

The EOSC Core

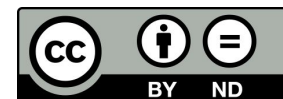
26 April 2022



with



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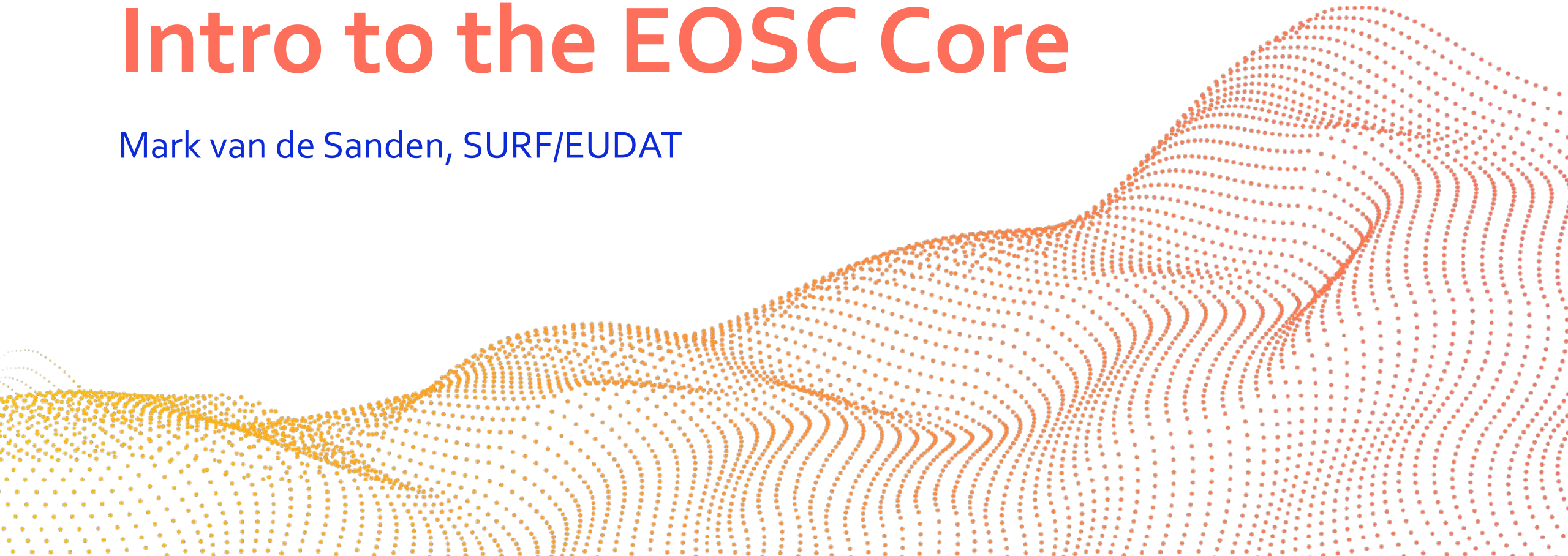


Outline

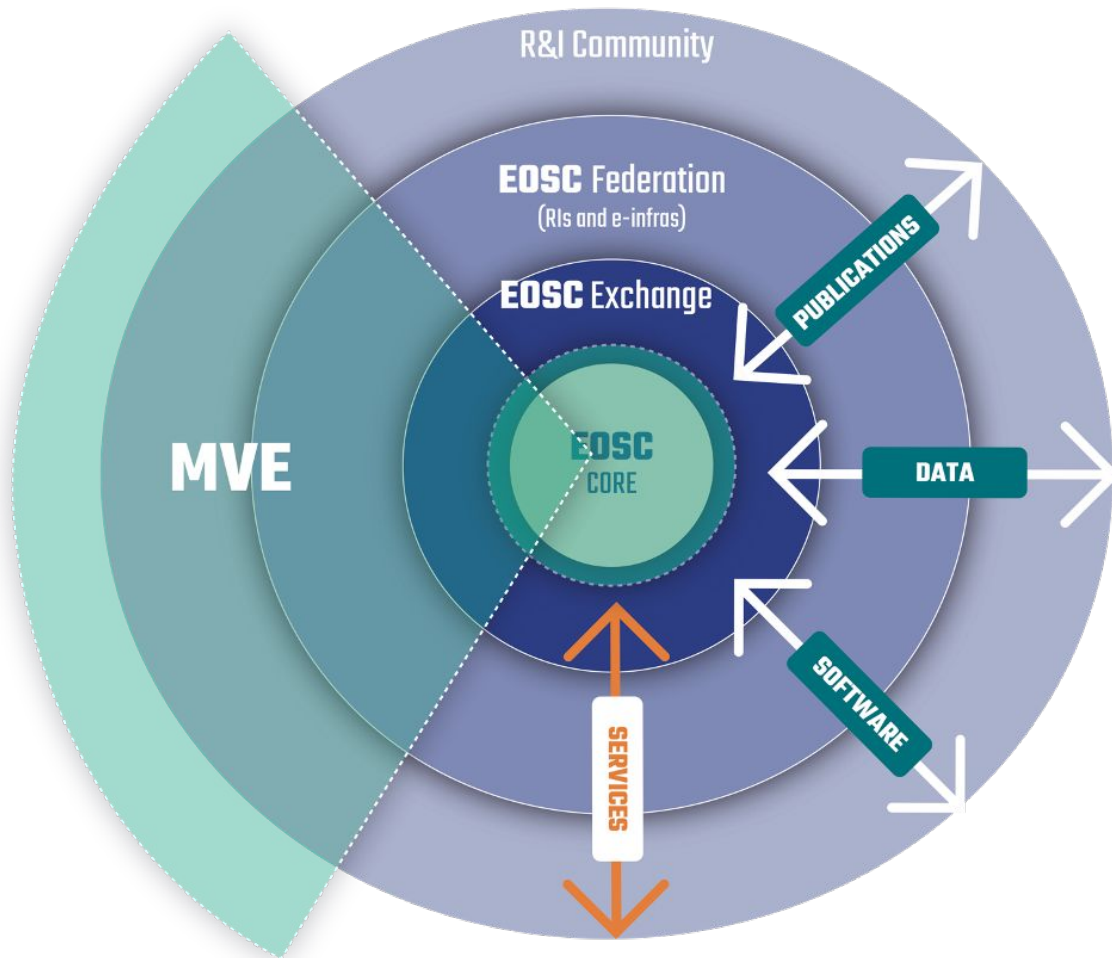
- **Intro to the EOSC-Core**
Mark van de Sanden, SURF/EUDAT
- **AAI**
Christos Kanellopoulos, GEANT
- **Monitoring**
Kostas Koumantaros, GRNET
- **Accounting for Services**
Kostas Koumantaros, GRNET
- **Accounting for Research Products**
Andreas Czernia, Bielefeld University
- **Order Management**
Roksana 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:

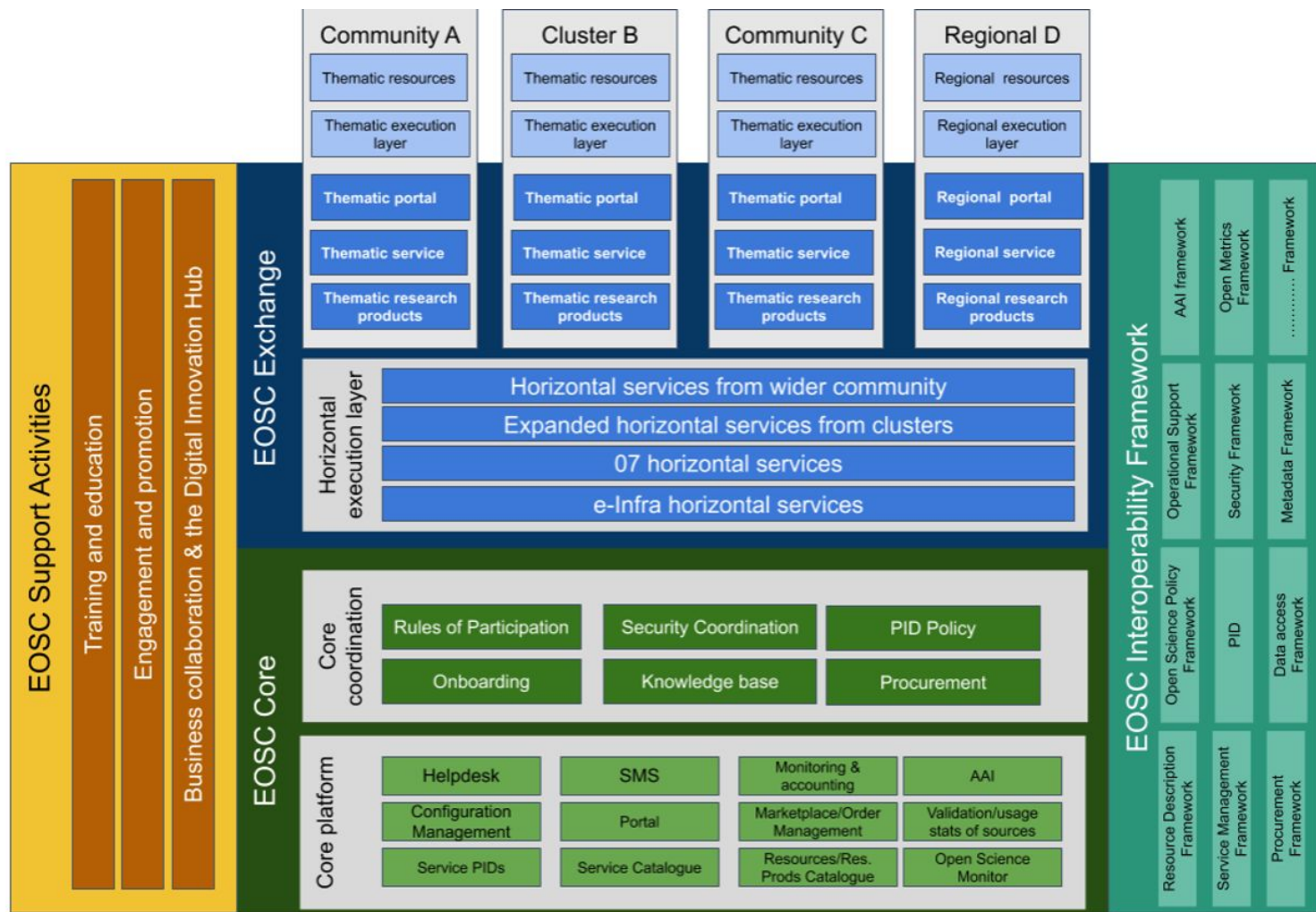
- EOSC Core and subsets of EOSC Exchange, Federation
- EOSC resources (services, research products) required to “market” the EOSC
- Subset of the R&I community (showcases, e.g., COVID-19)



