DESTINATION EARTH CORE SERVICE PLATFORM

Destination Earth

Funded by the European Union

Implemented by ECMWF esa EUMETSAT

WHAT IS THE DESP?

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Roadshow Webinar: DestinE in action – meet the first DESP use cases– 13 December 2023

PLATFORM FRAMEWORK SOLUTION
TOPICS

- Platform services overview
- Implementation Plan
- DESP Use Cases & the Platform

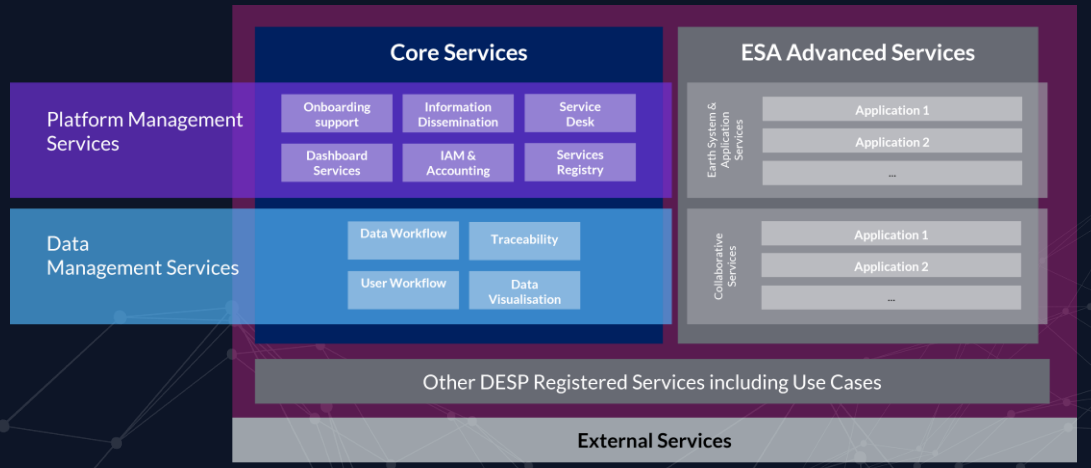
DestinE Core Service Platform
OVERVIEW

- PLATFORM MANAGEMENT SERVICES

  Trusted entities within the ecosystem, competing in creating a community around services, establishing trust among participants.

- DATA MANAGEMENT SERVICES

  All services allowing consumers to access data and applications.



