

The EOSC Core

26 April 2022



with



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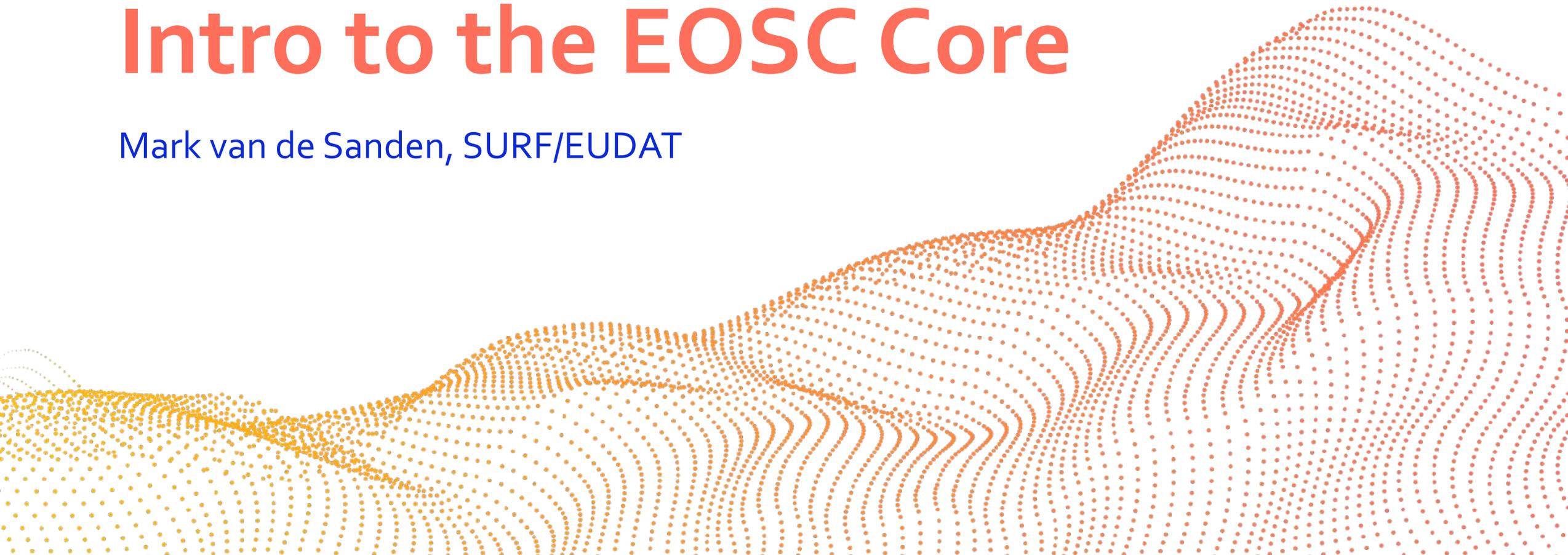


Outline

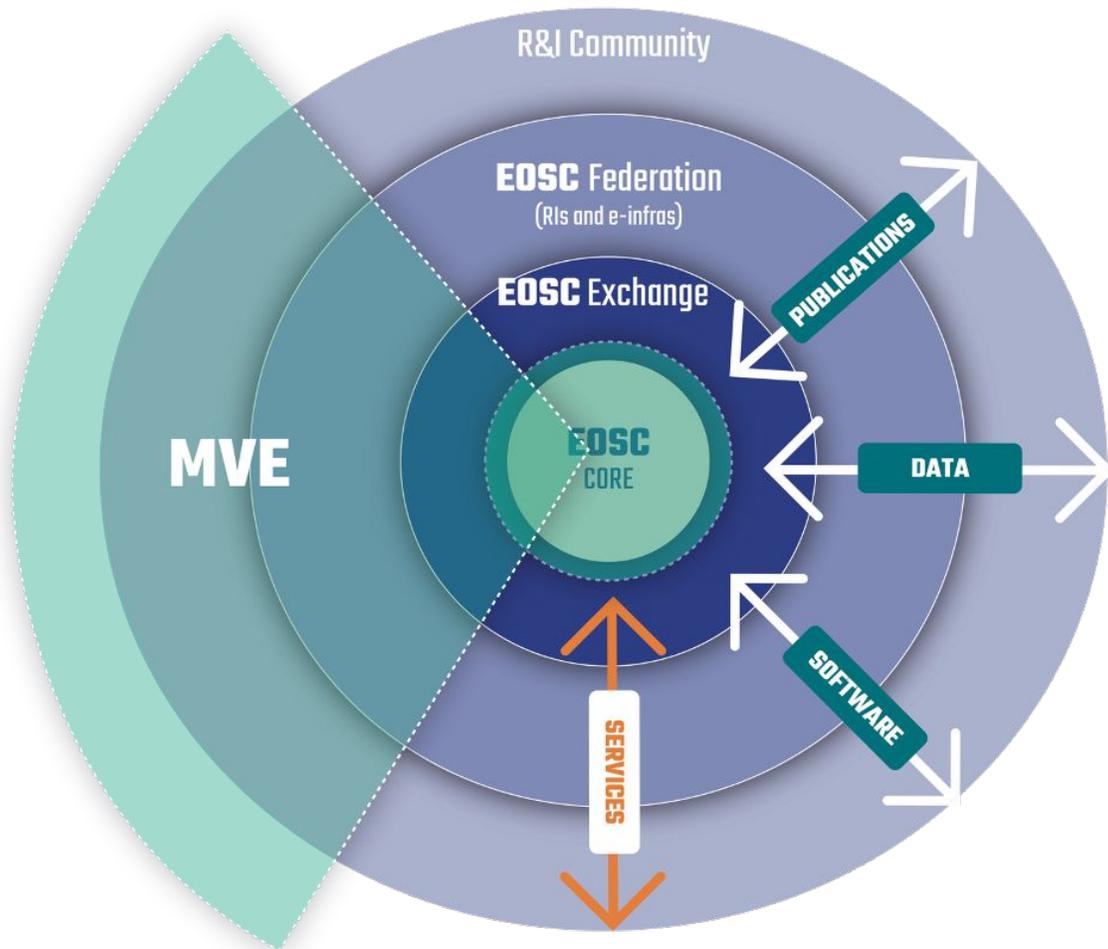
- **Intro to the EOSC-Core**
Mark van de Sanden, SURF/EUDAT
- **AAI**
Christos Kanellopoulos, GEANT
- **Monitoring**
Kostas Koumantaros, GRNET
- **Accounting for Services**
Kostas Koumantaros, GRNET
- **Accounting for Research Products**
Andreas Czernia, Bielefeld University
- **Order Management**
Roksana Wilk, Cyfronet
- **Helpdesk**
Pavel Weber, Karlsruhe Institute of Technology
- **Q&As**

Intro to the EOSC Core

Mark van de Sanden, SURF/EUDAT



Minimal Viable EOSC



MVE includes:

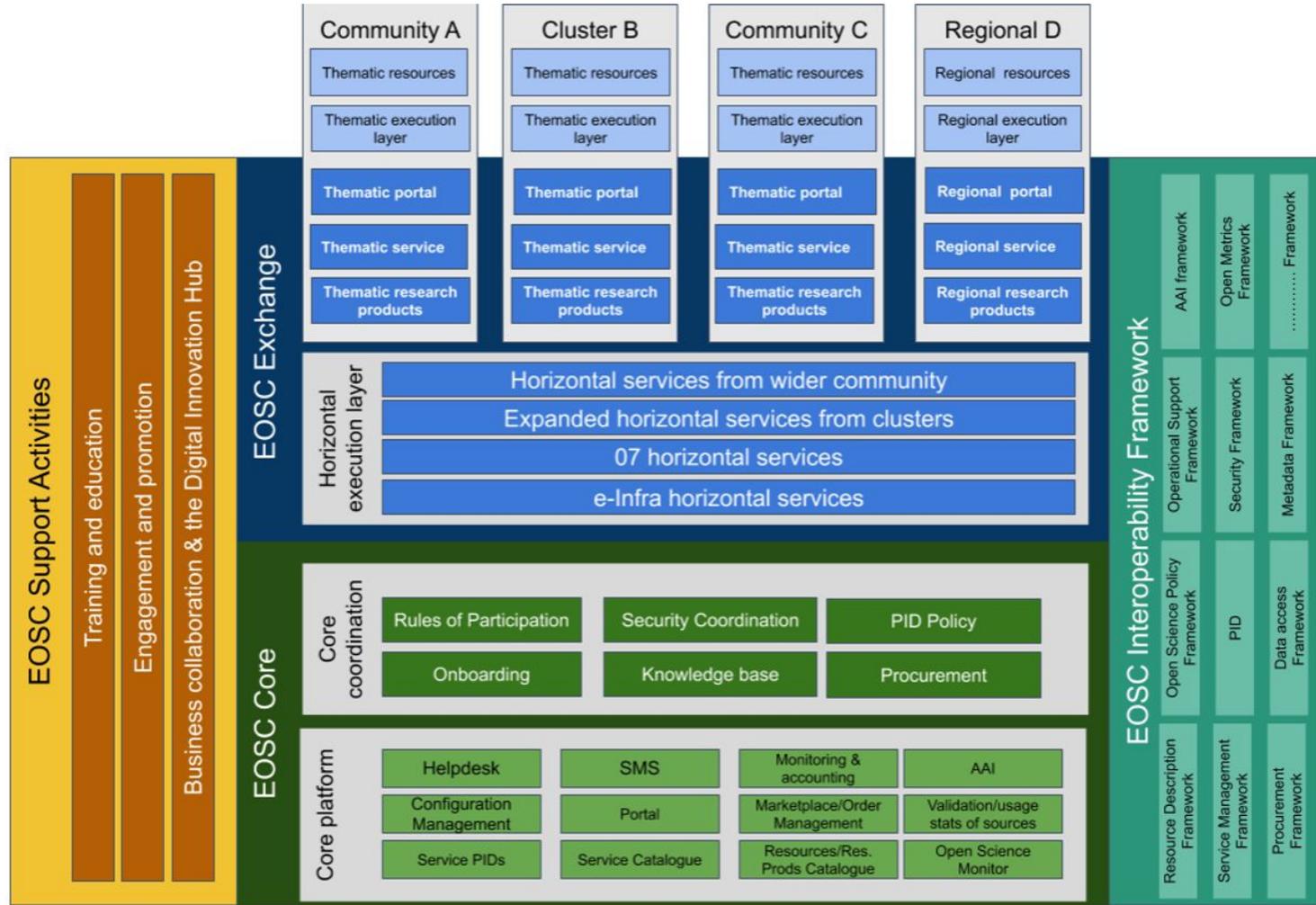
- EOSC Core and subsets of EOSC Exchange, Federation
- EOSC resources (services, research products) required to “market” the EOSC
- Subset of the R&I community (showcases, e.g., COVID-19)



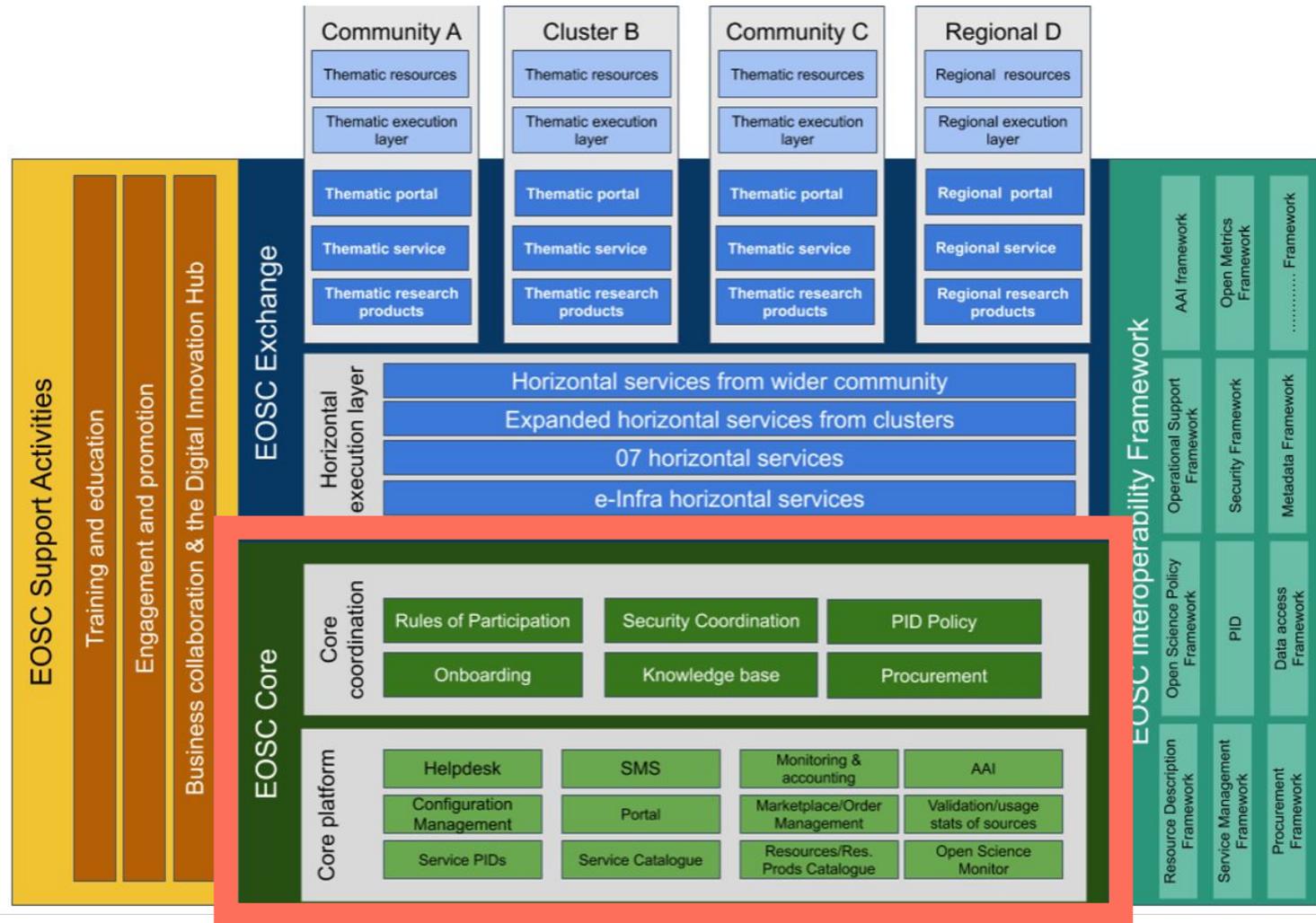
Guiding principles

- The EOSC Future core platform **federates** existing and new infrastructures into a **system of systems**
- EOSC Future delivers the '**glue-layer**' that allows for the composition of resources across infrastructures by:
 - Providing **APIs** and metadata
 - Providing **Interoperability Frameworks**
 - Providing **portal capabilities**
- Setup the **EOSC-Core**
- Populating the **EOSC-Exchange** with **Services** and **Research Products**
- Technical roadmap is driven by **user requirements** and implemented as an, over time increasing in complexity, set of user capabilities