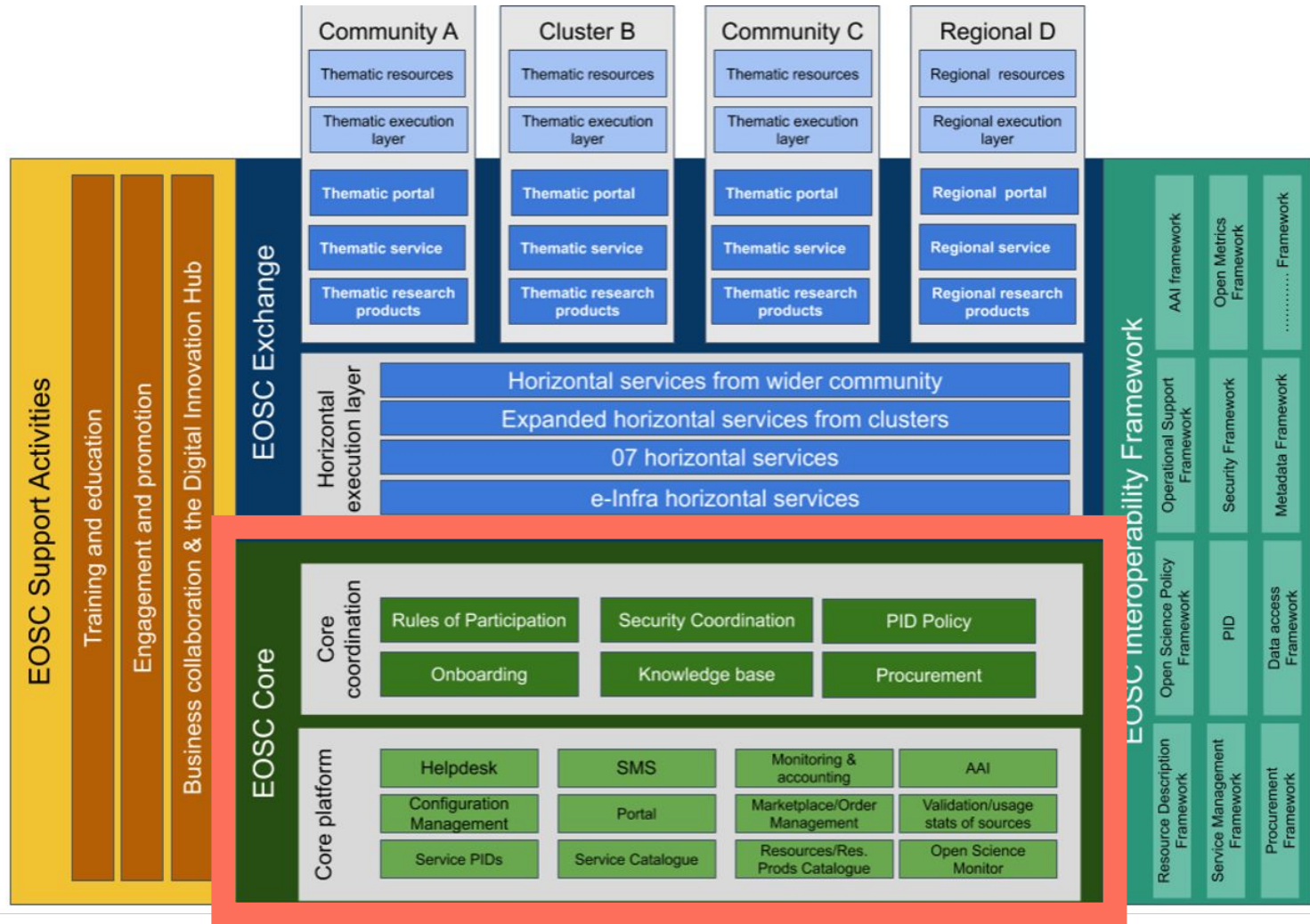
Guiding principles

- 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

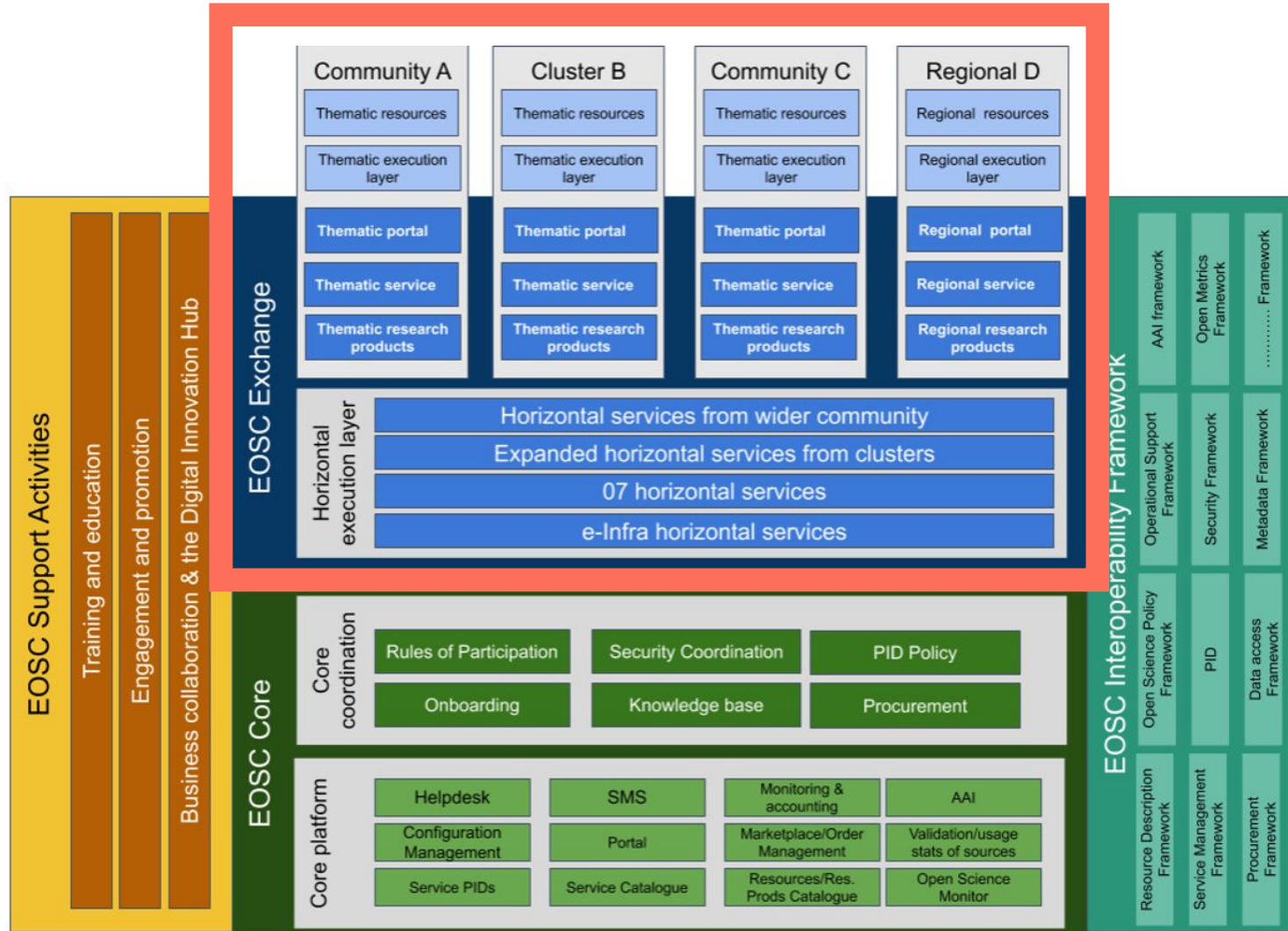


EOSC Architecture - Core



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

EOSC Architecture - Exchange

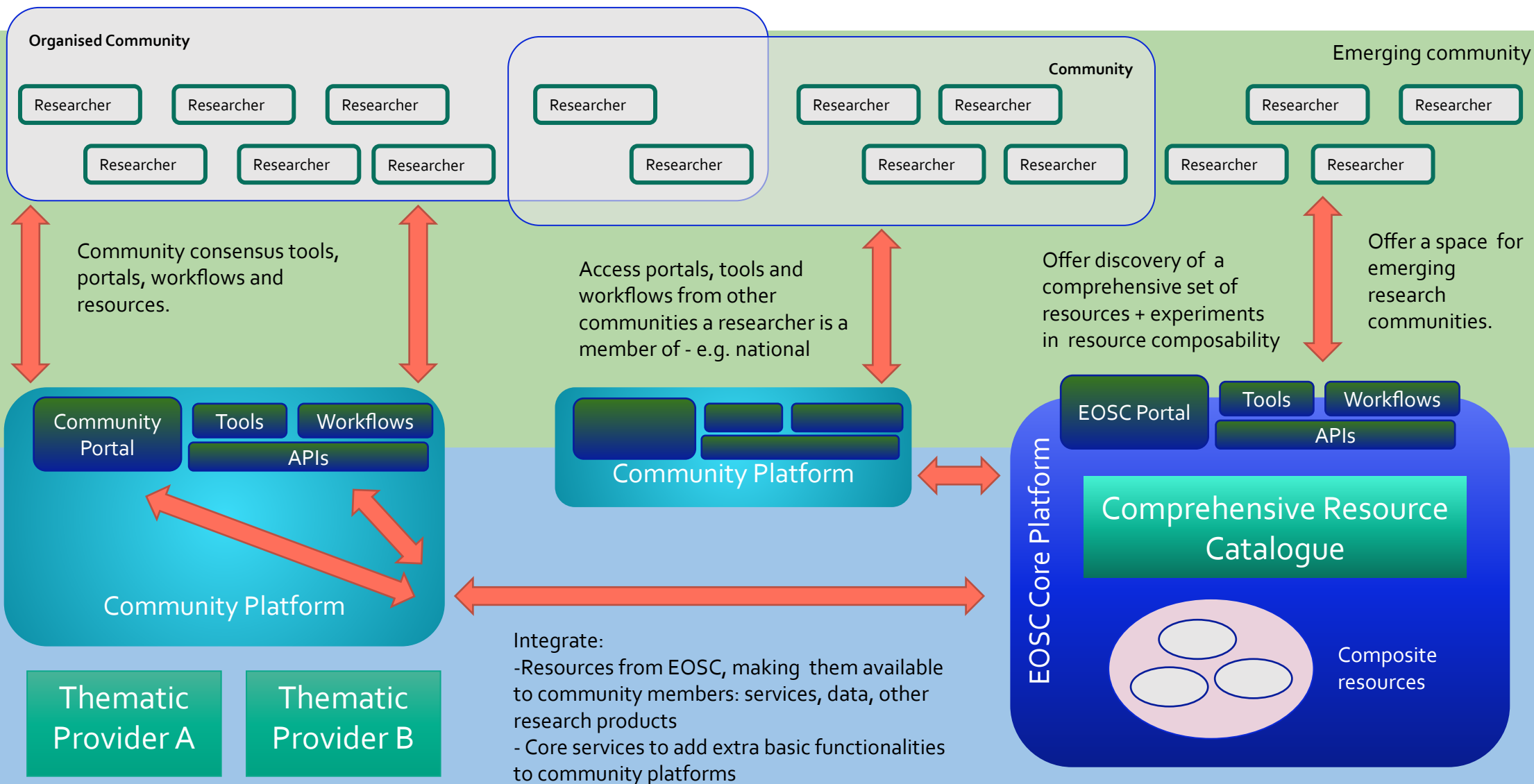


- Community
 - Resources
 - Portal
 - Thematic services
- Horizontal execution layer
 - 07 Projects
 - e-Infra
 - Clusters
 - Community

