

**ZABBIX** '25

CONFERENCE

LATIN AMERICA

# Unificando observabilidade em ambientes modernos com Zabbix e OpenTelemetry

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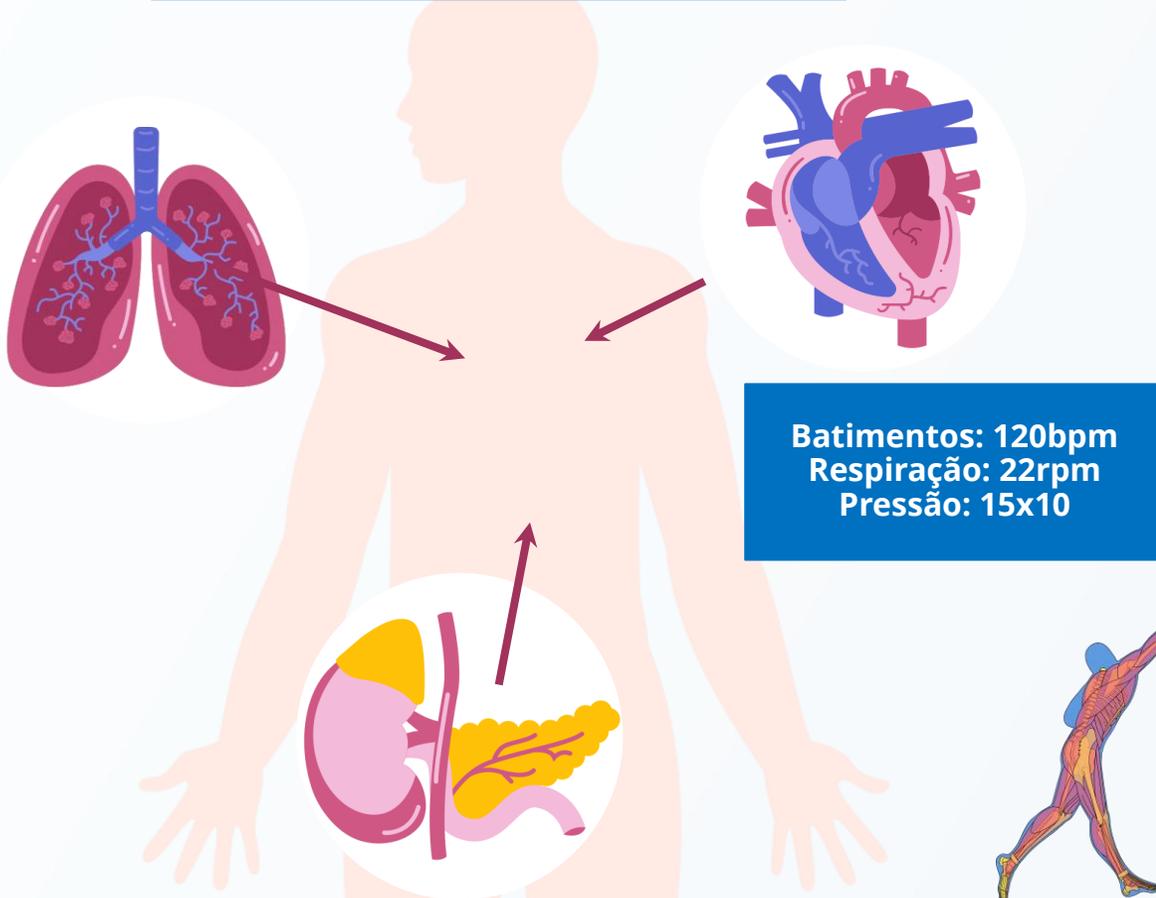
ZABBIX '25  
CONFERENCE  
LATIN AMERICA

- DevOps e Especialista em Observabilidade na JLCP
- Engenheira Eletricista e Tecnóloga em DevOps
- Pós-graduada em Machine Learning e IA
- Pós-graduada em Projetos e arquiteturas em cloud
- Pesquisadora CNPq em Tecnologias Assistivas
- 9 anos de atuação em âmbito público e privado



