



CyberHAB (EOSC-hub Business Pilot 1:Environmental Cyber Infrastructures (CIS) for the management of Harmful Algae Blooms (HABs) of high economic impact.)

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➔ *Ecohydros* is an SME specialized in the research, monitoring and management of aquatic ecosystems and related resources, investing a substantial effort in the development and application of better-integrated systems to study and manage inland and coastal waters.

➔ Its central activity is devoted to the water agencies and companies, mainly in the field of monitoring water bodies and aquatic habitats and ecosystems, including all the environmental aspects, from physical to biological elements and the whole ecosystem health as a concept.

➔ The company is located near Santander (Spain) and has a large office, lab and field equipment and a quite balanced professional staff, which includes biologists, engineers and environmental technicians.

➔ *Ecohydros* is launching a new business line related with the development and commercialization of automatic and remote monitoring devices and e-infrastructures including early warning and forecasting tools for environmental problems related to Harmful Algae Blooms (HABs) and Eutrophication.

➔ Since its foundation in 2003, *Ecohydros* has carried out more than 100 projects in the field of environmental consultancy and monitoring in Spain and abroad, and has been awarded with more than 10 R&D grants at regional, national and European levels, most of them related with the development and application of Cyber Infrastructures (CIS) applied to water issues.



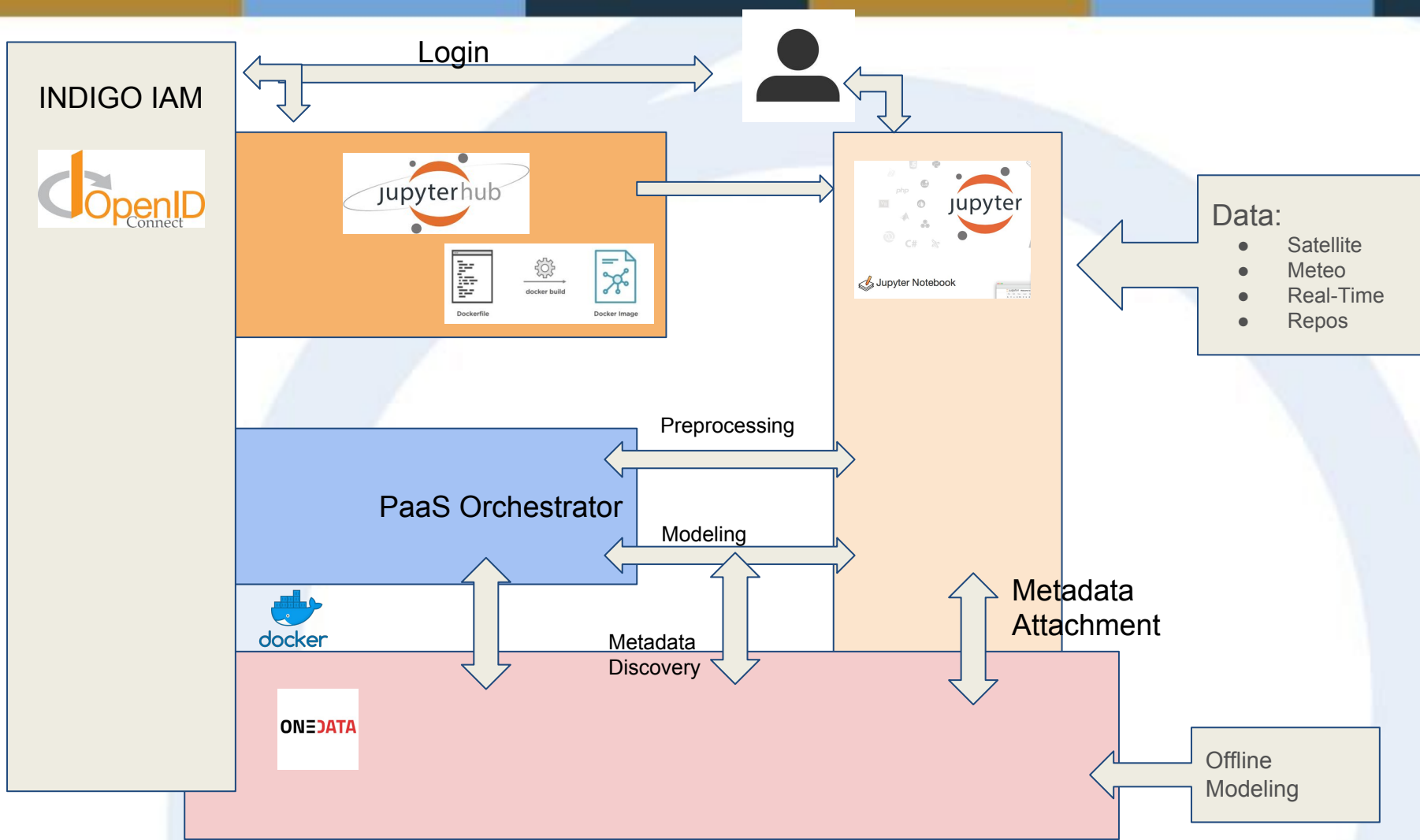
- Addressing proliferation of toxic microalgae
 - Red tides at sea
 - Cyanobacterial HABs (Harmful Algal Blooms) in inland waters
- Serious and costly environmental and socioeconomic impacts.
- Impacts on services such as the provision of drinking water and recreational water activities
- Cloud technologies can support management
 - Use of Big Data
 - Computational Modeling
 - Data Lifecycle management
- A complete environment is needed to deal with the data volume and computing requirements.