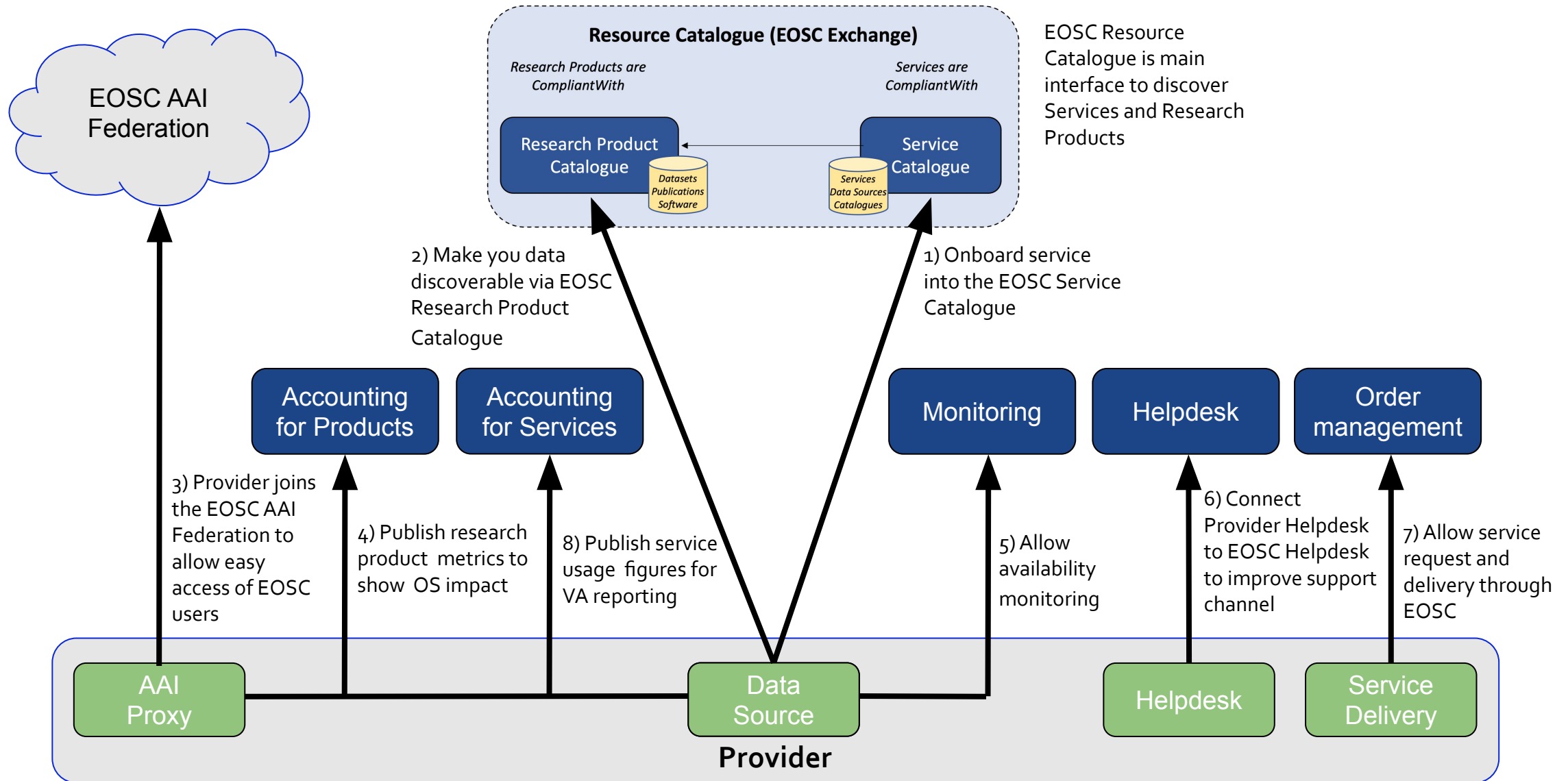
Community view: different modes of collaboration

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.



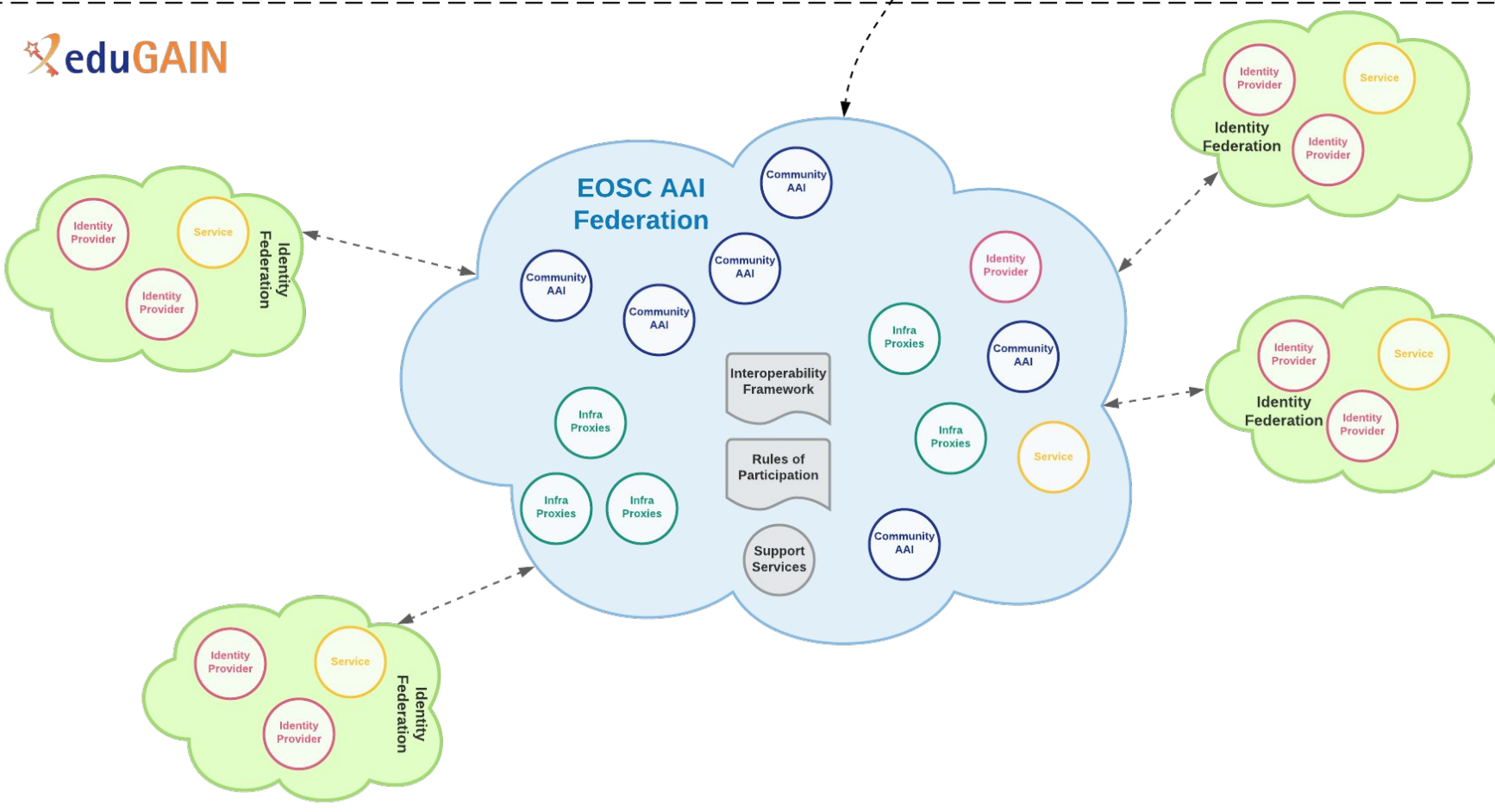
What is the EOSC AAI?

- 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?



eduGAIN



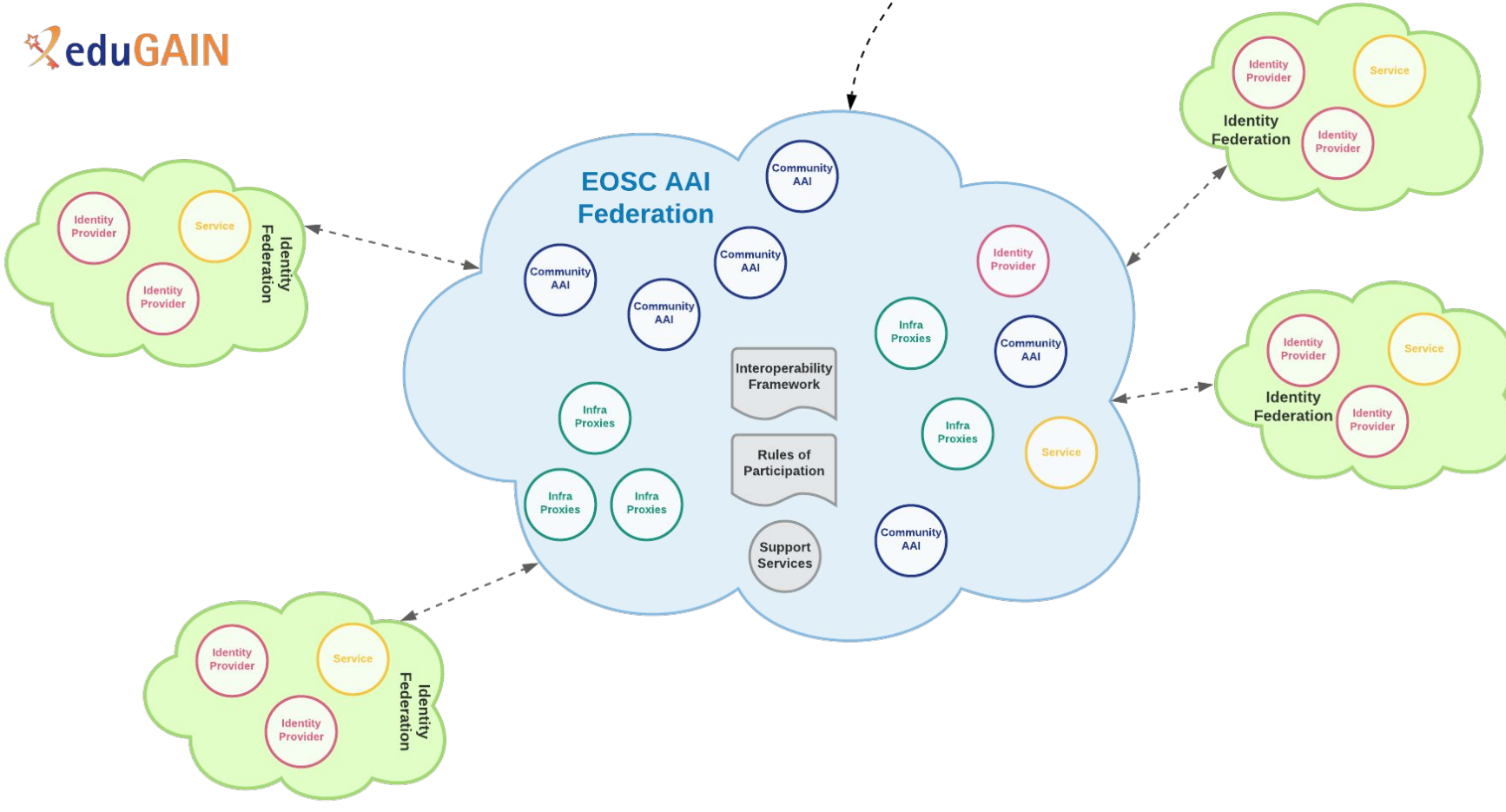
- Community AAls and Infrastructure Proxies connect once with the EOSC AAI Federation (register metadata, URN namespaces, policies etc)
- Technical interoperability conformance tested and monitored by the EOSC AAI Federation.
- GDPR and Security Policy conformance (Policy Notices, Acceptable Use Policy 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

