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PAN-EUROPEAN INFRASTRUCTURE
FOR OCEAN & MARINE DATA
MANAGEMENT

From SeaDataNet II to SeaDataCloud

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On behalf of SeaDataNet and SeaDataCloud communities

SeaDataNet

What is SeaDataNet?

A pan-European infrastructure set up and operated for managing marine and ocean data in cooperation with the NODCs and data focal points of 34 countries bordering the European seas

	Metadata directories
90s	MEDAR/MedATlas (MAST)
2002-2005	Sea-Search (FP5)
2006-2011	SeaDataNet (FP6)
2011-2015	SeaDataNet II (FP7)
2016-2020	SeaDataCloud (H2020)

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Portal with standards, tools, and services, both for users and data centres

www.seadatanet.org

SeaDataNet standards

- Set of common standards for the marine domain, adapting ISO and OGC standards and achieving INSPIRE compliance

  - **Adoption of ISO 19115 – 19139 standard for describing metadata** on data sets, research cruises, monitoring networks, and research projects => marine metadata profiles, schemas, schematron rules

  - **Controlled vocabularies** for the marine domain (>65,000 terms in 82 lists), with international governance and web services

  - **Standards data exchange formats** : ODV ASCII and NetCDF (CF) fully supported by controlled vocabularies

- Maintenance and dissemination of standard Quality Assurance- Quality Check (QA-QC) procedures, together with IOC/IODE and ICES

SeaDataNet services and tools

- **Set of tools** to be used each data centre and freely available from the SeaDataNet portal: metadata editor (MIKADO), data conversion software (NEMO), download manager (DM), data analysis software (ODV), data interpolation software (DIVA)

- **Pan-European services** for harmonised discovery, access, visualisation of data and data products

- Common SeaDataNet **Data Policy** and SeaDataNet License

- **Capacity building** by training workshops for uptake of standards and tools by the data centres in order to achieve standardisation

SeaDataNet metadata directories (1)

EDMO *Organisations*

CSR
Research cruises

EDMERP
Projects

EDIOS
Observing programmes

CDI
Data index

EDMED
Data sets

CDI service for discovery and unified data access

SeaDataNet portal
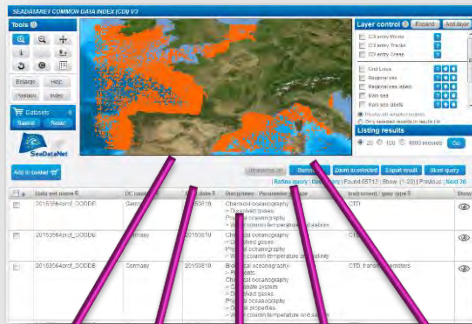
Search and Shop

Data ... oad

Already 102 data centres connected and more underway

European data sources
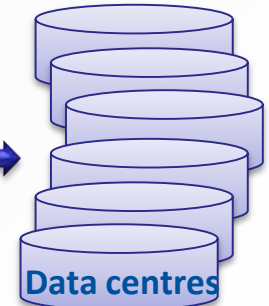
data centres ⬅ ≈ 600 originators