TECHNICAL
OVERVIEW

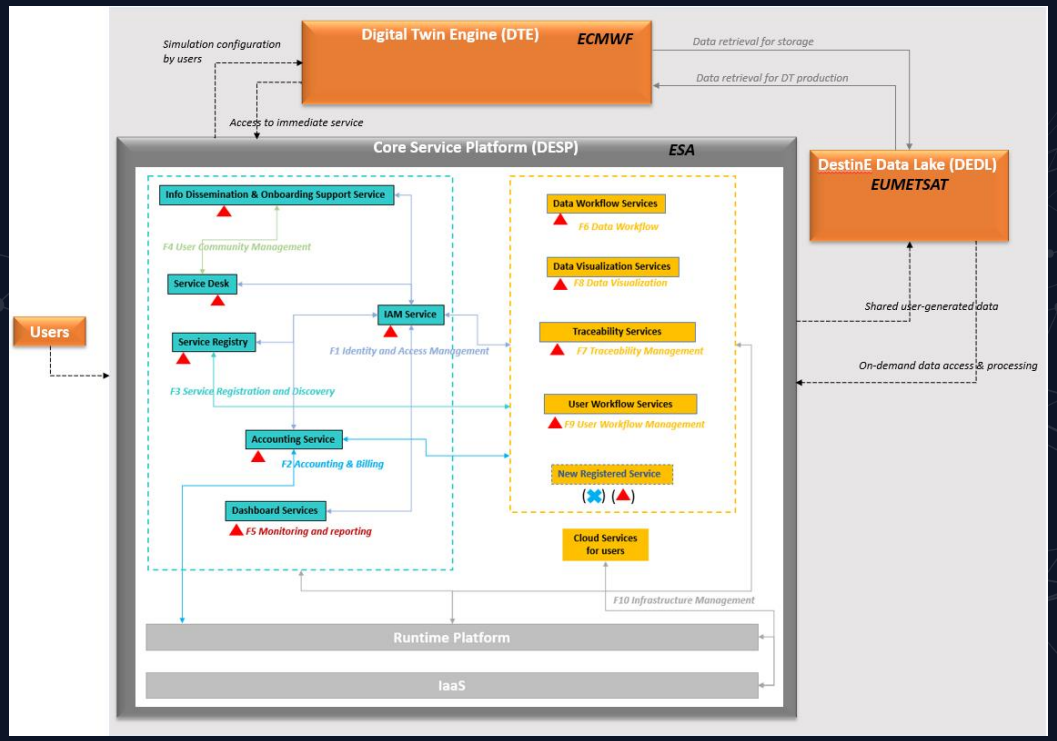
TECHNICAL OVERVIEW

USERS LANDING ON DESP

can discover the DestinE Ecosystem, thanks to informative pages and engaging material on DestinE activities and services.

DESP will interface with:

- ECMWF Digital Twin Engine
- EUMETSAT Data Lake



USER COMMUNITY TOPOLOGY

UNREGISTERED USER

Access limited to general public services, Service Desk and Service Registry.

DESP ADMINISTRATOR

Managing the configuration elements of the DESP Core Services with administrative privileges.

DESP REGISTERED USER

Users registered in the IAM service:

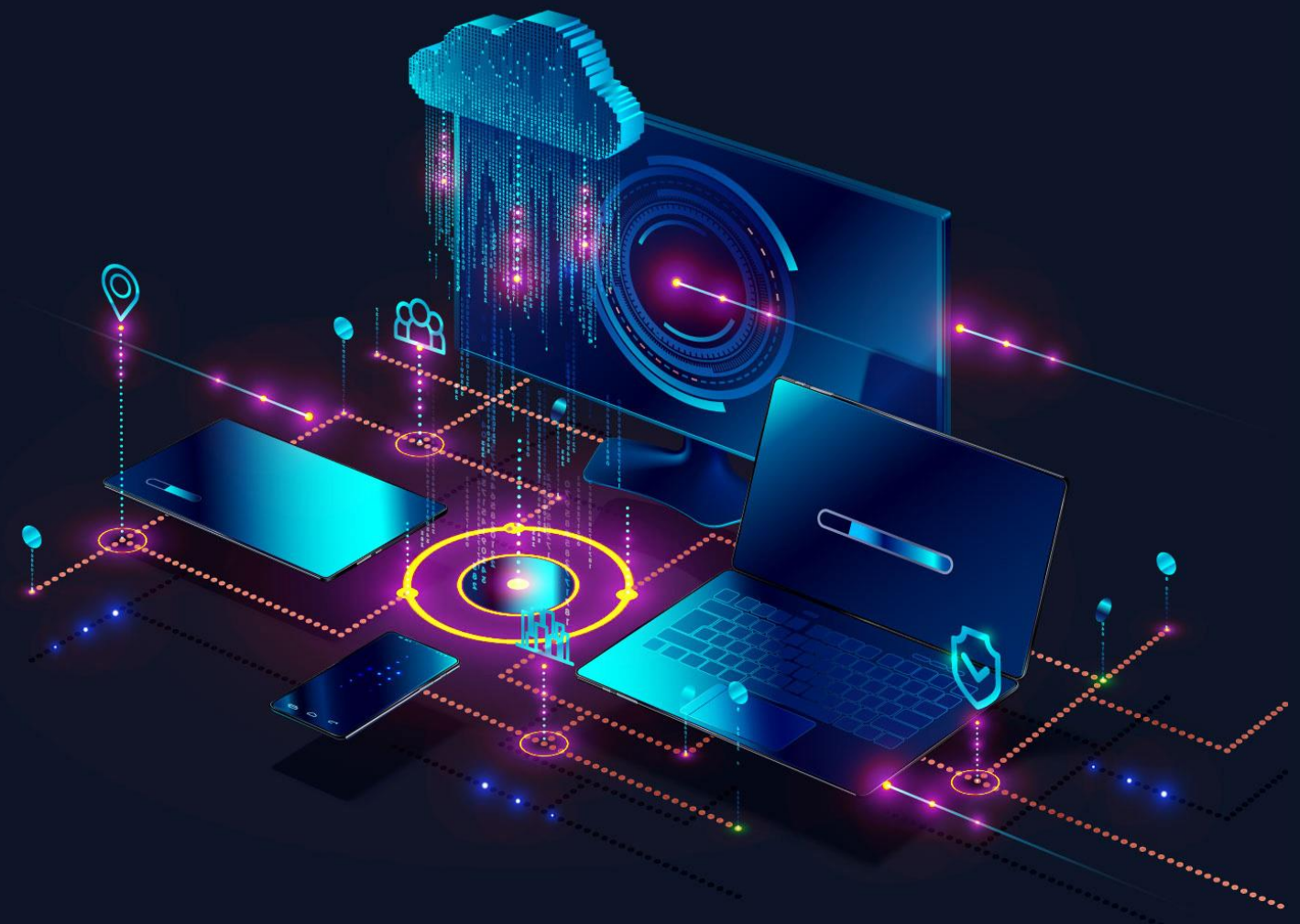
- Standard users:
  self-registration performed
- Registered Service Providers:
  providers of services listed in the DESP Service Registry
- Tenant Users:
  Standard Users providing and/or consuming resources/services within a DESP Tenant