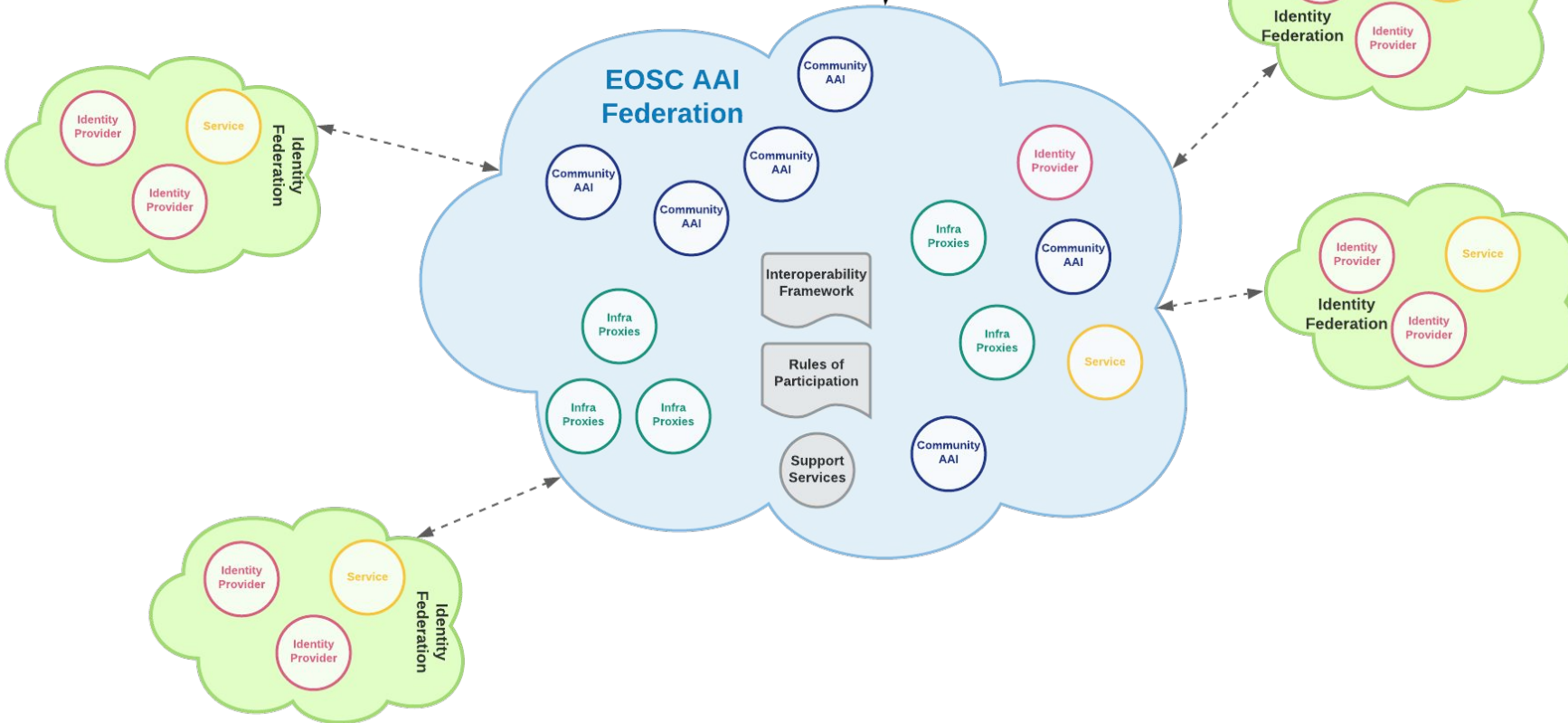
eduGAIN



Integration options For Providers



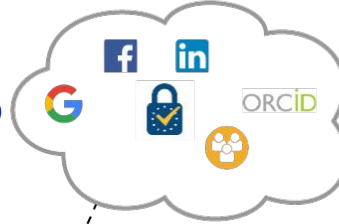
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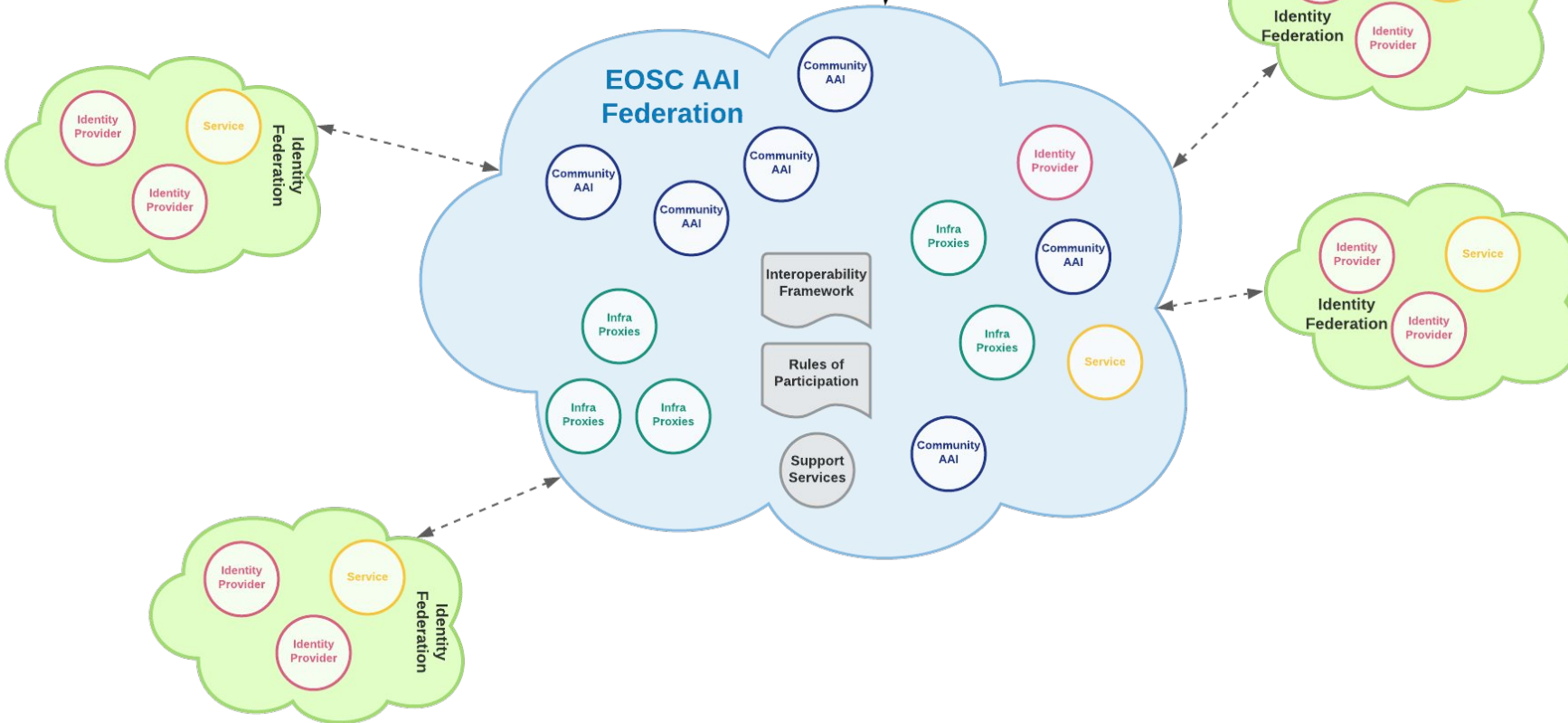
National Academic
Federations