EOSC Architecture

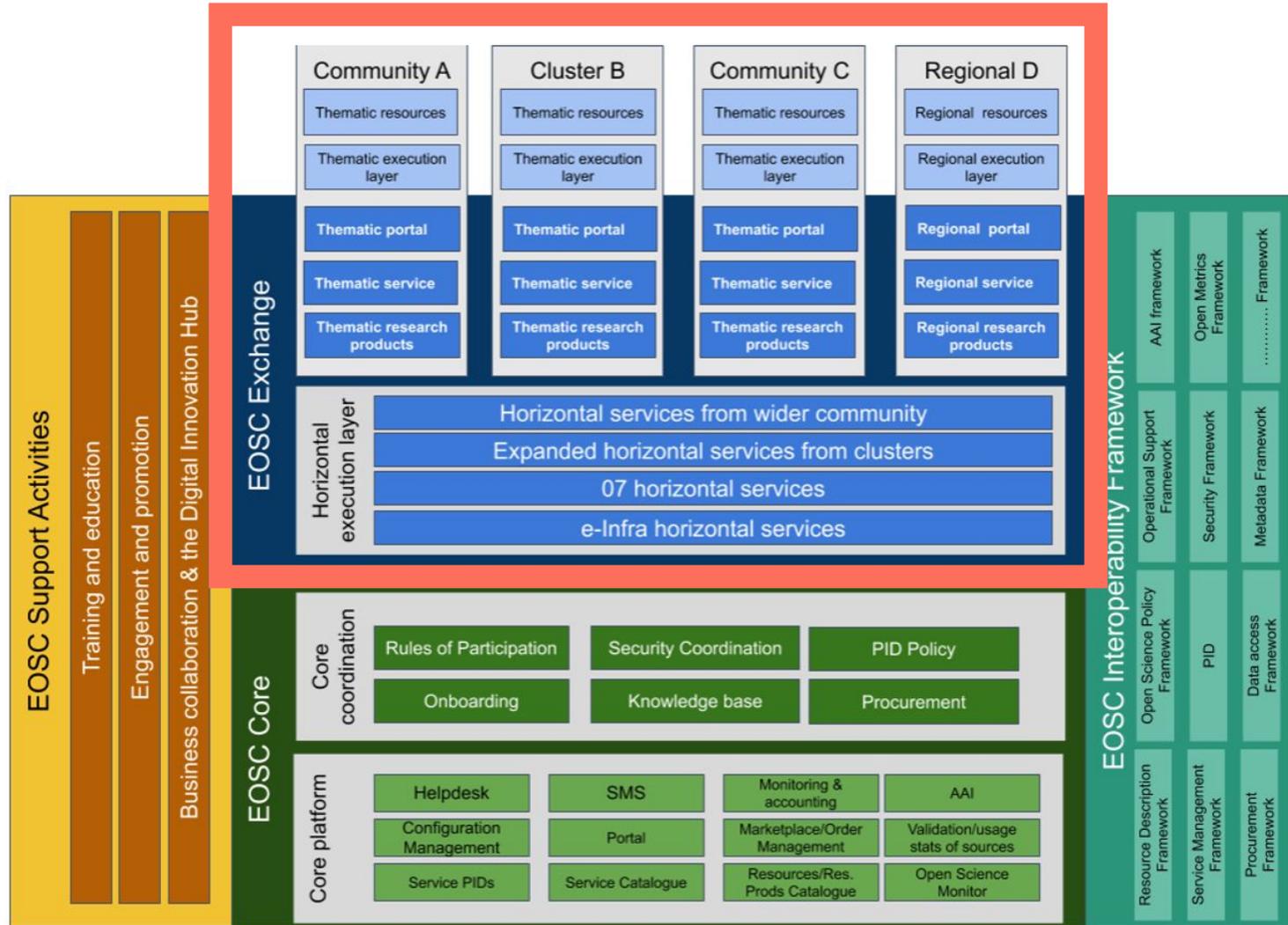


EOSC Architecture - Core



- Core platform
 - Portal
 - AAI
 - Config management
 - Service management
 - Helpdesk
 - Services & research products catalogue
 - ...
- Coordination
 - Policies
 - Security
 - ...

EOSC Architecture - Exchange

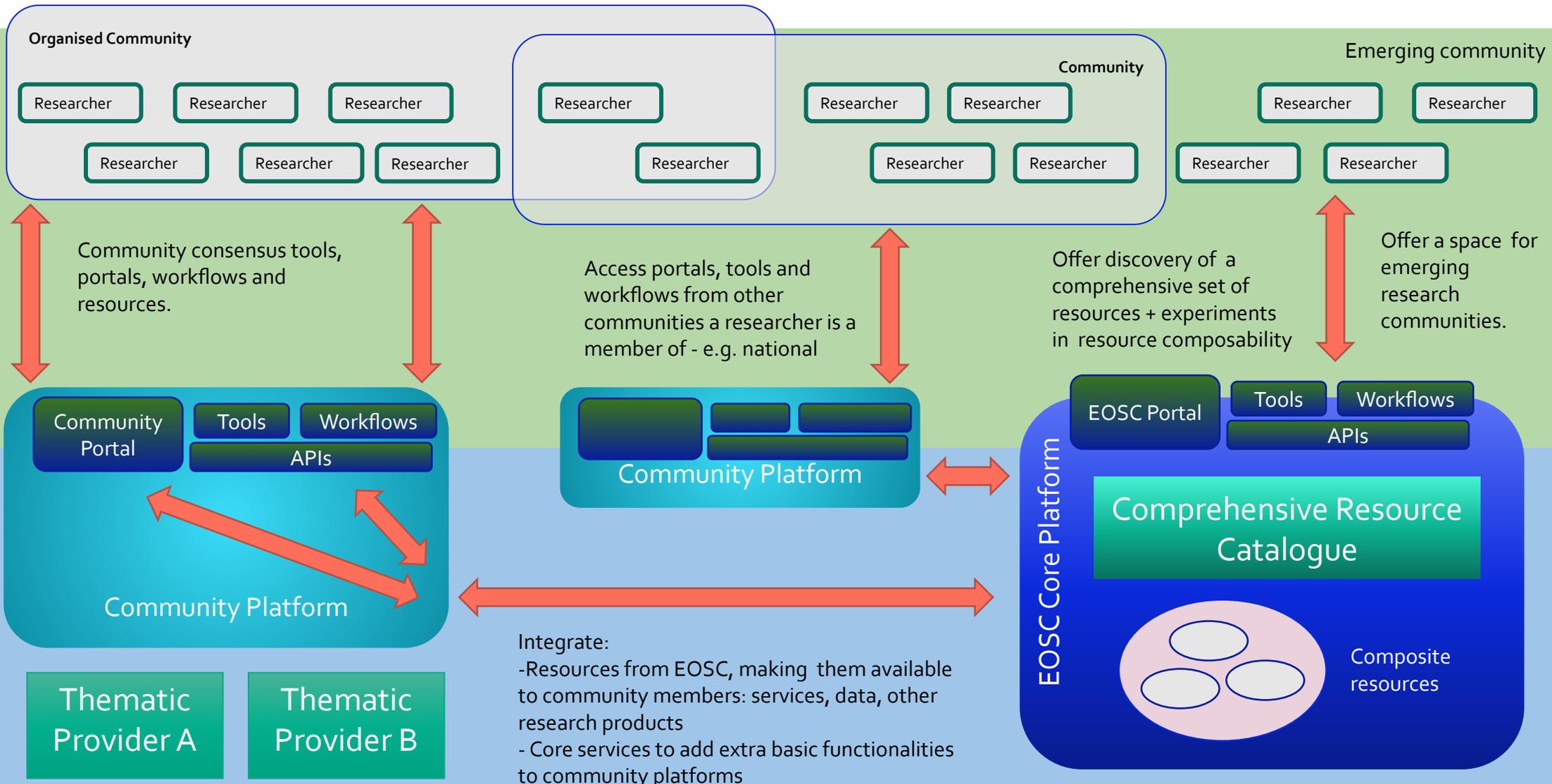


- Community
 - Resources
 - Portal
 - Thematic services
- Horizontal execution layer
 - 07 Projects
 - e-Infra
 - Clusters
 - Community

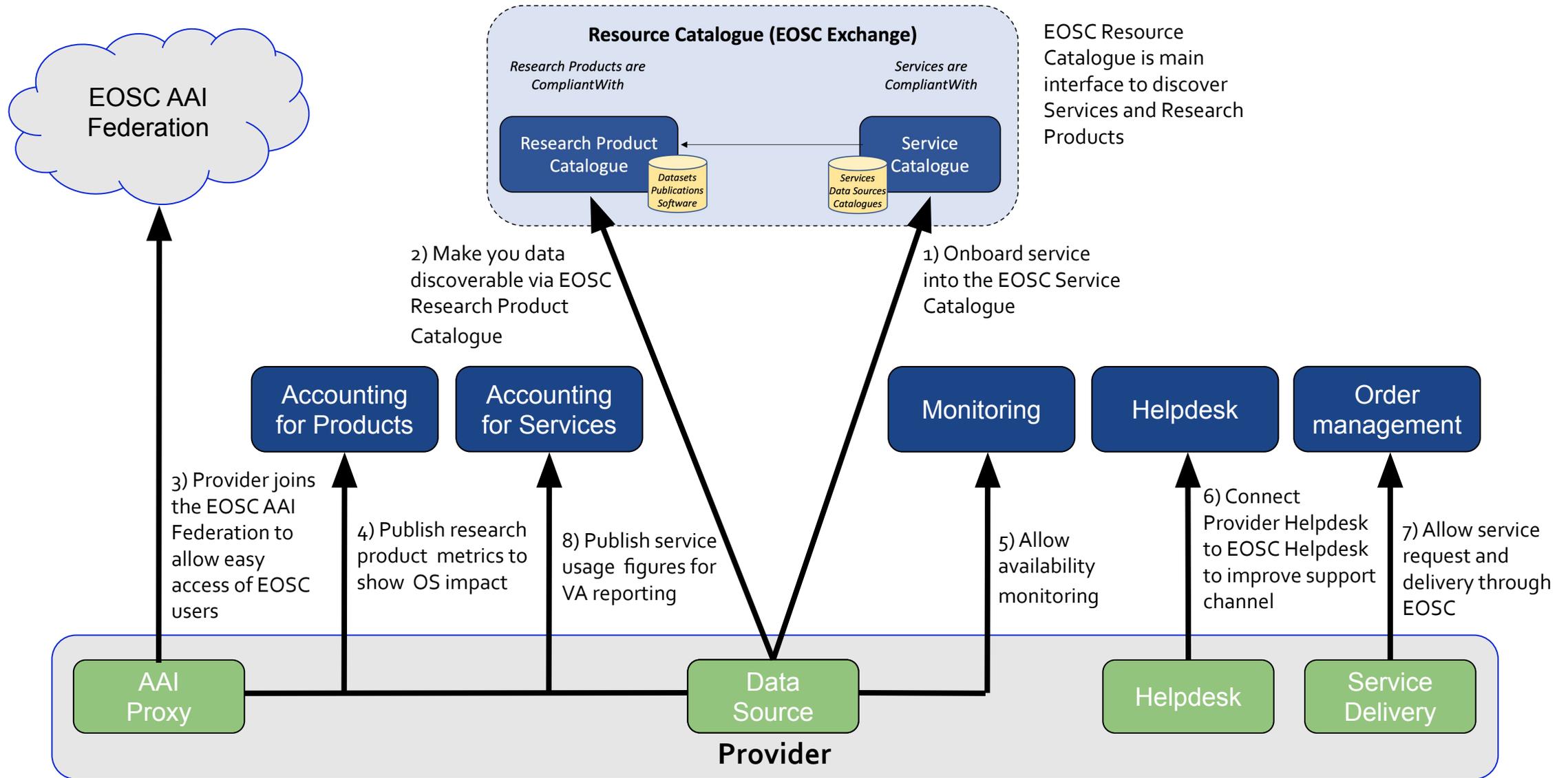
Community view: different modes of collaboration

Research

EOSC



Different levels of integration with EOSC Core Platform





EOSC Future High Level Roadmap

User Experience

M6

1. Researchers can access and combine:
 - a. EOSC Compute & Storage resources
 - b. Horizontal services
2. Researchers can see examples of complex workflows
 - a. using multiple resource providers

M18

1. Researchers can orchestrate data analysis on computing resources provided by multiple e-Infra resource providers
2. Integration with researchers' storage systems

M30

1. 'Composability indicators' associated to EOSC resources
2. Researchers can access fully integrated/ end-to-end workflows for various research topics
3. Execution framework

AAI

Christos Kanellopoulos, GEANT





What is the AAI?