# Por que precisamos falar de observabilidade além do monitoramento?

## MONITORAMENTO



## OBSERVABILIDADE

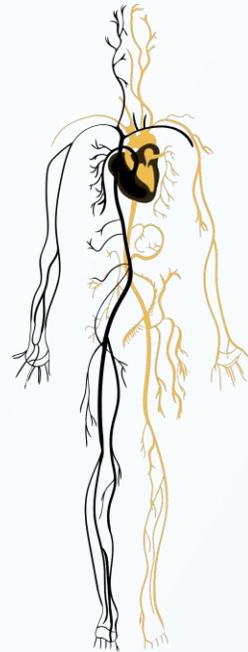
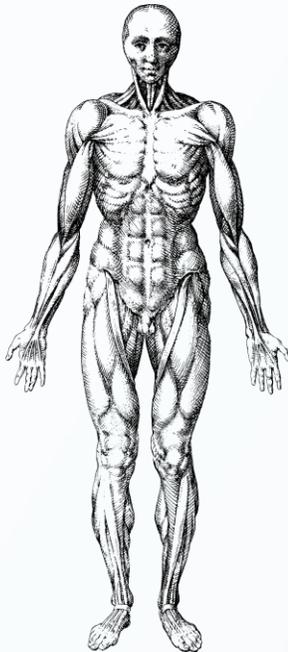
Ocorreu há 5 minutos  
Tomou cafeína  
Estava sob estresse emocional

Realizou atividade física e passou mal.



# Conceitos Fundamentais: Pilares da Observabilidade

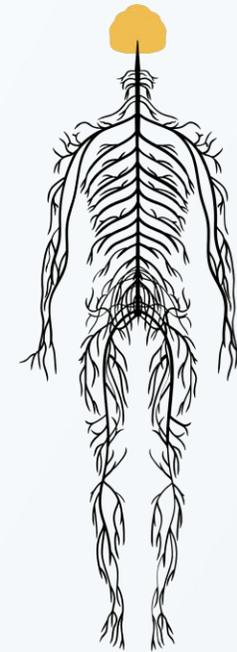
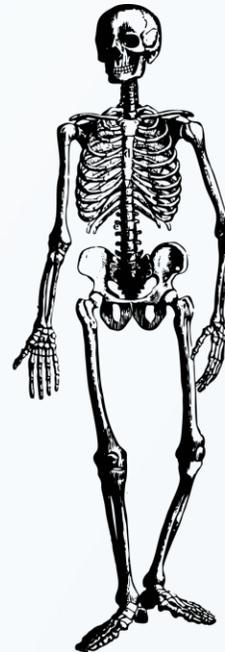
## SISTEMA RESPIRATÓRIO



## LOGS

Tossiu? Anota.  
Espirrou? Registra.

