



ESCAPE

European Science Cluster of Astronomy &
Particle physics ESFRI research Infrastructures

Work Package 5: ESAP

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Work Package Sessions

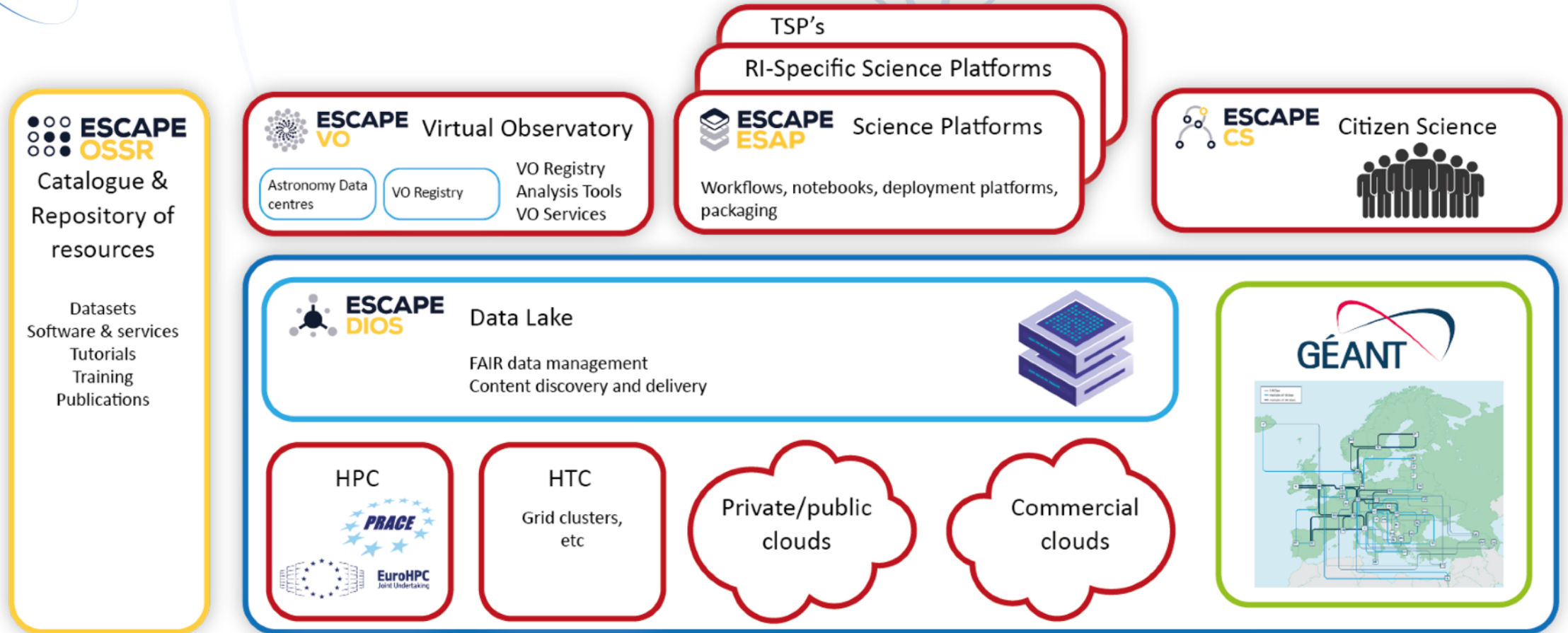
ESFRI Science Analysis Platform

(WP5 ESAP)

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ESFRI Science Analysis Platform



Think of ESAP not as a single “science platform”, but as a flexible and customizable *science platform toolkit* which adapts to the needs of assorted RIs.