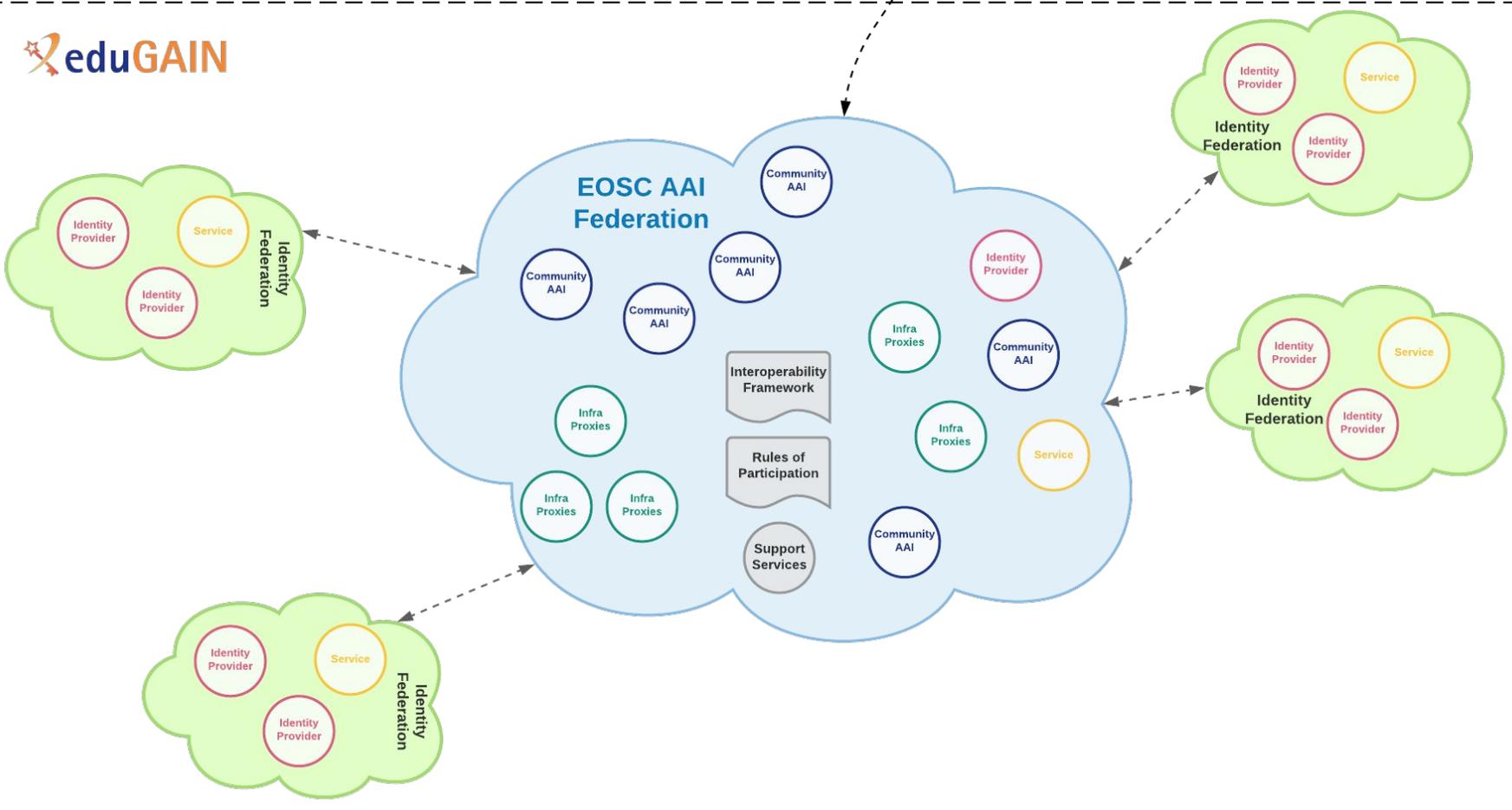
- AAI stands for Authentication and Authorization Infrastructure
- Science Clusters, Research Infrastructures and e-Infrastructure Providers have been implementing their AAls using the AARC Blueprint Architecture in order to manage their users and the access rights to resources
 - The AARC Blueprint Architecture (BPA) provides a set of building blocks for software architects and technical decision makers who are designing and implementing access management solutions for international research collaborations.



What is the EOSC AAI?

- The goal for the EOSC AAI is to provide the trust mortar with which we join the many bricks of the current set of scientific communities, collaborations and infrastructures together.
 - *The term "EOSC AAI" has sometimes been interpreted as a singular instance of the EOSC AAI Architecture. Nothing could be further from the truth. The EOSC AAI is a set of principles and governance structures for how the architecture evolves and grows over time.*
- The EOSC AAI is comprised of the AAI of the Science Clusters, Research Infrastructures and e-Infrastructure Providers, which are being brought together through the EOSC AAI Federation

What is the EOSC AAI?

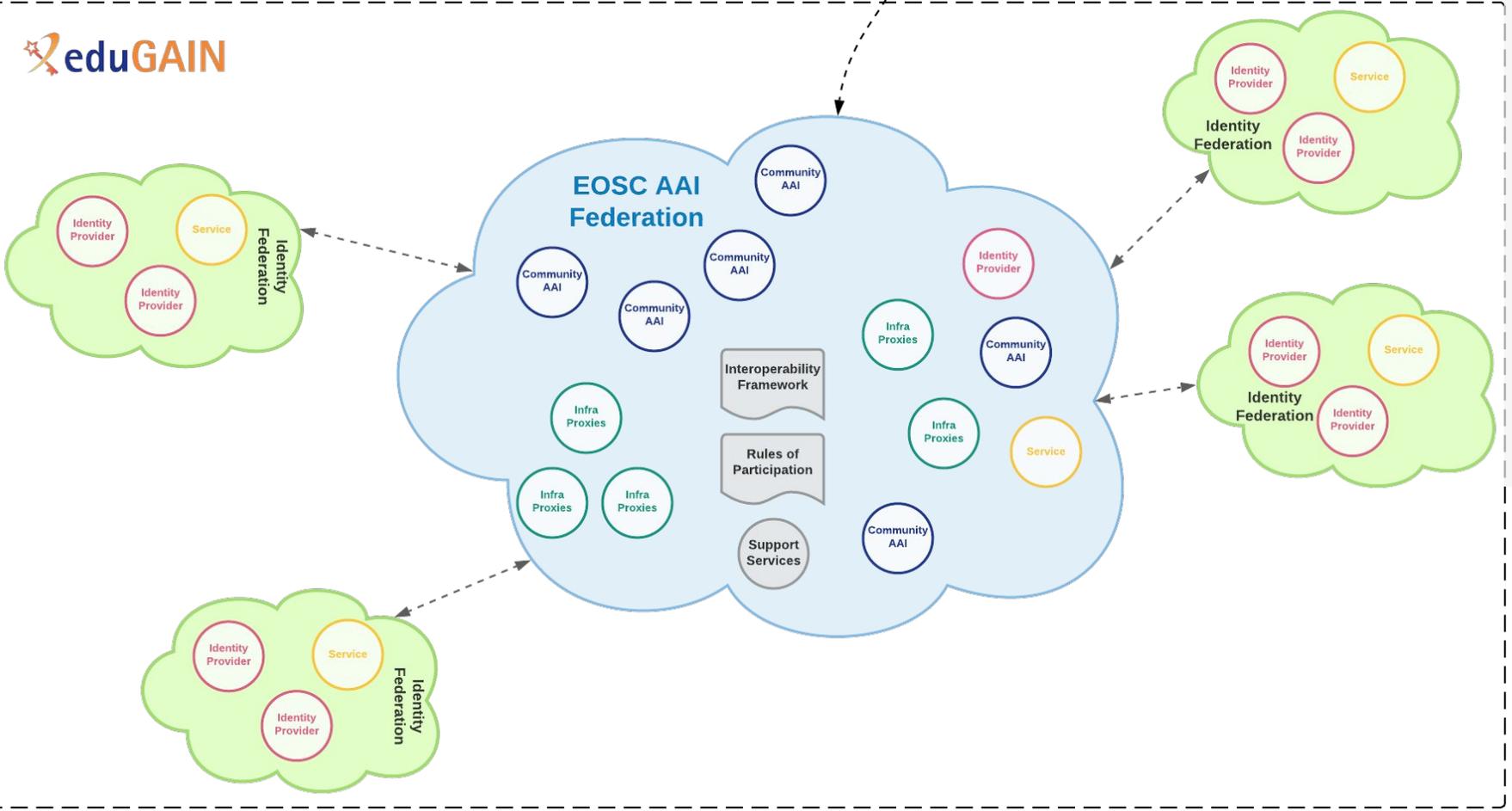


- Community AAls and Infrastructure Proxies connect once with the EOSC AAI Federation (register metadata, URN namespaces, policies etc)
- Technical interoperability conformance tested and monitored by the EOSC AAI Federation.
- GDPR and Security Policy conformance (Policy Notices, Acceptable Use Policy etc) assessed by the EOSC AAI Federation.
- Community AAls and Infrastructure Proxies discovery and establish trust with the rest of the Community AAls and Infrastructure Proxies through the EOSC AAI Federation
- The EOSC AAI Federation participates in the eduGAIN Inter-Federation to discovery and establish trust with Identity Providers and Services Providers that the EOSC AAI Federation requirements

