Maat REST API

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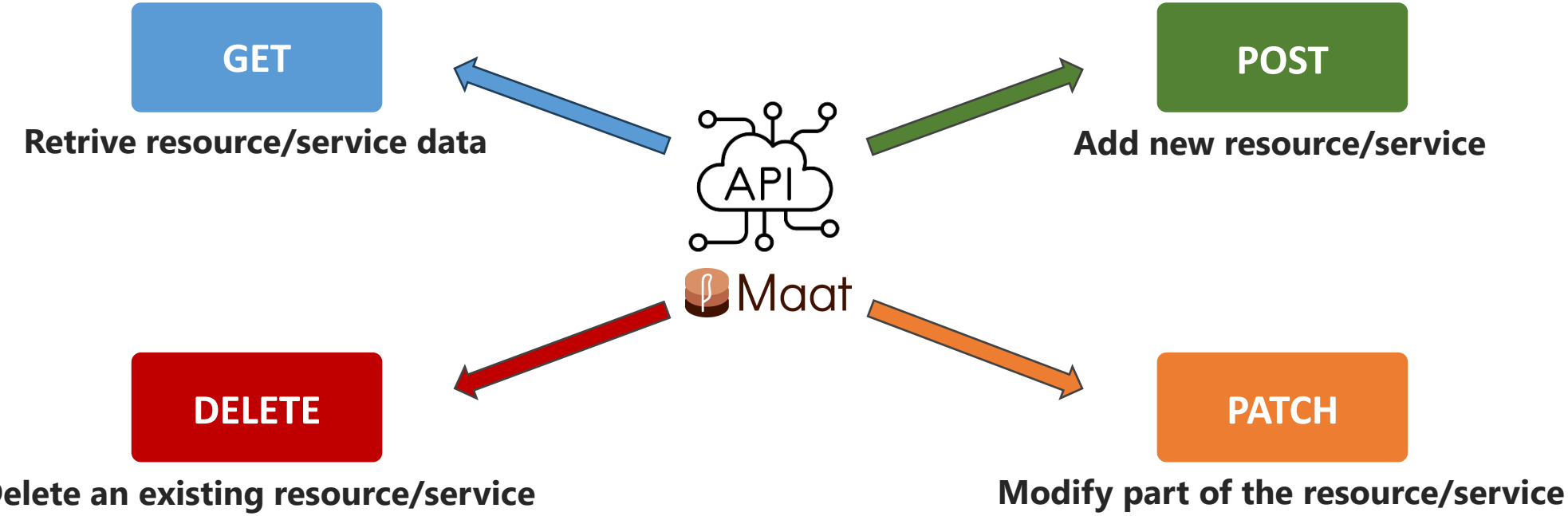
Agenda

- 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

GET {{maat-protocol}} :// {{maat-host}} : {{maat-port}} /resourceInventoryManagement/v4.0.0/resource

Params • Authorization • Headers (7) Body Scripts Settings

Query Params

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

GET {{maat-protocol}} :// {{maat-host}} : {{maat-port}} /serviceInventoryManagement/v4.0.0/service

Params • Authorization Headers (6) Body Scripts Settings

Query Params

Key	Value
category	l2.circuit
category	network.core.sap
name	SAP1
serviceRelationship.relationshipType	ref:network.core.sap
serviceRelationship.relationshipType	bref:l2.circuit
resourceRelationship.relationshipType	bref:interface
limit	3
offset	4
fields	serviceCharacteristic
fields	category,description
Key	Value