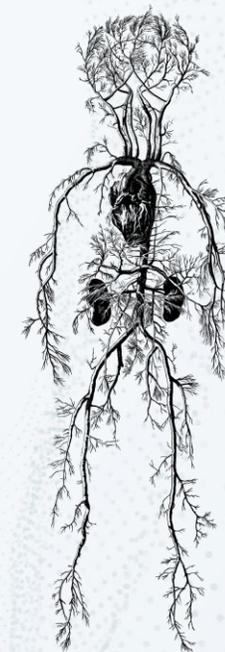
## SISTEMA NERVOSO



## TRACES

Nervos transmitem estímulos  
O cérebro entende e responde

## SISTEMA CIRCULATÓRIO



## MÉTRICAS

Batimentos por minuto  
Pressão arterial  
Saturação de oxigênio

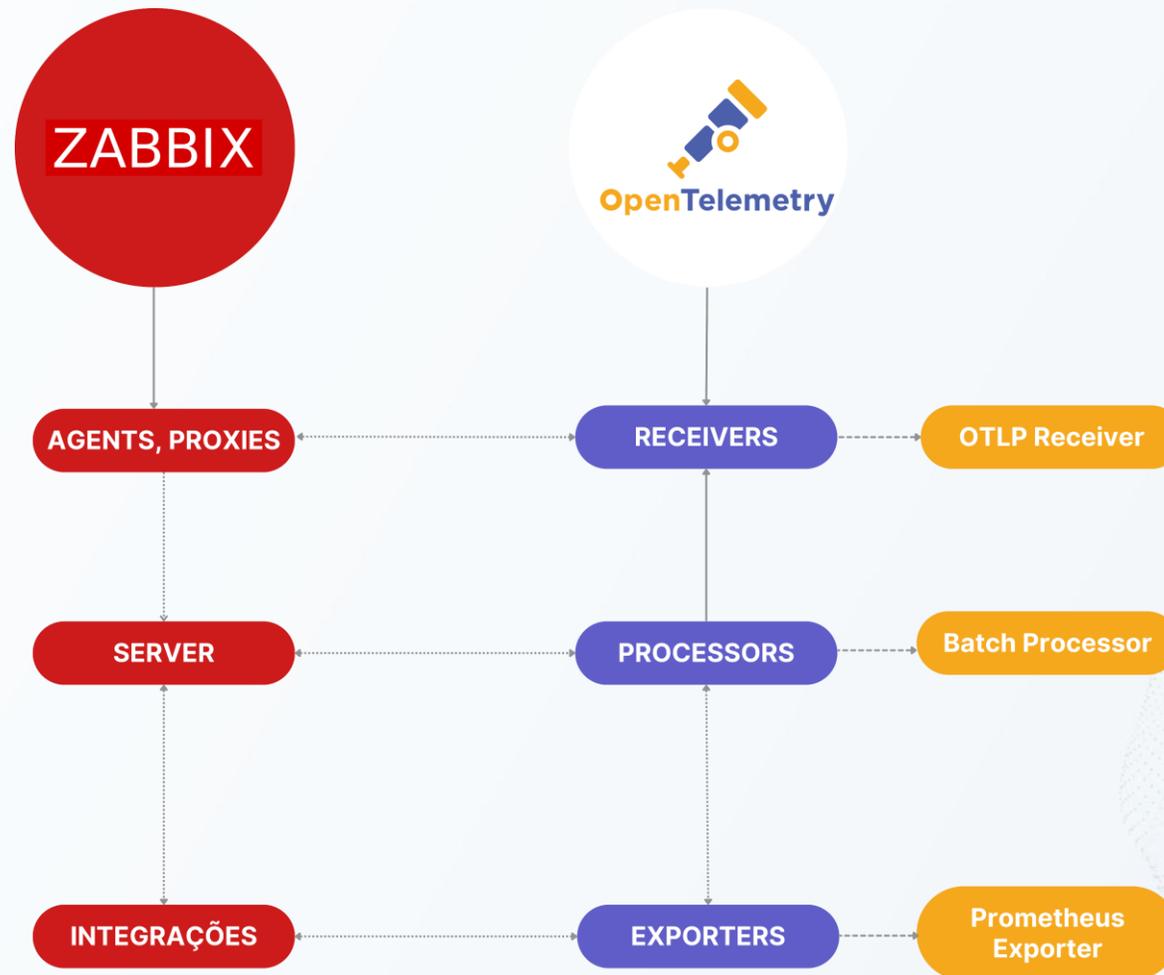
# Conceitos Fundamentais: Golden Signals

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LATÊNCIA	ERRO	SATURAÇÃO	TROUGHPUT
Tempo de reação a um estímulo	Crises, febres, falhas do sistema	Pressão alta, frequência cardíaca elevada	Volume de ar por minuto, respiração
Resposta lenta a um clique	API retornando 500	CPU 100%, fila cheia	Queda de desempenho sob carga

# Conceitos Fundamentais: O que é o Opentelemetry?

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# Por que unir Zabbix + OpenTelemetry?

