



Maat REST API

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Infoshare

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Public (PU)

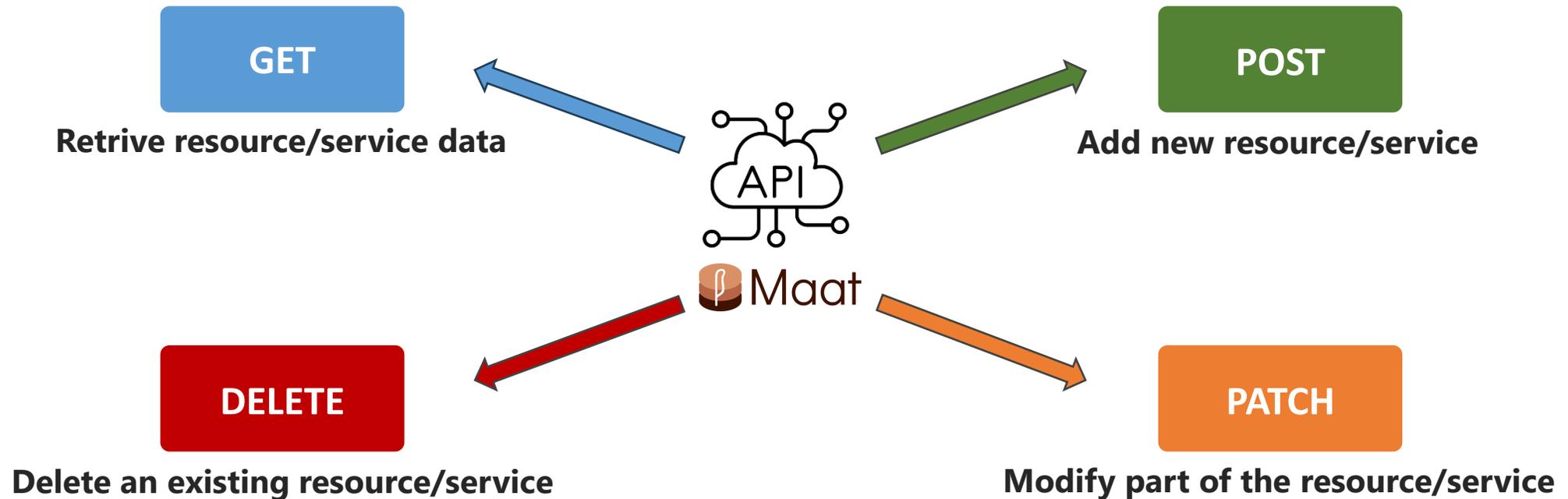
Agenda

- REST API in Maat
- Advanced data filtering
- Authentication & Authorization in Maat
- Event Notification
- MaatDex
- Future work

Manage all information in Maat via APIs.

The REST API is the main integration interface for connecting Maat with external applications.

One of the core design principles of Maat was to make it as a Source of Truth component within a larger service and infrastructure management system.



Advanced data filtering



For the GET method, Maat provides several parameters that allow precise filtering of resources and services.

Parameters for resources

Key	Value
limit	1
offset	1
fields	category
fields	resourceCharacteristic.name,resourceCharacteristic.value
category	device*
name	Juniper
resourceRelationship.resource.name	PTX*
resourceCharacteristic.name	mtu
resourceCharacteristic.value	true
resourceCharacteristic.value	vlan-tag*
serviceRelationship.relationshipType	ref:network.core.sap
Key	Value

Parameters for services

Key	Value
category	I2.circuit
category	network.core.sap
name	SAP1
serviceRelationship.relationshipType	ref:network.core.sap
serviceRelationship.relationshipType	bref:I2.circuit
resourceRelationship.relationshipType	bref:interface
limit	3
offset	4
fields	serviceCharacteristic
fields	category,description
Key	Value

Authentication & Authorization in Maat



Authentication

- Identity Verification before performing any action
- AuthN for the REST API
- User Authentication via MaatUI



Authorization

- Two levels of authorization
- Layer 1: based on REST API method assigned to the user
- Layer 2: based on the resource and service access rules



