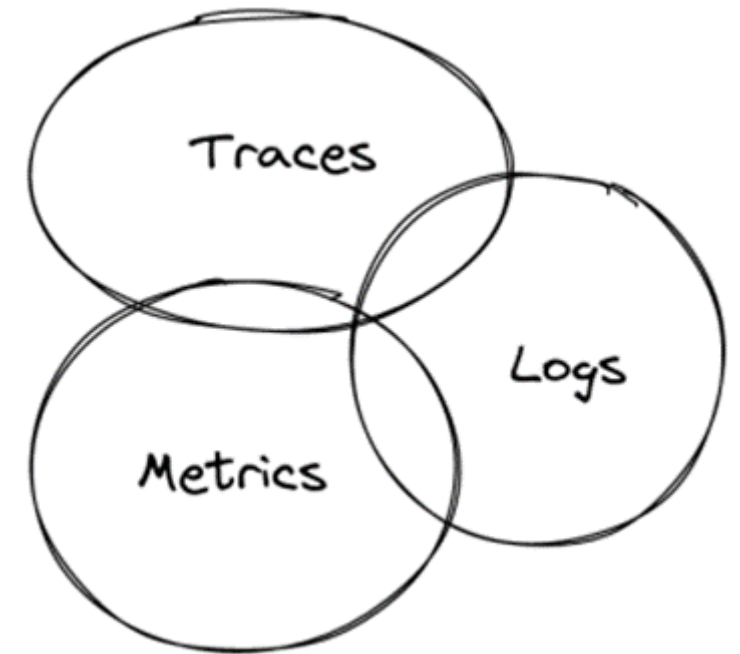


3 pilares: Logs

Log correlation

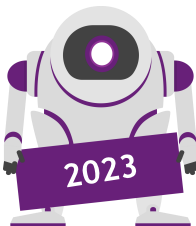
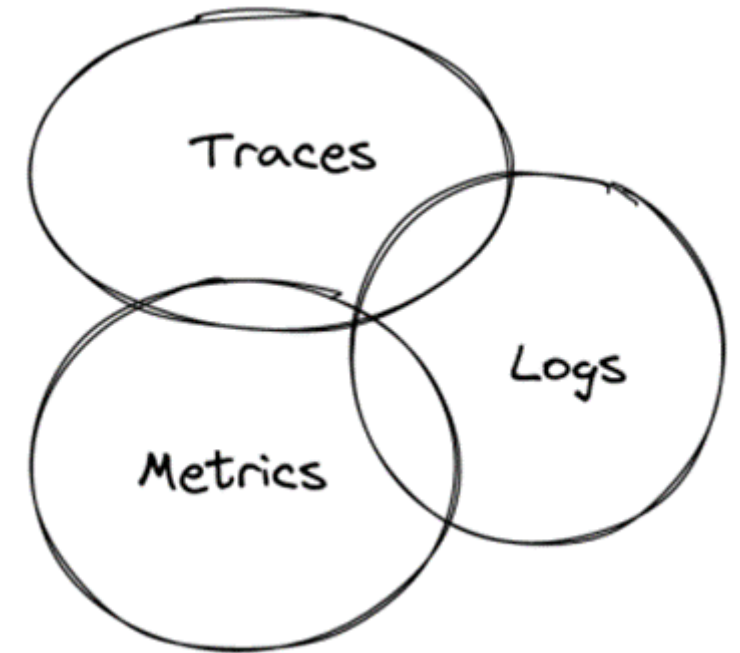
- ❖ By the **time of execution**.
- ❖ By the **execution context**, also known as the trace context
- ❖ By the **origin of the telemetry**, also known as the Resource context