ESFRI Project Partners

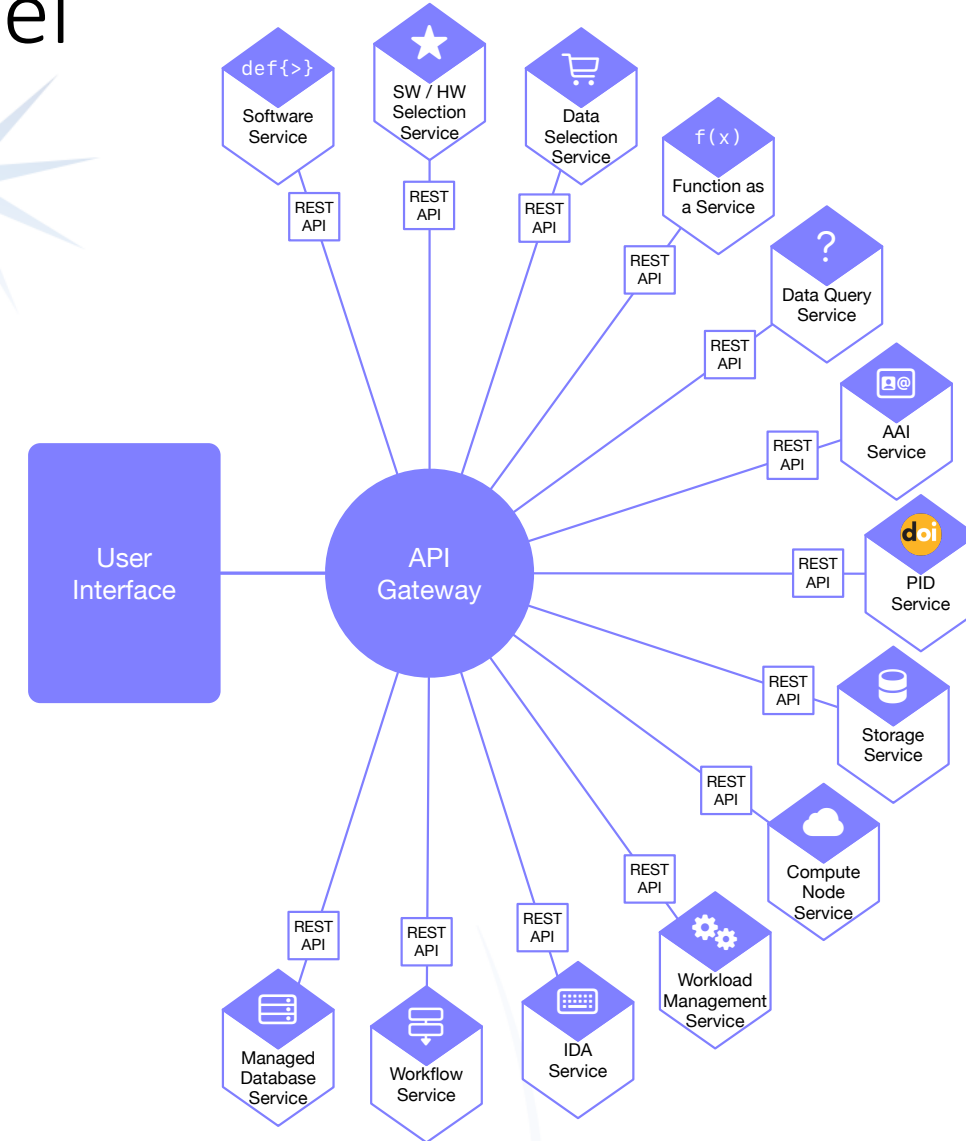


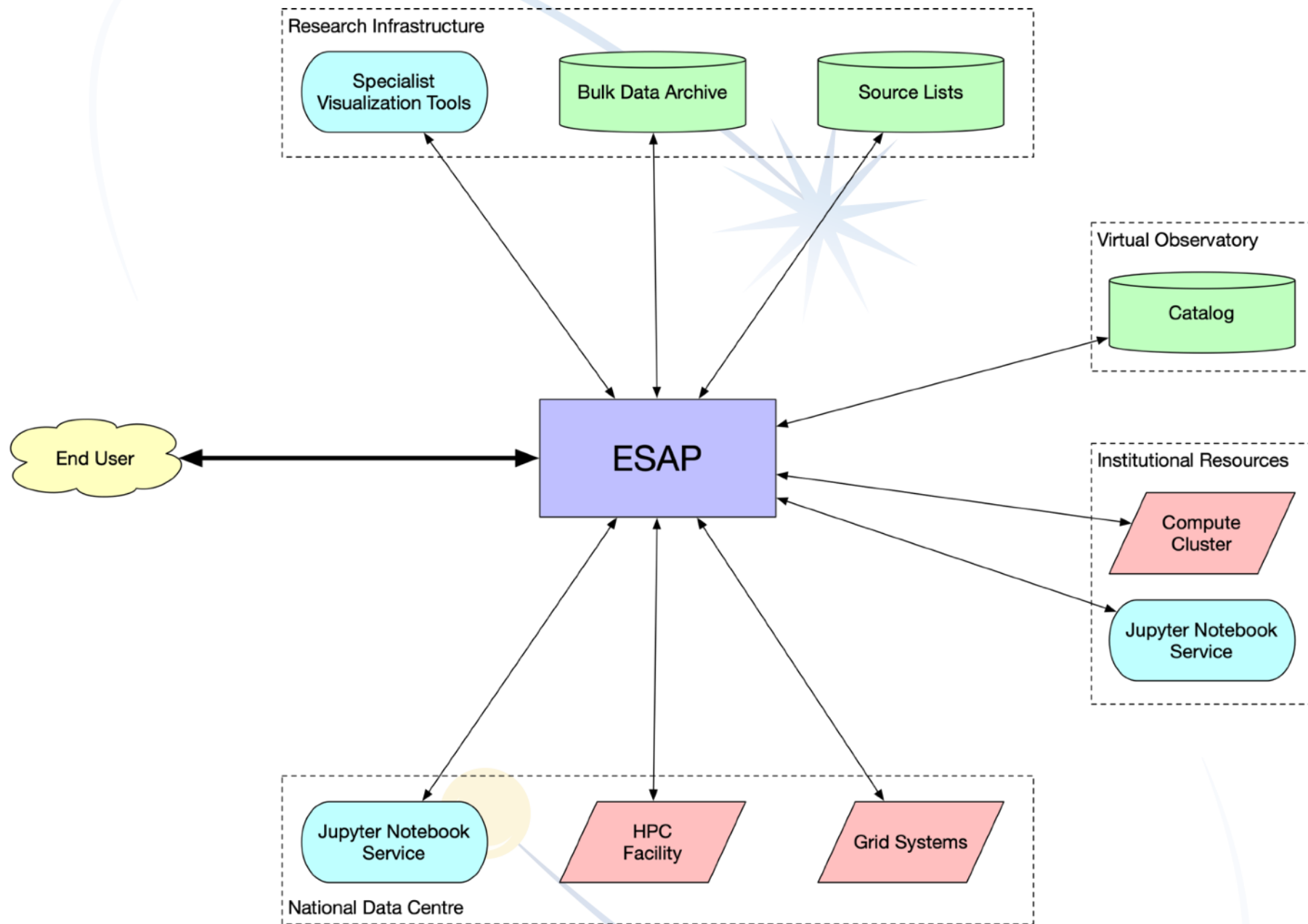
WP:	WP5	
RI:		
CTA		ESFRI PROJECTS
EST		
KM3NET		
ELT and ESO		
FAIR		ESFRI LANDMARKS
HL-LHC and CERN		
SKA		
JIVE		
EGO		ERIC
LSST-Europe		Others



ESAP: The hub in ESCAPE's wheel

- ESAP provides a focal point for integrating diverse services which are drawn from other providers.
- Two part structure: web UI, and API gateway.
- Focal point of a range of pluggable, independent services (some of which are WP5 deliverables).
- Designed to be robust & extensible.
- At a variety of scales:
 - “Centralized ESAP”, providing flexible and convenient access to a wide spectrum of ESCAPE services.
 - “ESFRI ESAP”, providing a way for individual infrastructures, projects, etc to quickly integrate diverse capabilities into a unified service offering.