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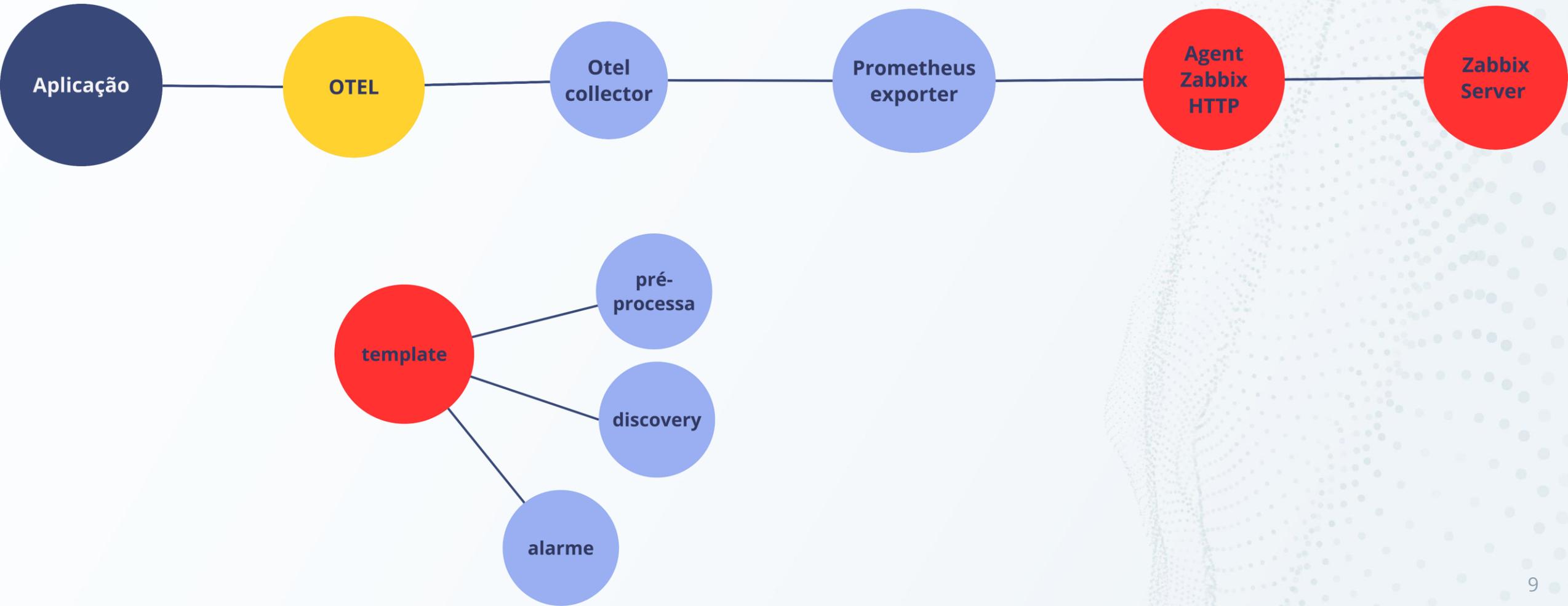
**Empresas que já usam Zabbix e querem evoluir sem perder o legado**

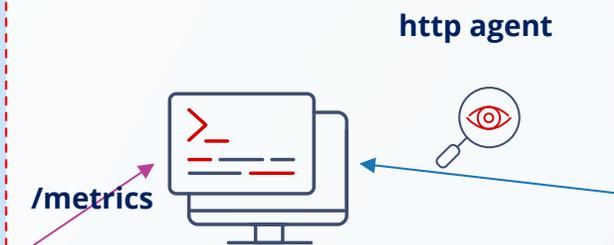
**Unificação de visão: Infra + App**

**Uso de ferramentas modernas com o stack atual**

**O que o Zabbix não coleta nativamente, o OpenTelemetry complementa.**

# Arquitetura de integração





```

1  apiVersion: v1
2  data:
3  otel-collector.yaml: |
4  #Receivers
5  receivers:
6  otlp:
7  protocols:
8  grpc:
9  endpoint: "0.0.0.0:4317"
10 max_recv_msg_size_mib: 999999
11 include_metadata: true
12 http:
13 endpoint: "0.0.0.0:4318"
14 include_metadata: true
15 # auth:
16 # authenticator: basicauth/server
17 prometheus:
18 config:
19 scrape_configs:
20 - job_name: otelcol
21 metric_relabel_configs:
22 - action: drop
23   regex: .*grpc_io.*
24   source_labels:
25   - __name__
26   scrape_interval: 60s
27 static_configs:
28 - targets:
29   - 0.0.0.0:8888