<https://www.developerro.com/2023/10/04/dotnet-logs/>
<https://serilog.net/>

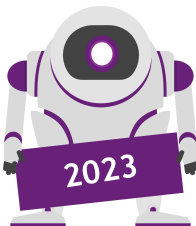
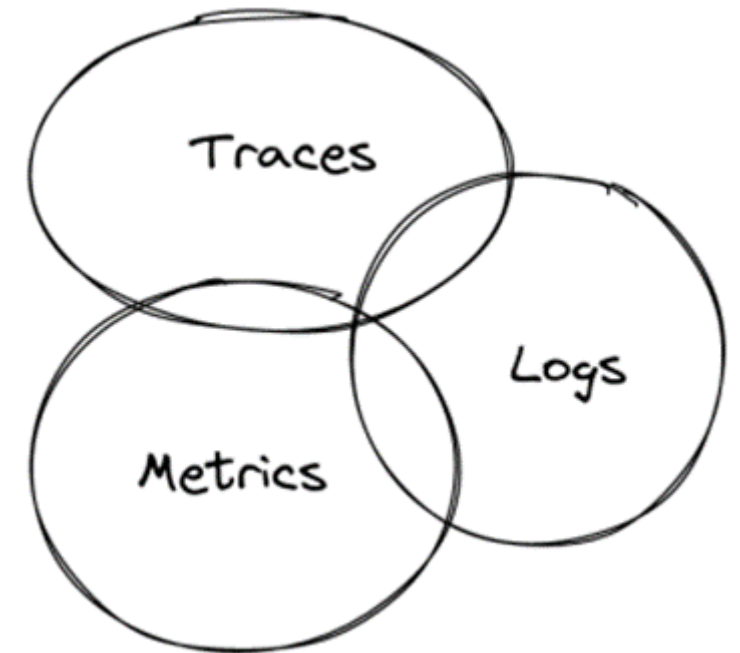
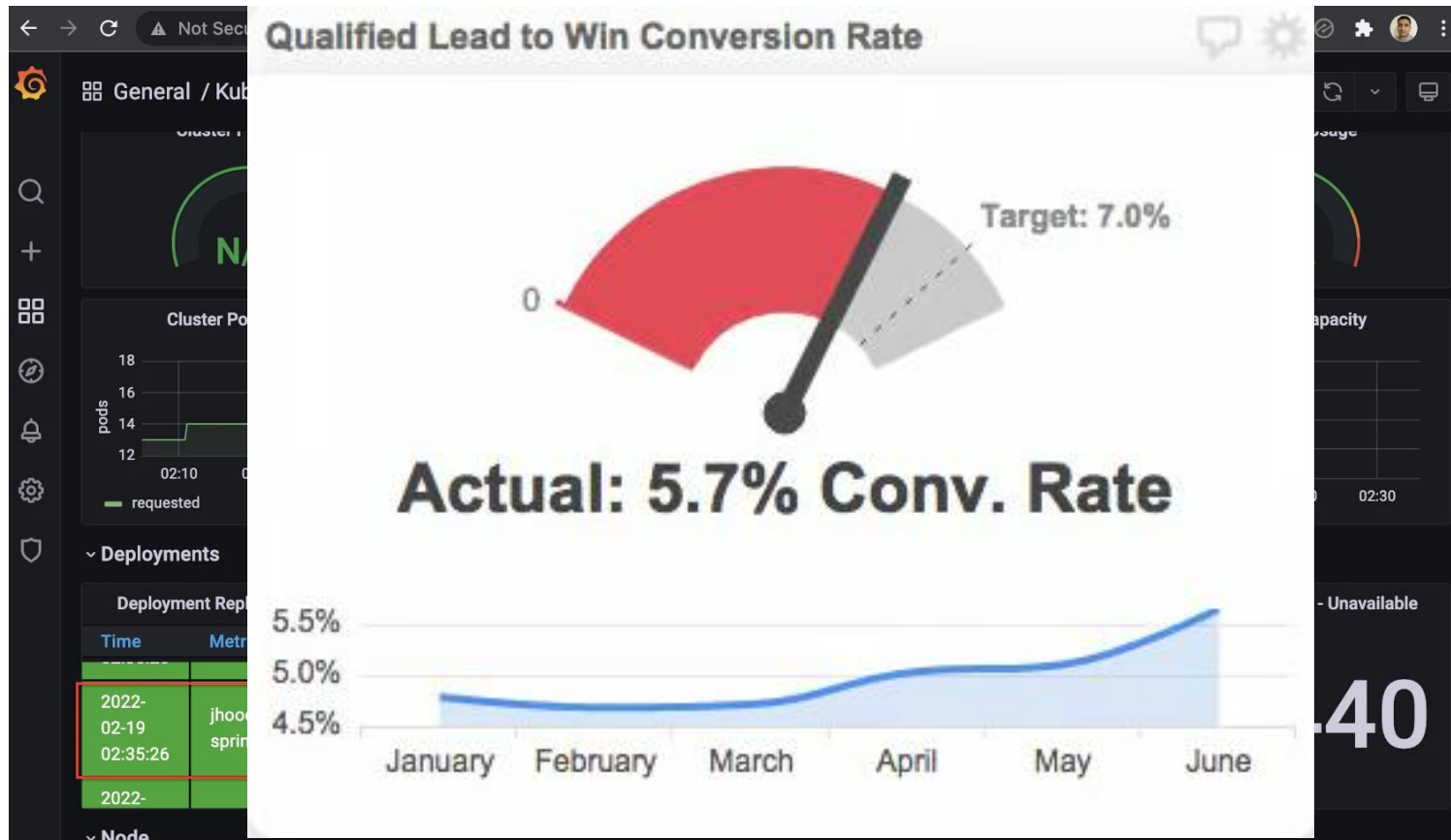


3 pilares: Metrics

- ❖ Información cuantitativa (datos numéricos)
- ❖ Sencillas de recolectar
- ❖ Ligeras => económicas de almacenar
- ❖ Dimensionales => análisis rápido => determinar la salud del sistema



3 pilares: Metrics

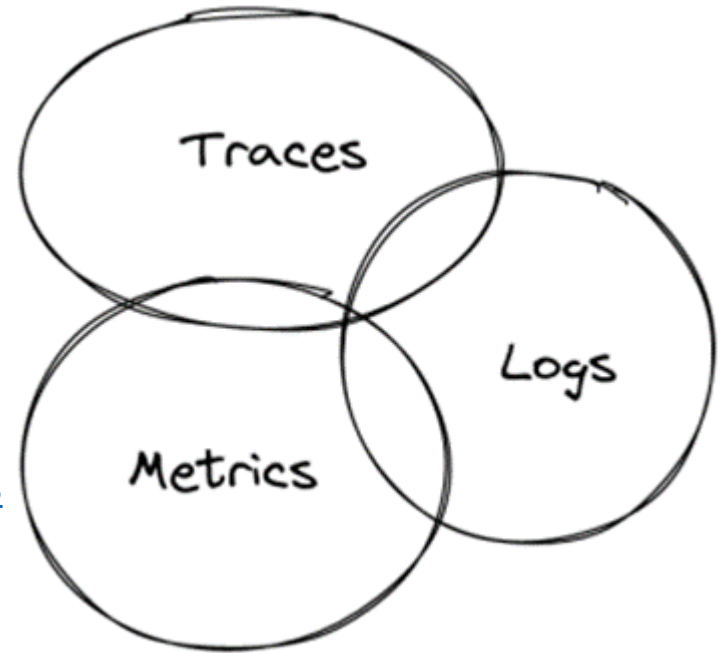


3 pilares: Metrics

❖ Out of the box

```
[System.Runtime]
% Time in GC since last GC (%)          0
Allocation Rate (B / 1 sec)             4.160
CPU Usage (%)                           0,009
Exception Count (Count / 1 sec)         0
GC Committed Bytes (MB)                 0
GC Fragmentation (%)                   0
GC Heap Size (MB)                       0,574
Gen 0 GC Count (Count / 1 sec)         0
Gen 0 Size (B)                          0
Gen 1 GC Count (Count / 1 sec)         0
```

