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The bridge to possible

ThousandEyes and OpenTelemetry

From Theory to Practice!

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Raise your hand if you are …

- using ThousandEyes in your environment
- running ThousandEyes and OpenTelemetry integration

About me

- Based in Kraków, Poland
- CCIEx2 58771 (RS/SP)
- 11 years of experience in IT
- Been with Cisco for 7 years
- Solutions Architect @ ThousandEyes (part of Cisco)

Agenda

- Introduction to OpenTelemetry
- OpenTelemetry and ThousandEyes
- Configuration steps
- Demo

Introduction to OpenTelemetry

What is 

?

OpenTelemetry, also known as OTel for short

Set of standardized vendor-agnostic tools for ingesting, transforming, and sending data to an Observability back-end

Having a common format for how observability data is collected and sent is where OpenTelemetry comes into play

Standards are like toothbrushes. Everybody wants one but nobody wants to use anybody else's.

Connie Morella

What was before OpenTelemetry?

OpenTracing

- CNCF project
- Provided a vendor-neutral API for sending telemetry data over to an Observability back-end
- Relied on developers to implement their own libraries to meet the specification.

OpenCensus

- Google Open Source community project
- Provided a set of language-specific libraries that developers could use to instrument their code

OpenCensus + OpenTracing = OpenTelemetry

In May 2019 OpenCensus and OpenTracing were merged to form OpenTelemetry and became a CNCF project

OpenTelemetry main components

OpenTelemetry Protocol (OTLP)

- specification describes the encoding, transport, and delivery mechanism of telemetry data between telemetry sources, intermediate nodes such as collectors, and telemetry backends.

OpenTelemetry Collector

- offers a vendor-agnostic implementation on receiving, processing, and exporting telemetry data

APIs and SDKs

- allows developers to easily integrate their applications

OpenTelemetry and ThousandEyes

ThousandEyes and OpenTelemetry

How does it work?

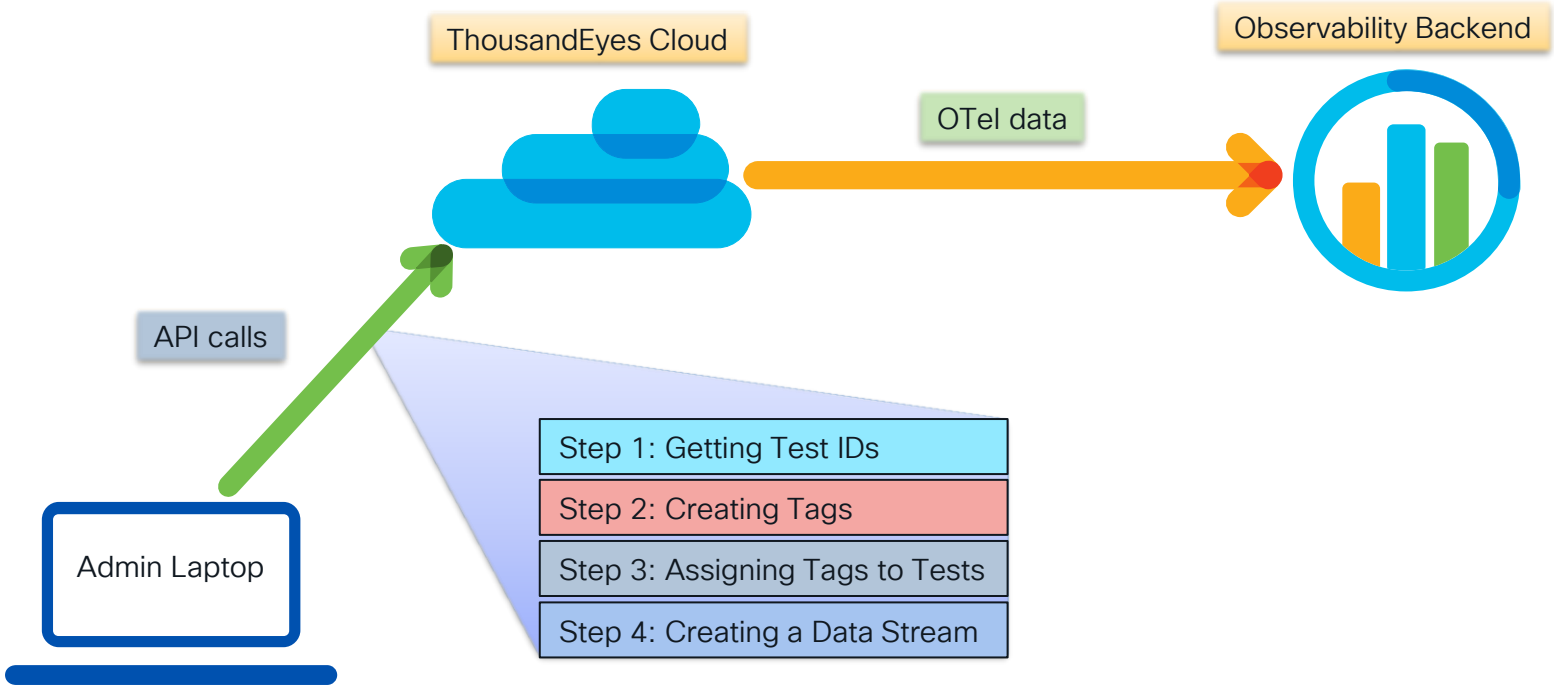
Data streaming APIs that you can use to configure and enable your ThousandEyes tests with OTel-compatible streams