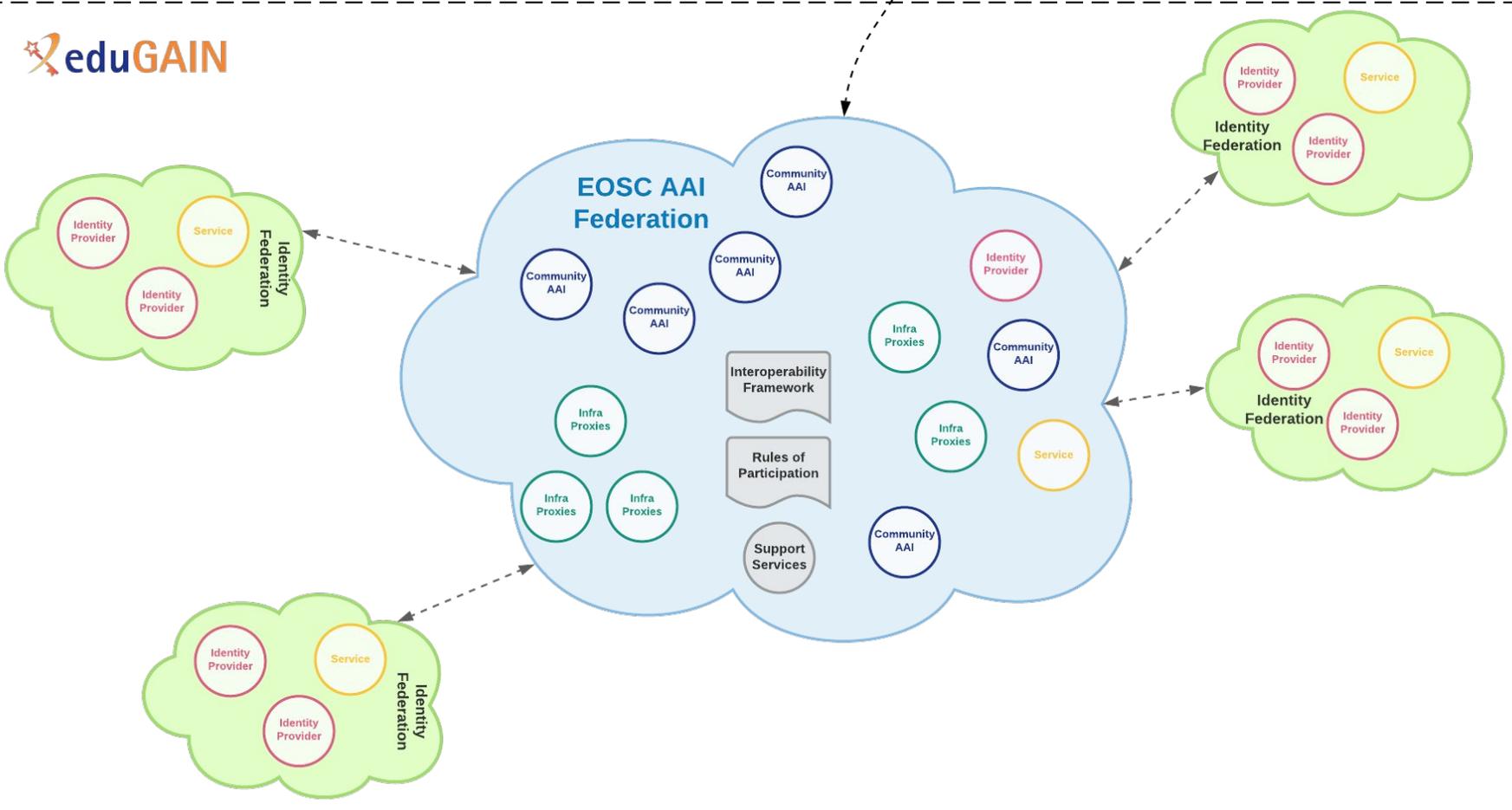
Integration options For Providers



National Academic Federations



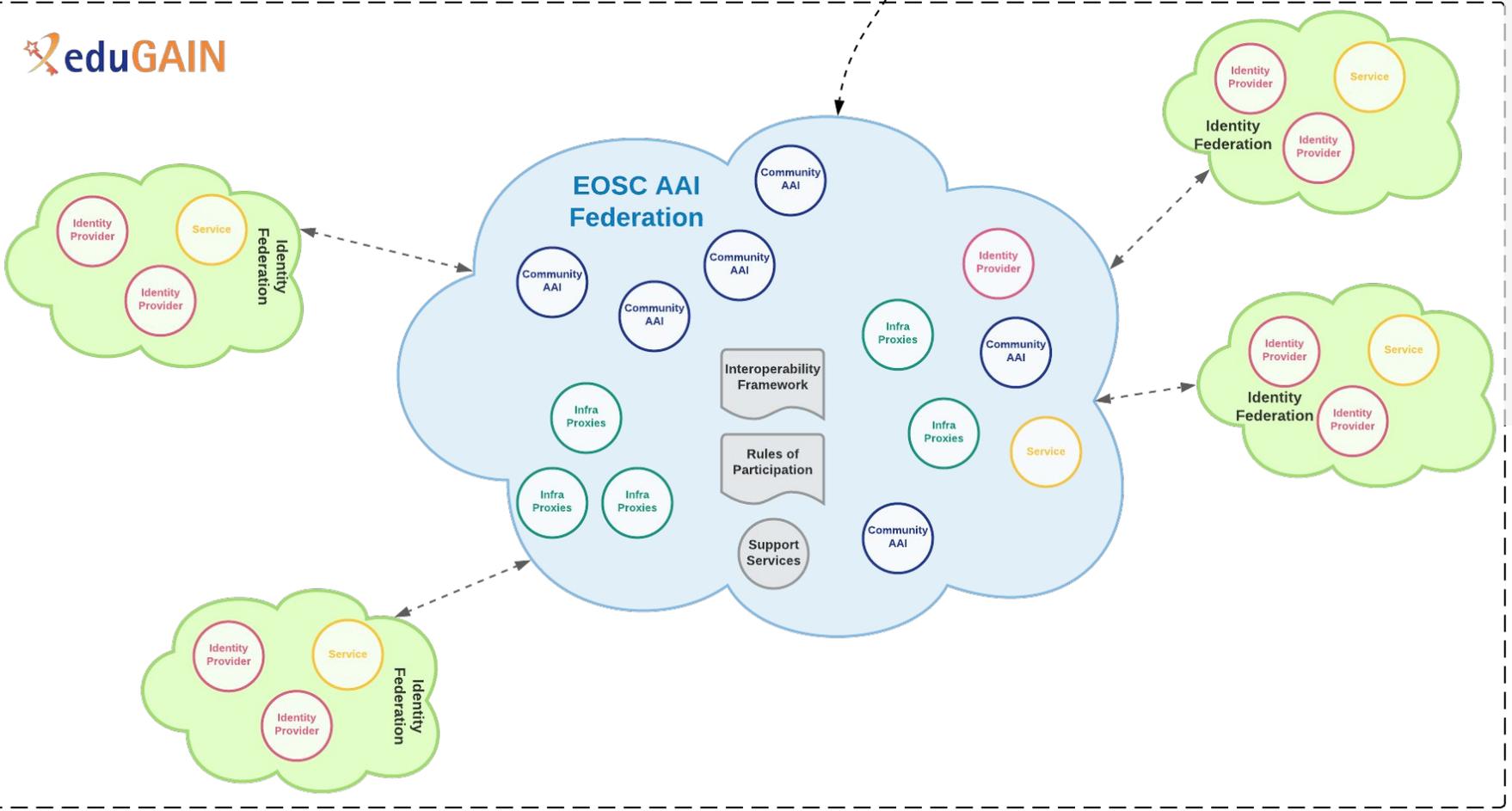
Integration options For Providers



National Academic Federations

Infrastructure Proxies operated by Research Infrastructures

Integration options For Providers



National Academic Federations

Infrastructure Proxies operated by Research Infrastrures

Infrastructure Proxies operated by e-Infrastrures



EOSC AAI Roadmap

- October 2022
 - The EOSC AAI Federation is fully operational. EOSC AAI e-Infrastructure SP-proxies and cluster community AAI fully integrated to EOSC AAI Federation. Community AAI can integrate.
 - Initial technical guidelines to connect IdP and AAI proxies from public and private sector service providers to the EOSC Federated AAI
 - Use case: A researcher from PaNOSC can access an ESCAPE resource with the PaNOSC (UmbrellaID) identity. Cross Research Infrastructure Access.



EOSC AAI Roadmap

- October 2023
 - A researcher can do the full lifecycle of data processing, storage, analysis, and publishing supported by resources available and transparently integrated through EOSC.
 - Community AAI seamless integration with EOSC AAI federation through self-service onboarding.
 - Technical interoperability guidelines for supporting cross-sector access to the EOSC Federated AAI.

Monitoring

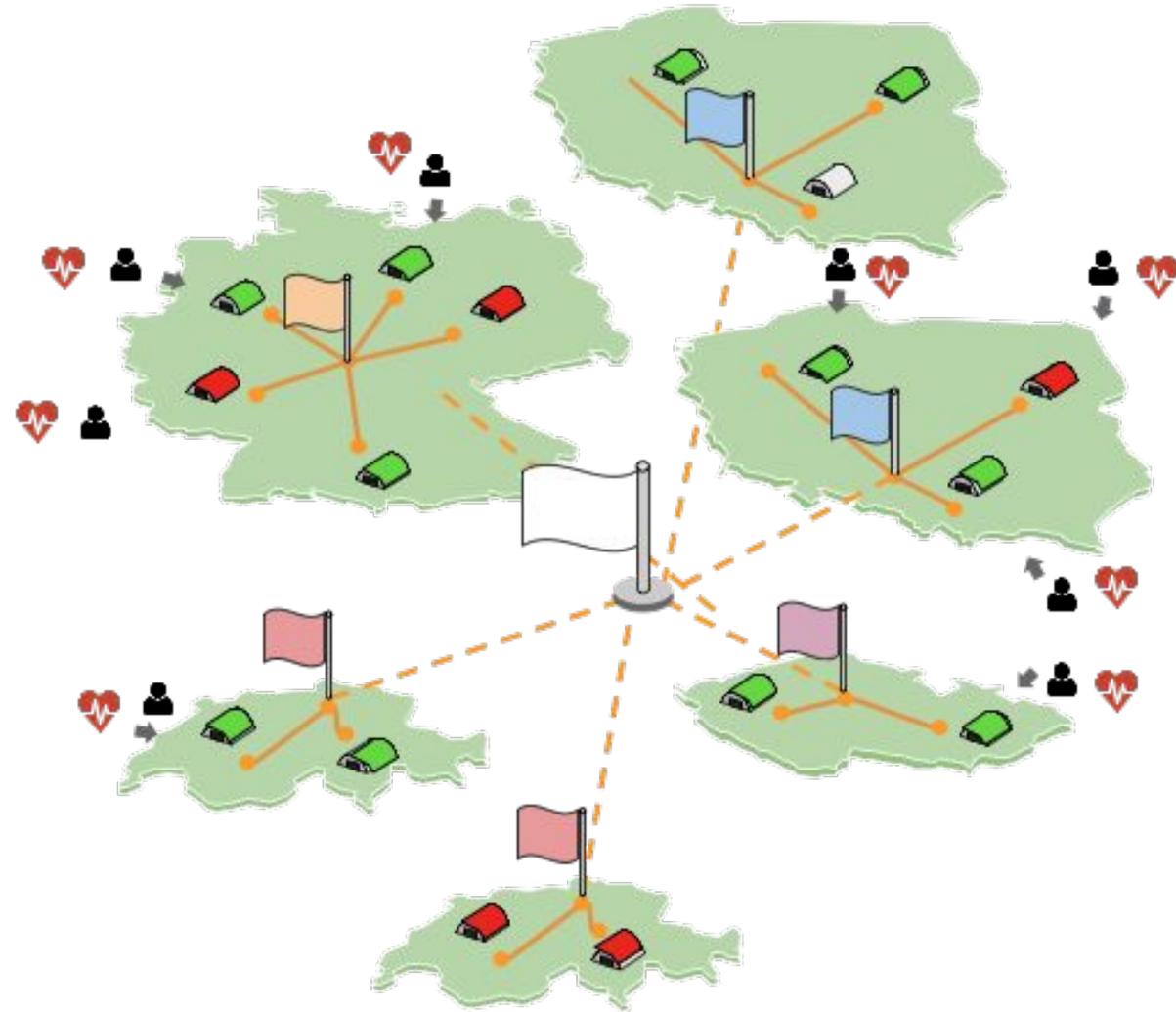
Kostas Koumantaros, GRNET



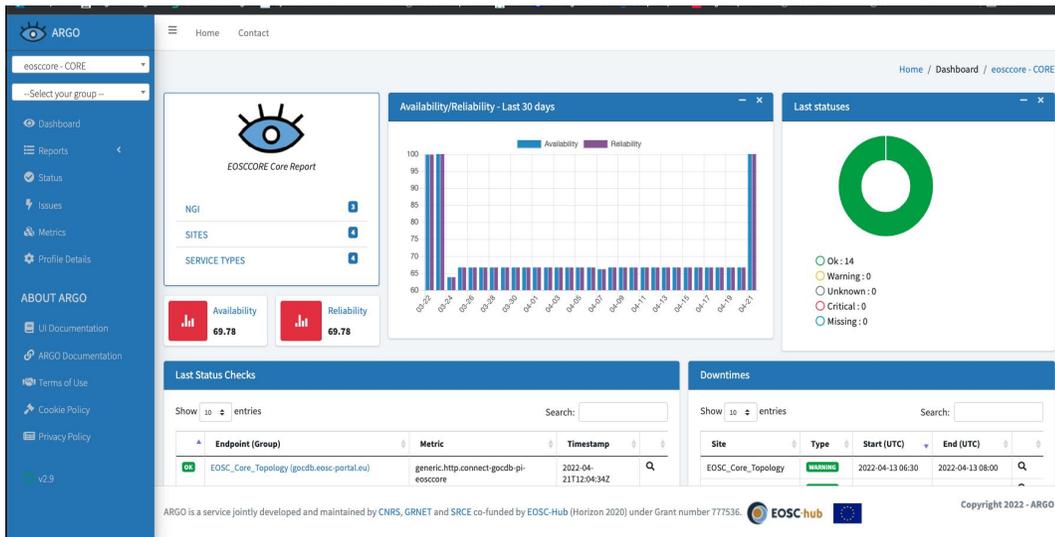
EOSC Monitoring Service

EOSC Monitoring Service is trying to emulate the user behaviour and constantly monitor the Services to provide:

- Real time status reports
- Availability and reliability reports
- Real time alerts