<https://learn.microsoft.com/en-us/dotnet/core/diagnostics/dotnet-counters>

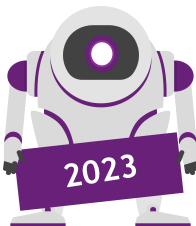


❖ Personalizadas

<https://www.developerro.com/2023/09/20/dotnet-metrics/>

```
var myMeter = new Meter("beer-meter");
var beersDrank = myMeter.CreateCounter<int>("beers-meter-drank");

beersDrank.Add(1);
```

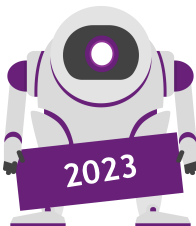
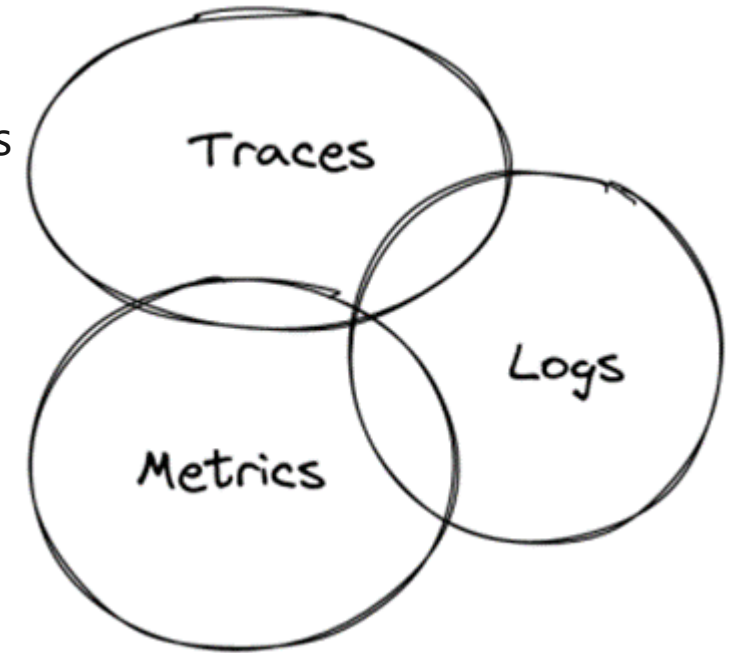


3 pilares: Metrics

Log based metrics

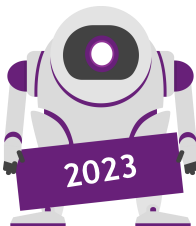
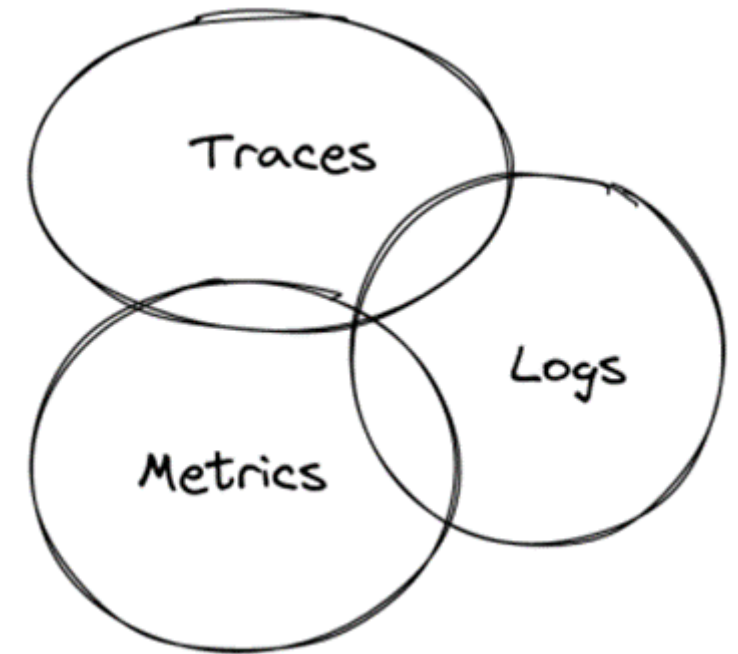
Si tienes un log estructurado puedes sacar metricas del mismo

- ❖ El número de cupones aplicados en un carrito, puede salir de otros sitios
- ❖ ¿Y el número de cupones que fallan (caducado/ya usado/etc...)?