Metadata + transaction data

Data centres

SeaDataNet metadata directories (2)
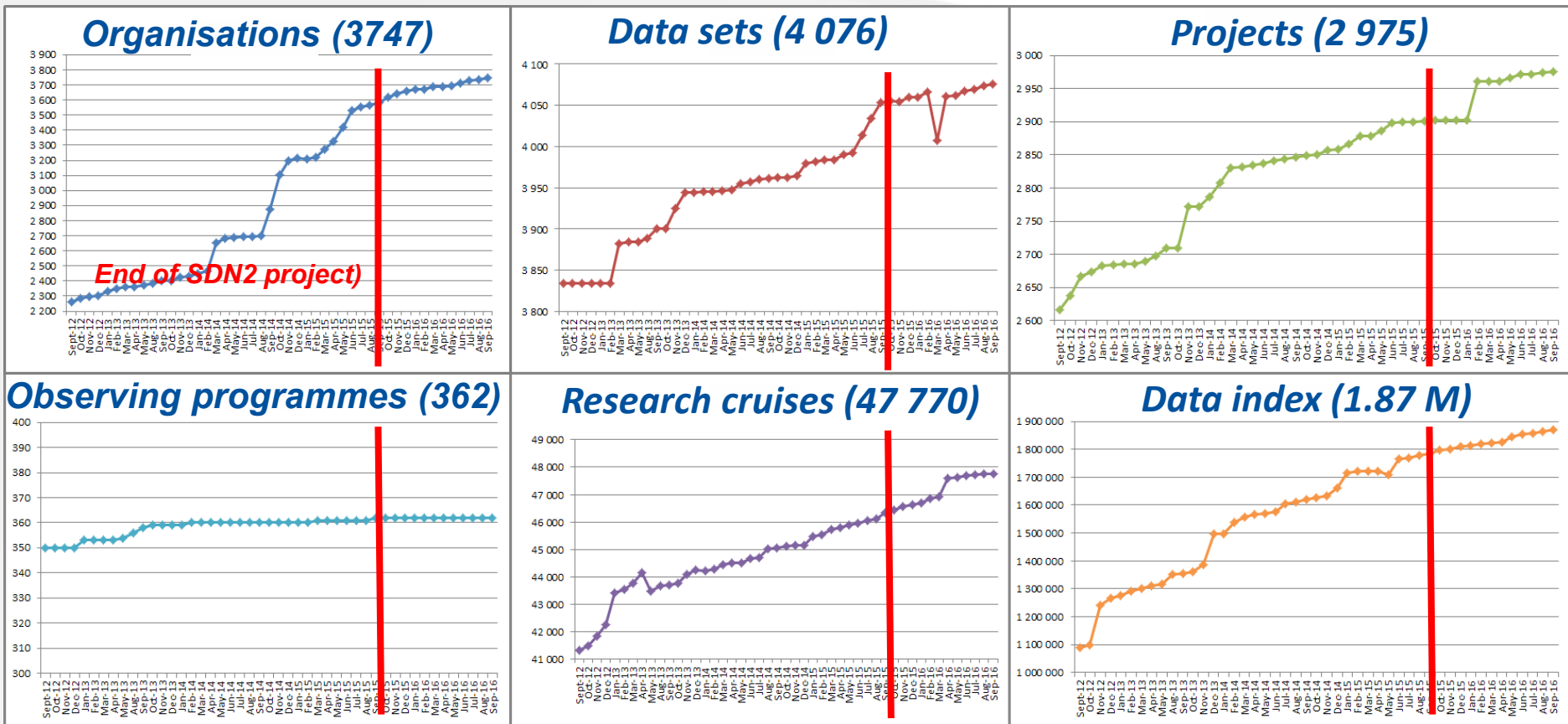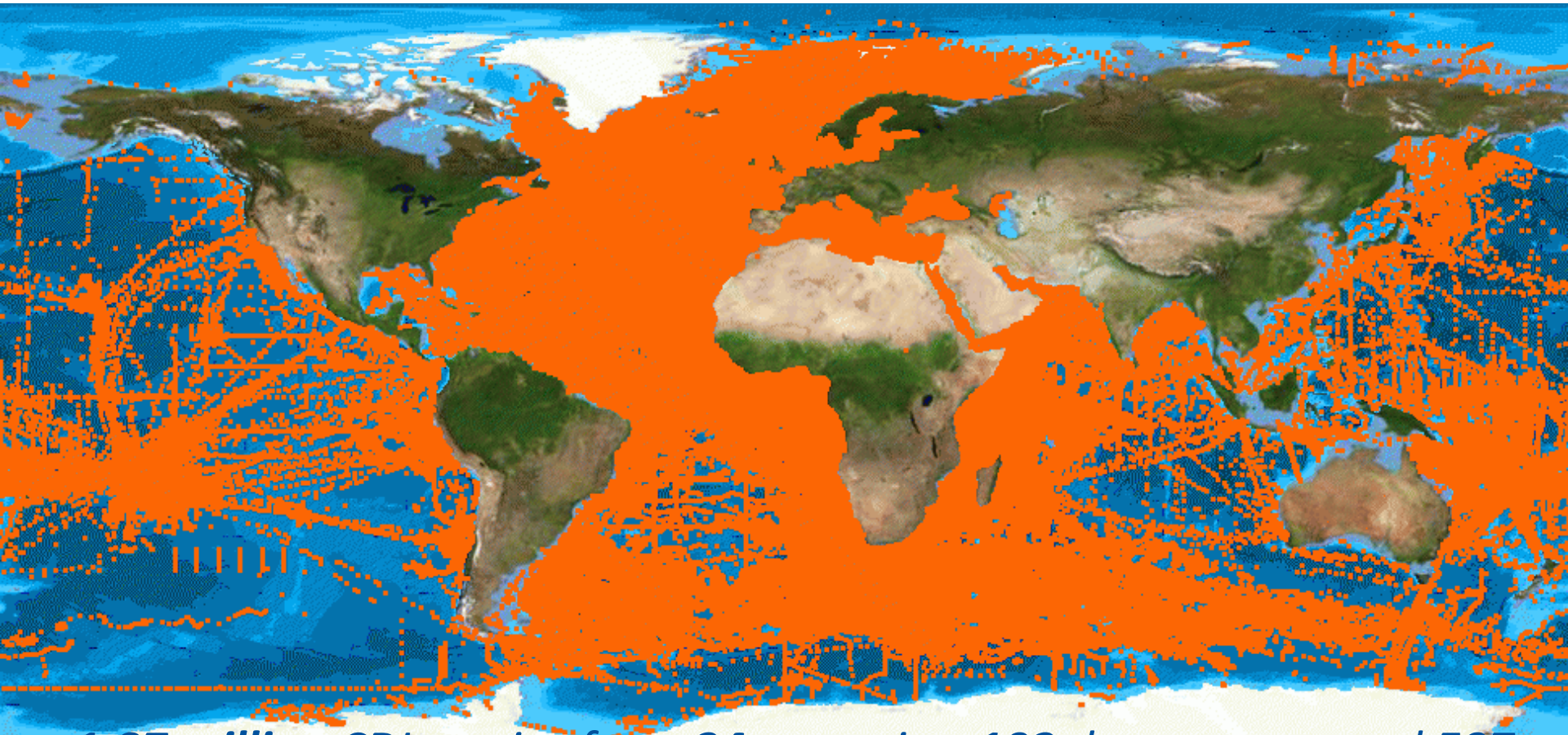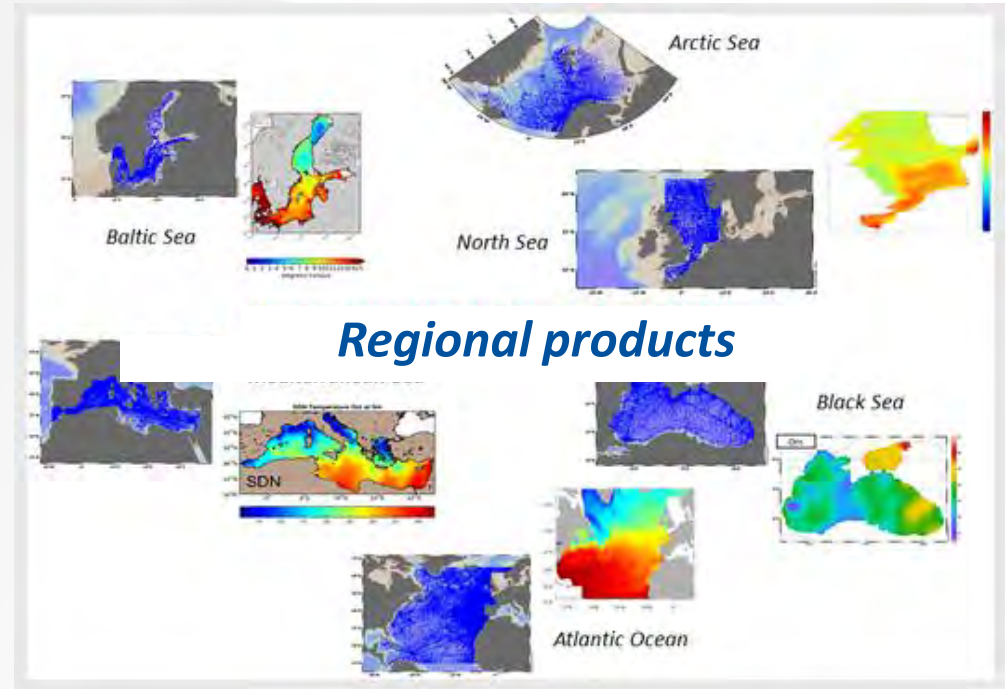
1.87 million CDI entries from 34 countries, 102 data centres and 597 originators for physics, chemistry, geology, geophysics, bathymetry and biology; from 1805 to 2016; 86% unrestricted or under SDN License