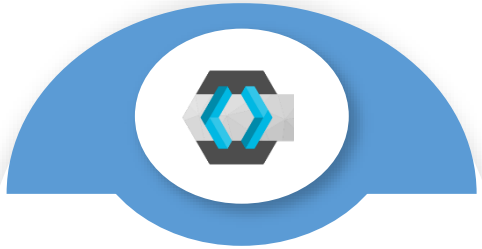
Authentication & Authorization in Maat

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

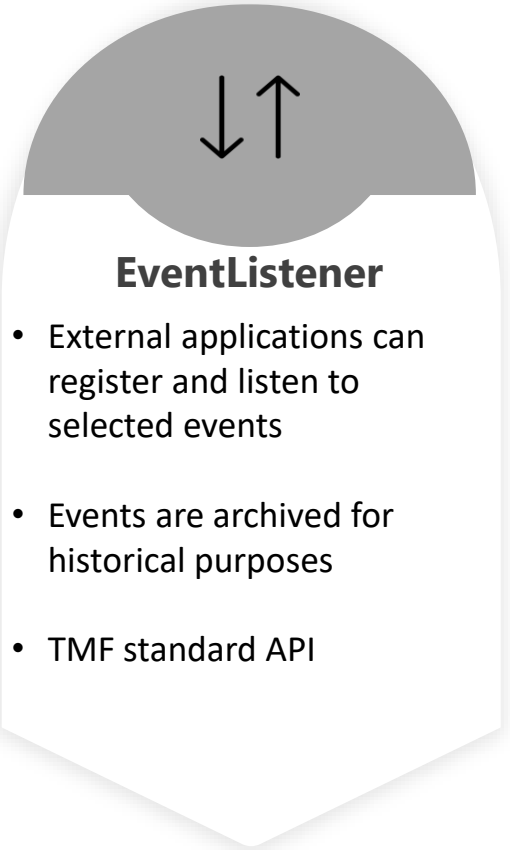
- Maat is integrated with Keycloak for AuthN and AuthZ
- Centralized Identity and Access Management Platform
- Comprehensive and Flexible Security Configuration

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.

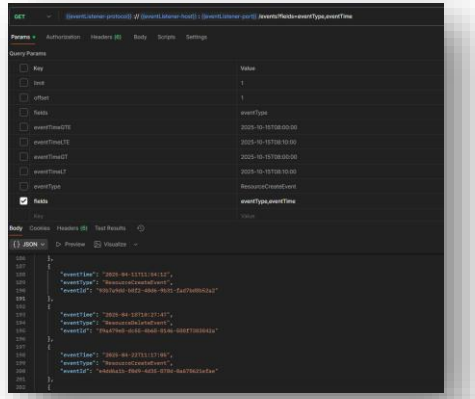
API

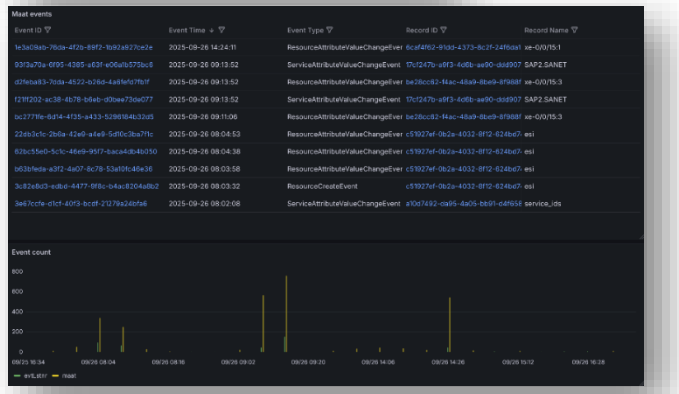


API

API

Postman (test environment)