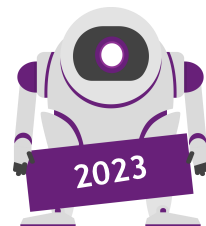
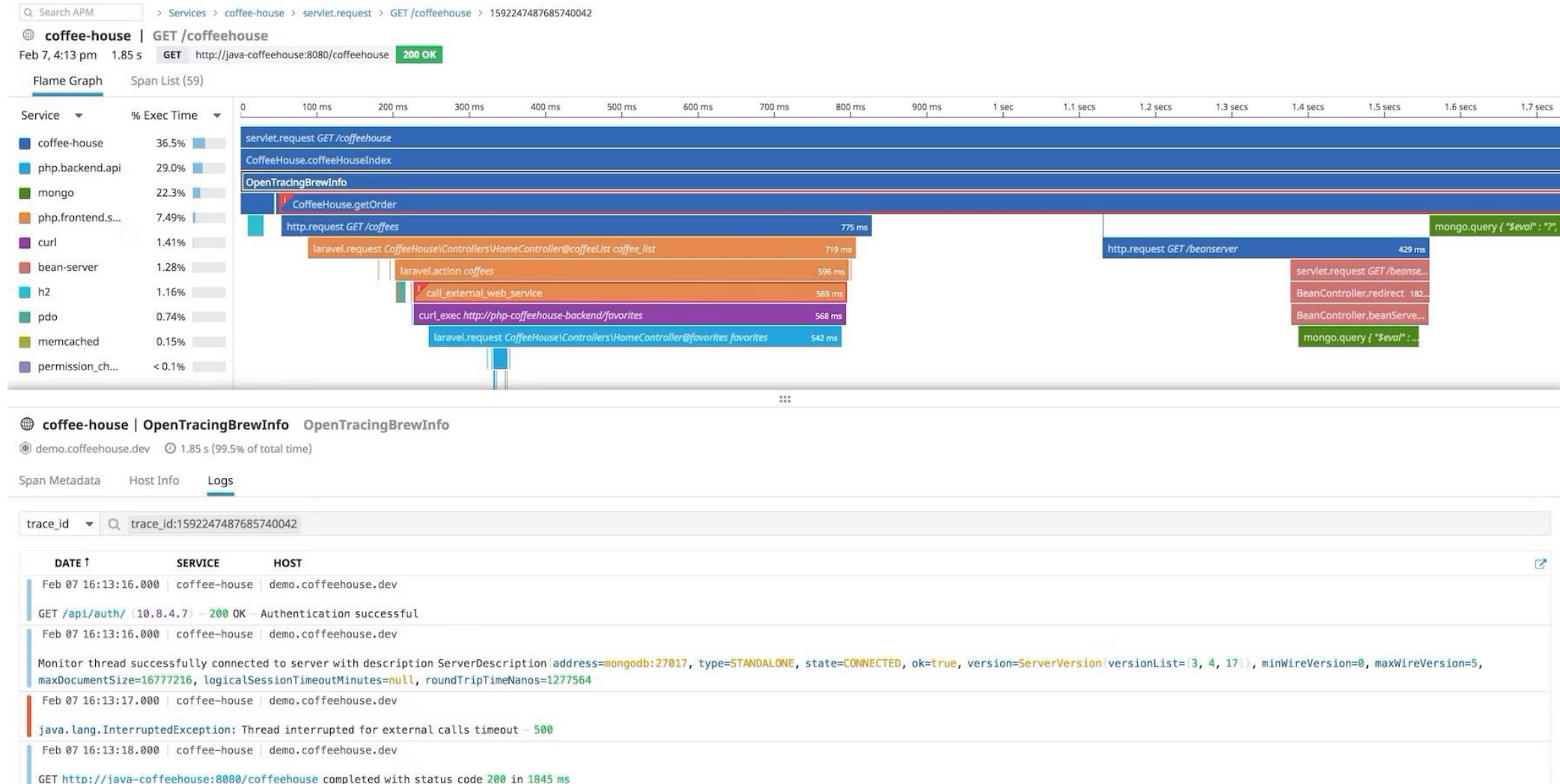


3 pilares: Traces

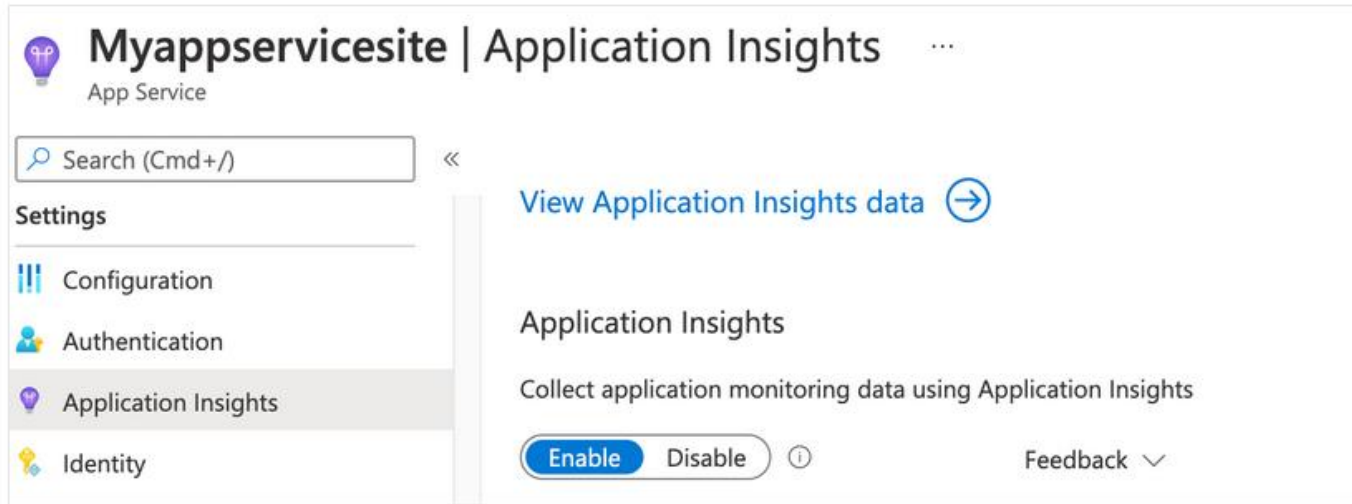
- ❖ Datos detallados sobre el camino ejecutado en el interior de un sistema en respuesta a un estímulo exterior
 - ✓ Petición http
 - ✓ Mensaje cola
 - ✓ Evento programado
- ❖ Punto de entrada
- ❖ Información End to end
- ❖ Conceptos:
 - span
 - baggage (contexto)



