GWS - Federated Computing

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Open Science and AI

Harmonisation
Transparent Data Access
Combined Computing Resources

Science Enabling Applications

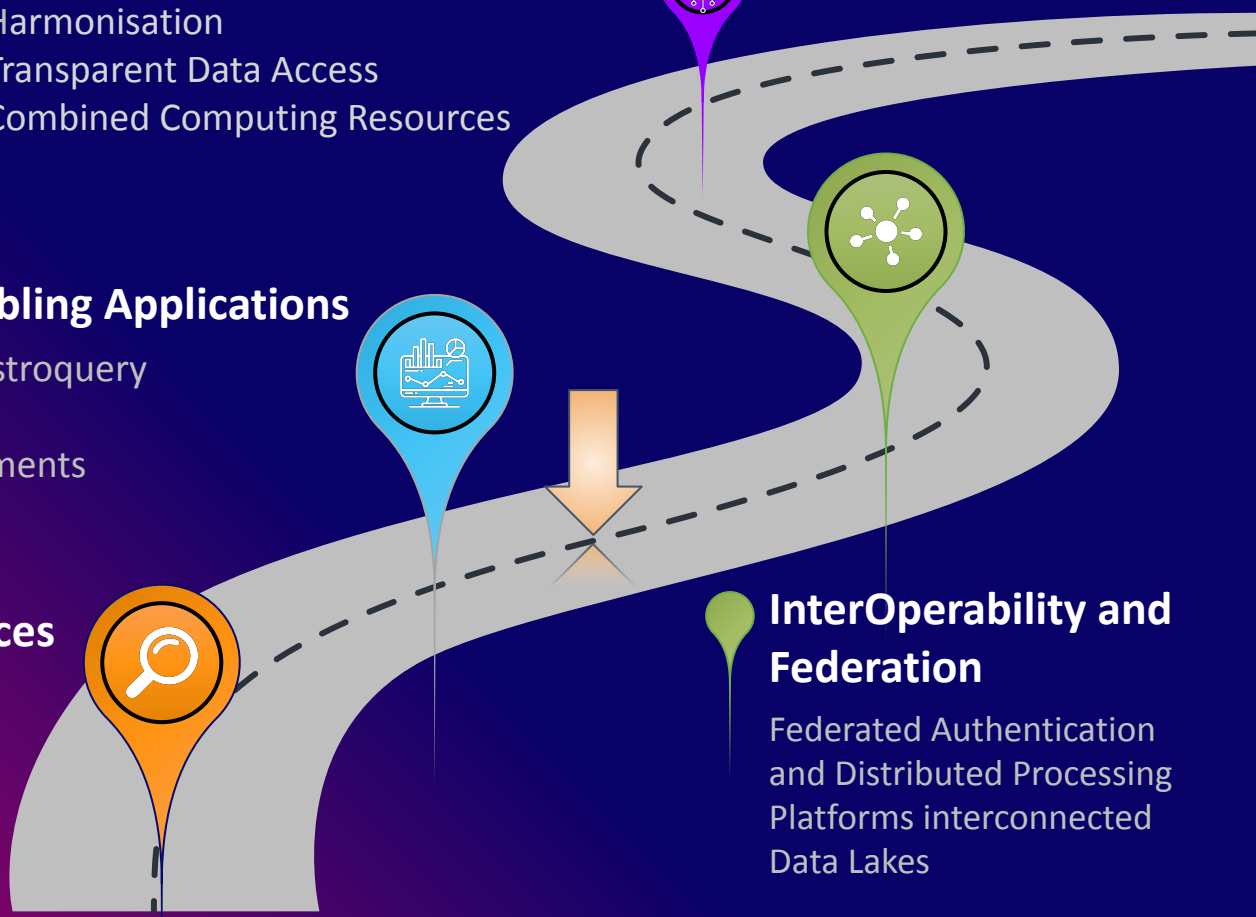
Astropy and Astroquery
Notebooks
Users environments