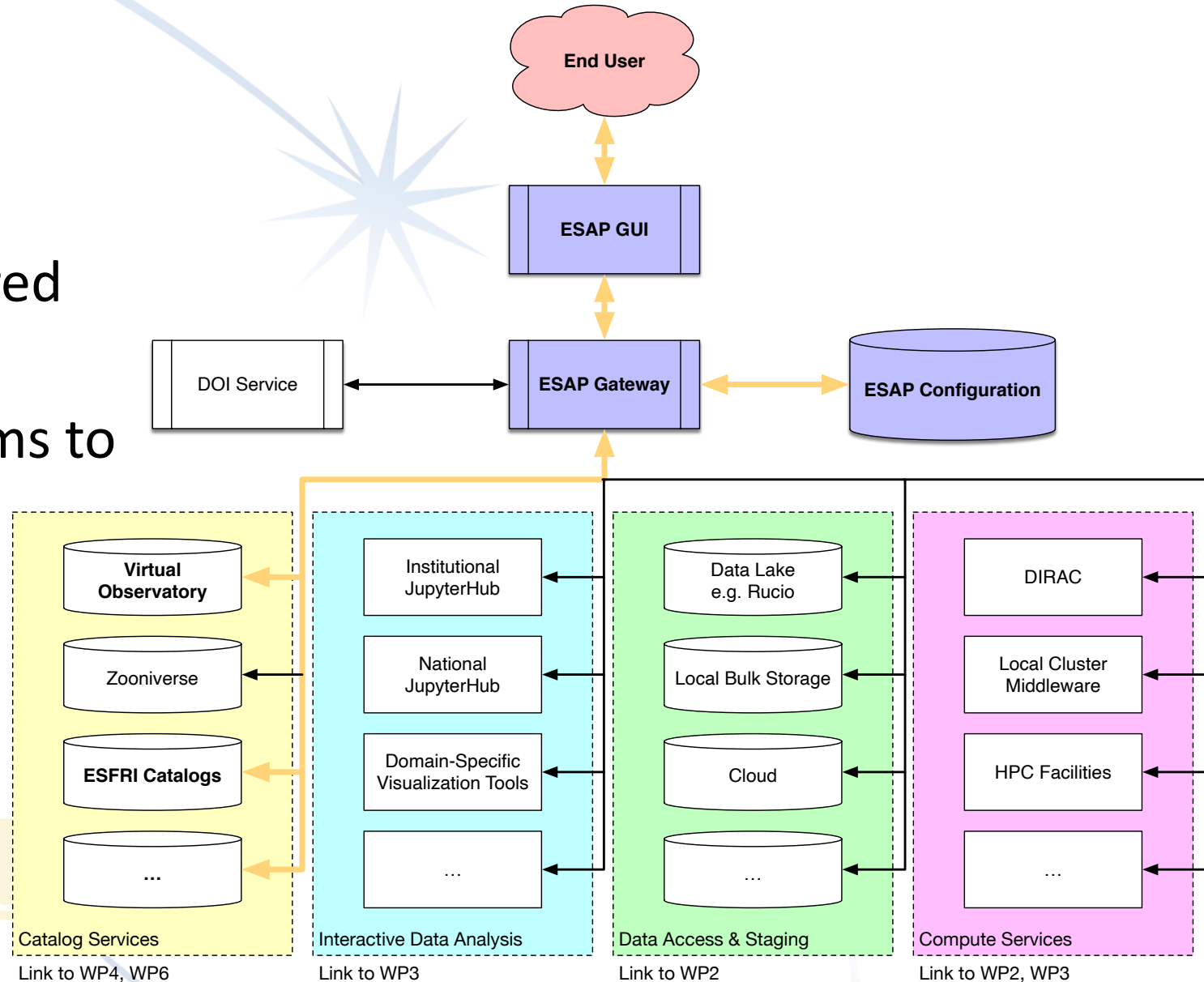




Example Workflow

1. Query

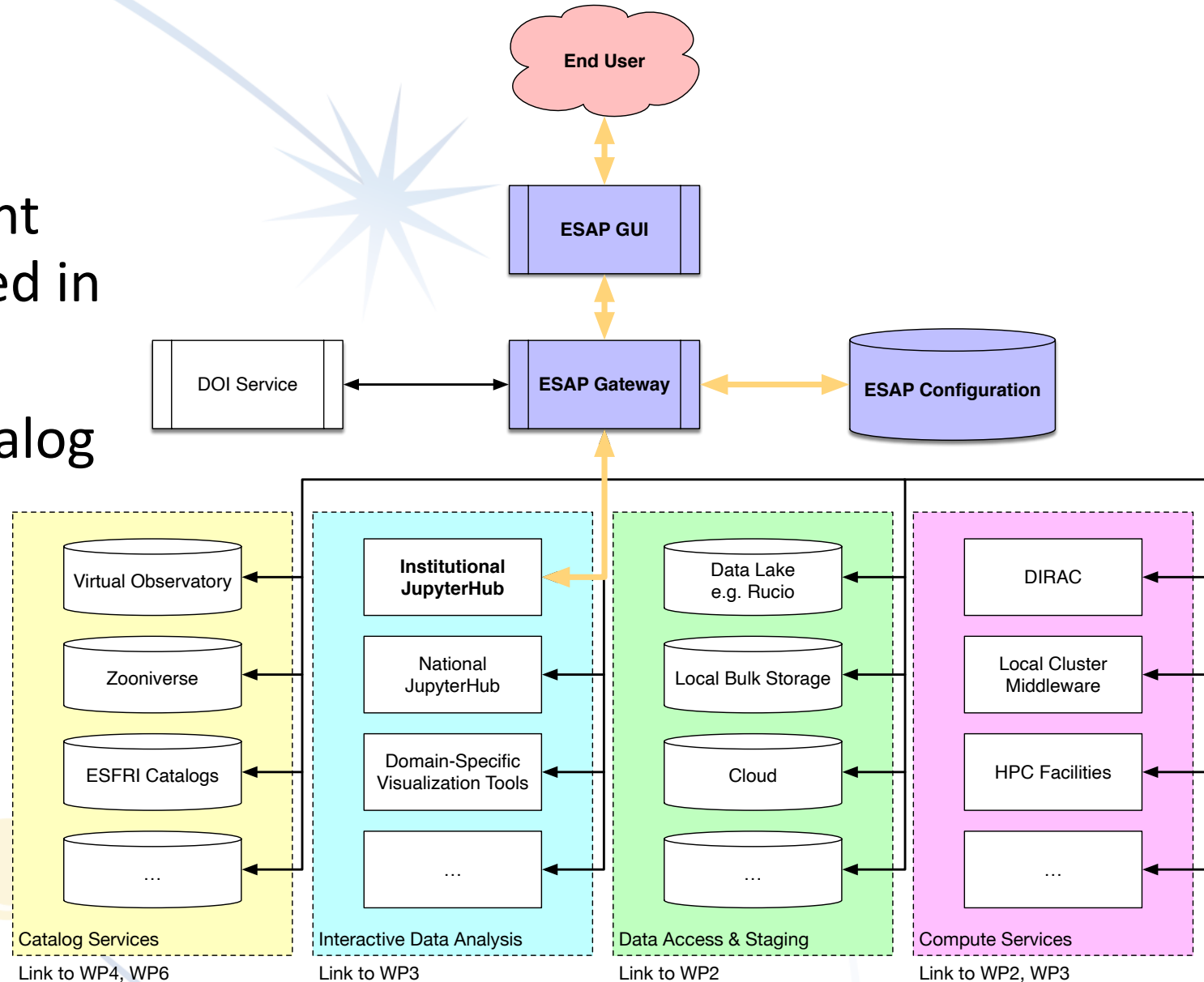
- User identifies relevant catalog services configured in this instance of ESAP.
- User submits search terms to multiple catalogs using consistent ESAP UI.
- Search results returned to user and displayed in unified form.