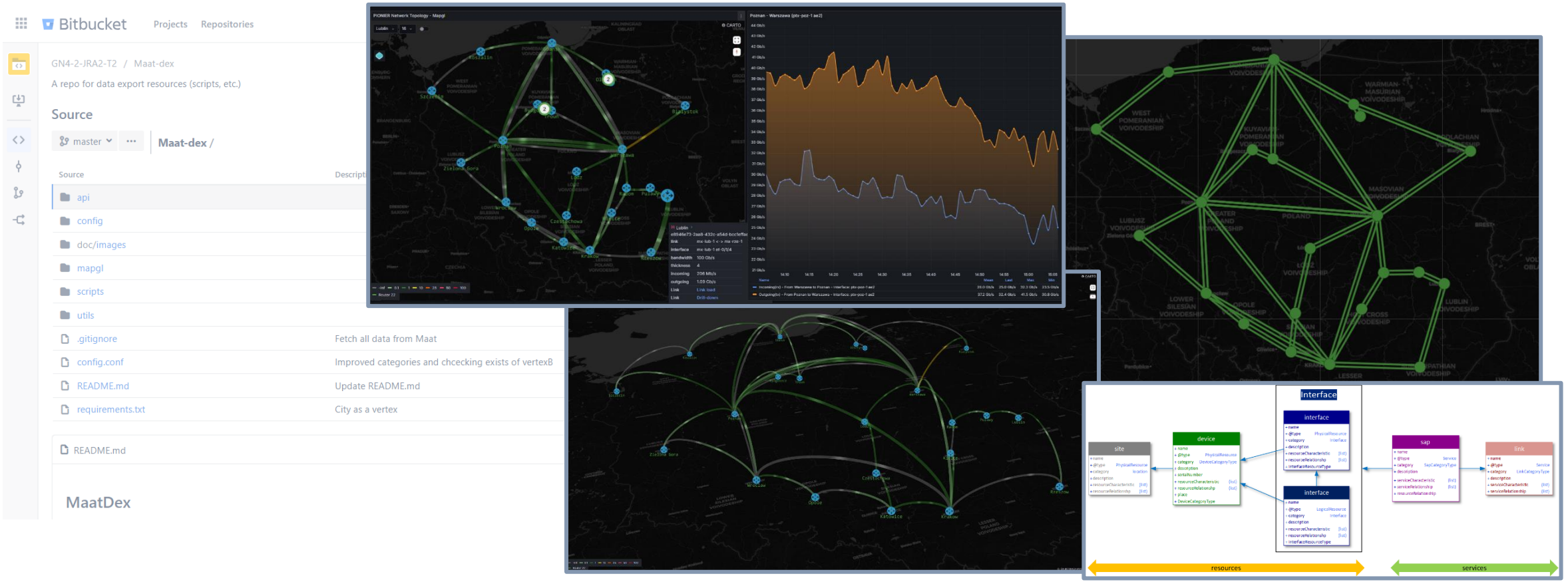




Grafana Loki

MaatDex

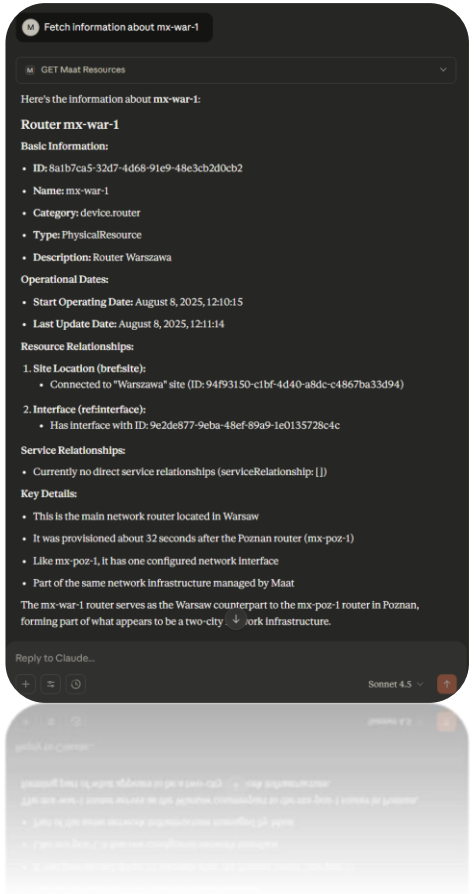
MaatDex is a tool to fetch topology data from Maat via REST API and other data sources (monitoring system).



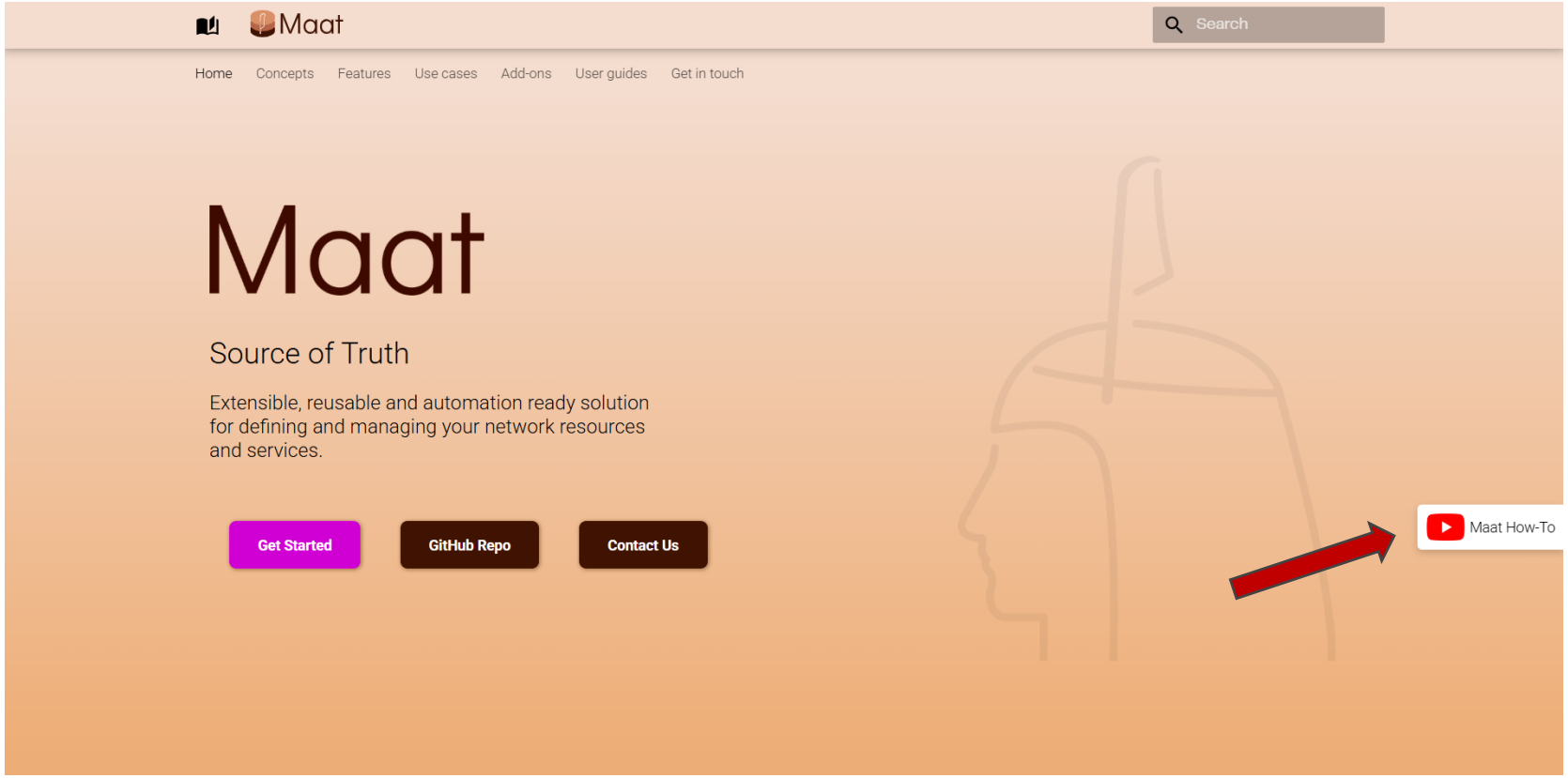
https://geant-netdev.gitlab-pages.pcss.pl/MaatDocs/use-cases/mapgl/

