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ENVRI-Hub, the open-access platform of the environmental sciences community in Europe: a closer look into the architecture

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The ENVRI-FAIR project brings together the ESFRI environmental research infrastructures (ENVRI) that provide environmental data and services, with the aim of making their resources compliant to the FAIR principles. To achieve this goal, the required work is mostly technical, with the ENVRI working towards not only improving the FAIRness of their own data and services, but also reflecting their efforts at a higher level by becoming FAIR as a cluster. The approach of this task cannot be linear as it requires harmonization of efforts at different dimensions. To build on a common ground, the most crucial technical gaps have been prioritized and the ENVRI identify common requirements and design patterns, and collaborate on making good use of existing technical solutions that improve their FAIRness.

One of the highest ranked priorities, and obviously among the biggest challenges, is the design of a machine actionable ENVRI Catalogue of Services that also supports the integration into the EOSC. Through this catalogue the service providers will be able to make their assets findable and accessible by mapping their resources into common and rich metadata standards, while by means of a web application the human interaction with the FAIR services can be accomplished. The design of this application, named the ENVRI-Hub, is discussed here. Other aspects related to the ENVRI services, e.g. the use of PIDs, the use of relevant vocabularies, tracking license information and provenance etc. are also investigated.

Considering the ENVRI-Hub as a web application, this can act as an integrator by bringing together already existing ENVRI services and interoperable services across research infrastructure boundaries. Exploring the potentials of the ENVRI-Hub already from the design phase, the ingestion of metadata from ENVRI assets such as the ENVRI Knowledge Base, the ENVRI Catalogue of Services and the ENVRI Training Catalogue is investigated, aiming to provide the users with functionalities that are relevant to e.g. the discovery of environmental observations, services, tutorials and other available resources. The chosen architectural pattern for the development of the ENVRI-Hub can be compared to a classical n-tier architecture, comprising 1) a data tier, 2) a

logic tier and 3) a presentation tier. To integrate the different ENVRI platforms while preserving the application's independence, the ENVRI-Hub demonstrator aims to replicate an instance of the Knowledge Base and Catalogue of Services. Following a centralised architectural approach, the ENVRI-Hub serves as a harvester entity, collecting data and metadata from the ENVRI Knowledge Base and the ENVRI Catalogue of Services, therefore bringing together these ENVRI platforms into one single portal.

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