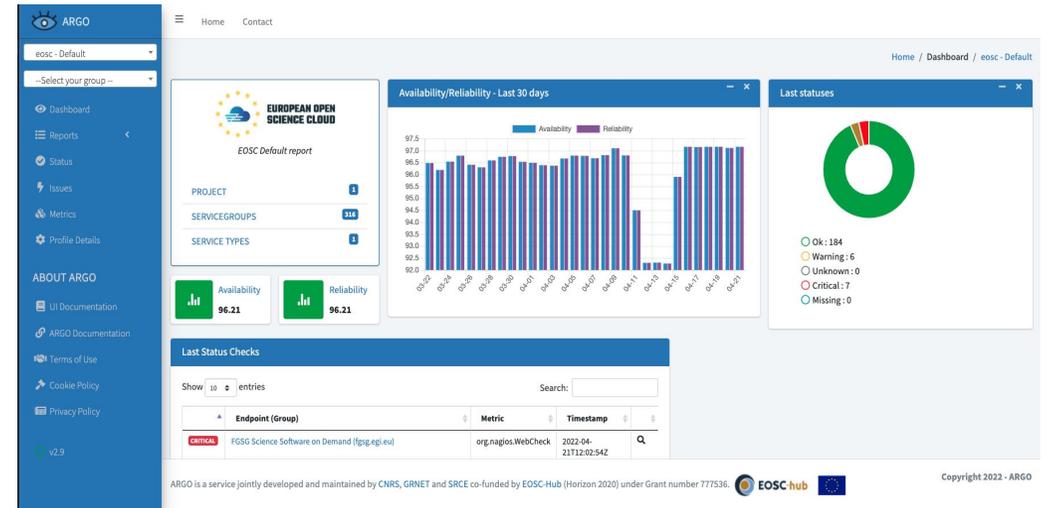


EOSC Monitoring



EOSC Core Monitoring

<https://eosccore.ui.argo.grnet.gr/>

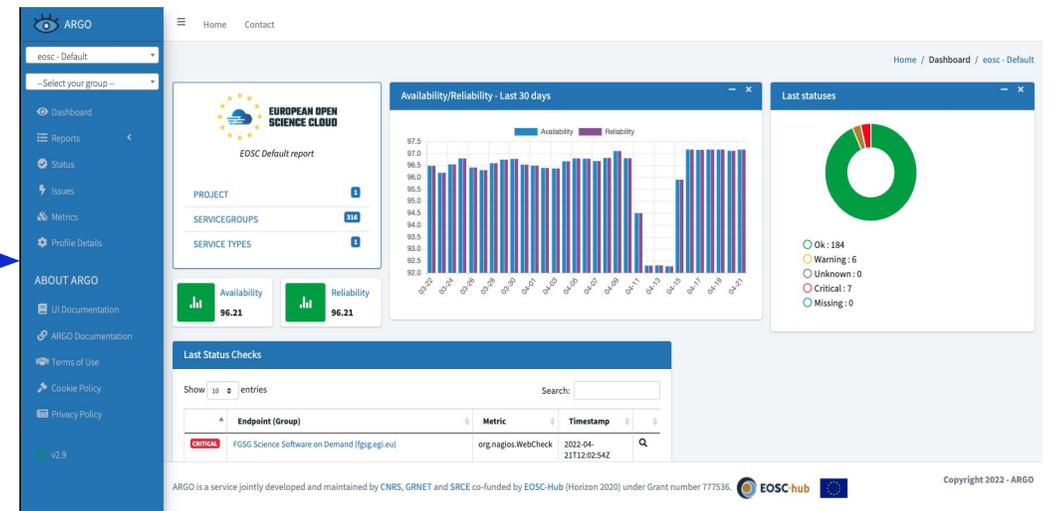


EOSC Exchange Monitoring:

<https://argo.eosc-portal.eu/>

Integration Option 1

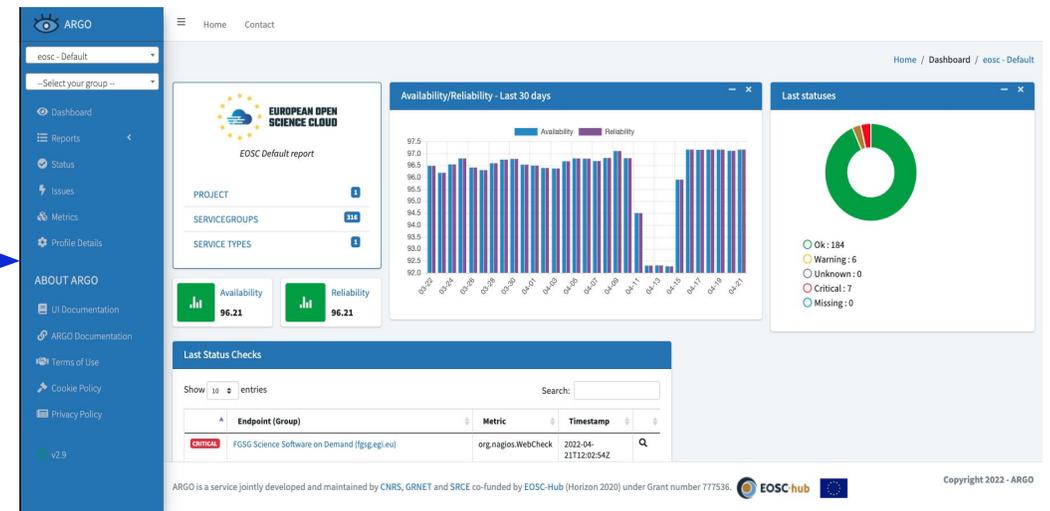
Monitor an Onboarded Service (central one)



<https://argo.eosc-portal.eu/>

Integration Option 2

Monitor an Infrastructure (community)



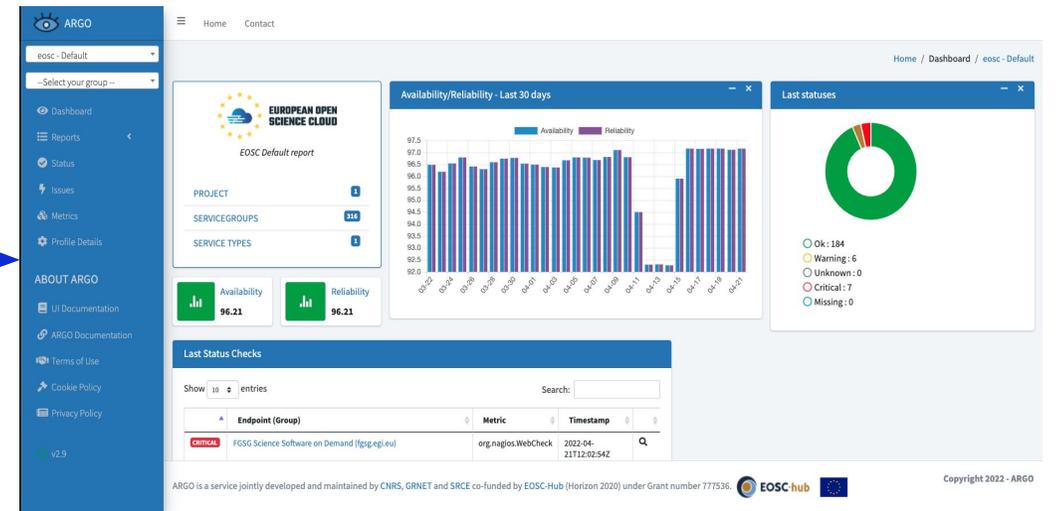
Community Instance

Integration Option 3

Integrate External Monitoring service



Predefined data



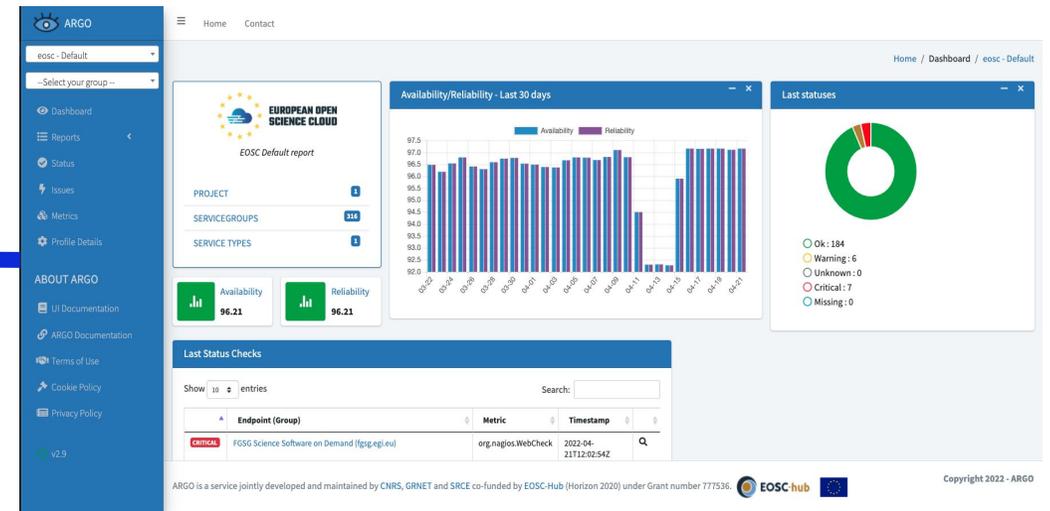
Instance

Integration Option 3

Third-party services exploiting EOSC Monitoring data



API for A/R Results
API for Status Results
Real Time status results via
AMS



EOSC-Exchange Monitoring

RoadMap

- Allows checking of services based on availability of their web pages/endpoints. Can support better integration via specific metrics. (Oct 22)
- Automated/self-service integration of monitoring probes and metrics offered to providers. Monitoring can track availability and reliability and accounting of usage based on parameters in provider and resource profiles (location, sector, organisation type). (Sep 22)
- Automated monitoring includes automated thresholds, raising issues, or alarms in the Service Management System based on results. (Sep 23)

Documentation & Contact Info

- Documentation:
<https://argoeu.github.io/argo-monitoring/>
- Contact: <https://eosc-helpdesk.eosc-portal.eu>

Accounting for Services

Kostas Koumantaros, GRNET



Accounting for Services (WiP)

One of the major gaps identified is the need to aggregate, exchange and visualise Virtual Access (VA) metrics between different e-infrastructures, service providers and INFRAEOSC-07 projects so that they can be presented to different Stakeholders (Service Providers, EC Projects, Research Communities, EC and Consumers/Researchers)

- Define VA Accounting record format:
 - Should likely hold as a minimum: KPIs, description/definition of the KPIs, time period, service type, service endpoint, service provider
 - Should be in a machine-readable format (e.g. JSON, XML)
- Define VA Accounting Transport/ API Architecture:
 - Should be able to accept input from a number of different sources (eg. all INFRAEOSC-07 projects)
 - Should be able to offer VA accounting records to a number of different clients - dashboards (external or internal)
- Define VA accounting storage and analysis mechanism:
 - Should be scalable
 - Should make basic associations between metrics and providers;
- Define a presentation layer for the VA accounting for:
 - Service providers
 - EC/projects/officials
 - Consumers

Accounting for Services - Model

METRICS DEFINITIONS

METRICS UNITS

METRICS TYPE

Metrics Definitions

[+ Add a new metric definition](#)

Show entries

Search:

Metric Name	Metric Description	Unit	Metric Type	Actions
apirequests.nexus	null	API reqs	aggregated	Actions
datasources.nexus	null	#	aggregated	Actions
datatransferred.nexus	null	TB	aggregated	Actions
gateways	null	#	aggregated	Actions
messagesperday	# of messages per day for AMS	#	aggregated	Actions
metric_test	description	#	aggregated	Actions

[+ Return to the list of Metric definitions](#)

METRICS TABLE

CHART

Metrics Table

Show entries

Search:

Resource Id	Start	End	Value
msg-devel.argo.grnet.gr	2022-01-05T09:13:07Z	2022-01-05T09:14:07Z	900.0
msg-devel.argo.grnet.gr	2022-01-06T09:13:07Z	2022-01-06T09:14:07Z	1000.0
msg-devel.argo.grnet.gr	2022-01-07T09:13:07Z	2022-01-07T09:14:07Z	2000.0
msg-devel.argo.grnet.gr	2022-01-08T09:13:07Z	2022-01-08T09:14:07Z	3000.0
msg.argo.grner.gr	2022-02-01T00:00:00Z	2022-02-01T23:59:59Z	300.0
msg.argo.grner.gr	2022-02-02T00:00:00Z	2022-02-02T23:59:59Z	301.0
msg.argo.grner.gr	2022-02-03T00:00:00Z	2022-02-03T23:59:59Z	302.0
msg.argo.grner.gr	2022-02-04T00:00:00Z	2022-02-04T23:59:59Z	303.0
msg.argo.grner.gr	2022-02-05T00:00:00Z	2022-02-05T23:59:59Z	304.0
msg.argo.grner.gr	2022-02-06T00:00:00Z	2022-02-06T23:59:59Z	305.0

Showing 1 to 10 of 23 entries

[Previous](#) [1](#) [2](#) [3](#) [Next](#)



Accounting for Services (WiP)

Proof of Concept available at <https://acc.devel.argo.grnet.gr/>

The PoC supports

- OIDC to handle Authentication/Authorisation
- Support the capability to Create/Update/Delete Metric Definitions
- Support the capability to Create/Update/Delete Metrics

Road Map

- Demo Instance Available by June 2022
- Beta Version Available by September 2022