Infrastructure Proxies
operated by Research
Infrastructures

Integration options For Providers



eduGAIN



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

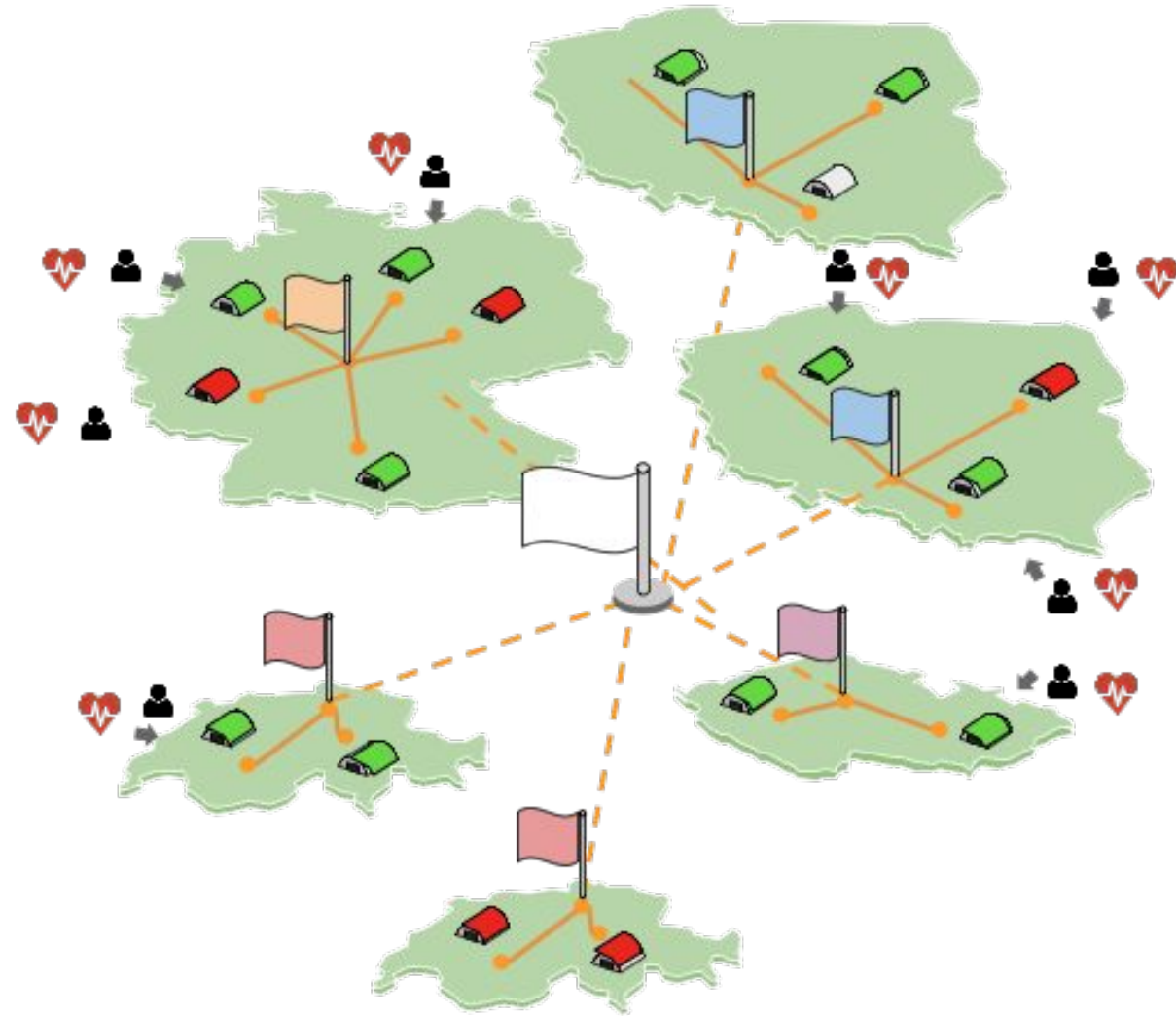
Kostas Koumantaros, GRNET



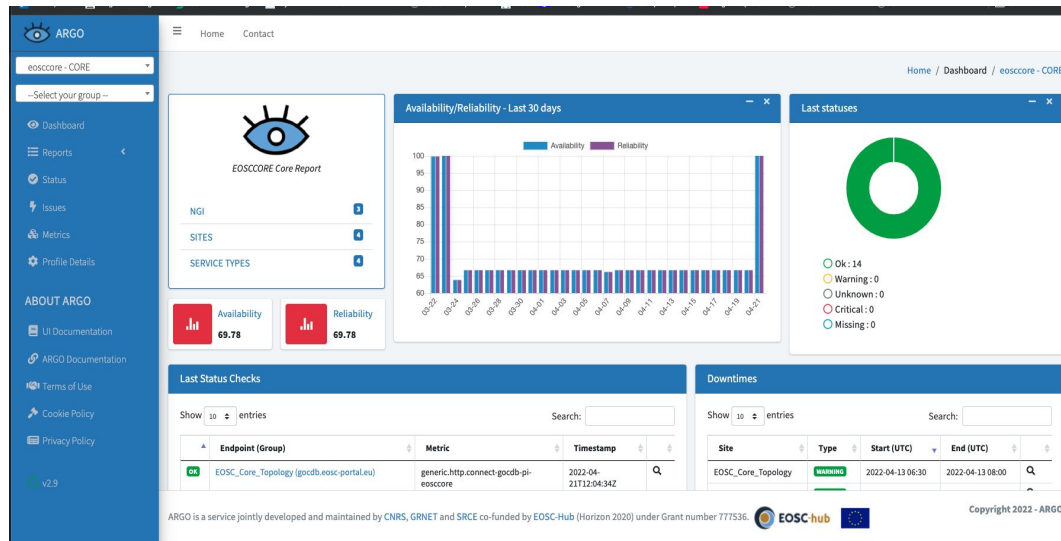
EOSC Monitoring Service

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

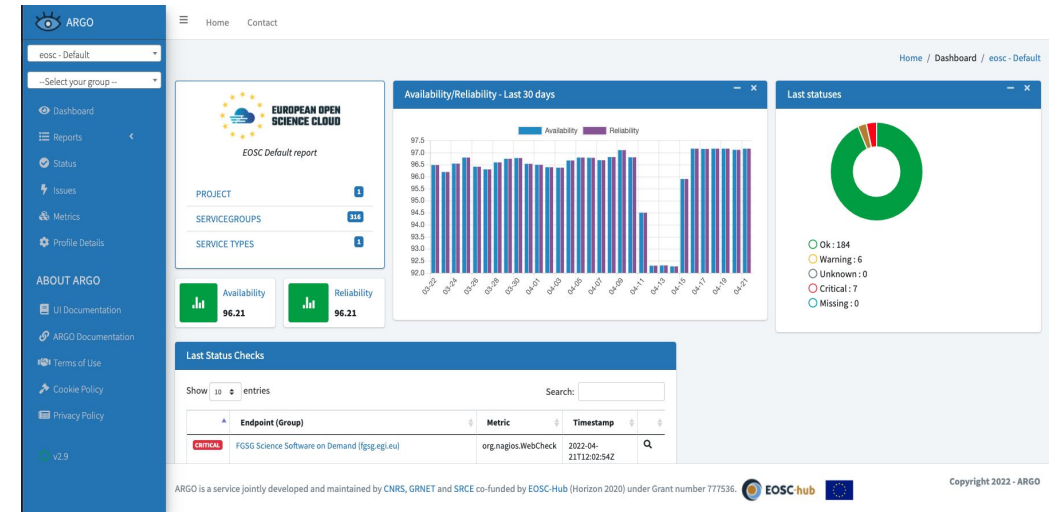


EOSC Monitoring



EOSC Core Monitoring

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

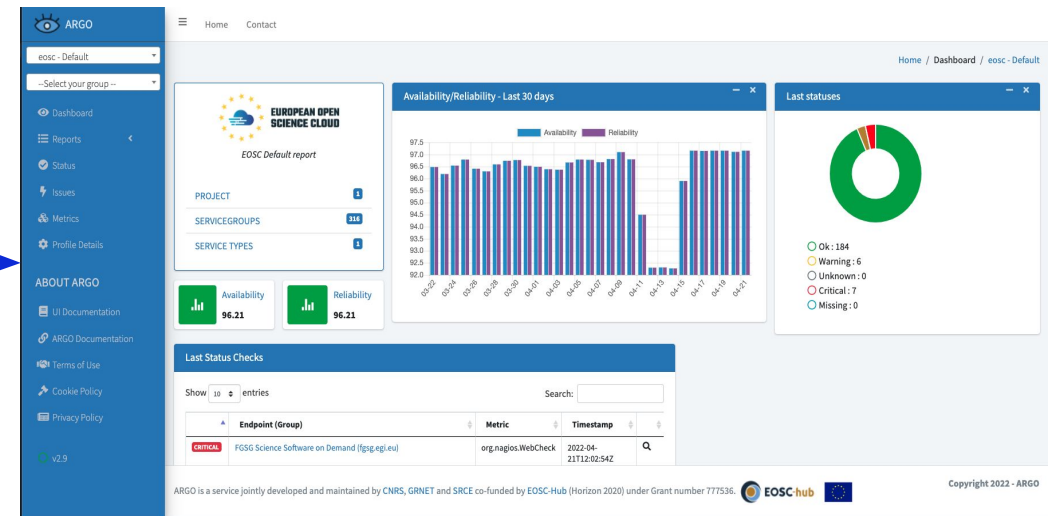


EOSC Exchange Monitoring:

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

Integration Option 1

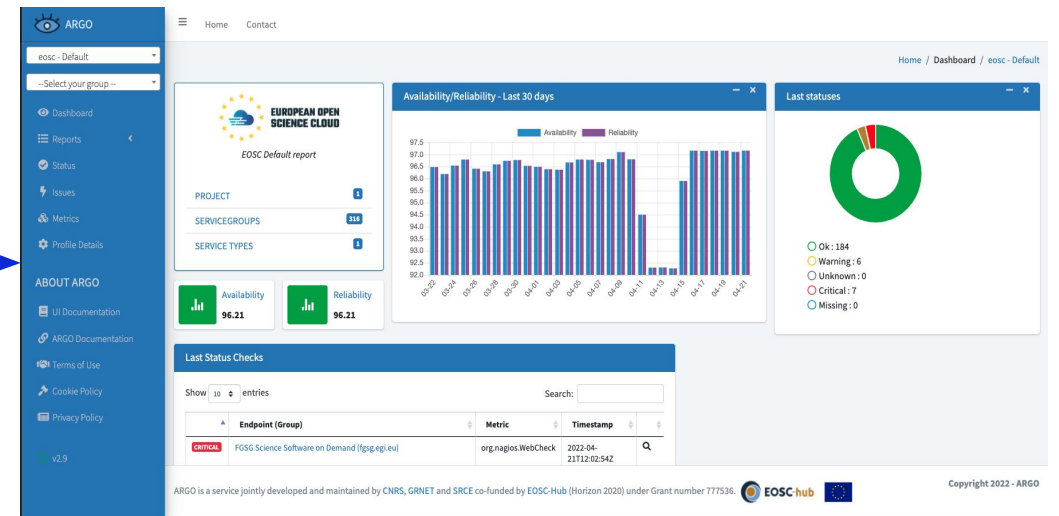
Monitor an Onboarded Service (central one)



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

Integration Option 2

Monitor an Infrastructure (community)



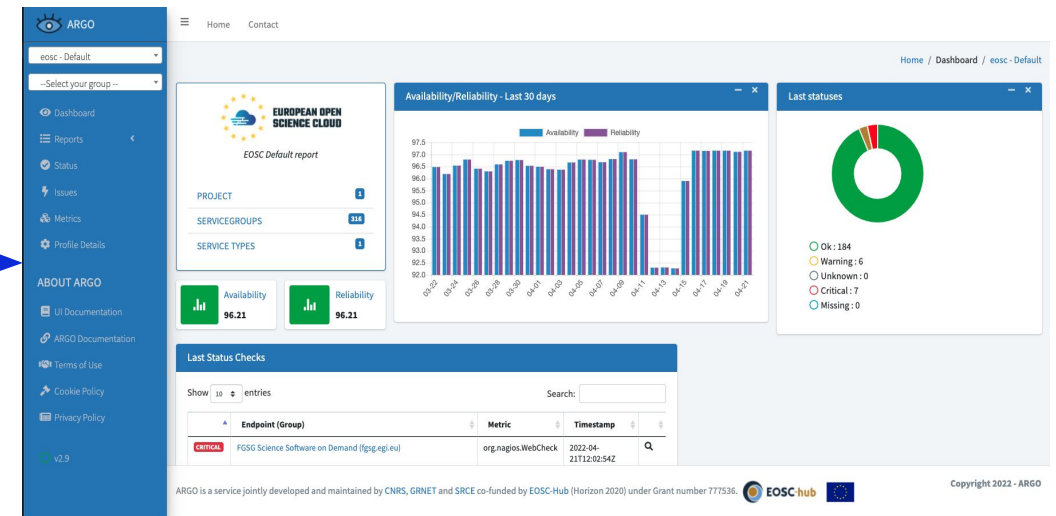
Community Instance

Integration Option 3

Integrate External Monitoring service



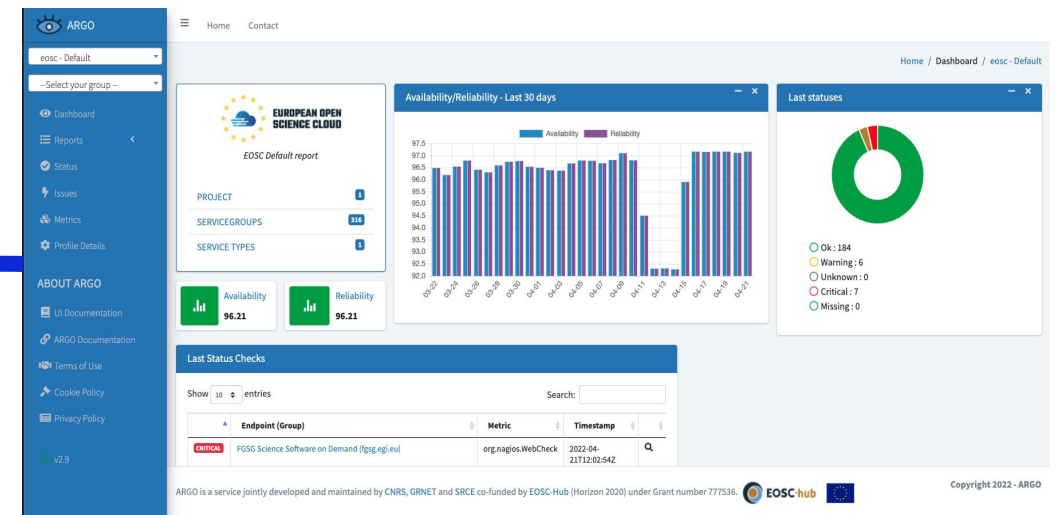
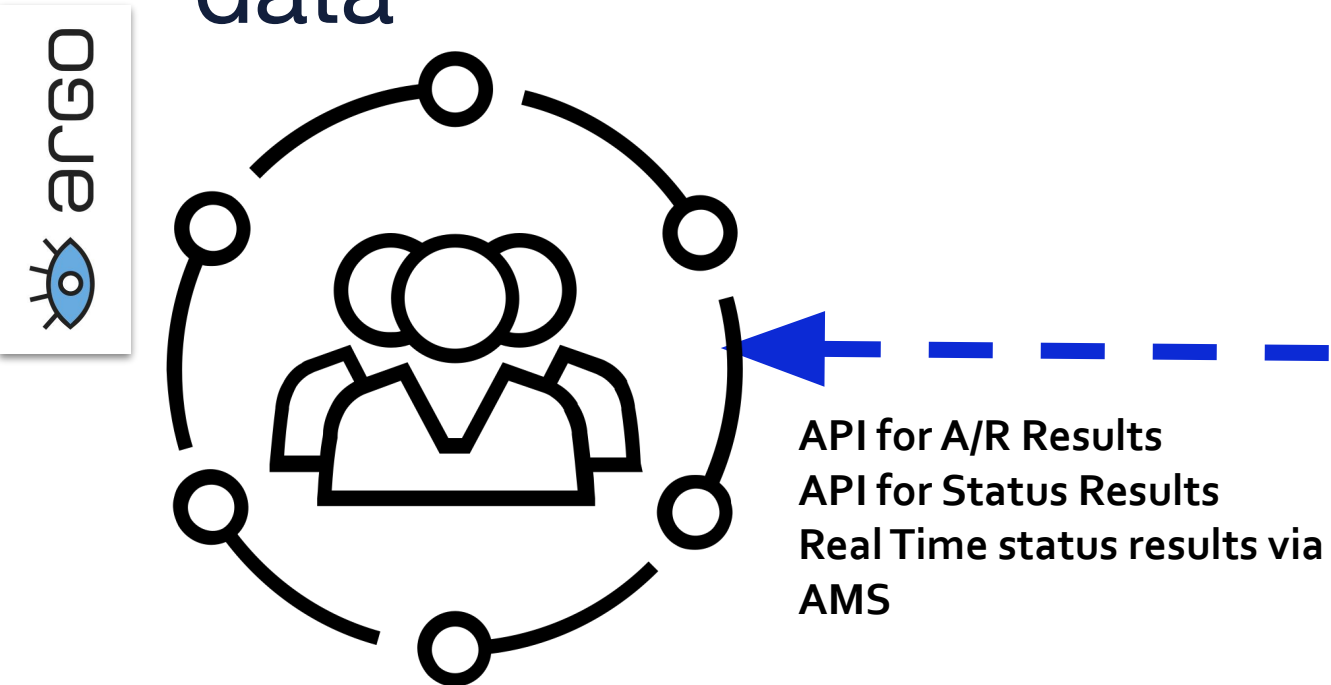
Predefined data