SeaDataNet products

CENTRAL CDI

Data harvesting

Analysis of data anomalies

SeaDataNet Quality Checks Strategy (QCS)

QC analysis

File and parameter aggregation

Regional products

Baltic Sea

Arctic Sea

North Sea

Black Sea

Atlantic Ocean
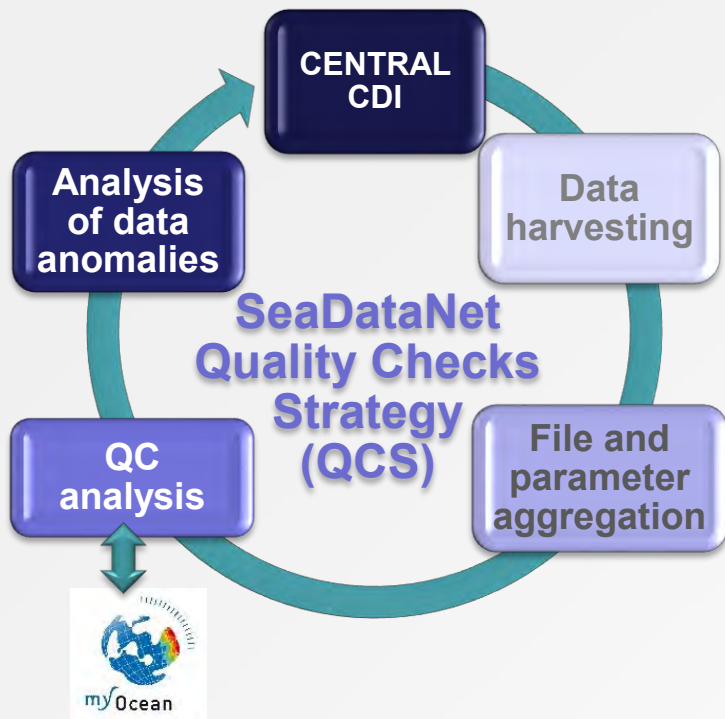
Aggregated datasets and climatologies

Improvement of the data quality

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GEOSS portal

IODE ODP portal

Aggregated collection

Black Sea portal

Caspian portal

Geo-Seas portal

Regional subsets

Data discovery and access

> 100 data centres

NODCs; HOs; GEOs; BIOs; ICES; PANGAEA

≈ 600 European data originators

Thematic portals

CDI Data Discovery and Access service

EMODnet
European Marine Observation and Data Network

Bathymetry

Physics

Chemistry

Geology

Biology

SeaDataCloud – a new opportunity

- Standards and information technology are always evolving, and the SeaDataNet infrastructure must stay up-to-date to maintain and further expand its services

- The EC has just accepted **SeaDataCloud** proposal as a new EU H2020 project for further developing SeaDataNet infrastructure and associated standards

  – 10 M euros, consortium of 61 members, 32 countries
  ➔ 4 year project. Start date November 1st 2016.