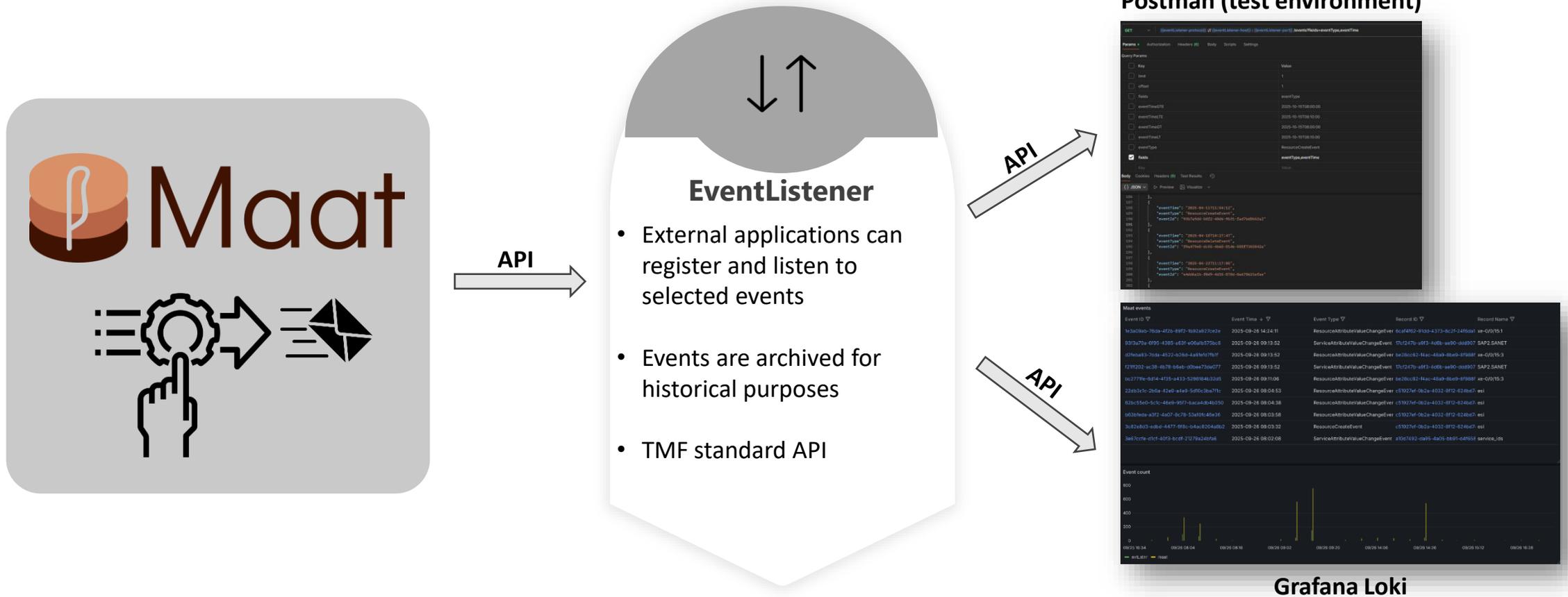
Keycloak

- Maat is integrated with Keycloak for AuthN and AuthZ
- Centralized Identity and Access Management Platform
- Comprehensive and Flexible Security Configuration

Event Notification

External applications can register in Maat as listeners and receive notifications about system events, such as resource or service creation, update, or deletion.

An example is the EventListener application, which receives all events and stores the history of changes.



MaatDex

MaatDex is a tool to fetch topology data from Maat via REST API and other data sources (monitoring system).



Bitbucket Projects Repositories

GN4-2-JRA2-T2 / Maat-dex

A repo for data export resources (scripts, etc.)

Source

master Maat-dex /

Source

- api
- config
- doc/images
- mapgl
- scripts
- utils

.gitignore Fetch all data from Maat

config.conf Improved categories and checking exists of vertexB

README.md Update README.md

requirements.txt City as a vertex

README.md

POMIER Network Topology - Mapgl

Polonia - Warszawa (pr-001-1-002)