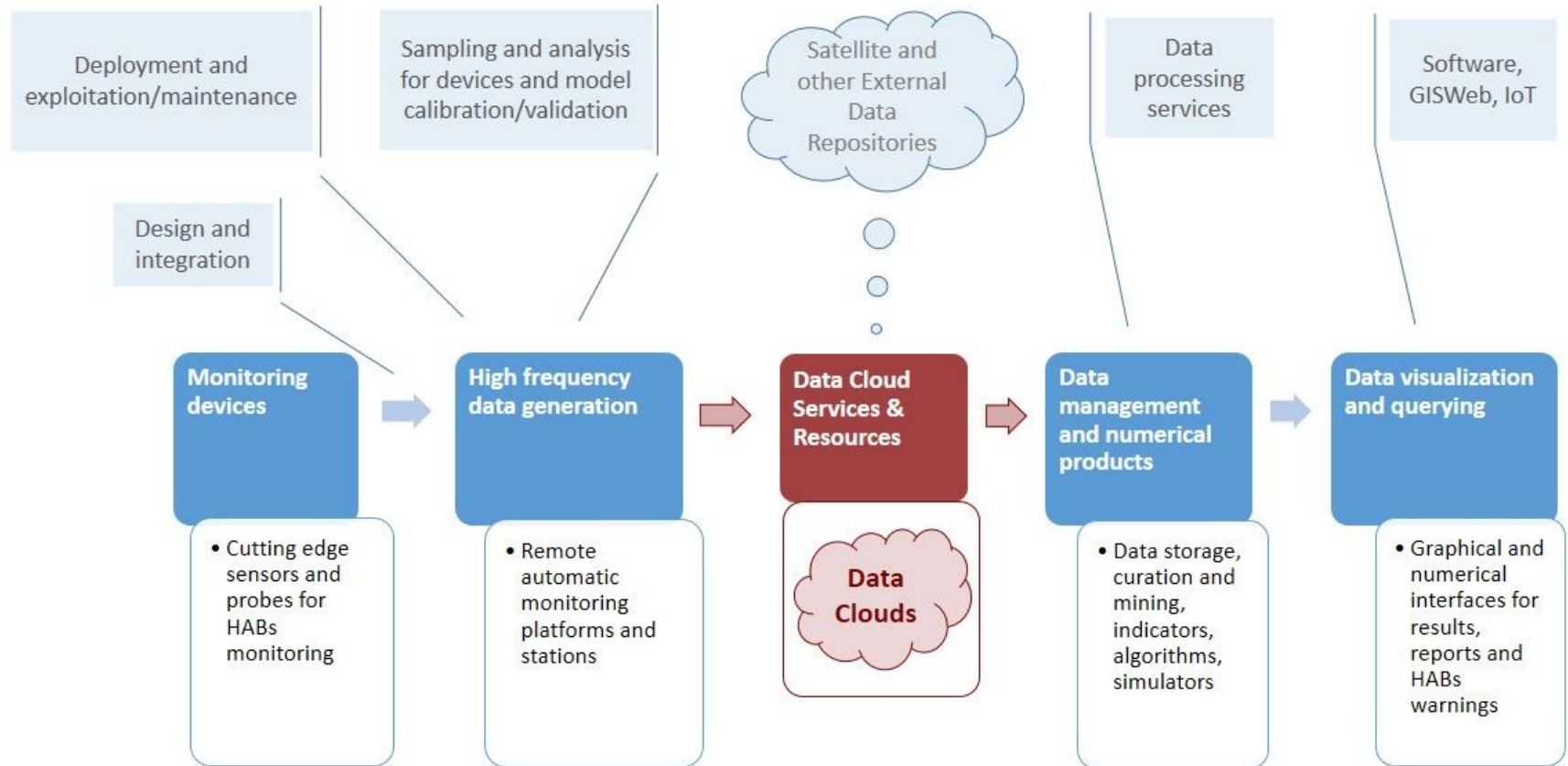
- Demonstrate the technical and economic advantages of applying the CIS (Cyber Infrastructures) to manage HABs
- Exploiting Data Cloud Services to support the key processes required (data processing, modelling, integration of images).
- Data-Cloud integration of satellite open data.
- Integration of iterative optimization tools for 4D modeling of HABs.



- IdP: INDIGO IAM, OIDC compliant
- JupyterHub: Docker integrating software components (data ingestion, data preprocessing, modeling configuration).
- Onedata: Dataset storage, metadata management (attachment, discovery)
- PaaS Orchestrator: Model processing. Connected to onedata.



Business Element Scheme



The combination of Data Cloud Systems and Cyber Infrastructures as a whole would pose new possibilities of early reactions and new or more efficient designing of protection strategies and treatment systems against the sanitary and economic impacts of these events.



Thank you for your attention!

Questions?



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