Accounting for Research Products

Andreas Czerniak, Bielefeld University Library

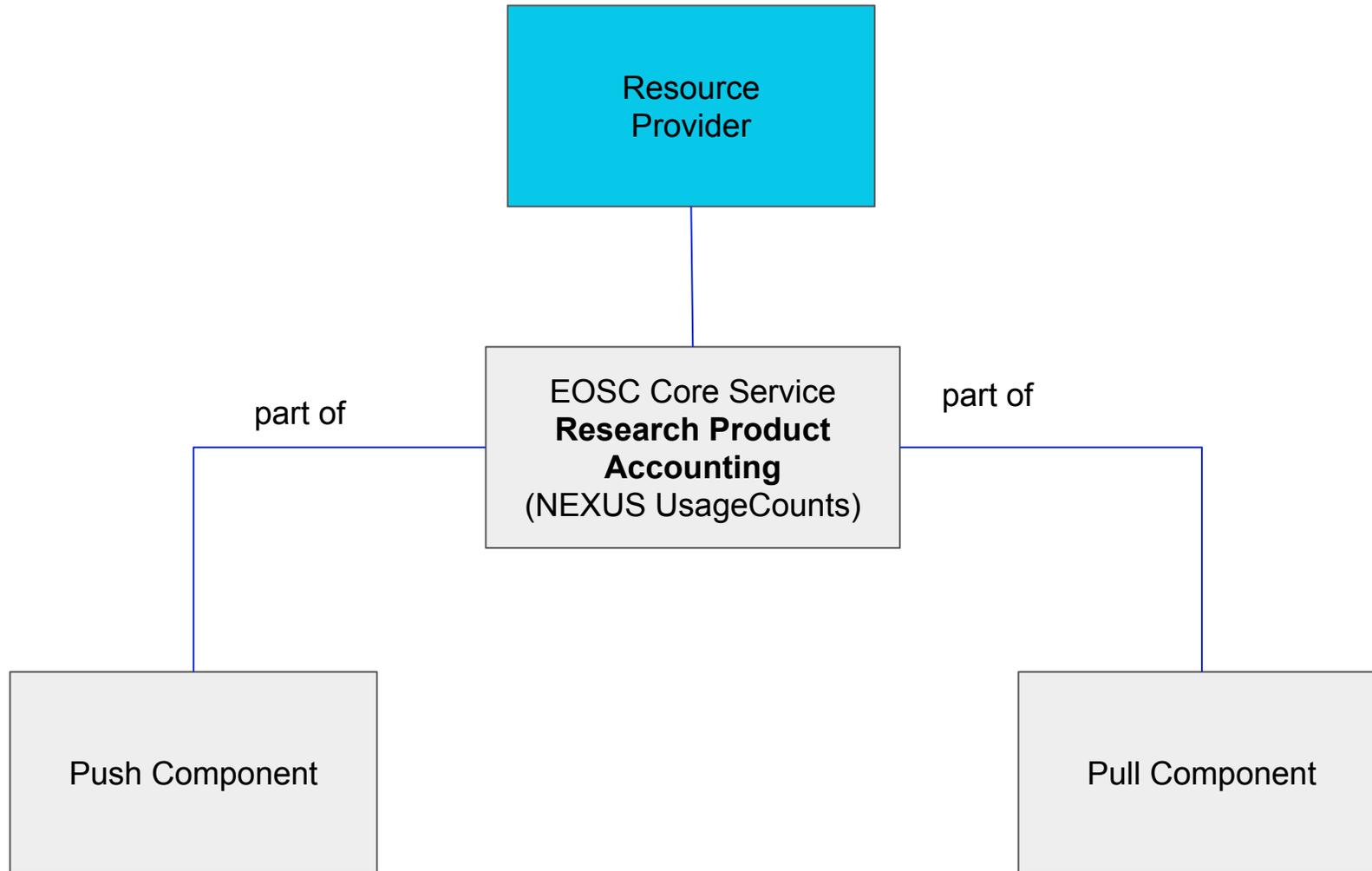




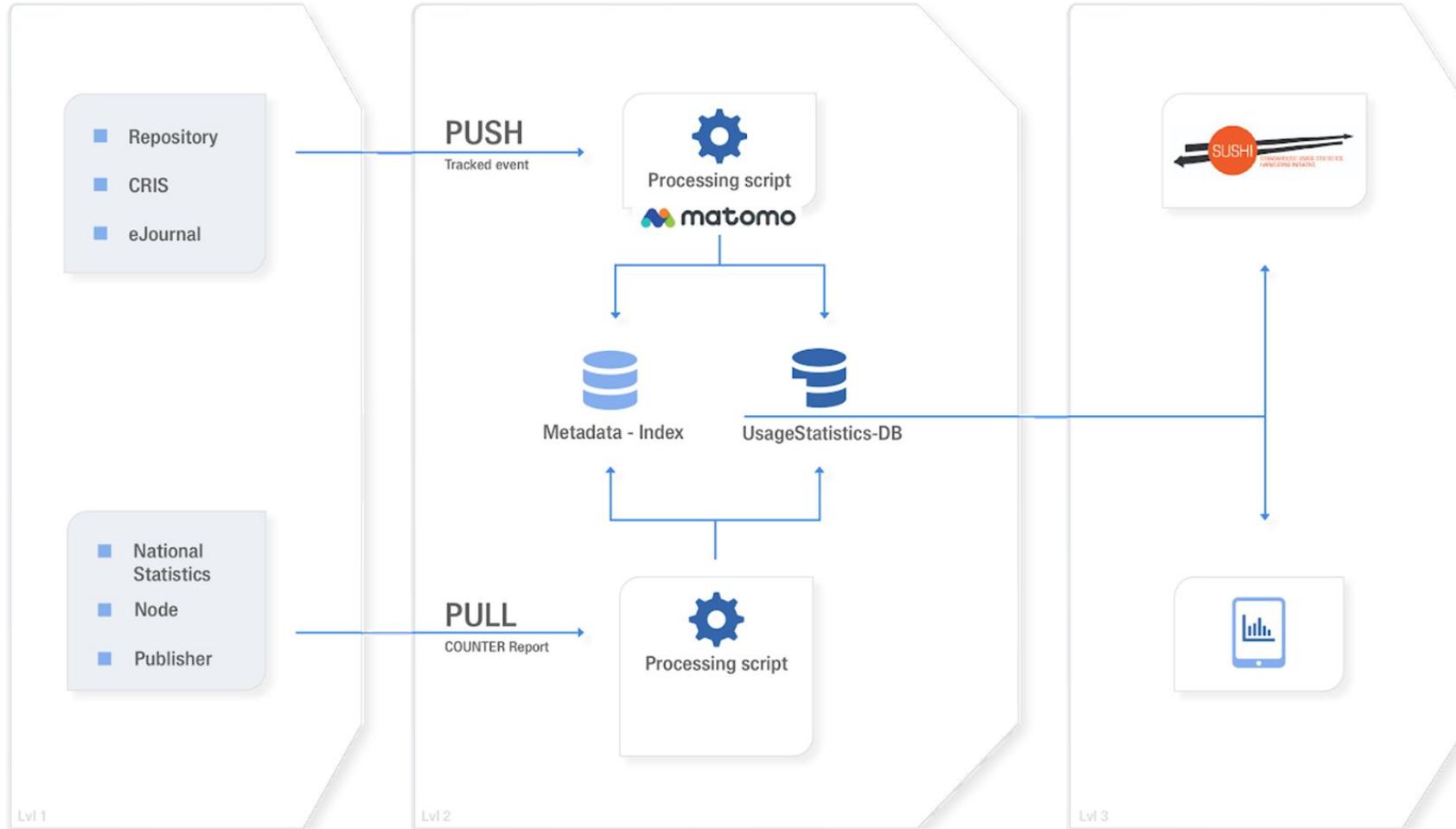
Accounting for Research Products

- Research Products accounting service is able to aggregate (push and pull) usage indicators for different types of EOSC research products, like datasets, articles, books, etc.
- Collects usage data or usage statistics reports for EOSC research catalogue products and from the distributed network of Providers using **open standards** and **protocols**
- Generates reliable, consolidated and comparable usage metrics, compatible with the ***COUNTER Code of Practice*** standards
- Research Products accounting is provided by OpenAIRE UsageCounts Service

Accounting for Research products



Accounting for Research products Architecture





Accounting for Research Products FactSheet

- Statistics on usage activity of Research Products
- Provision of standardized usage statistics reports via SUSHI-Lite API
- Complements existing citation mechanisms and assists stakeholders like (institutional repository managers, research communities, research organizations, funders, and policy makers) to track and evaluate research from an early stage
- Enrichment of EOSC Resource Catalogue with usage statistics indicators visible to end-users



Accounting for Research Products Roadmap

- WP₄
 - M18: Usage statistics for datasets (views, downloads) will be collected and made available.
 - M18: Research Product Usage Stats integrated with EOSC Resource Catalogue

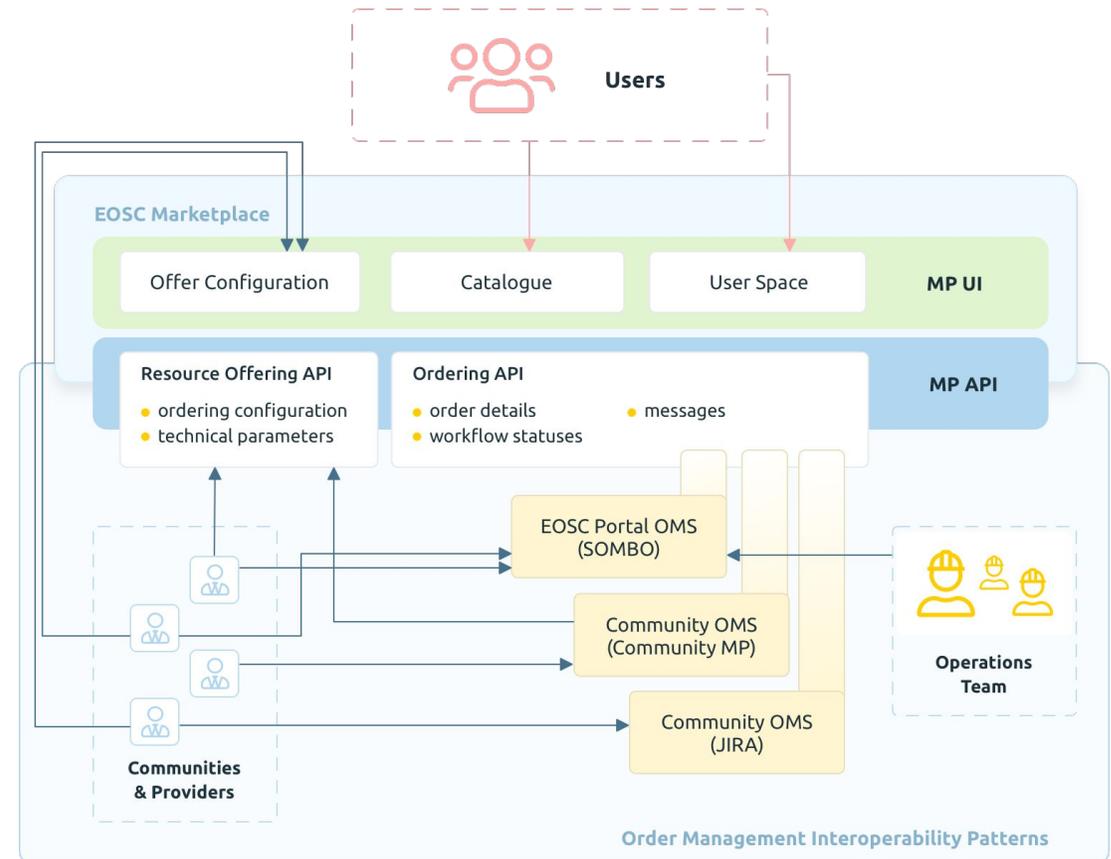
Order Management

Roksana Wilk, Cyfronet



What is it all about

- For EOSC Exchange **providers** and **provider communities** to attract, support and serve the EOSC users
- For **EOSC users** a unified channel to discover, access, order and compose EOSC Resources gaining support from their providers



User's perspective

EUROPEAN OPEN SCIENCE CLOUD

Services > Compute > Comparison > EGI Cloud compute

EGI Cloud con

Run virtual machines
Provided by: EGI Federated Research area: Interdisciplinary Dedicated for: Research

ABOUT REVIEWS (0)

Cloud Compute gives you the ability to deploy and scale resources in a secure and isolated environment with stateful software from a catalogue replicated across all EGI clouds.

Cloud Compute offers the possibility to select pre-configured software from a catalogue replicated across all EGI clouds.

With Cloud Compute you can: * Execute compute- and storage services (e.g. web servers, databases or applications) on virtual machines and scale your infrastructure needs * Create environments to fit your requirements * Manage your accounting capabilities

Service offers

INTERNAL ORDER

General purpose

Base performance instance type. Features: Accessible in opportunistic or reserved ways, CPU cores could be overcommitted. Ideal for: Web services, Micro-services, Development...

PARAMETERS

Number of CPU Cores

Amount of RAM per CPU core

Local disk

Number of VM instances

Number of days

Select an offer

EUROPEAN OPEN SCIENCE CLOUD

EGI Cloud con

To gain the access to the service,

General purpose

Base performance instance type. Features: Accessible in opportunistic or reserved ways, CPU cores could be overcommitted. Ideal for: Web services, Micro-services, Development...

Show more

PARAMETERS

Number of CPU Cores

Amount of RAM per CPU core

Local disk

Number of VM instances

Number of days

Select an offer

BACK TO PREVIOUS STEP - OFFER

EUROPEAN OPEN SCIENCE CLOUD

EGI Cloud con

Offer selection

Please specify parameters

Parameters

NUMBER OF CPU

8
12
 16
20
24
28
32
64

Select number of cores

AMOUNT OF RAM

2 GB
 4 GB
8 GB

Select amount of RAM

LOCAL DISK

10 GB
 20 GB
40 GB

Amount of local disk

EUROPEAN OPEN SCIENCE CLOUD

Services

Created at 12.08.2019 — Single user — drf

EDIT
DUPLICATE

MY PROJECTS

My scientific project

My scientific project

+ CREATE NEW PROJECT

RESOURCES PROJECT DETAILS **CONTACT WITH PROJECT SUPPORT**

B2FIND Visit website

HADDOCK Visit website

+ ADD SERVICE TO THIS PROJECT

MY PROJECTS

My scientific project

My scientific project

+ CREATE NEW PROJECT

DETAILS **CONTACT WITH RESOURCE PROVIDER**

Resource name: B2FIND

Resource offer: For Researchers

Added to the project: 26.06.2019

Resource access: Open Access

Project name: Services

SLA: Service Level Agreement

Providers: EUDAT, Deutsches Klimarechenzentrum

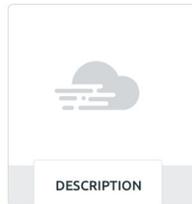
Go to the resource

Provider's perspective

Parameters and offers



Compute > EGI Cloud comput



Integrative modeling of HADDOCK portal

HADDOCK is a web portal that of proteins and other biomolec the amount of information anc with several classes of probren

HADDOCK (High Ambiguity Dr modeling of biomolecular com encodes information from ideo the docking process. HADDOC nucleic acids and protein-ligan

Besides the application softwa and job scheduling and monito application porting and procur



Service offers

General purpose

Base performance instan in opportunistic or reserv overcommitted. Ideal for Development...