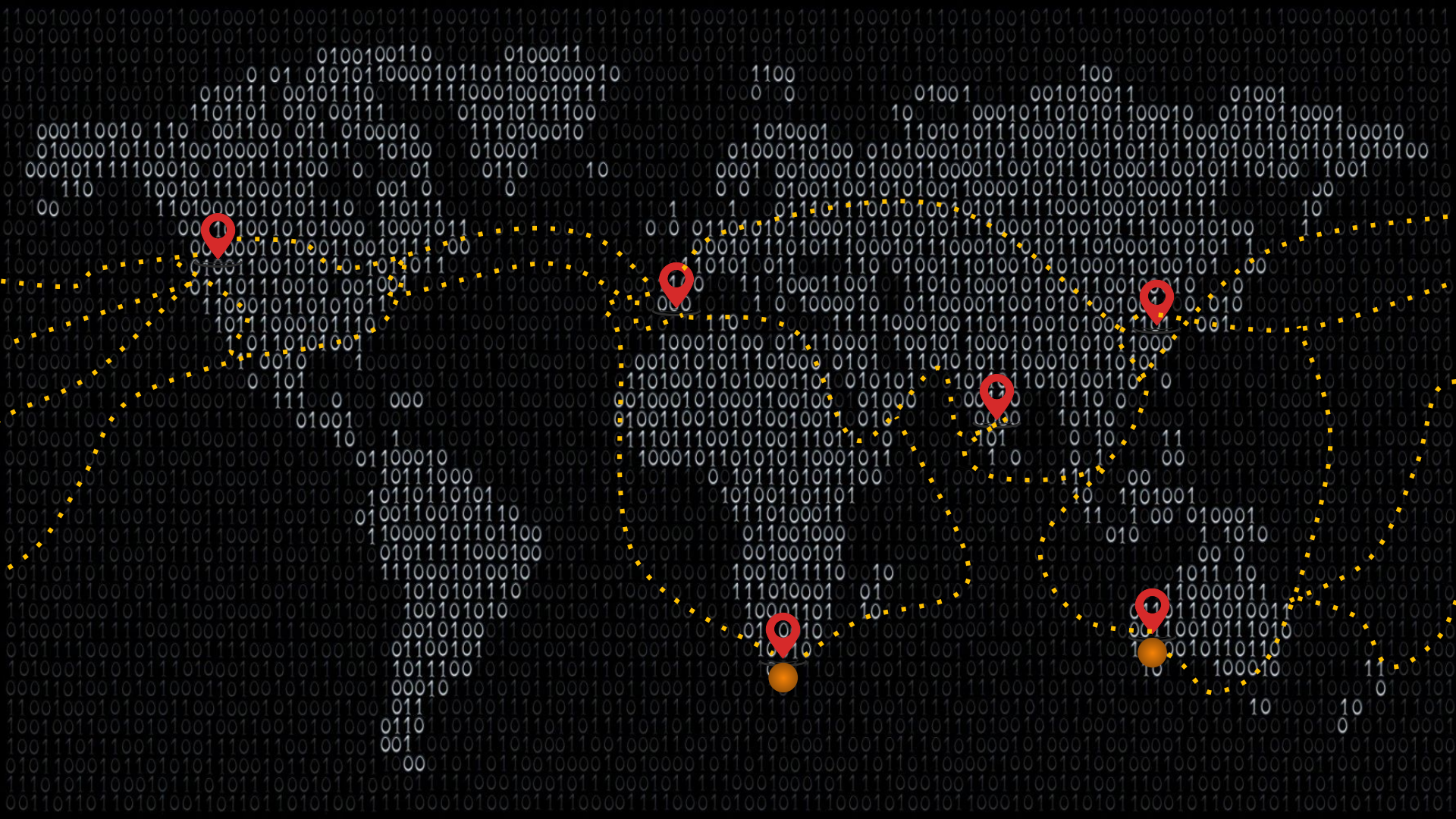
Discovery And Access Services

Cone Search
SSAP, SIAP
TAP

InterOperability and Federation

Federated Authentication and Distributed Processing Platforms interconnected Data Lakes