Example Workflow

2. Winnow

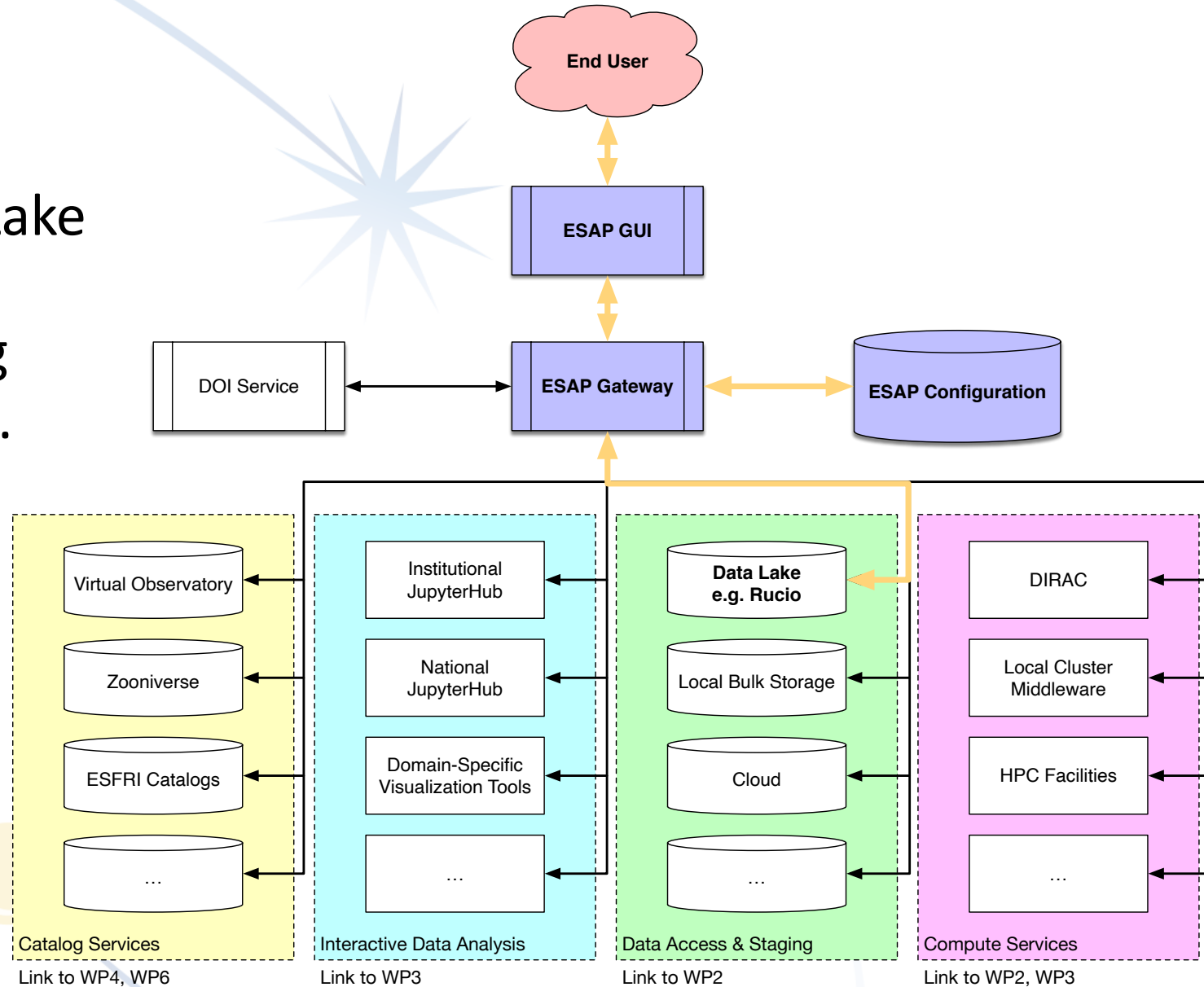
- User identifies convenient Jupyter system configured in this instance of ESAP.
- User sends retrieved catalog data to notebook.
- Interactive analysis session in notebook identifies most promising candidates for bulk processing.