DESP FEDERATED USER

Users whose personal data are provided by an external Identity Provider and may be propagated to the IAM Service.

They are enabled to access all the DESP features, functions and services freely accessible.

PLATFORM SERVICES OVERVIEW



PLATFORM MANAGEMENT SERVICES
IAM AND SERVICE REGISTRY

IDENTITY AND ACCESS MANAGEMENT

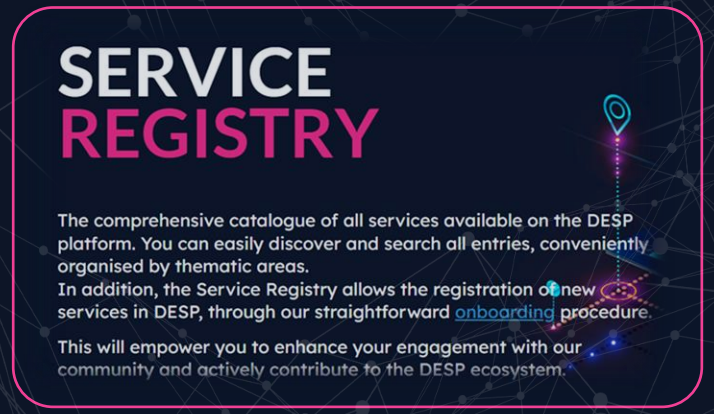
Unified DESP user management service, granting access to all authorised DESP Registered Services based on the same digital identity

- Allows Users to:
  - Register and manage user profiles
  - Authenticate in DESP with credentials from external Identity Providers (IDP Federation)
  - Authenticate through Single Sign On (Service Federation)

- Allows Service Providers to:
  - allocate Service resources to projects or users' activities

SERVICE REGISTRY

- Catalogue of all applications and services, integrated in DESP, including the DESP Core Services
- Exposes Service end-points and Price list
- Entry point for the Onboarding process



PLATFORM MANAGEMENT SERVICES
HIGH-LEVEL OVERVIEW

DASHBOARD SERVICES

Provides live information about the DESP usage, performance and status of the DESP Registered Services

ACCOUNTING

- Allows Users to monitor their consumption of services resources

INFORMATION DISSEMINATION

- Take cares of the Web information Presence layer. Supports Users and Services providing up-to-date and accurate information on DESP Services.
- Provides engineering support for new Services integrating in DESP

ORCHESTRATION PLATFORM (RUNTIME)

- Common layer for the deployment and operation of all the DESP services.
- Integrates the cloud infrastructure layer
- Security management capabilities

SPECIALISED SERVICE DESK

Supports Users and Services with thematic discussion forums, issue management, ticketing and technical material and information.