3 pilares: Traces



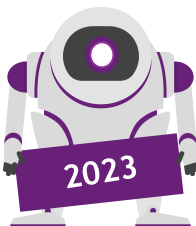
The “neteros” way



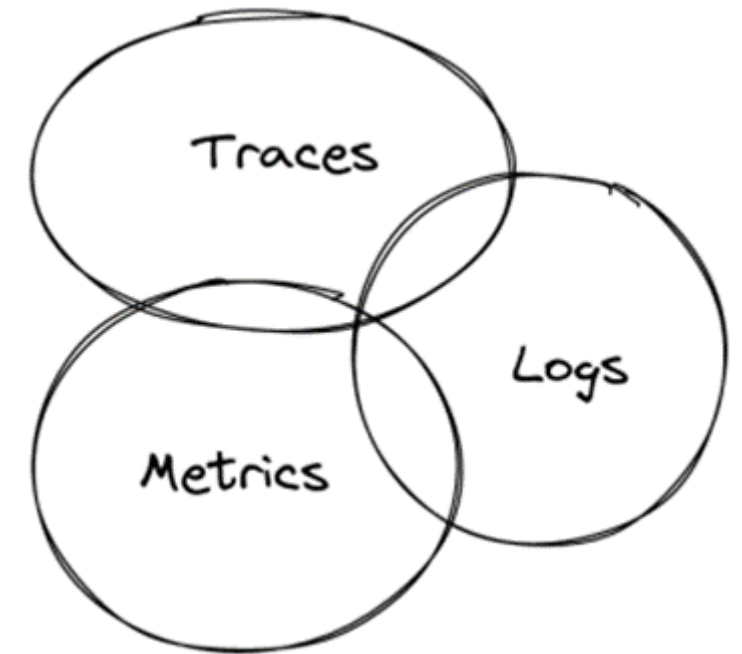
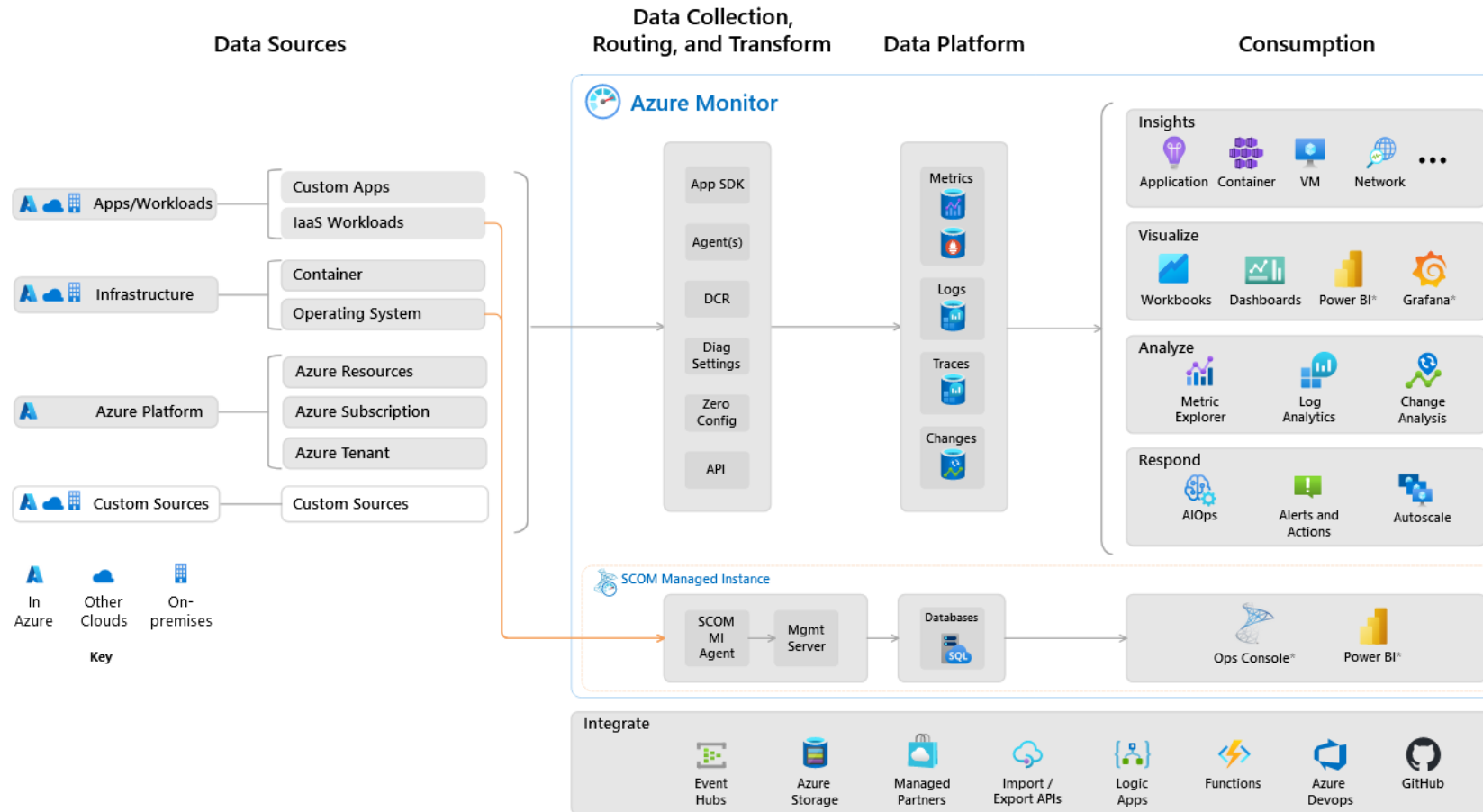
ollector.