Show more

TECHNICAL PARAM

Number of CPU Cores

Amount of RAM per CPU core

Local disk

Number of VM instances

Access type

Start of service

Number of days



Edit Offer

Name *

General pur

Description *

Base preferr
Accessible in
Ideal for: We
Building ser

Order type *

order_requ

Disable orde

Order url

Url should start with

OFFER PARAMETERS

Constant

Input

Select

Multiselect

Date

Range

Quantity price

Select parameter

Name *

Number of CPU Cores

Hint

Select number of cores you want

Values *

1 X 2 X 4 X 8 X

+ start typing to add

Value type *

integer

Mode *

buttons

Unit

Select parameter

Name *

Amount of RAM per CPU core

Hint

Select amount of RAM per core

Values *

1 X 2 X 4 X

+ start typing to add

OFFER PARAMETERS

Offering API

Swagger. Supported by SMARTBEAR

Select a definition Offering API V1 Docs

EOSC Marketplace Offering API ^{v1} OAS3

/api_docs/swagger/v1/offering/swagger.json

Documentation of the EOSC Marketplace REST API for integration of other software systems https://marketplace.eosc-portal.eu/api_docs

Authorize

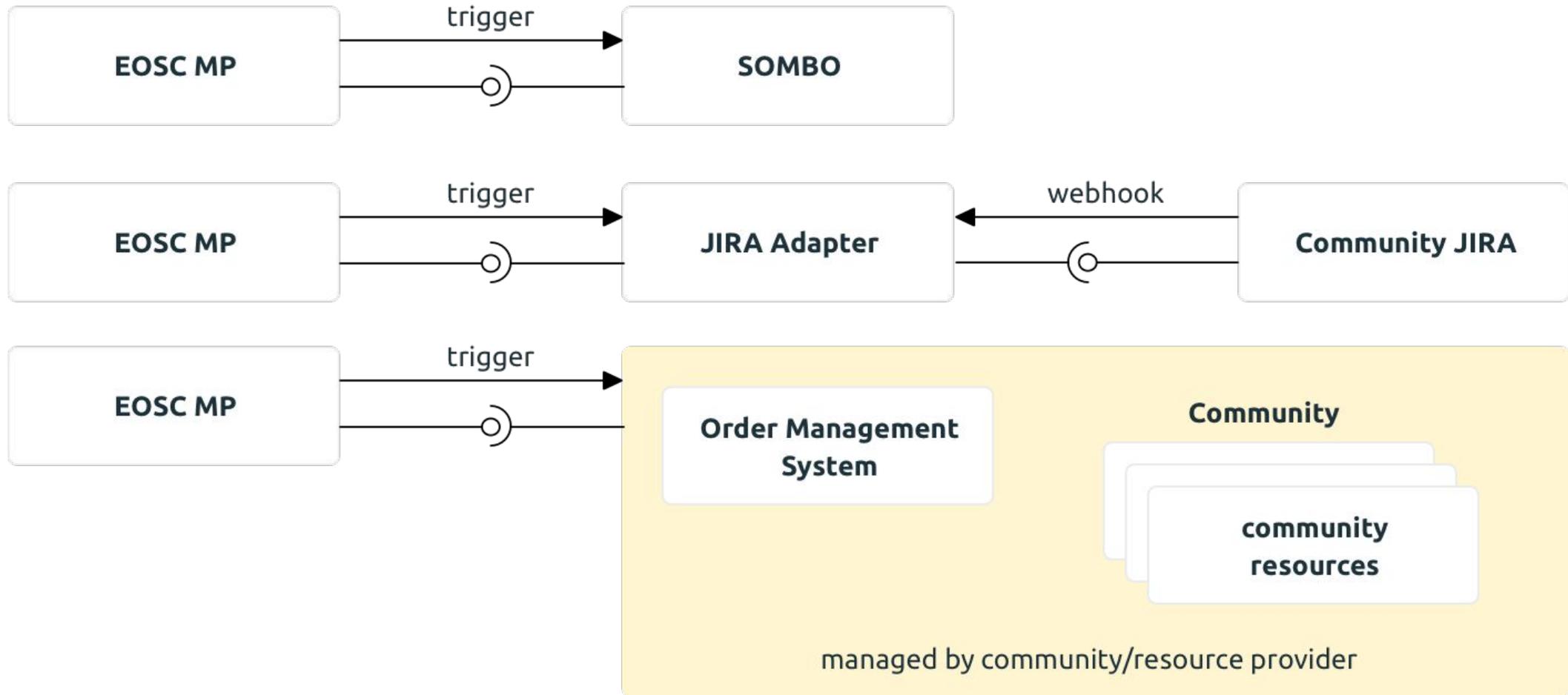
Offers

- GET** /api/v1/resources/{resource_id}/offers lists offers for an administered resource
- POST** /api/v1/resources/{resource_id}/offers creates an offer for an administered resource
- GET** /api/v1/resources/{resource_id}/offers/{id} retrieves an offer for an administered resource
- PATCH** /api/v1/resources/{resource_id}/offers/{id} updates an offer for an administered resource
- DELETE** /api/v1/resources/{resource_id}/offers/{id} deletes an offer for an administered resource

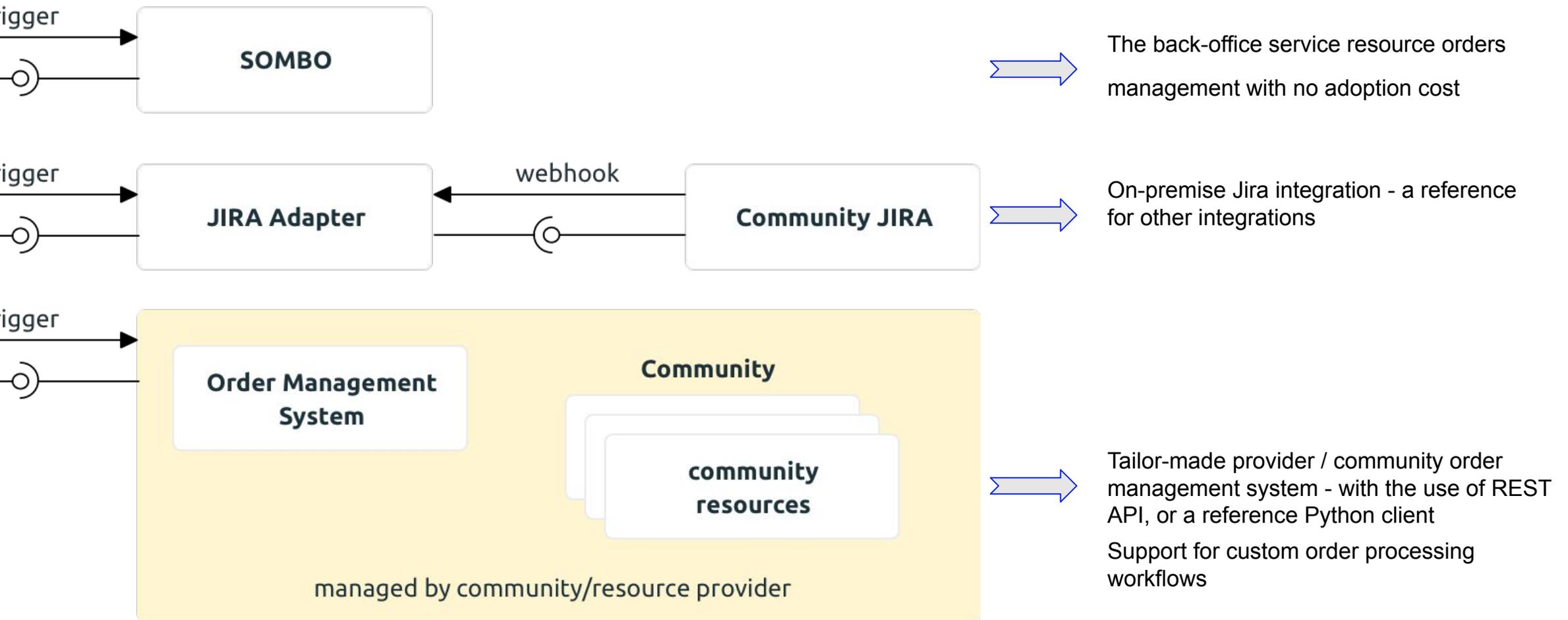
Resources

- GET** /api/v1/resources lists resources administered by user
- GET** /api/v1/resources/{id} retrieves an administered resource

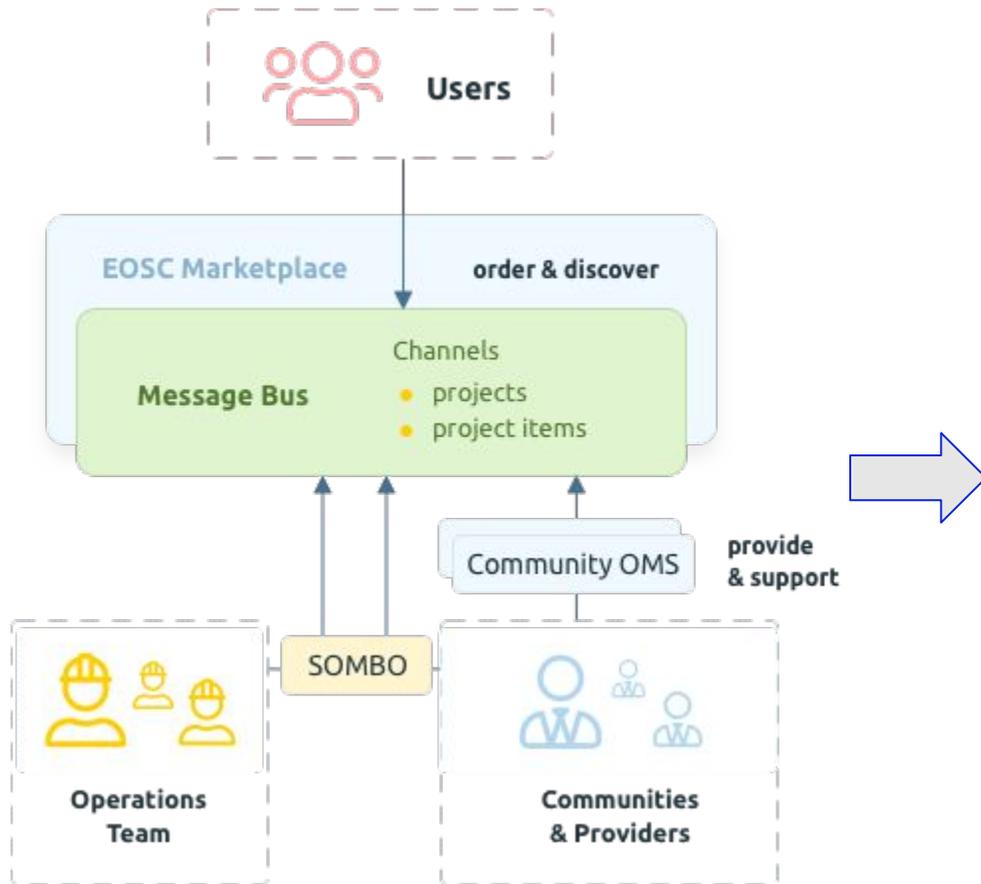
Order Management interoperability patterns



Order management interoperability patterns



Integration V3 with the ordering process



EOSC Marketplace Ordering API ^{v1} OAS3

/api_docs/swagger/v1/ordering/swagger.json

Ordering API

[Authorize](#)

Events

- [GET /api/v1/oms/{oms_id}/events](#) lists events

Messages

- [GET /api/v1/oms/{oms_id}/messages](#) lists messages
- [POST /api/v1/oms/{oms_id}/messages](#) creates a message
- [PATCH /api/v1/oms/{oms_id}/messages/{m_id}](#) updates a message

Project items

- [GET /api/v1/oms/{oms_id}/projects/{p_id}/project_items](#) lists project items
- [GET /api/v1/oms/{oms_id}/projects/{p_id}/project_items/{pi_id}](#) retrieves a project item

EOSC Order Management: The Future

M30



NEXT STEPS

- Virtual Access and other procurement models support
- EOSC Service Accounting Integration
- EOSC Service Monitoring Integration



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a.pulapa@cyfronet.pl

1. 'Composability indicators' associated to EOSC resources
2. Researchers can access fully integrated/ end-to-end workflows for various research topics
3. Execution framework

EOSC Helpdesk

Pavel Weber, KIT



EOSC Helpdesk

- The **Helpdesk** in the EOSC ecosystem is a backbone service which facilitates:
 - Instant communication
 - Proactive support for EOSC customers/users
 - Stable operation of EOSC Services
 - Support for the users of EOSC service providers and research communities



EOSC Helpdesk: Ticket Submission

Email



Helpdesk
Dashboard

The screenshot shows a web interface for creating a new ticket. It includes a search bar at the top left, a navigation menu, and a main form area. The form has the following fields:

- TITEL * (Text input)
- TEXT * (Text area with a file upload button 'Dateien wählen...')
- TYP (Dropdown menu with 'Service Request' selected)
- GRUPPE * (Dropdown menu with '-' selected)
- STATUS (Dropdown menu with 'neu' selected)
- SERVICES (Dropdown menu with '-' selected)

At the bottom of the form, there is a link 'Abbrechen & Zurück' and a green 'Erstellen' button.