DATA MANAGEMENT SERVICES

DATA WORKFLOW SERVICE

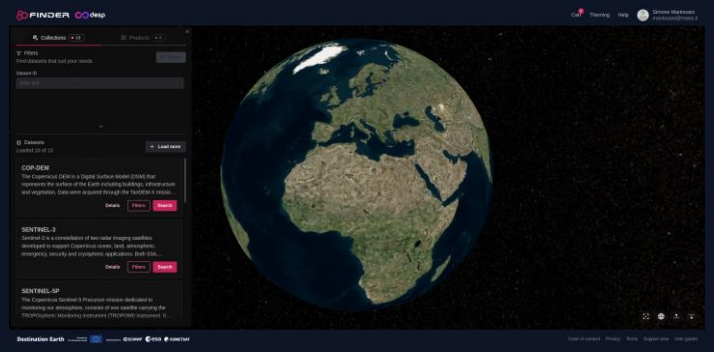
Entry point to access data available from

- the DestinE Data Lake including simulations generated by the DestinE Digital Twins
- federated data sources

It implements the DESP smart cache

Available interfaces

- API
  - Harmonised Data Access
  - OpenSearch
- GUI

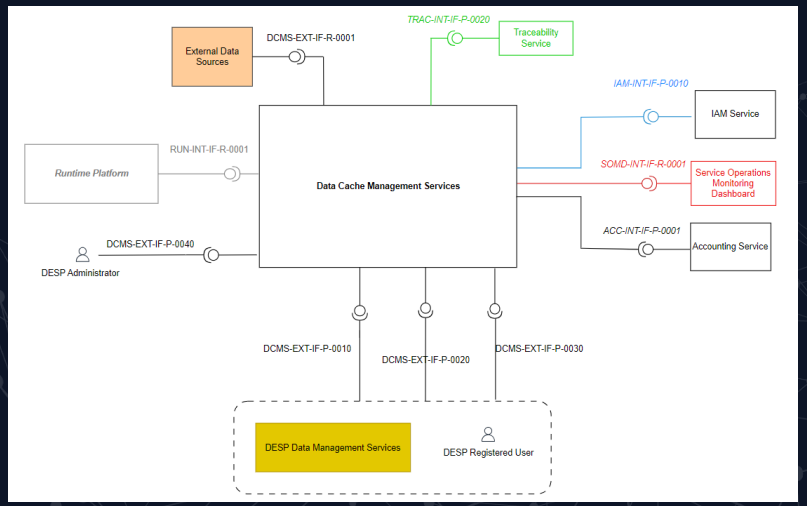


DATA CACHE MNG SERVICE

Rolling archive storing data retrieved from DESP data sources (as per DESP portfolio).