```

```

processors:
  span:
    exclude:
      match_type: strict
      span_names: ["Transaction.commit"]
      name:
        from_attributes: ["resource.service.name"]
  batch:
    send_batch_size: 1000
    timeout: 5s
  memory_limiter:
    check_interval: 1s
    limit_mib: 4000
    spike_limit_mib: 500

```

```

93
94 connectors:
95 spanmetrics:
96 dimensions:
97 - name: http.method
98 - name: http.status_code
99 - name: http.route
100 dimensions_cache_size: 500
101 resource_metrics_cache_size: 500
102
103 exporters:
104 debug:
105 prometheus:
106 endpoint: "0.0.0.0:1234"
107 send_timestamps: true
108 metric_expiration: 180m
109 enable_open_metrics: true
110 add_metric_suffixes: false
111 resource_to_telemetry_conversion:
112   enabled: true
113
114 service:
115 pipelines:
116 traces:
117 receivers: [otlp]
118 processors: [span,batch]
119 exporters: [spanmetrics,debug]
120 logs:
121 receivers: [otlp]
122 processors: [resource, attributes]
123 exporters: [debug]
124 metrics:
125 receivers: [otlp,prometheus,spanmetrics]
126 processors: [batch]
127 exporters: [debug,prometheus]
128 telemetry:
129 metrics:
130 address: 0.0.0.0:8888
131 level: detailed
132 kind: ConfigMap
133 metadata:
134 labels:
135 k8s-app: otel-collector-contrib
136 name: otel-collector-contrib-config
137 namespace: otel-collector

```



# Traces

**Item** | Tags | Preprocessing

\* Name:

Type:

\* Key:

Type of information:

\* URL:

Query fields

Name	Value
<input type="text" value="name"/>	<input type="text" value="value"/>

Request type:

Request body type:

Request body:

Headers

Name	Value
<input type="text" value="name"/>	<input type="text" value="value"/>

Required status codes:

Follow redirects:

## Discovery rules

All hosts / Discovery traces for LX Enabled

Discovery rule | Preprocessing | LLD macros

Preprocessing steps

```
JavaScript
function (value) {
  1 try {
  2   var services = [];
  3   var seen = {};
  4
  5   // Verifica se há correspondências e inicializa um array vazio se não houver
  6   var matches = value.match(/service_name="([^"]+)"/g) || [];
  7
  8   matches.forEach(function(match) {
  9     var service = match.split('"')[1];
 10     if (!seen[service]) {
 11       services.push({ "#SERVICENAME": service });
 12       seen[service] = true;
 13     }
 14   });
 15
 16   return JSON.stringify({ "data": services });
 17 } catch (error) {
 18   // Retorna array vazio em caso de erro
 19   return JSON.stringify({ "data": [] });
 20 }
}
```

64952 characters remaining

All hosts / Discovery traces for LX Enabled

Host groups:

Hosts:

Name:

Key:

Value mapping:

Subfilter affects only filtered data

TEMPLATE

Not inherited items 8 Inherited items 1

DISCOVERY

Regular 1 Discovered 8

<input type="checkbox"/>	Name ▲
<input type="checkbox"/>	Trace discovery: article-service
<input type="checkbox"/>	Trace discovery: auth-service
<input type="checkbox"/>	Trace discovery: cart-service
<input type="checkbox"/>	Trace discovery: grafana
<input type="checkbox"/>	Trace discovery: otelcol-contrib
<input type="checkbox"/>	Trace discovery: postgres
<input type="checkbox"/>	Trace discovery: shop-backend
<input checked="" type="checkbox"/>	Template para Traces: Trace
<input type="checkbox"/>	Trace discovery: zabbix7