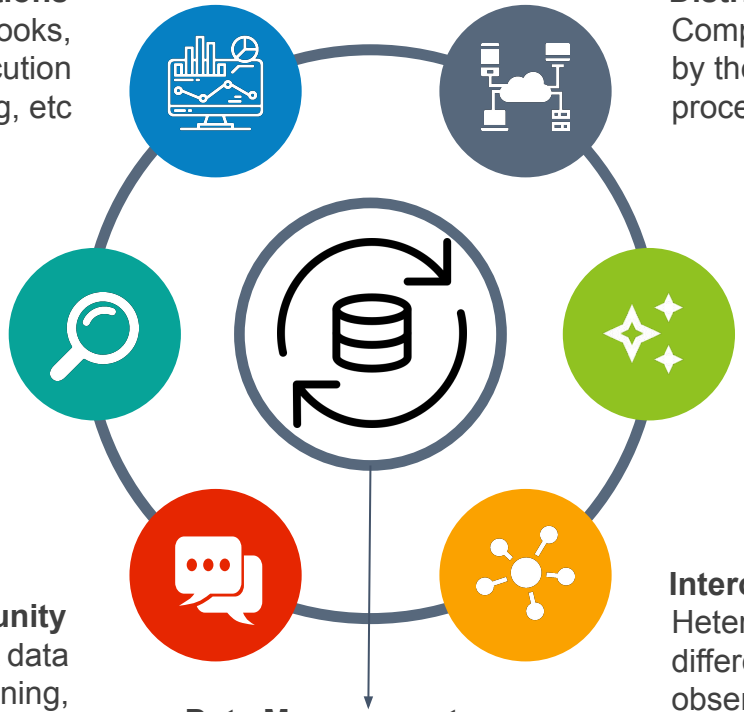


SRC Network global capabilities

SKA Regional Centre Capabilities Blueprint

Science Enabling Applications
Analysis Tools, Notebooks, Workflows execution Machine Learning, etc

Distributed Data Processing
Computing capabilities provided by the SRCNet to allow data processing



Data Discovery
Discovery of SKA data from the SRCNet, local or remote, transparently to the user

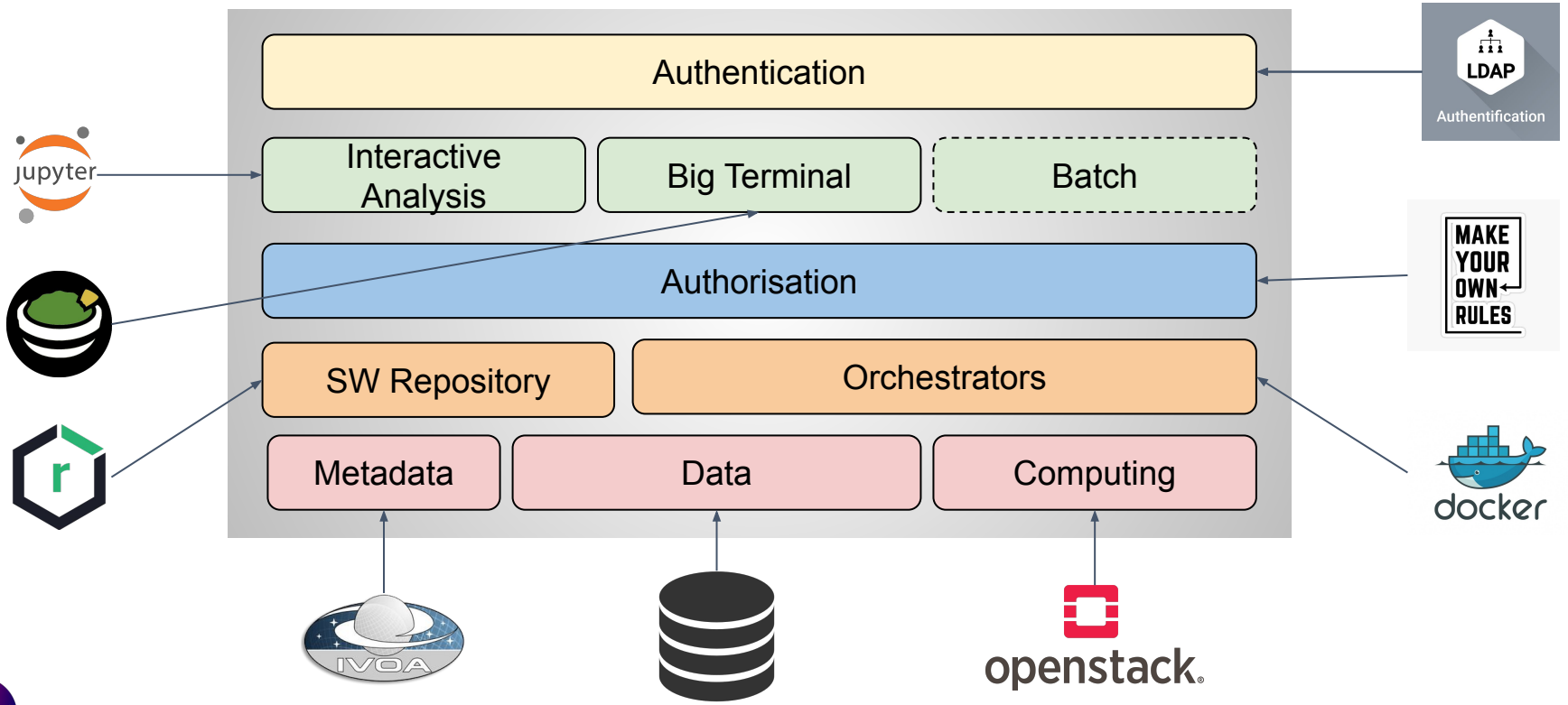
Visualization
Advanced visualizers for SKA data and data from other observatories