Available interfaces

- API
  - S3
  - STAC

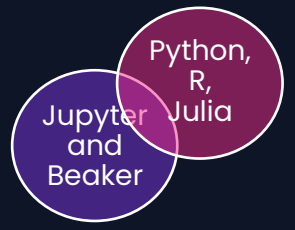


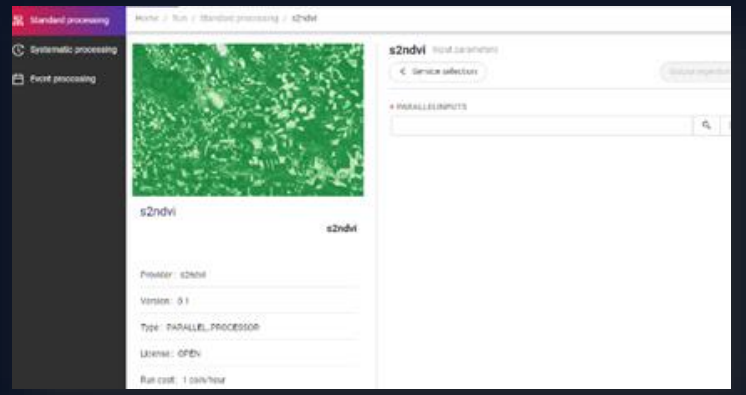
DATA MANAGEMENT SERVICES

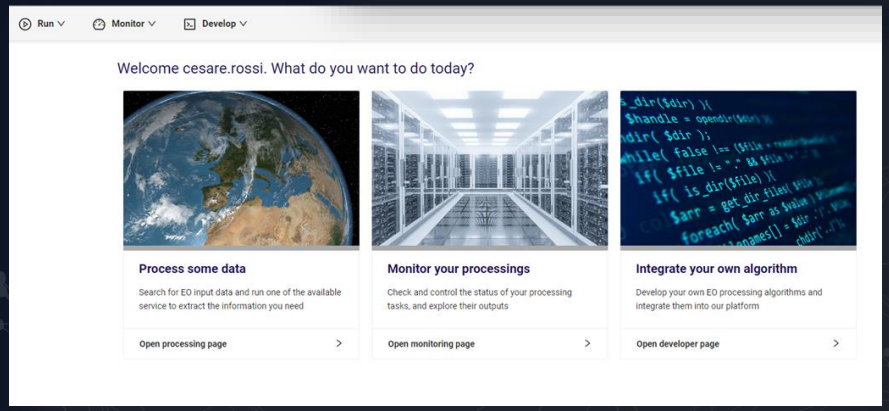
USER WORKFLOW SERVICES

DEVELOPMENT ENVIRONMENT

- Ready-to-use user environments with pre-installed libraries
    - EO expert: GDAL, RASTERIO, proj
    - AI/ML expert: GDAL, RASTERIO, PyTorch, TensorFlow, etc.
- Add storage by attaching OVH containers







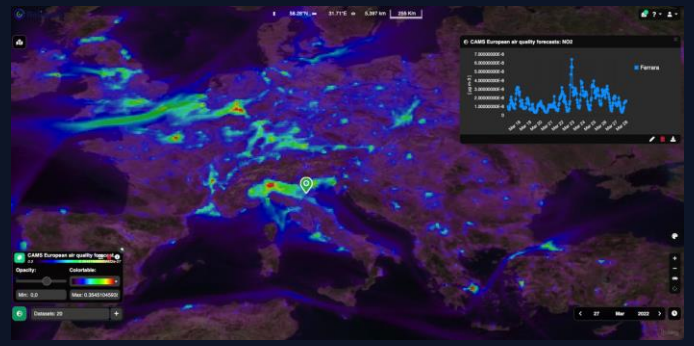
PROCESSING ENVIRONMENT

- Advanced processing service available via UI or API to create structure of the service implementing the algorithm via templating

DATA MANAGEMENT SERVICES

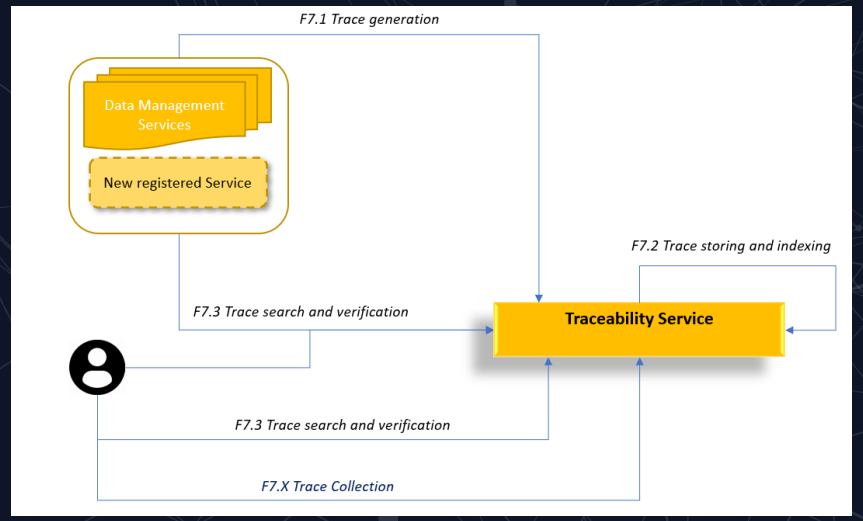
DATA VISUALISATION SERVICES

- DESP Data visualisation in 2D-3D-4D (timeseries)
  - Supports geotiff, netcdf, grib, shapefile, WMS, WMTS, etc
  - Data available on cache are pre-processed for visualization
- User-generated Data visualisation in 2D-3D-4D
  - For supported standard formats
- Data Export in various formats
- Collaborative environments and sharing capabilities