Feedback Form

Feedback Form

Name

Your Name

Email

Your Email

Message

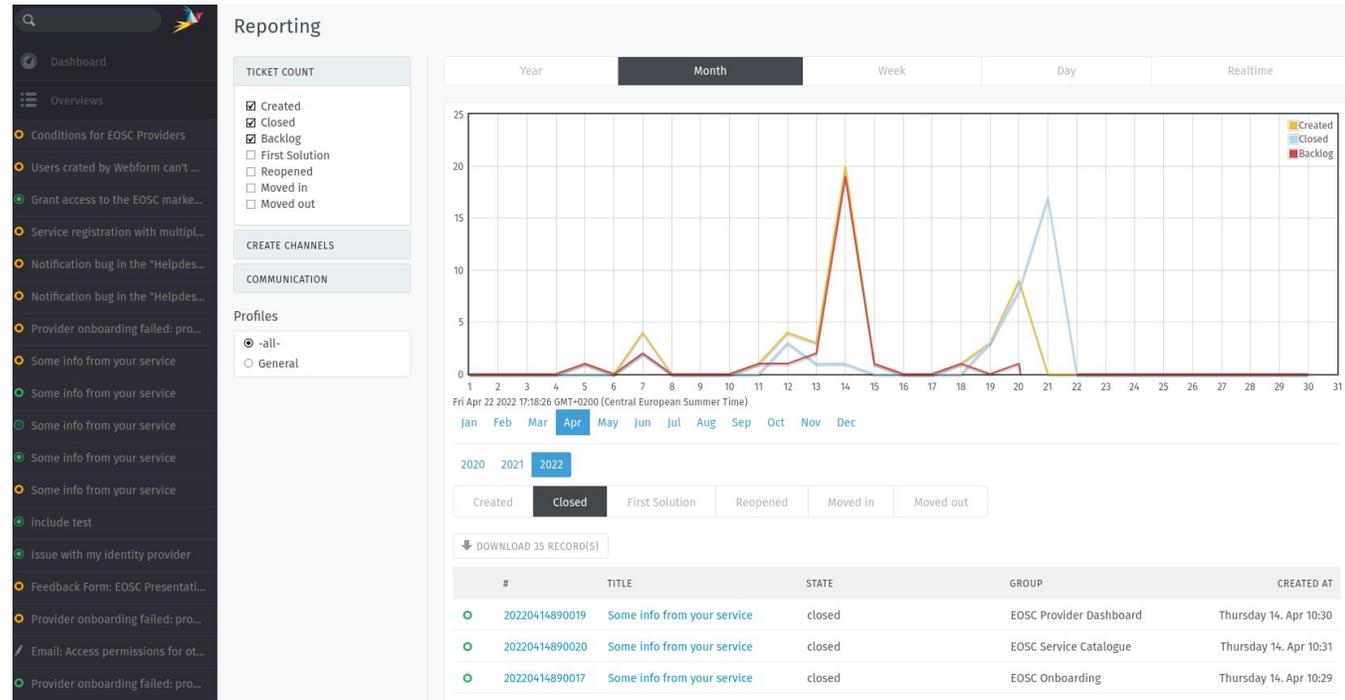
Your Message...

SUBMIT

EOSC Helpdesk: Major Features

EOSC Helpdesk

- User friendly Customer Interface
- Dashboard for helpdesk staff
- Smart search
- Customizable fields
- History of changes
- Escalation
- Reporting
- Flexible notifications
- Integration via REST API





EOSC Helpdesk: Benefits for Providers

EOSC Helpdesk is available as-a-service for EOSC Providers

The main benefits are:

- No need to maintain own helpdesk
 - EOSC Helpdesk offers providers to support their users
 - Single/Multiple Support Groups
- Branded provider/community portal (currently in development)
- If provider has a helpdesk it can be integrated in multiple ways with EOSC Helpdesk (more on that in the next slide)
- Multiple ways for customers to contact provider (email, via portal, webform, chat if requested)
- Channel of instant communication with whole EOSC Community

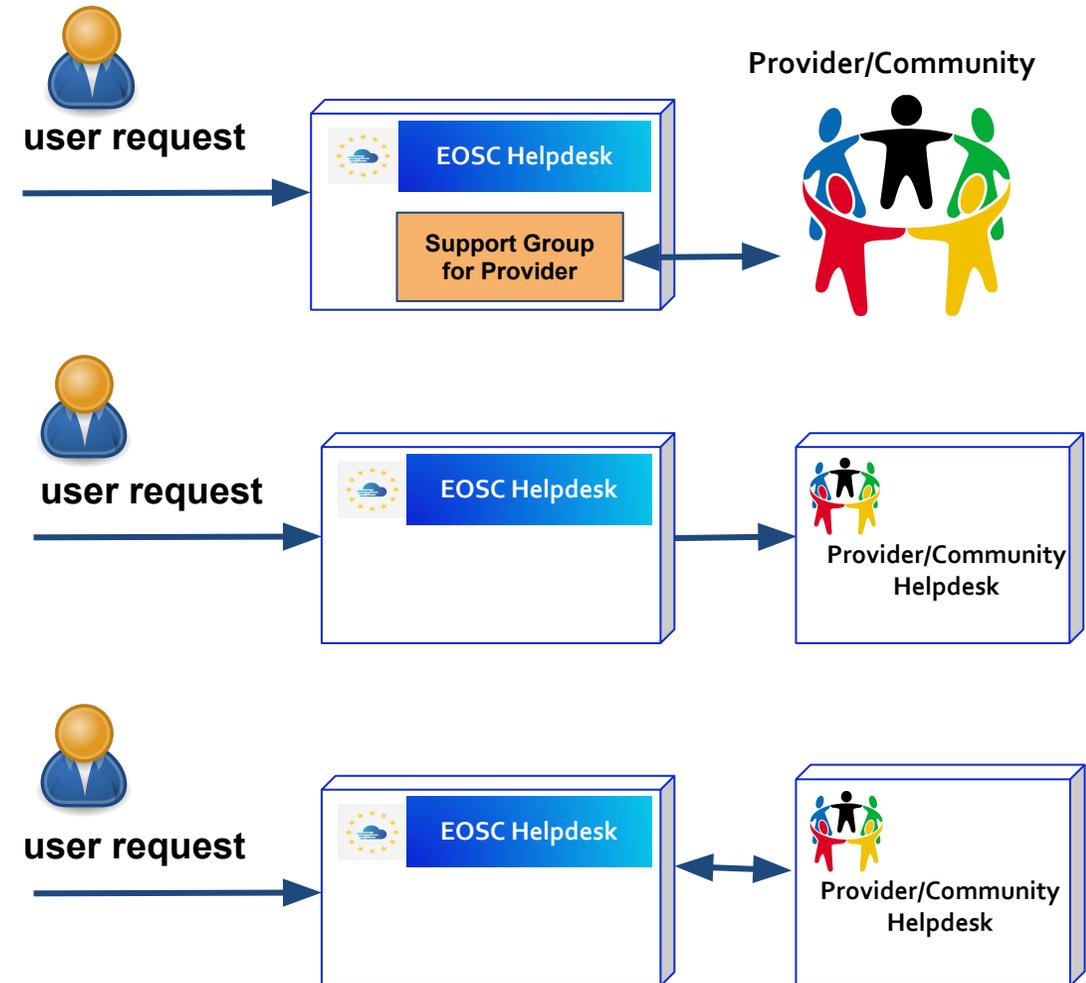
Support Group - is a group of experts who provide support and assistance for defined class of incoming requests

EOSC Helpdesk: Integration Options for Provider

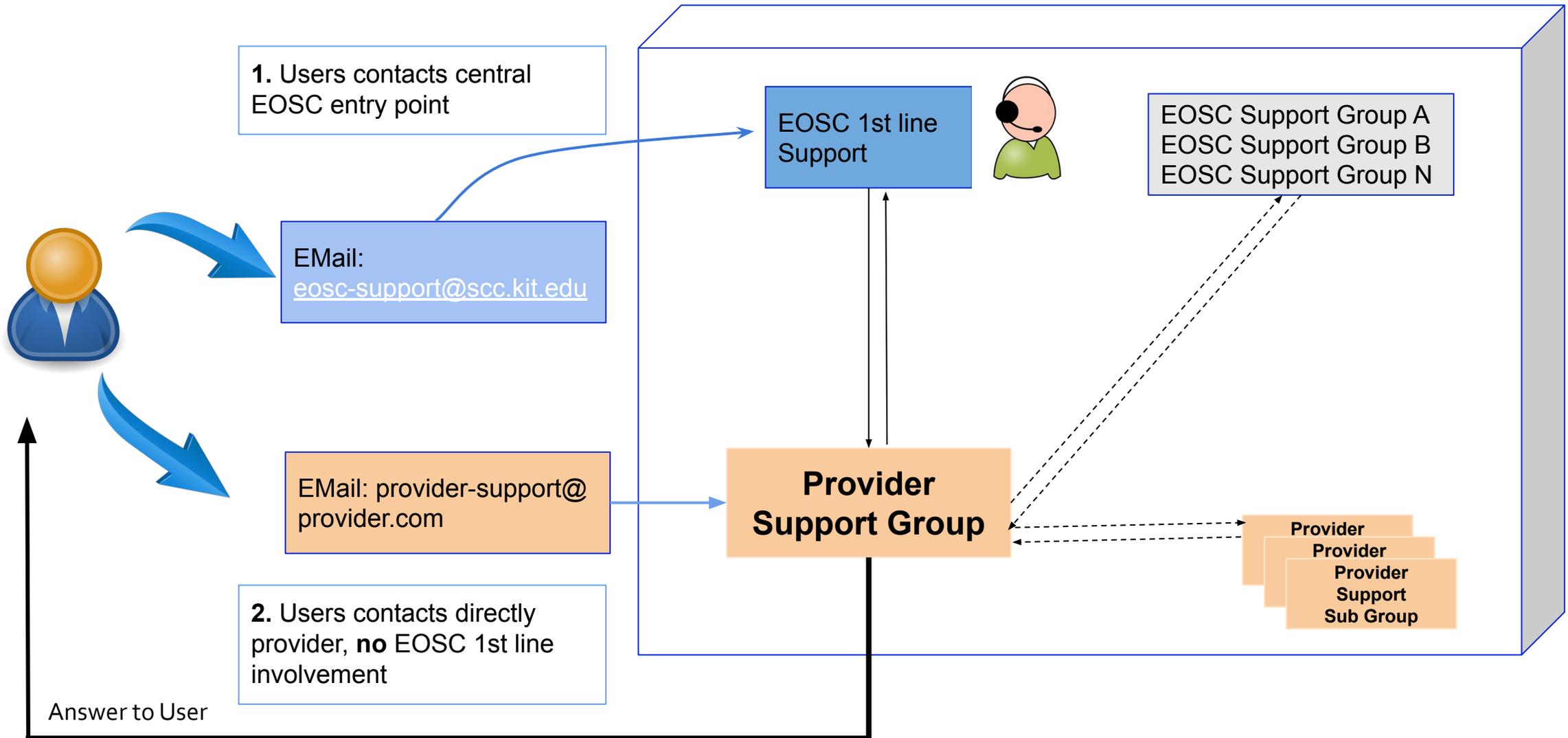
Three main integration options for Providers:

- Direct usage (as-a-service):
 - Support group or multiple groups
 - Implementation of custom workflows
- Ticket redirection:
 - EOSC Helpdesk just a contact point which redirects tickets to provider's mailing list or ticket system
- Full integration
 - Bidirectional synchronization of tickets in EOSC and provider's helpdesk

Prerequisite: provider's helpdesk API in place



EOSC Helpdesk: Typical Workflow for Provider





EOSC Helpdesk: Roadmap and Next Steps

- EOSC Helpdesk is in production for EOSC and ready for providers

Short term plan (2022)

- Integration with EGI and EUDAT Helpdesks
 - Full synchronization
 - Ticket redirection
- Enable Helpdesk-as-a-service pilots for providers and research communities
 - Request -> Analysis of requirements -> Specification ->Deployment
 - Customization
- Helpdesk Offers for Providers in EOSC Portal during onboarding process

Next year 2023

- Dedicated branded portals for providers and research communities



EOSC Helpdesk: Where to Start

If you as Service Provider would like to learn more about integration:

- Open ticket at <https://eosc-helpdesk.eosc-portal.eu/>
- Request access to Helpdesk Test Instance as agent
- Examine features and functions, test workflows
- Start integration with production EOSC Helpdesk

Thank you!