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SeaDataCloud – some planned activities (1)

- Improve services to user and data providers
    - Utilise the benefits of a cloud environment with high performance computing to improve the performance of the CDI data access services
    - Develop online services to visualise and process data, in order to preview, subset, format, or analyse data of interest
    - Develop a Virtual Research Environment (VRE) to facilitate collaborative and individual research by users
    - Provide customized services (MySeaDataCloud services) to let users have his/her search profile, receive alerts on new available data, ingest and manage their own data sets
    - Scientific committee representing lead costumers (Copernicus CMEMS, ARGO, SOCAT, …) will contribute to the specification and definition of tools and services
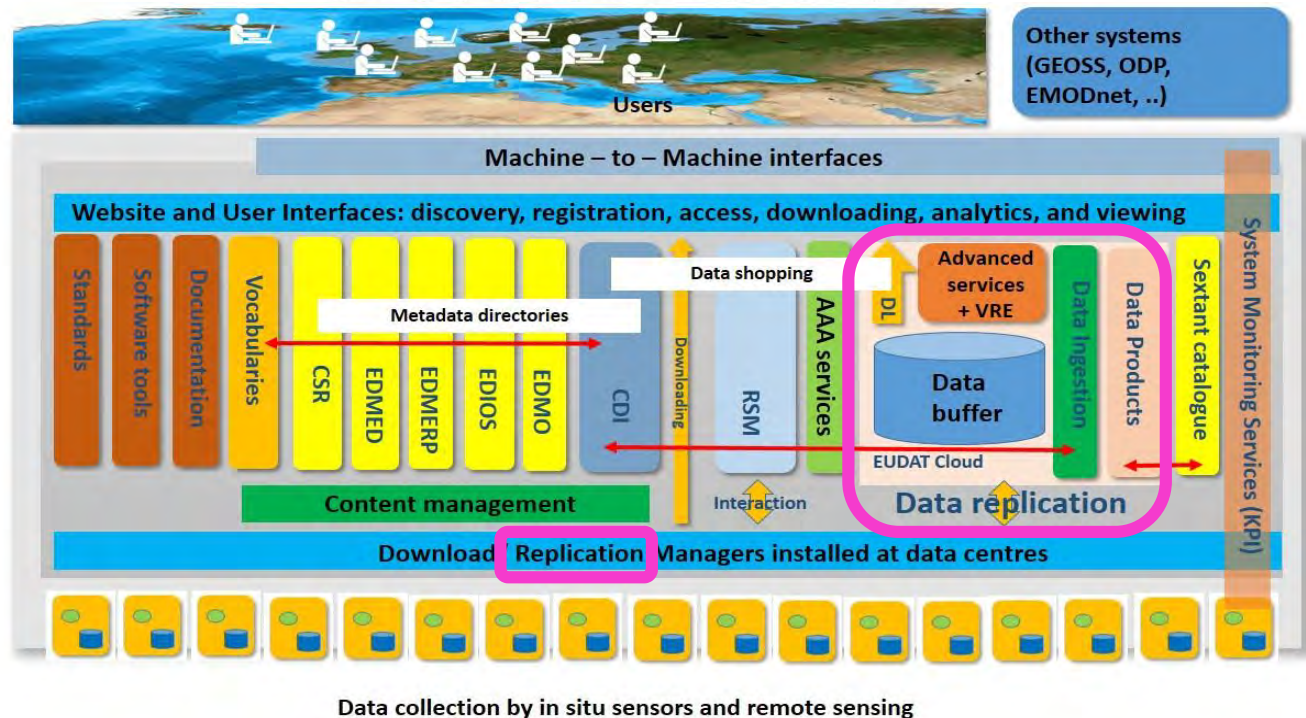
SeaDataCloud – some planned activities (2)