TRACEABILITY SERVICE

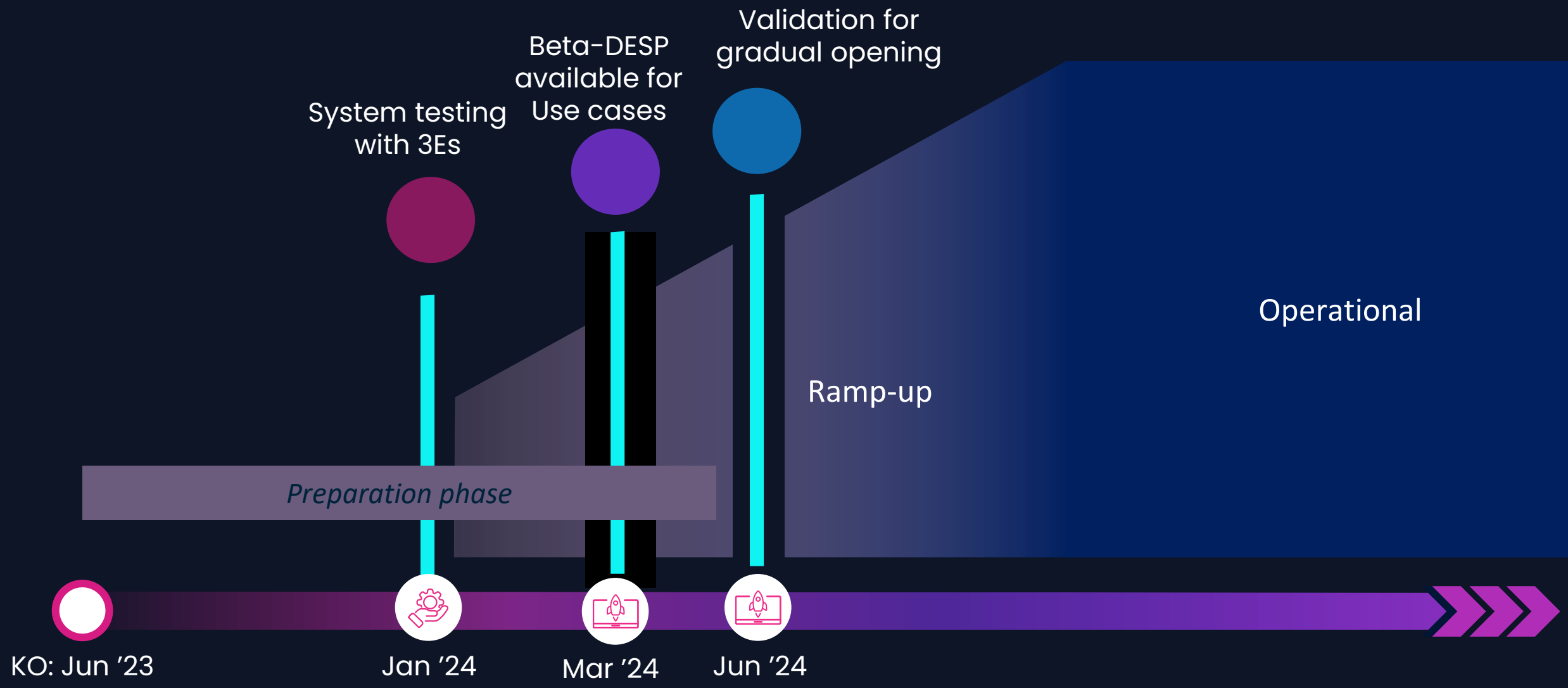
- DESP service tracing models, data and software
- Traceability Services guarantee that generated data and data exploitation software come from a certified actor (Data Provider/ Service Provider)
- Any DESP Registered User can generate and record unique traces by using the Traceability Service, via Traceability Client Tool.



IMPLEMENTATION PLAN

DESP USE CASES & THE PLATFORM

DESP IMPLEMENTATION PLAN



DESP USE CASES INTEGRATION

- Objective:
  - validation of the platform
- How:
  - Share information on DESP integration approaches
  - Share technical documentation for integration in DESP
  - Set up the Beta-version of DESP for the User cases
  - Support the integration is a two-step approach
    - First batch of services available: IAM Service, Service Registry, Runtime Platform (March)
    - Dataset available: Sentinels + TBD (April)
    - Second batch of services available: all the others DESP core services
- Feedback:
  - Comments/proposals on the provided documentation
  - Recommendation for DESP improvements

DESTINATION EARTH CORE SERVICE PLATFORM

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