44 GHz

42 GHz

40 GHz

38 GHz

36 GHz

34 GHz

32 GHz

30 GHz

28 GHz

26 GHz

24 GHz

22 GHz

20 GHz

18 GHz

16 GHz

14 GHz

12 GHz

10 GHz

8 GHz

6 GHz

4 GHz

2 GHz

0 GHz

14:10 14:15 14:20 14:25 14:30 14:35 14:40 14:45 14:50 15:00 15:05

Mean

24.0 GHz 25.0 GHz 27.0 GHz 28.0 GHz 29.0 GHz 30.0 GHz 31.0 GHz 32.0 GHz 33.0 GHz 34.0 GHz 35.0 GHz

2020-07-11 From Warszawa to Poznan - interface pr-001-1-002

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```

classDiagram
    class site {
        +name
        +ipRange
        +category
        +description
        +resourceRelationship
        +serviceRelationship
    }
    class device {
        +name
        +ipRange
        +category
        +description
        +resourceCharacteristics
        +resourceRelationship
        +serviceRelationship
    }
    class interface {
        +name
        +ipRange
        +category
        +description
        +resourceCharacteristics
        +resourceRelationship
        +serviceRelationship
    }
    class link {
        +name
        +ipRange
        +category
        +description
        +resourceRelationship
        +serviceRelationship
    }
    class service {
        +name
        +ipRange
        +category
        +description
        +resourceRelationship
        +serviceRelationship
    }
    site --> device
    device --> interface
    interface --> link
    link --> service
  
```

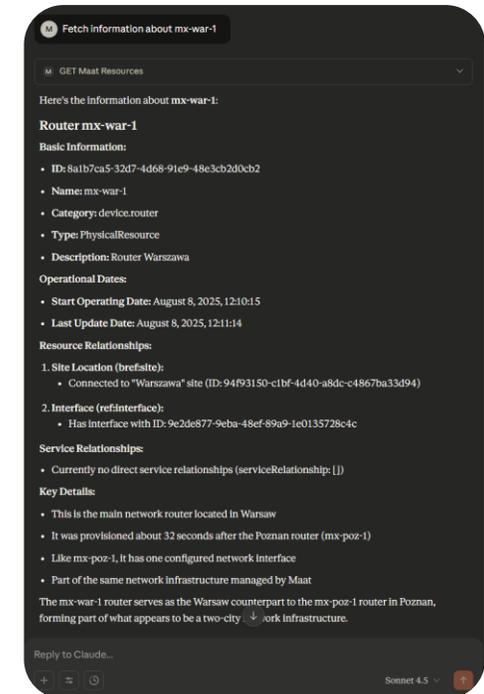
resources

services

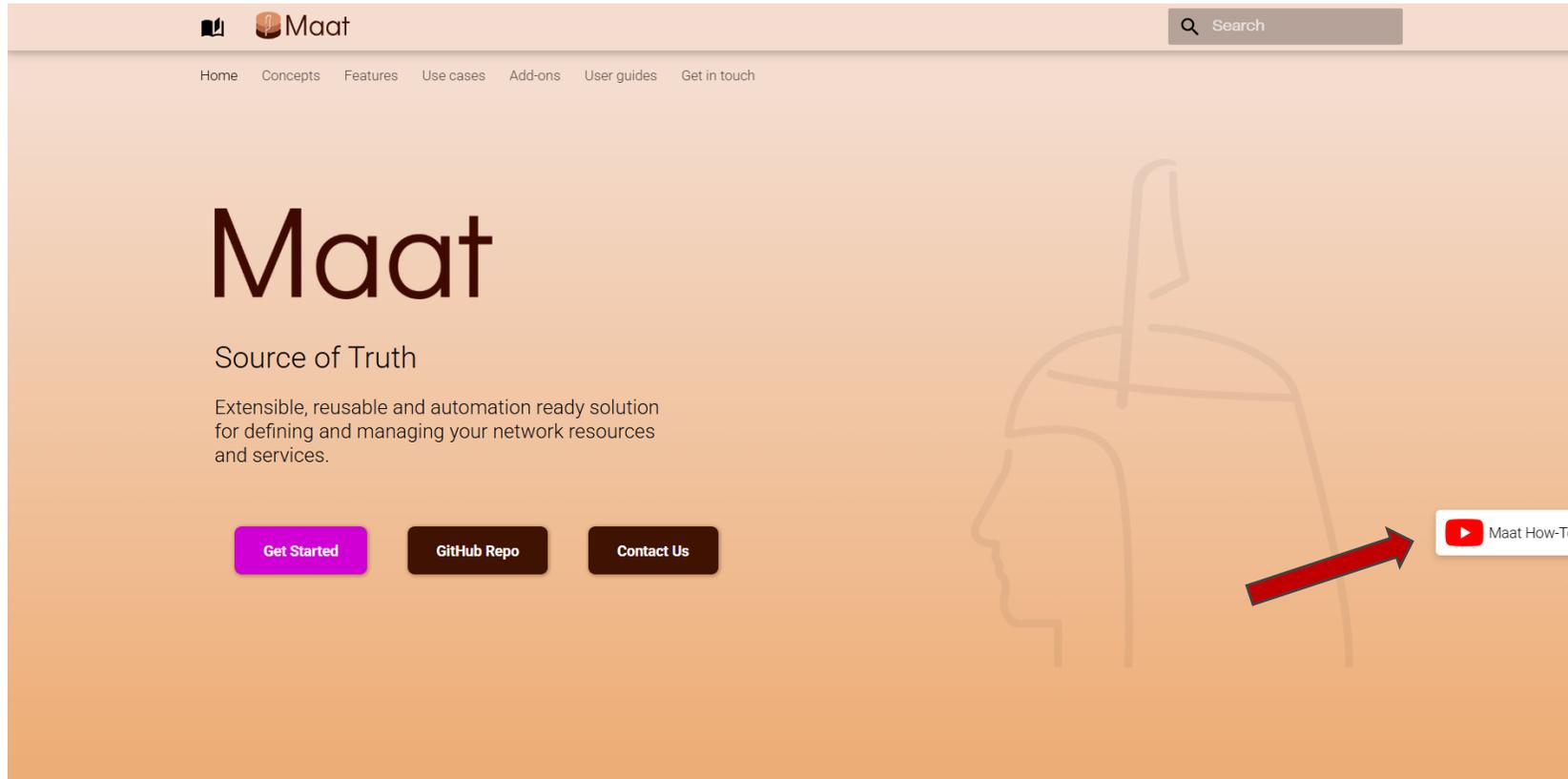
<https://geant-netdev.gitlab-pages.pcss.pl/MaatDocs/use-cases/mapgl/>

Future work

- Integration with AI LLM models via MCP server
- The goal is to improve resource and service information retrieval (complex user queries using natural language)
- Research and test phase started



Maat Website and learning units on YouTube



<https://geant-netdev.gitlab-pages.pcss.pl/MaatDocs/>





Thank You

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