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



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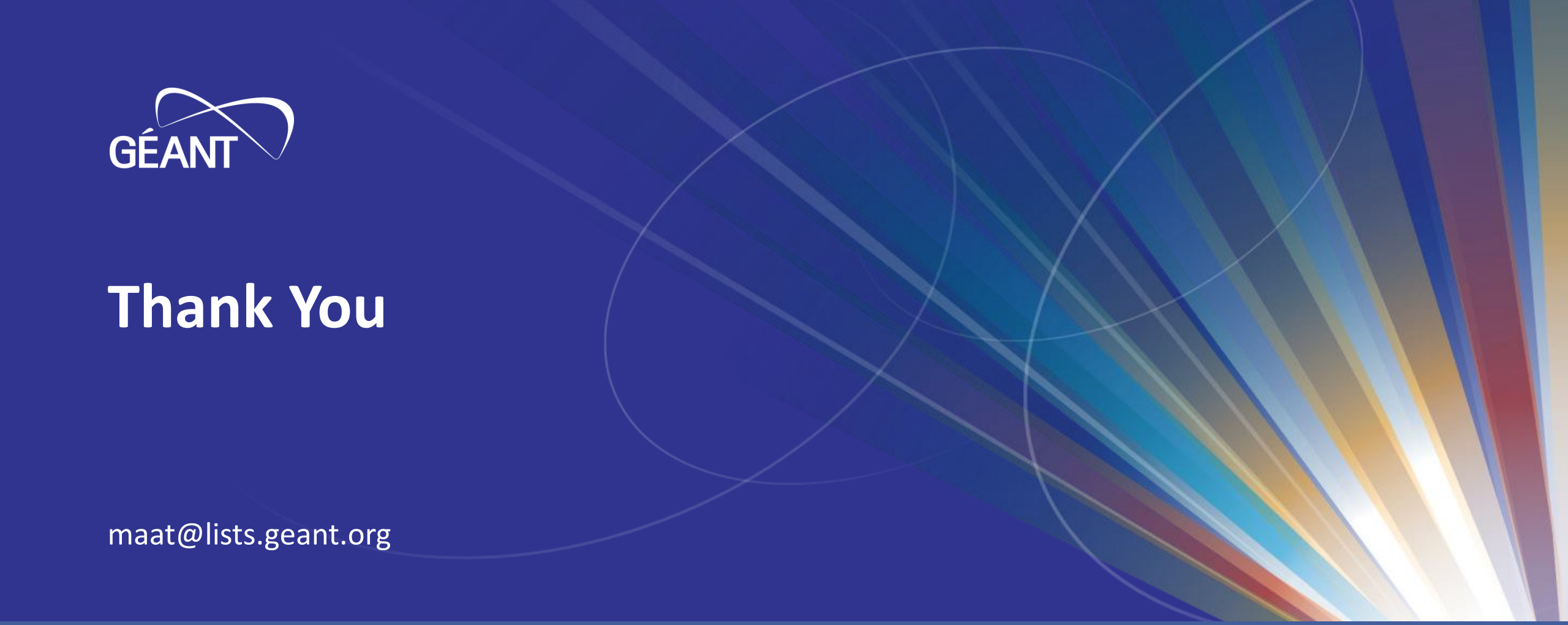

Thank You

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