Instance

Integration Option 3

Third-party services exploiting EOSC Monitoring data



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 10 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 10 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

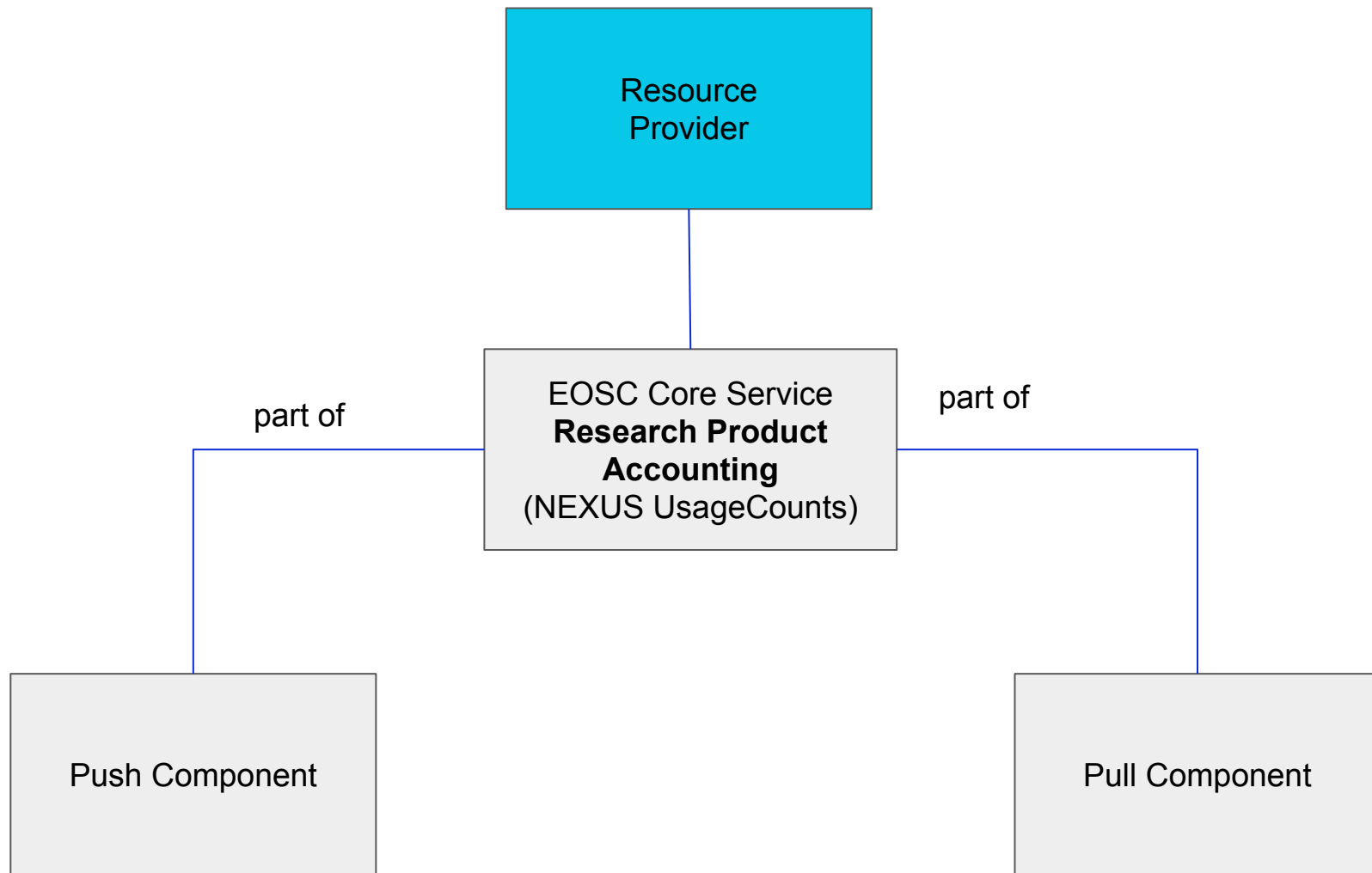




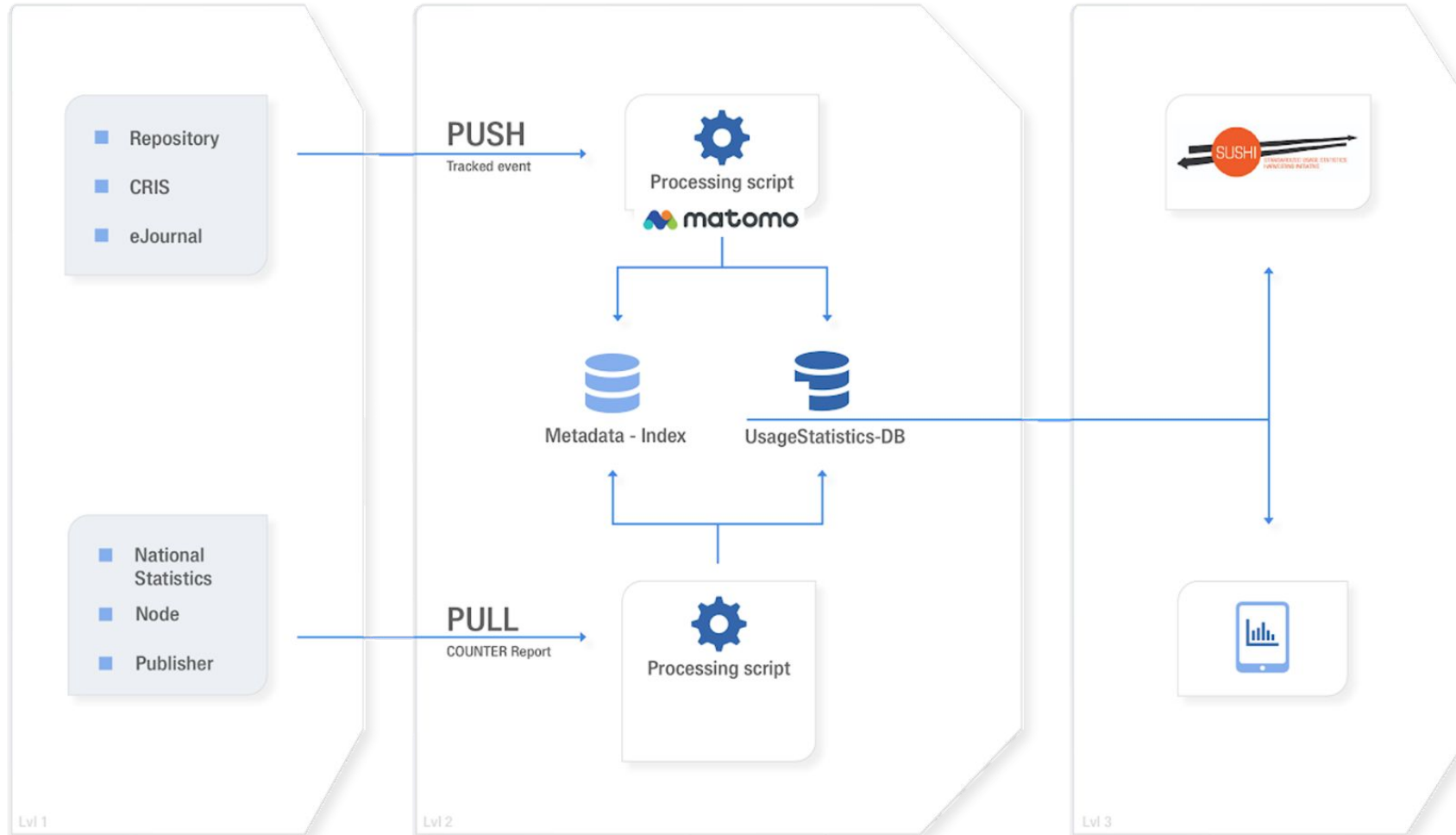
Accounting for Research Products

- 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

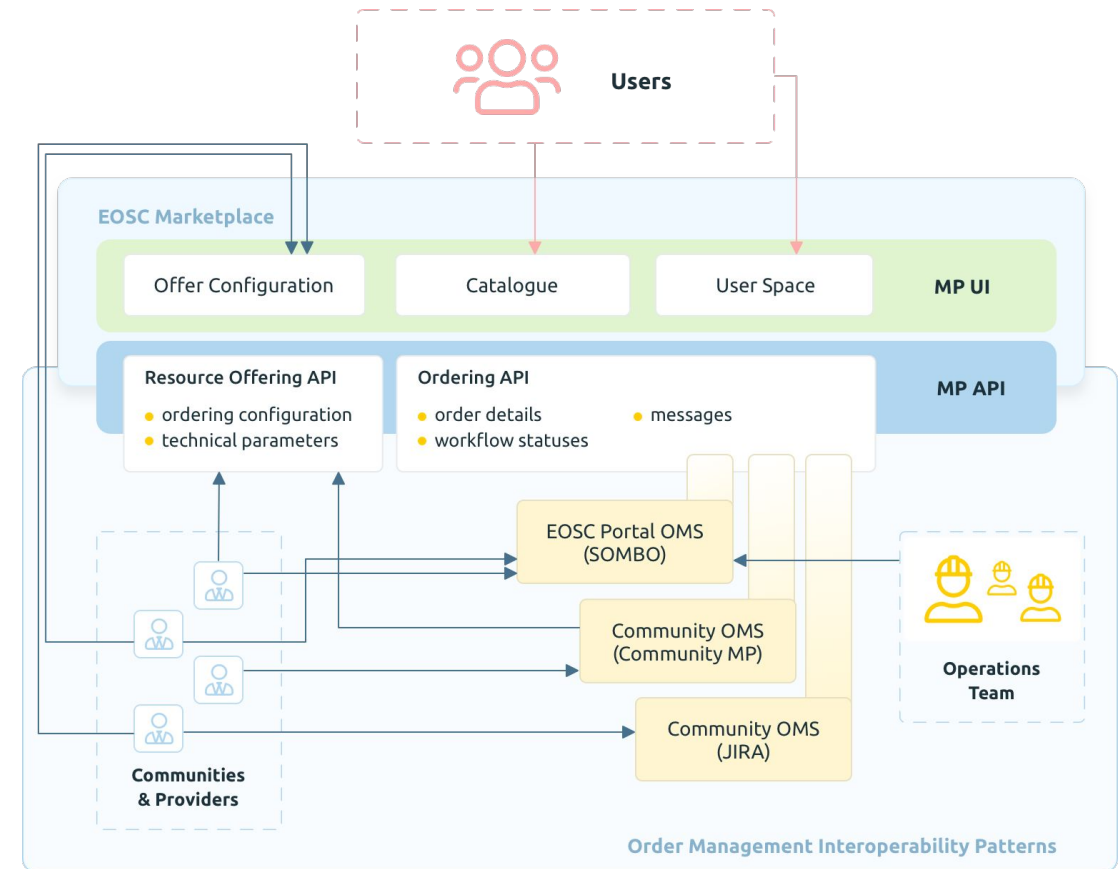
Order Management

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 compute**
Run virtual machines
Provided by: EGI Federated Research area: Interdisciplinary Dedicated for: Research
★★★★★ (1)
ABOUT REVIEWS (0)
Cloud Compute gives you the ability to deploy and scale resources in a secure and isolated environment with stateful and stateless services.
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-intensive services (e.g. web servers, databases or applications) on virtual machines and scale your infrastructure needs * Create environments to fit your requirements * Manage your account and capabilities
Service offers
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