Support to Science Community
Support community on SKA data use, SRC services use, Training, Project Impact Dissemination

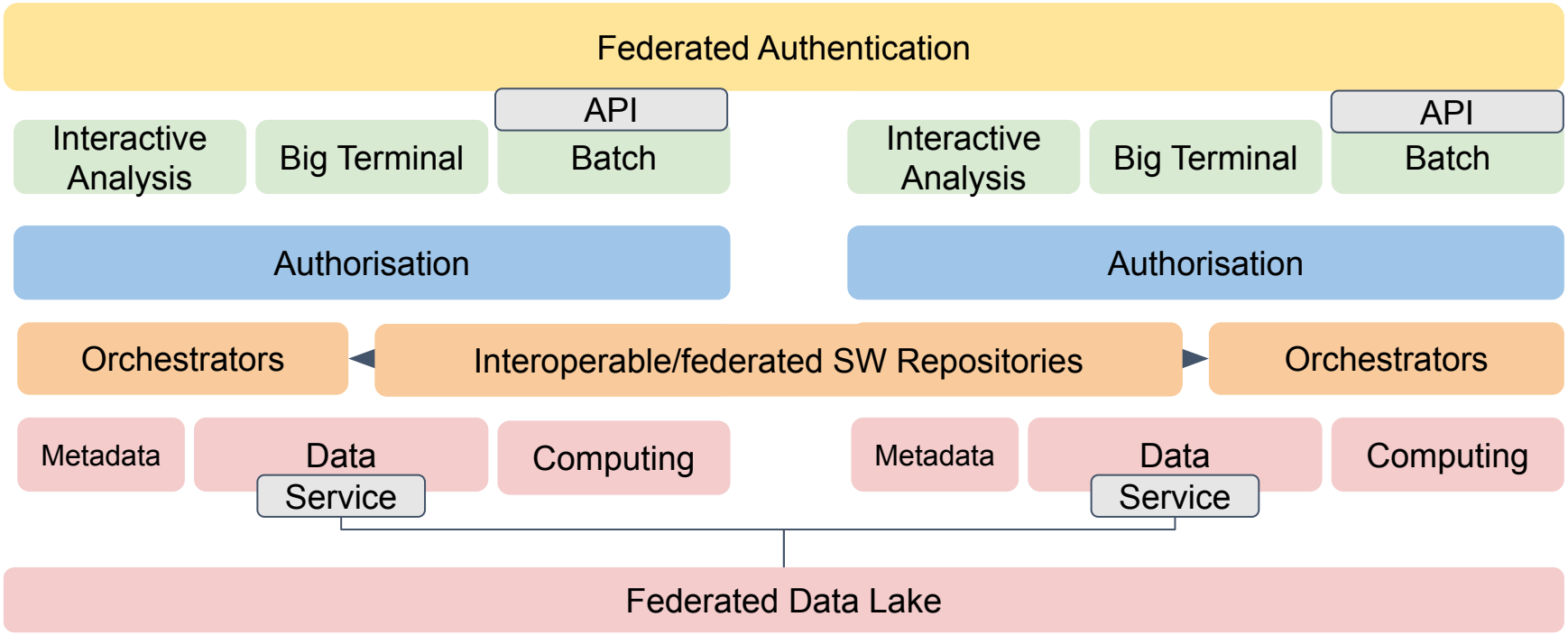
Interoperability
Heterogeneous SKA data from different SRCs and other observatories