Collectors actively fetch ThousandEyes test data, enrich the data with some additional detail, filter, and push the data to the customer-configured endpoints

Third-party OTel collectors that receive, transform, filter, and export different metrics to client applications such as AppD, or any other OTel-capable client configuration.

ThousandEyes and OpenTelemetry

How does it work?



Configuration steps

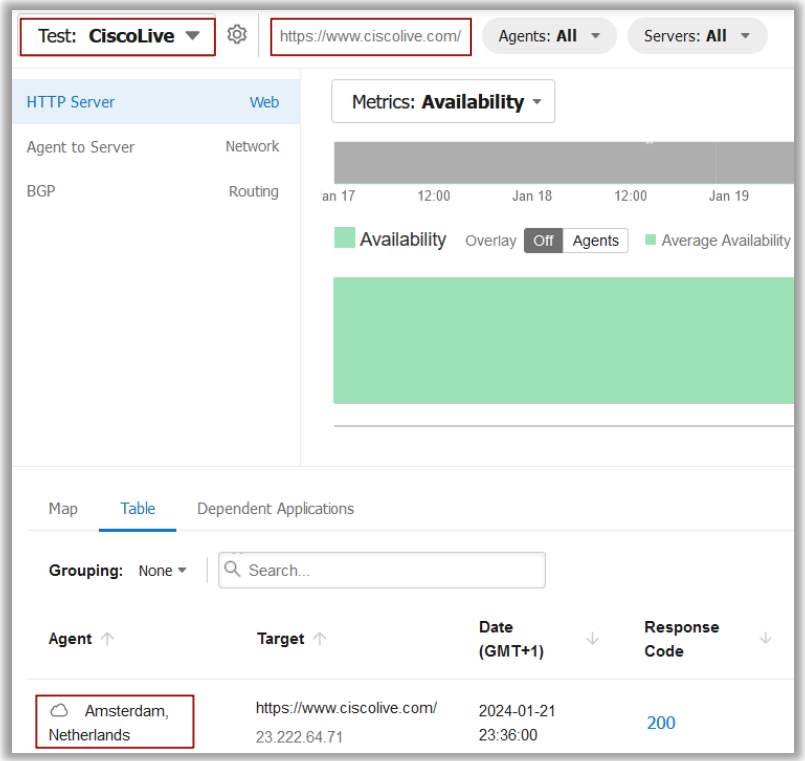
Step 1: Getting Test IDs

API call to get the test IDs:

GET /v7/tests List configured tests

Response body:

```
"tests": [
    {
        "testId": "281474976744772",
        "testName": "CiscoLive",
        "type": "http-server",
        "enabled": true,
        "url": "https://www.ciscolive.com/"
            }
        ]
```



Step 2: Creating Tags

API call to configure Tags:

POST /v7/tags Create tag

Request body:

```
{
    "key": "OTelKey1",
    "value": "OTelValue1",
    "objectType": "test",
    "accessType": "all"
}
```

Response body:

```
{
    "id": "962e88bd-2426",
    "key": "OTelKey",
    "value": "OTelValue",
}
```

Step 3: Assigning Tags to Tests

API call to assign tags to tests:

POST `/v7/tags/assign` Assign multiple tags to multiple objects

Request body:

```
"tags":
  {
      "tagId": "962e88bd-2426",
      "assignments":
          {
              "id": "281474976744772",
              "type": "test"
          }
  }
```