From server web apps:

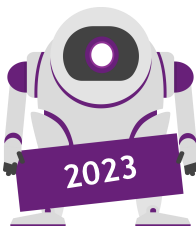
- HTTP requests.
- **Dependencies**. Calls to SQL databases, HTTP calls to external services, Azure Cosmos DB, Azure Table Storage, Azure Blob Storage, and Azure Queue Storage.
- **Exceptions** and stack traces.
- **Performance counters**: Performance counters are available when using:



The “azure” way



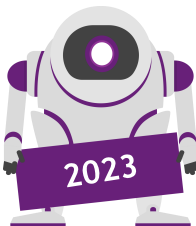
<https://learn.microsoft.com/en-us/azure/azure-monitor/overview>



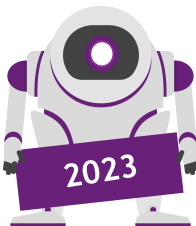
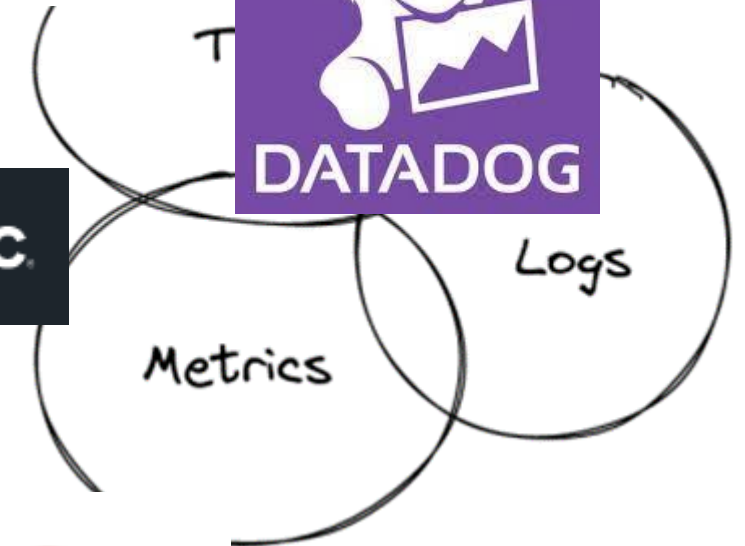
The bad news



- ❖ Daily cap
- ❖ Data retention (90 days by default)
- ❖ Sampling
 - ✓ Adaptive sampling
 - ✓ Fixed rate
 - ✓ Ingestion
- ❖ Other tools



Tools everywhere



OTEL



<https://opentelemetry.io/>

What is OpenTelemetry?

It's a new open-source standard for observability. Learn more at [OpenTelemetry](#).

Why is Microsoft Azure Monitor investing in OpenTelemetry?

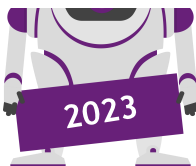
Microsoft is among the largest contributors to OpenTelemetry.

The key value propositions of OpenTelemetry are that it's vendor-neutral and provides consistent APIs/SDKs across languages.

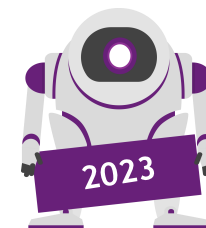
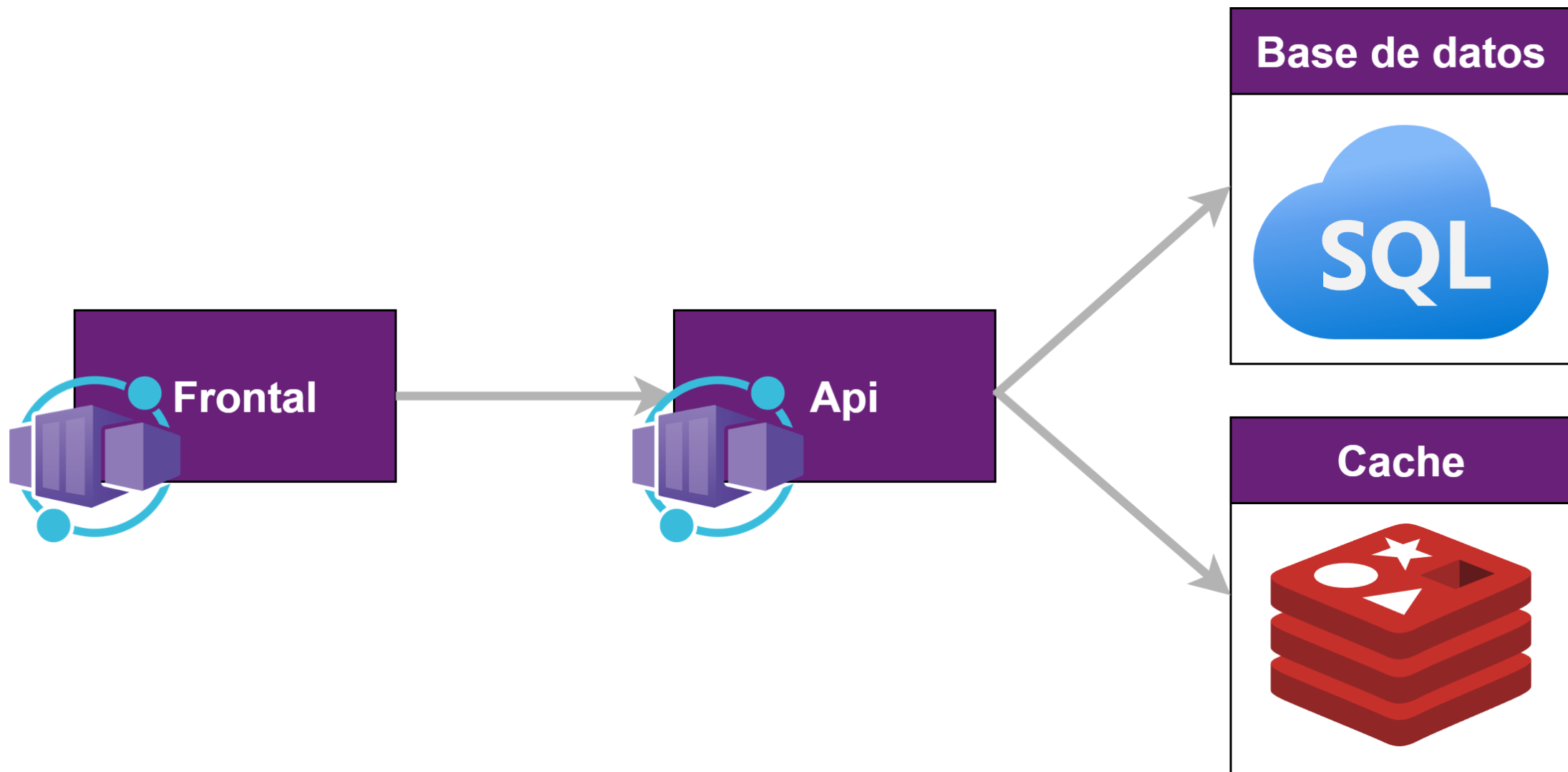
Over time, we believe OpenTelemetry will enable Azure Monitor customers to observe applications written in languages beyond our [supported languages](#). It also expands the types of data you can collect through a rich set of [instrumentation libraries](#). Furthermore, OpenTelemetry SDKs tend to be more performant at scale than their predecessors, the Application Insights SDKs.