Data Management
Dissemination of Data to SRCs and Distributed Data Storage

Science platforms



Science Platforms Interoperability

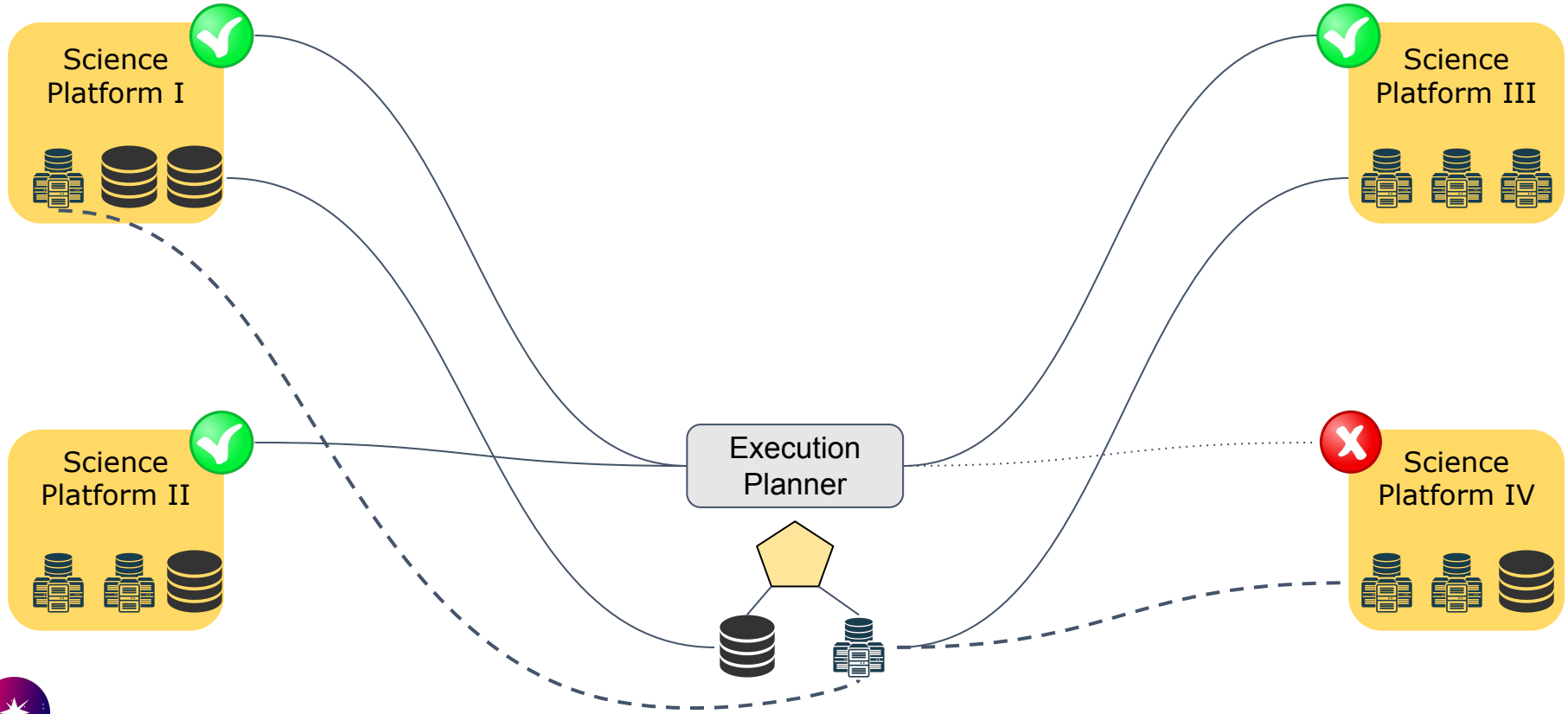


Some possible data mesh services

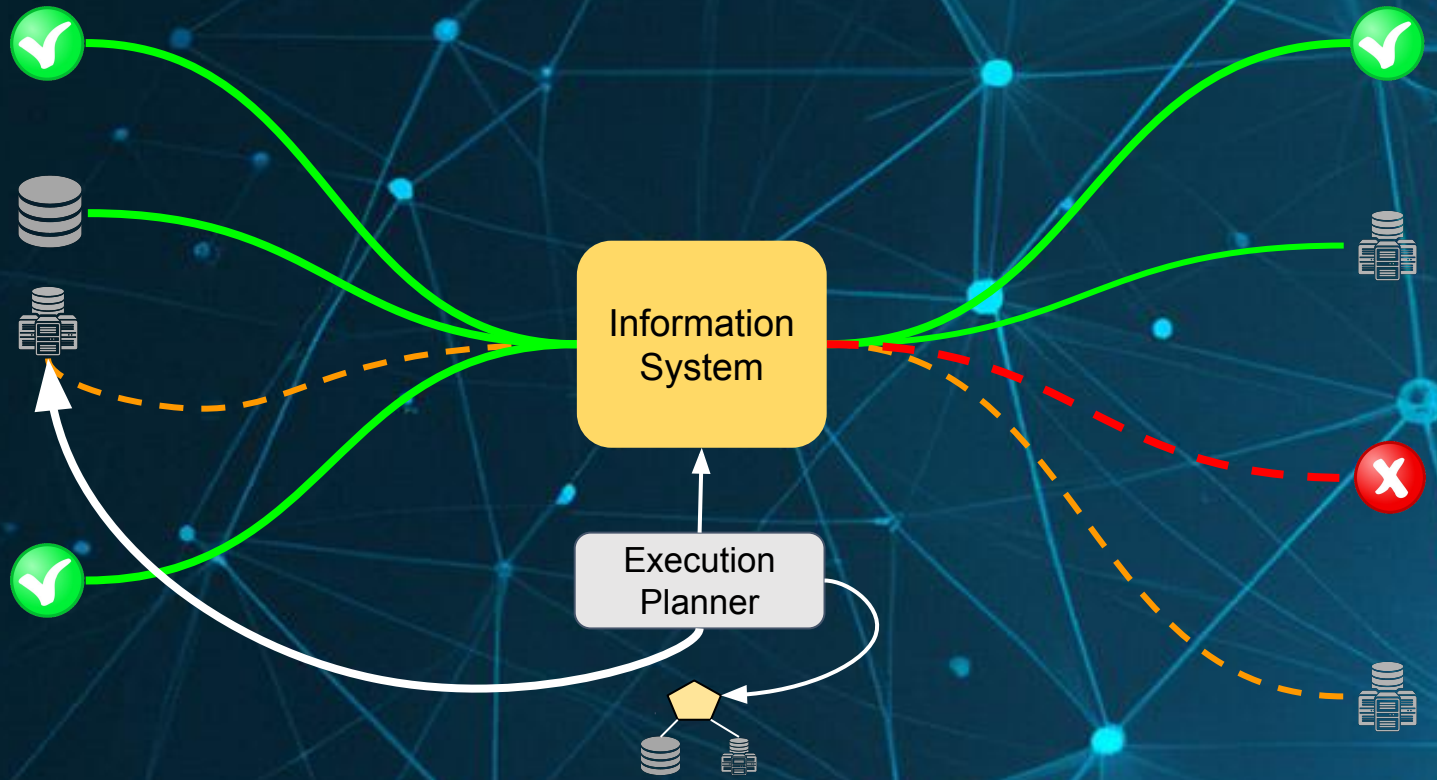
Data Type	Operation	Input	Output
Any Type	Get Stream	ID	Input Stream
Data Cube	Cut-out	ra, dec, size, resolution	Data Cube
Data Cube	Get Spectra	ra, dec, size	Spectrum
Data Cube	Get Time Series	ra, dec, size	Time Series
Data Cube	Get Slice	wavelength	Image
Image	Change Resolution	ra, dec, size, resolution	Image (FITS to HiPS)
Image	Source Extraction	ID, algorithm params	Source Catalogue
Spectrum native	Convert to VO	ID	Spectrum VO
Source Catalogue	Similar Source	Source ID	Source Catalogue