**EUROPEAN OPEN SCIENCE CLOUD**
EGI Cloud compute
Offer selection
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
GPU
GPU-enabled instances. Features: 9 CPU cores for each GPU core. Ideal for: Graphics and general compute applications.
PARAMETERS
Number of GPU cores
BACK TO PREVIOUS STEP - OFFER

**EUROPEAN OPEN SCIENCE CLOUD**
EGI Cloud compute
Offer selection
Please specify parameters
Parameters
NUMBER OF CPU CORES
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
MY PROJECTS
My scientific project
My scientific project
+ CREATE NEW PROJECT
Services
Created at 12.08.2019 — Single user — drf
RESOURCES PROJECT DETAILS CONTACT WITH PROJECT SUPPORT
B2FIND Visit website
HADOOP Visit website
+ ADD SERVICE TO THIS PROJECT
My scientific project
My scientific project
+ CREATE NEW PROJECT
B2FIND
< back to Services project services
Go to the resource
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
ABOUT EGI Governance EGI Documents EGI Sharing & Discovery EGI Rules of participation EGI Europe

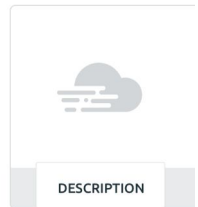
Provider's perspective

Parameters and offers

OFFER PARAMETERS



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 problem

HADDOCK (High Ambiguity Dr modeling of biomolecular com encodes information from ider 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 prefori
Accessible ir
Ideal for: We
Building ser

Order type *

order_requ

☒ Disable orde

Order url

Url should start with

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 

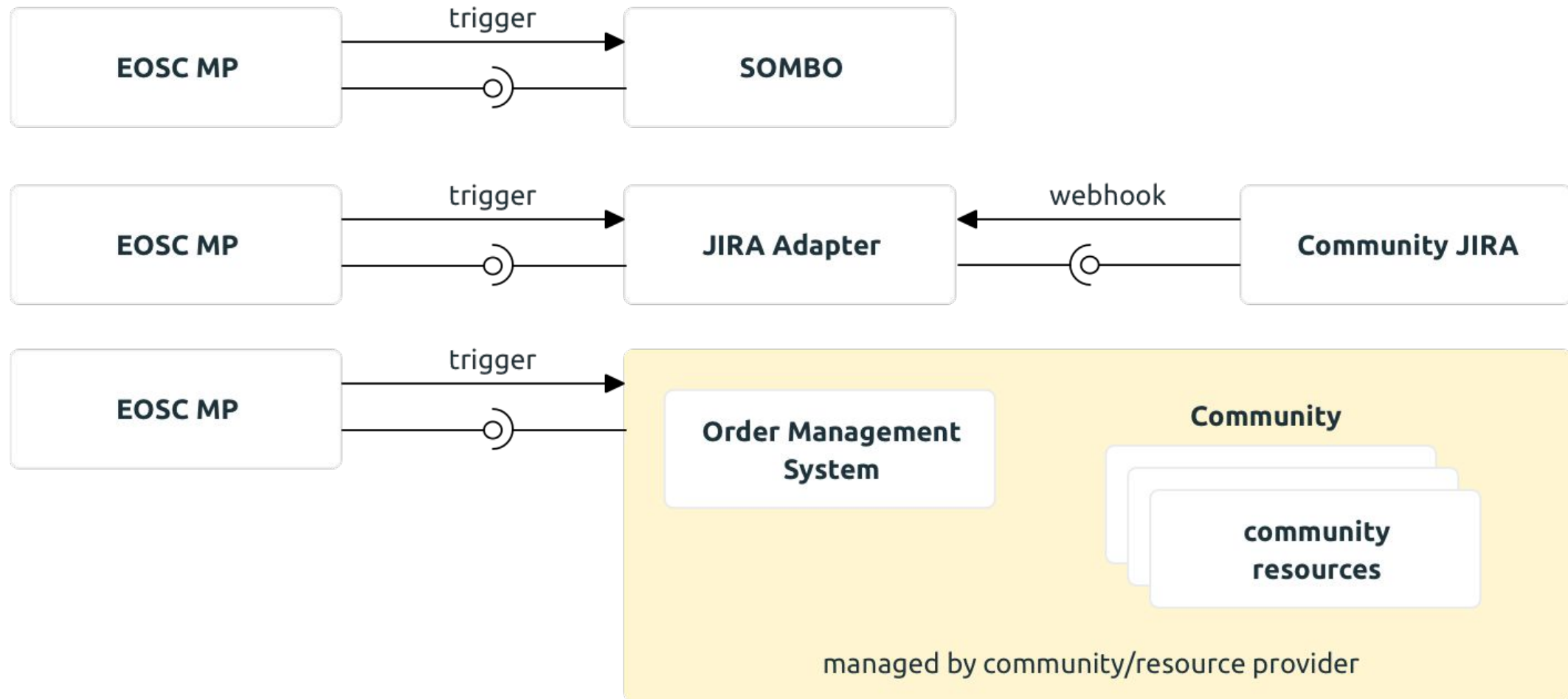
Offers ▼

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

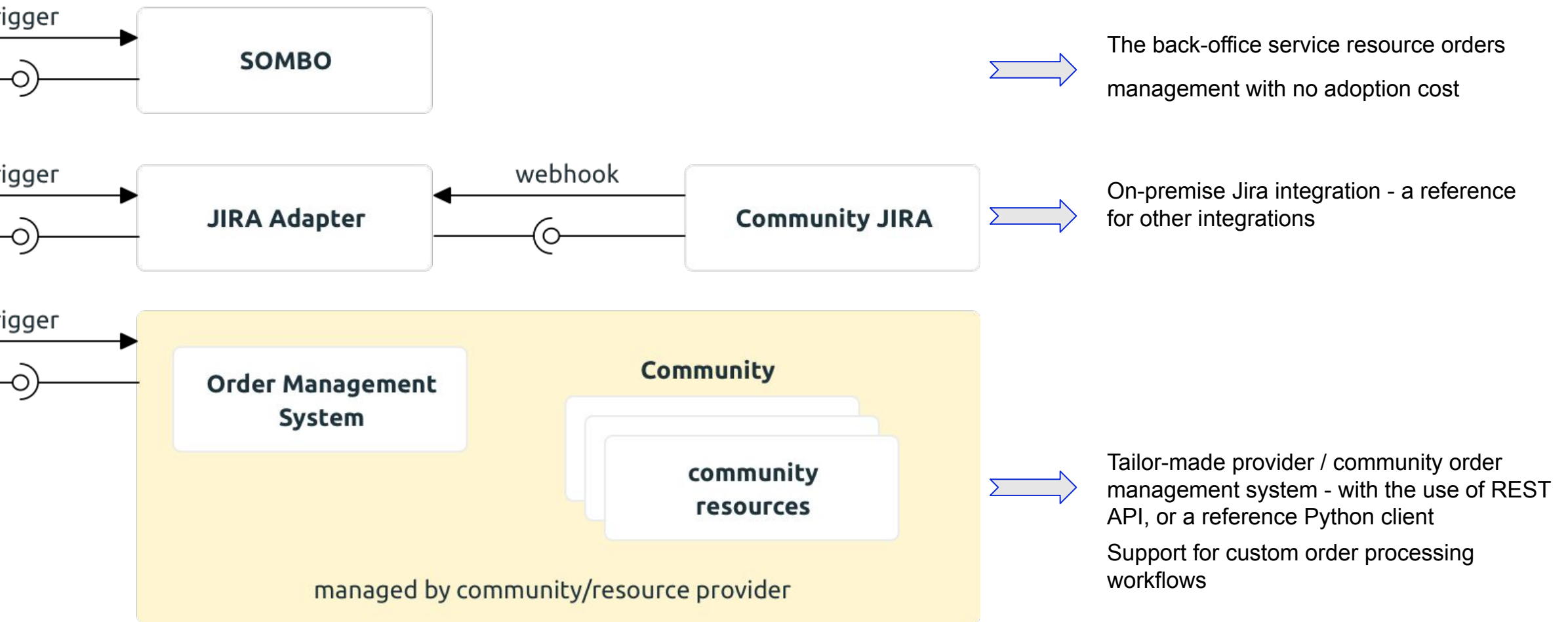
Resources ▼

GET	<code>/api/v1/resources</code> lists resources administered by user	
GET	<code>/api/v1/resources/{id}</code> retrieves an administered resource	

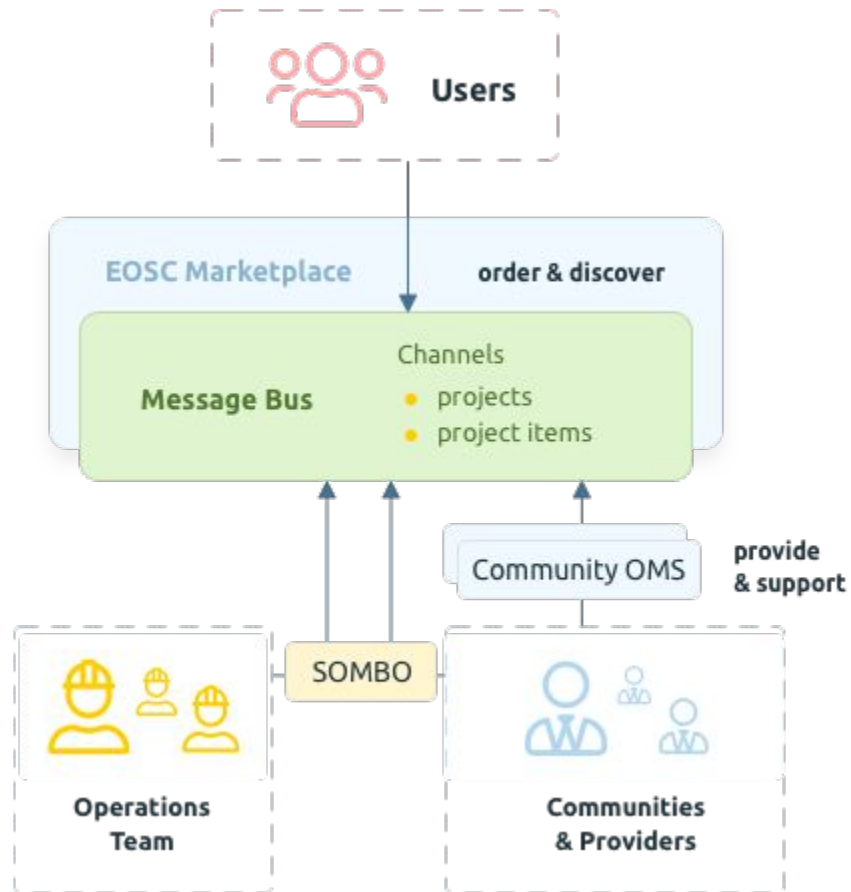
Order Management interoperability patterns