Finally, OpenTelemetry aligns with Microsoft's strategy to [embrace open source](#).

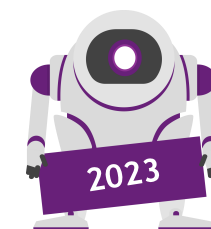
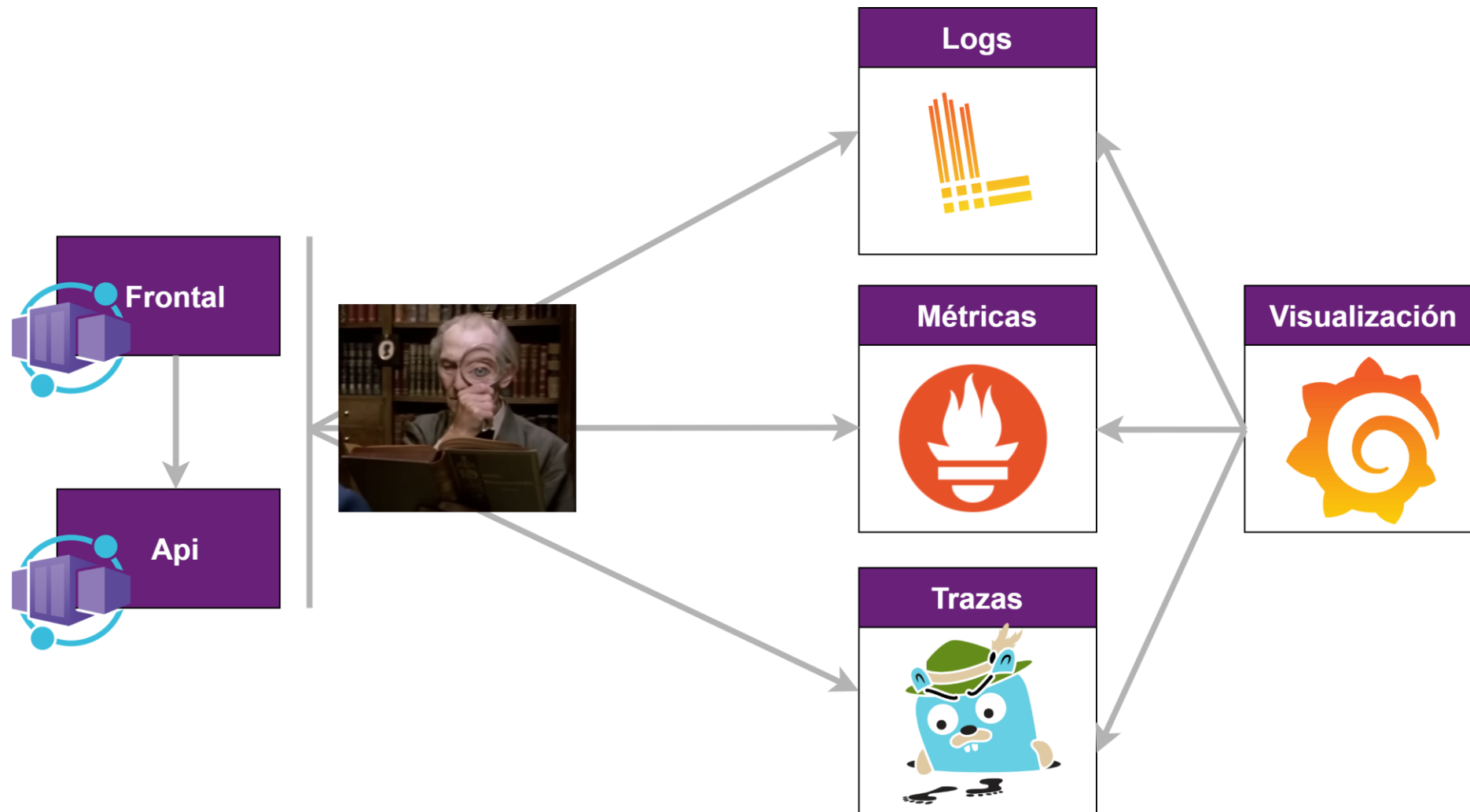
<https://learn.microsoft.com/en-us/azure/azure-monitor/app/opentelemetry-enable>