Response body:

```
"tags":
    {
        "tagId": "962e88bd-2426",
        "assignments":
            {
                "id": "281474976744772",
                "type": "test"
            }
    }
```

Step 4: Creating a Data Stream

API call to create a data stream

POST /v7/stream Create data stream

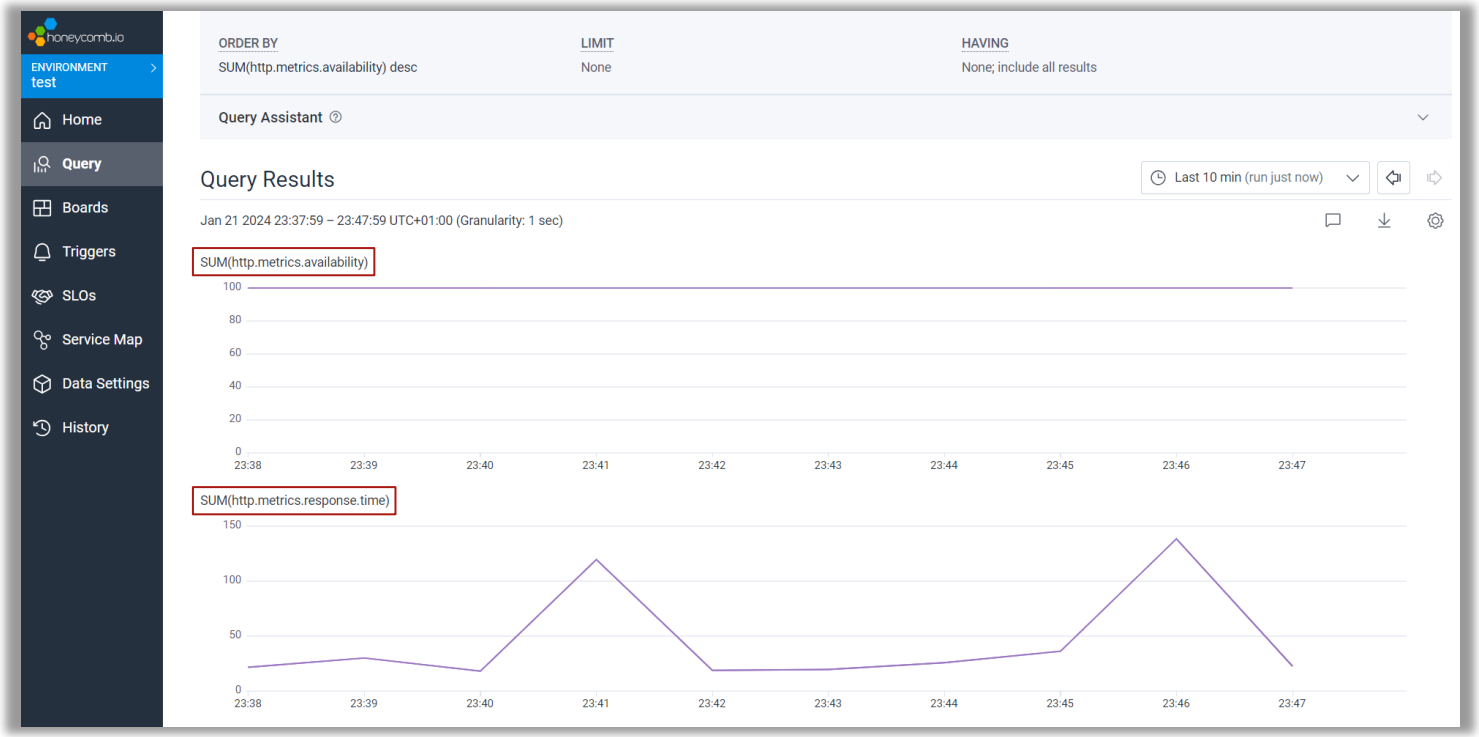
Request body:

```
{
    "type": "opentelemetry",
    "tagMatch": [{
        "key": "OTelKey1",
        "value": "OTelValue1",
        "objectType": "test"}],
    "endpointType": "grpc",
    "streamEndpointUrl": "https://api.honeycomb.io:443",
    "customHeaders" : {
        "x-honeycomb-team": "{{honeycomb_api_key}}",
        "x-honeycomb-dataset": "NEW-OTel-DataSet"
  }
}
```

Response body:

```
{
    "id": "90e91f2e-af16",
    "enabled": true,
    "type": "opentelemetry",
}
```

Last step: Checking the Observability Backend



Demo

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