# Métricas

**Test item**

Get value from host

Host address  Port

Test with  Server  Proxy

Value  Time

Previous value  Prev. time

End of line sequence  LF  CRLF

Preprocessing steps	Name	Result
1:	JavaScript	{\"data\":[{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"200\",\"#SPANNAME\":\"g
Result	Result converted to Text	{\"data\":[{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"200\",\"#SPANNAME\":\"g

```
[\"data\":[{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"200\",\"#SPANNAME\":\"get-article\",\"#SERVICENAME\":\"article-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"200\",\"#SPANNAME\":\"list-articles\",\"#SERVICENAME\":\"article-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"200\",\"#SPANNAME\":\"authenticate\",\"#SERVICENAME\":\"auth-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"200\",\"#SPANNAME\":\"fetch-articles\",\"#SERVICENAME\":\"shop-backend\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"200\",\"#SPANNAME\":\"article-to-cart\",\"#SERVICENAME\":\"shop-backend\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"201\",\"#SPANNAME\":\"get-article\",\"#SERVICENAME\":\"article-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"201\",\"#SPANNAME\":\"list-articles\",\"#SERVICENAME\":\"article-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"201\",\"#SPANNAME\":\"authenticate\",\"#SERVICENAME\":\"auth-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"201\",\"#SPANNAME\":\"place-articles\",\"#SERVICENAME\":\"cart-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"201\",\"#SPANNAME\":\"fetch-articles\",\"#SERVICENAME\":\"shop-backend\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"201\",\"#SPANNAME\":\"article-to-cart\",\"#SERVICENAME\":\"shop-backend\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"202\",\"#SPANNAME\":\"get-article\",\"#SERVICENAME\":\"article-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"202\",\"#SPANNAME\":\"list-articles\",\"#SERVICENAME\":\"article-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"202\",\"#SPANNAME\":\"authenticate\",\"#SERVICENAME\":\"auth-service\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"202\",\"#SPANNAME\":\"fetch-articles\",\"#SERVICENAME\":\"shop-backend\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"202\",\"#SPANNAME\":\"article-to-cart\",\"#SERVICENAME\":\"shop-backend\"},{\"#HTTPMETHOD\":\"DELETE\",\"#HTTPSTATUS\":\"202\",\"#SPANNAME\":\"place-articles\",\"#SERVICENAME\":\"cart-service\"}]}]
```

<input type="checkbox"/>	***	Metrics discovery: create-billing of shop-backend by http method DELETE return status code 403	metricname[create-billing]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: create-cart of shop-backend by http method DELETE return status code 403	metricname[create-cart]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: create-customer of shop-backend by http method DELETE return status code 403	metricname[create-customer]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: create-inventory of shop-backend by http method DELETE return status code 403	metricname[create-inventory]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: create-search of shop-backend by http method DELETE return status code 403	metricname[create-search]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: create-shipping of shop-backend by http method DELETE return status code 403	metricname[create-shipping]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: create-stock of shop-backend by http method DELETE return status code 403	metricname[create-stock]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: delete-billing of shop-backend by http method DELETE return status code 403	metricname[delete-billing]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: delete-cart of shop-backend by http method DELETE return status code 403	metricname[delete-cart]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: delete-inventory of shop-backend by http method DELETE return status code 403	metricname[delete-inventory]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: delete-product of shop-backend by http method DELETE return status code 403	metricname[delete-product]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: delete-shipping of shop-backend by http method DELETE return status code 403	metricname[delete-shipping]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: delete-stock of shop-backend by http method DELETE return status code 403	metricname[delete-stock]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: fetch-articles of shop-backend by http method DELETE return status code 200	metricname[fetch-articles]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: get-analytics of shop-backend by http method DELETE return status code 403	metricname[get-analytics]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: get-article of article-service by http method DELETE return status code 200	metricname[get-article]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: get-checkout of shop-backend by http method DELETE return status code 403	metricname[get-checkout]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: get-customer of shop-backend by http method DELETE return status code 403	metricname[get-customer]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: get-order of shop-backend by http method DELETE return status code 403	metricname[get-order]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: get-product of shop-backend by http method DELETE return status code 403	metricname[get-product]	1m	31d
<input type="checkbox"/>	***	Metrics discovery: get-search of shop-backend by http method DELETE return status code 403	metricname[get-search]	1m	31d