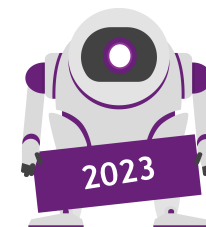
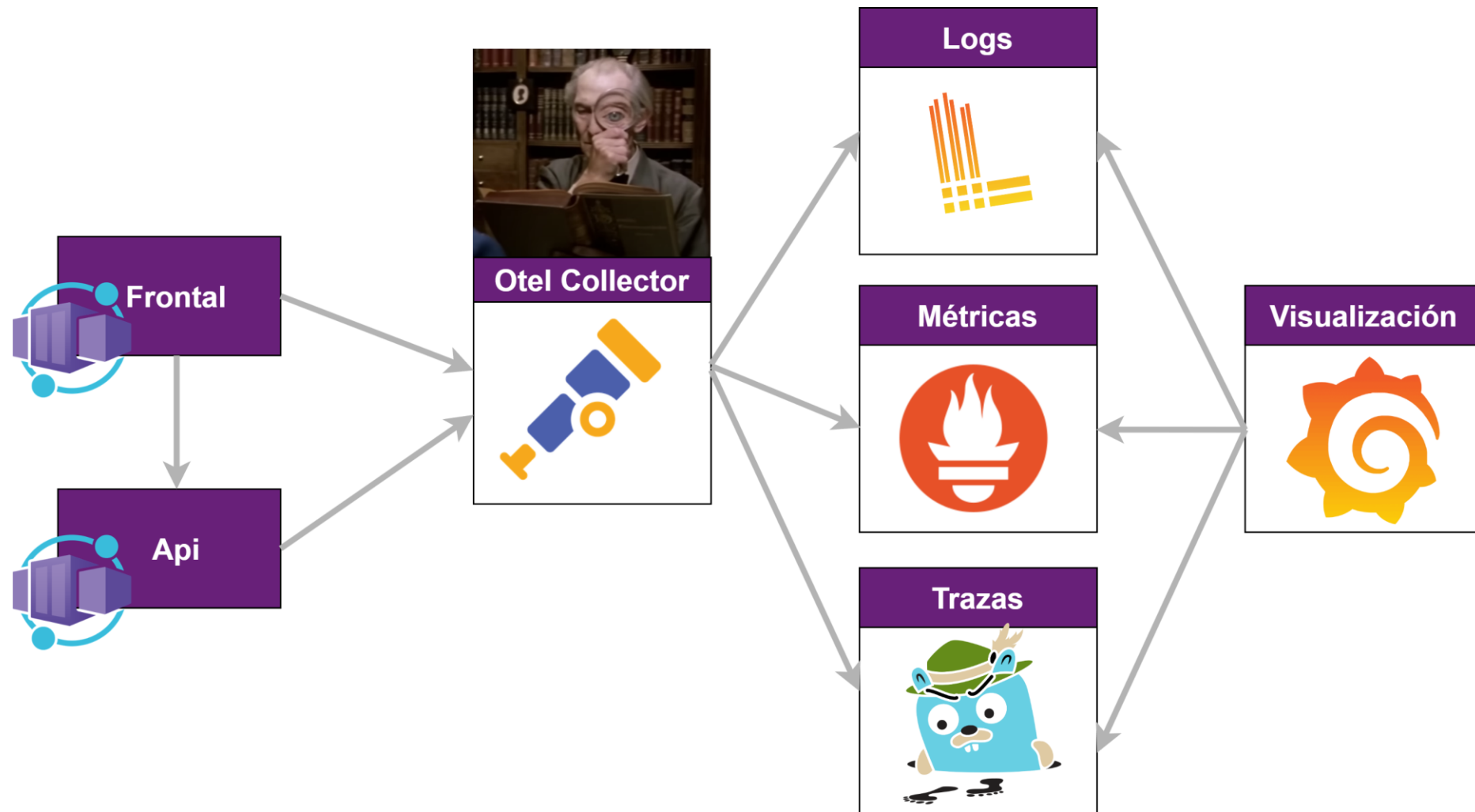
DEMOS



DEMOS



DEMOS



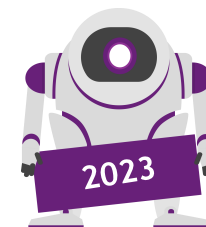


.NET Aspire

A cloud ready stack for building observable,
production ready, distributed applications

First Preview Available Today

Engage with team on GitHub

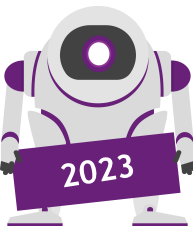


GITHUB

<https://github.com/agarciamiravet/netcoreconf2023>



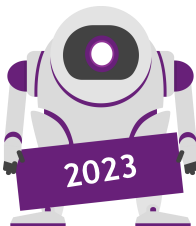
“Monitorizar es una acción y la observabilidad es una cualidad del Sistema”



¿DÓNDE VES TÚ LA OBSERVABILIDAD, DONDE?



GRACIAS



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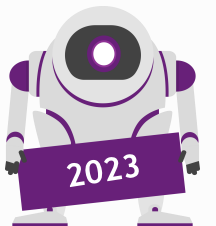
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