- Optimise connecting data centres and data streams to the infrastructure

  – Ease connecting data centres to the SeaDataNet infrastructure by revising and upgrading the existing components ➜Provide an integrated package for the new data centres by mean of a virtual application containing all necessary software and operating system

  – Facilitate connecting and ingesting data streams from operational observation networks using OGC Sensor Web Enablement (SWE) standards (in collaboration with ODIP Prototype 3 and other projects)

- Improve interoperability with other European and International networks

Present SeaDataNet architecture
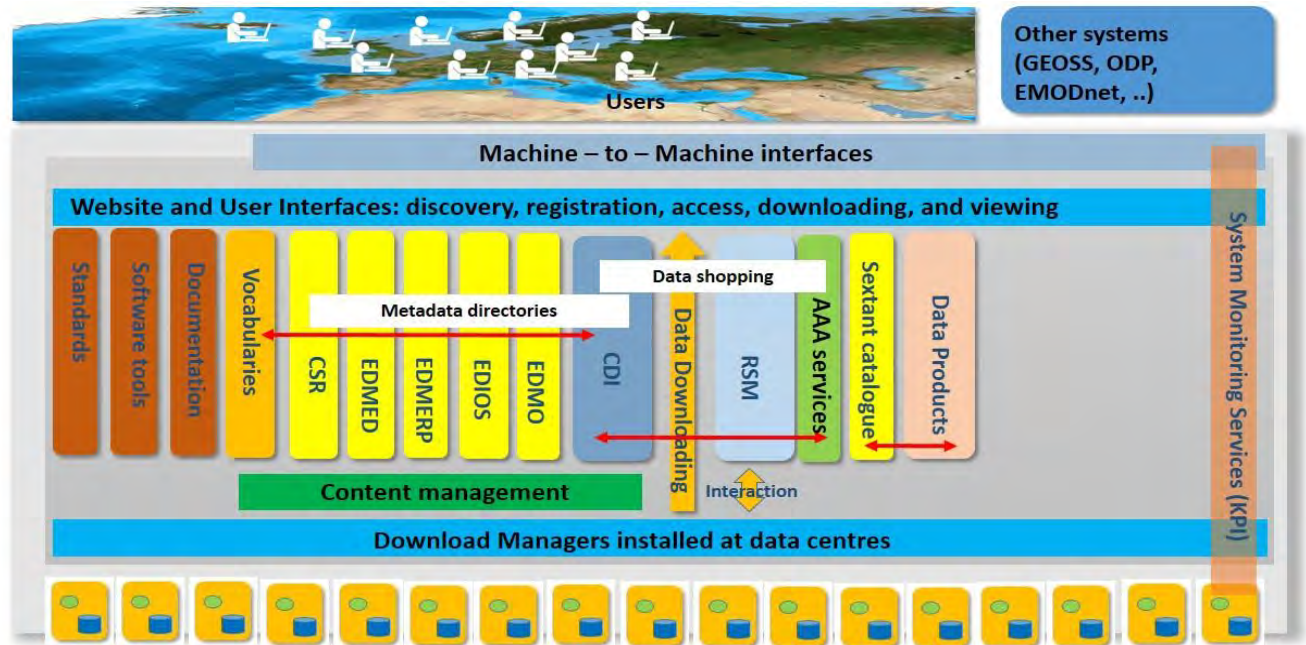
Planned upgraded architecture with data replication, advance services and VRE in the cloud

Thank you for your attention

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