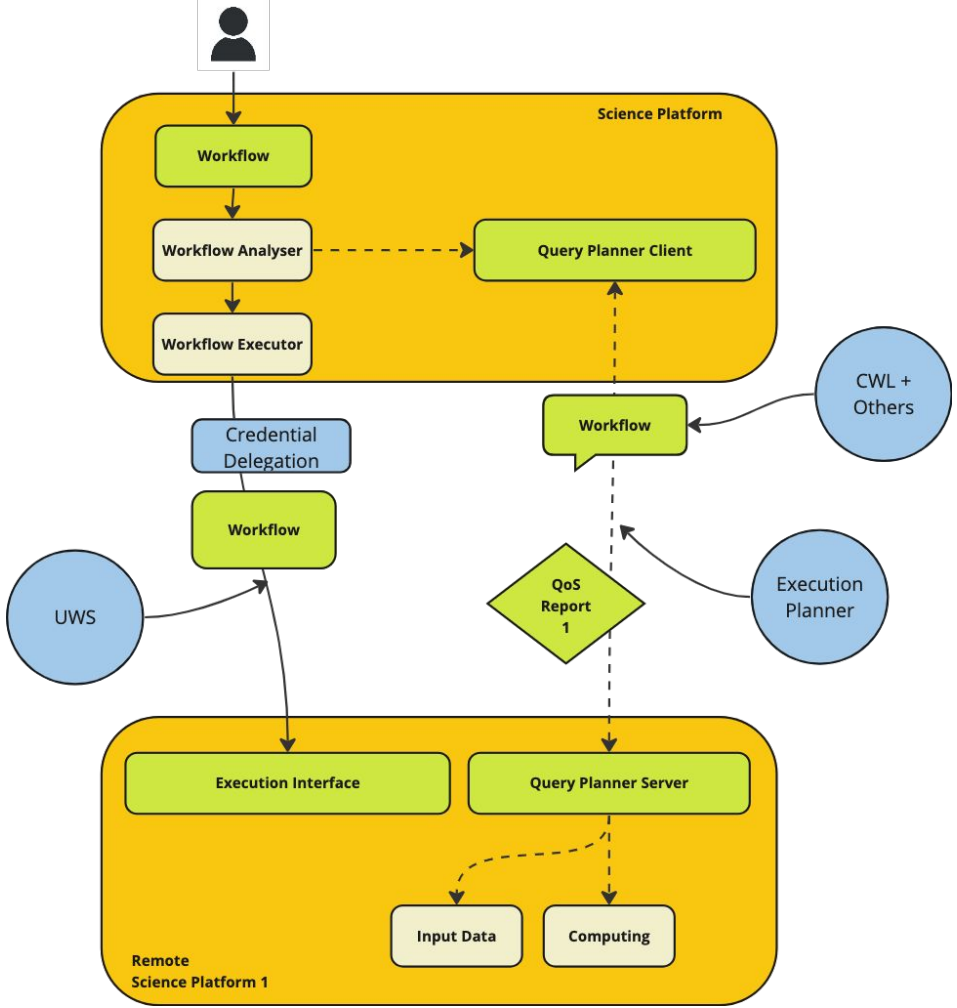
Extend SODA for Remote (Data Atomic) Operations APIs

Execution Planner



Solving the Topology





[ComputingServicesAPI]

Summary

- Possible “interoperable science platform” new phase with:
  - Federated Authentication Protocols
  - Improved data access
  - Remote operations
  - (Simplified) federated execution
    - Execution planner
    - Topologies
    - Software characterisation
    - Workflows

PROMOTE/ENDORSE

NEW? NEEDED?

EXTEND?

NOTE TO STANDARD

DM INSIDE EXEC.PLAN.?

NEW? NEEDED?

- Today objectives
  - Agree on roadmap
  - Identification of interested parties

Thanks for your attention