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

Reference card

Helpdesk URL	https://eosc-helpdesk.eosc-portal.eu
Helpdesk Email	eosc-support@scc.kit.edu
Helpdesk page in EOSC Portal	https://eosc-portal.eu/contact-us
Interoperability guidelines	Confluence wiki



EOSC Helpdesk: Ticket Submission

Email



Helpdesk
Dashboard



Feedback Form

Feedback Form

Name

Email

Message

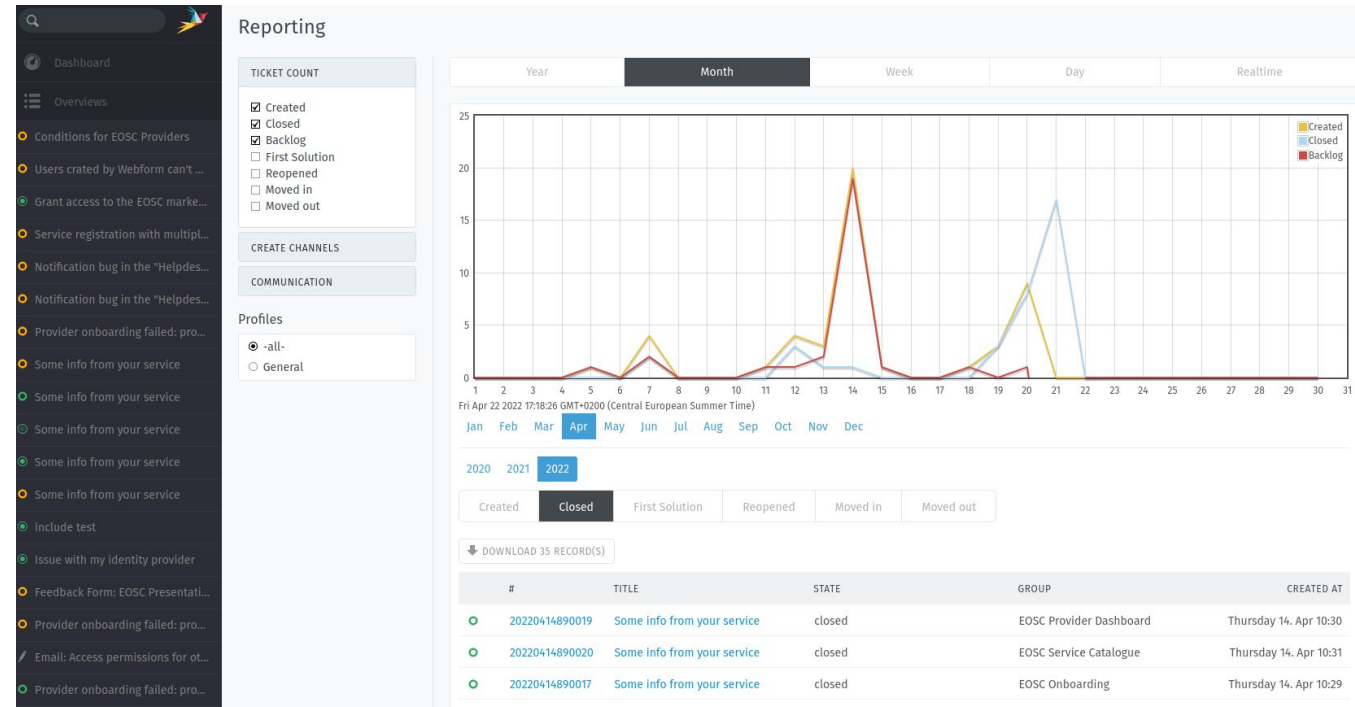
SUBMIT

The screenshot shows a mobile application interface for submitting a new ticket. At the top, there's a search bar and a menu icon. The main heading is 'Neues Ticket'. Below it are two text input fields labeled 'TITEL *' and 'TEXT *'. The 'TEXT *' field has a link 'Dateien wählen...' below it. Further down are four dropdown menus: 'TYP' (with 'Service Request' selected), 'GRUPPE *' (with '-' selected), 'STATUS' (with 'neu' selected), and 'SERVICES' (with '-' selected). At the bottom left is a link 'Abbrechen & Zurück' and at the bottom right is a green button labeled 'Erstellen'.

EOSC Helpdesk: Major Features

EOSC Helpdesk

- User friendly Customer Interface
- Dashboard for helpdesk stuff
- 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

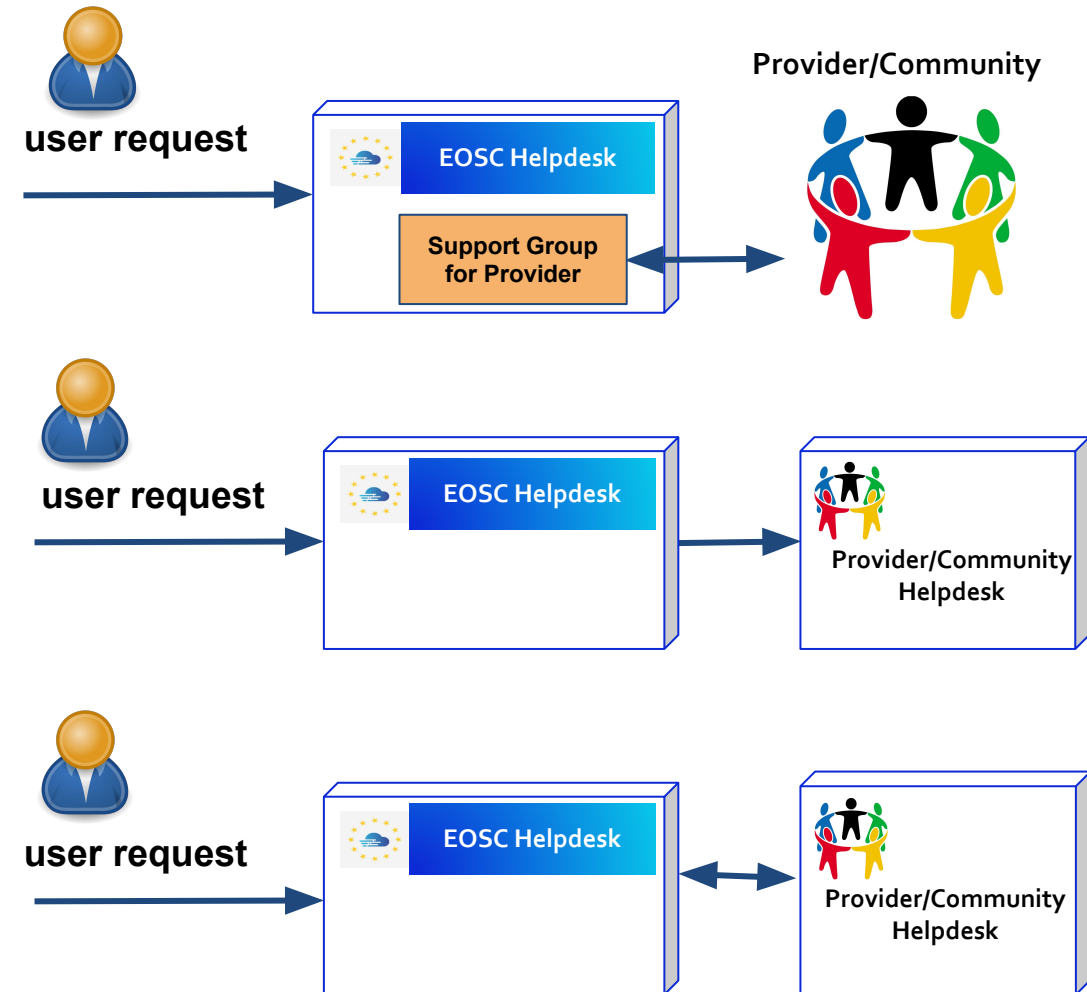
Support Group - is a group of experts who provide support and assistance for defined class of incoming requests

EOSC Helpdesk: Integration Options for Provider

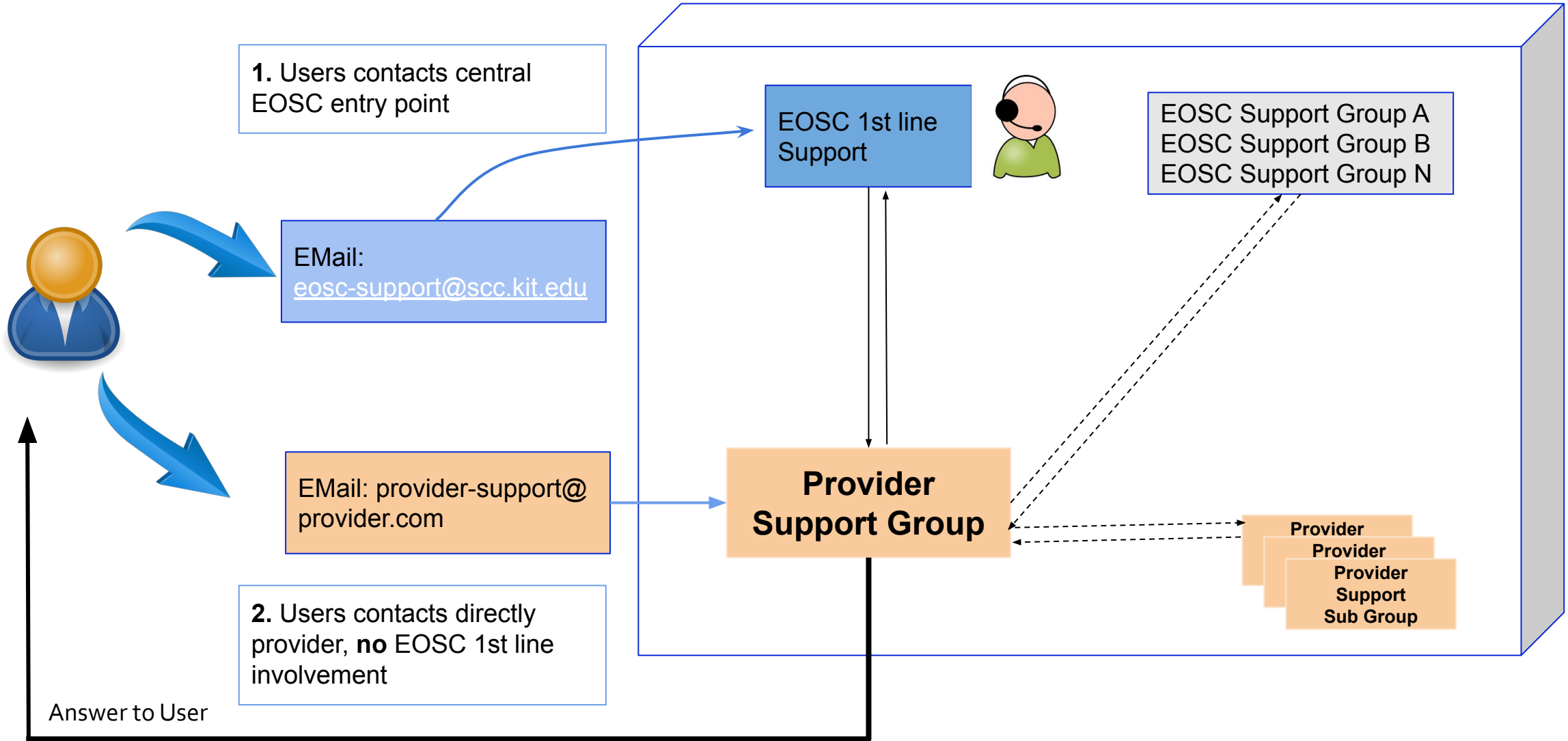
Three main integration options for Providers:

- 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!