# Logs

**Test item** ? x

Get value from host

Host address  Port

Test with **Server** Proxy

Value i

Not supported Error

Previous value  Prev. time

End of line sequence **LF** CRLF

Macros  ⇒

Name	Result
1: JavaScript	{\"status\": \"ok\", \"error_count\": 0}
Result	Result converted to Text {\"status\": \"ok\", \"error_count\": 0}

**ZABBIX** K8s Lab

e-commerce - traces

Dashboard created

All dashboards / e-commerce - traces

From: now-1h To: now **Apply**

Zoom out Last 1 hour

- Last 2 days
- Last 7 days
- Last 30 days
- Last 3 months
- Last 6 months
- Last 1 year
- Last 2 years
- Yesterday
- Day before yesterday
- This day last week
- Previous week
- Previous month
- Previous year
- Today
- Today so far
- This week
- This week so far
- This month
- This month so far
- This year
- This year so far
- Last 5 minutes
- Last 15 minutes
- Last 30 minutes
- Last 1 hour
- Last 3 hours
- Last 6 hours
- Last 12 hours
- Last 1 day

**article-service itens**

- article-service
- Erros de requisição
- Quantidade de solicitações
- Spans detalhados de article-service

**Outros micro-serviços**

- auth-service
- billing-service
- cart-service
- postgres
- shop-backend

**Item history**

Name	Value
api-e-commerce: qtd de solicitações { "select-articles": 19, "get-article": 380, "list-articles": 380 }	
api-e-commerce: Erros de requisição { "get-article": 300, "list-articles": 300 }	
api-e-commerce: qtd de solicitações { "select-articles": 19, "get-article": 380, "list-articles": 380 }	
api-e-commerce: Erros de requisição { "get-article": 300, "list-articles": 300 }	
api-e-commerce: qtd de solicitações { "select-articles": 19, "get-article": 380, "list-articles": 380 }	
api-e-commerce: Erros de requisição { "get-article": 300, "list-articles": 300 }	

Clique para voltar, segure para ver o histórico

K8s Lab

All dashboards / Global view

Page 1

**Top hosts by CPU utilization**

Host name	Utilization	1m avg	5m avg	15m avg	Processes
Zabbix server					

**Item history**

Name
Discovery traces for LX: list-customer of shop-backend by http method DELETE return status code 403
Discovery traces for LX: list-customer of shop-backend by http method DELETE return status code 403
Discovery traces for LX: list-customer of shop-backend by http method DELETE return status code 403
Discovery traces for LX: list-customer of shop-backend by http method DELETE return status code 403
Discovery traces for LX: list-customer of shop-backend by http method DELETE return status code 403

**1.48** ↑  
Zabbix server  
Values per second

**System information**

Parameter	Value
Zabbix server is running	Yes
Zabbix server version	7.0.13
Zabbix frontend version	7.0.13
Number of hosts (enabled/disabled)	2
Number of templates	313
Number of items (enabled/disabled/not supported)	207
Number of triggers (enabled/disabled (problem/ok))	64

**Host availability**

0 Available	1 Not available	0 Mixed	0 Unknown	1 Total
-------------	-----------------	---------	-----------	---------

# Desafios e boas práticas

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- Normalização de dados (nomes de métricas consistentes)
- Custo de ingestão de dados
- Alertas duplicados
- Correlação manual



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Obrigada!  
¡Gracias!  
Thanks!