Example Workflow

3. Stage Data

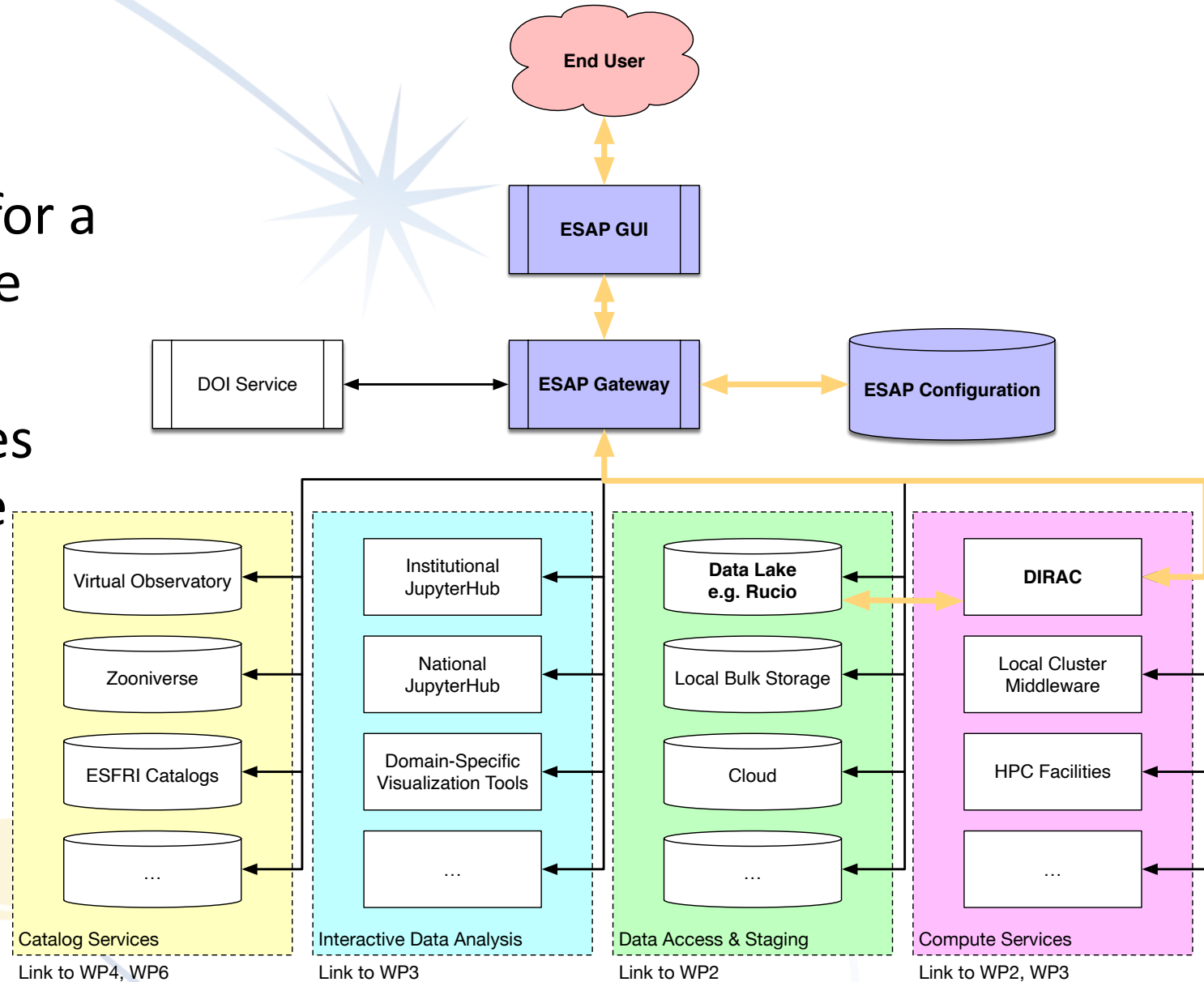
- User instructs the Data Lake to “stage” archived data corresponding to catalog entries to online storage.



Example Workflow

4. Compute

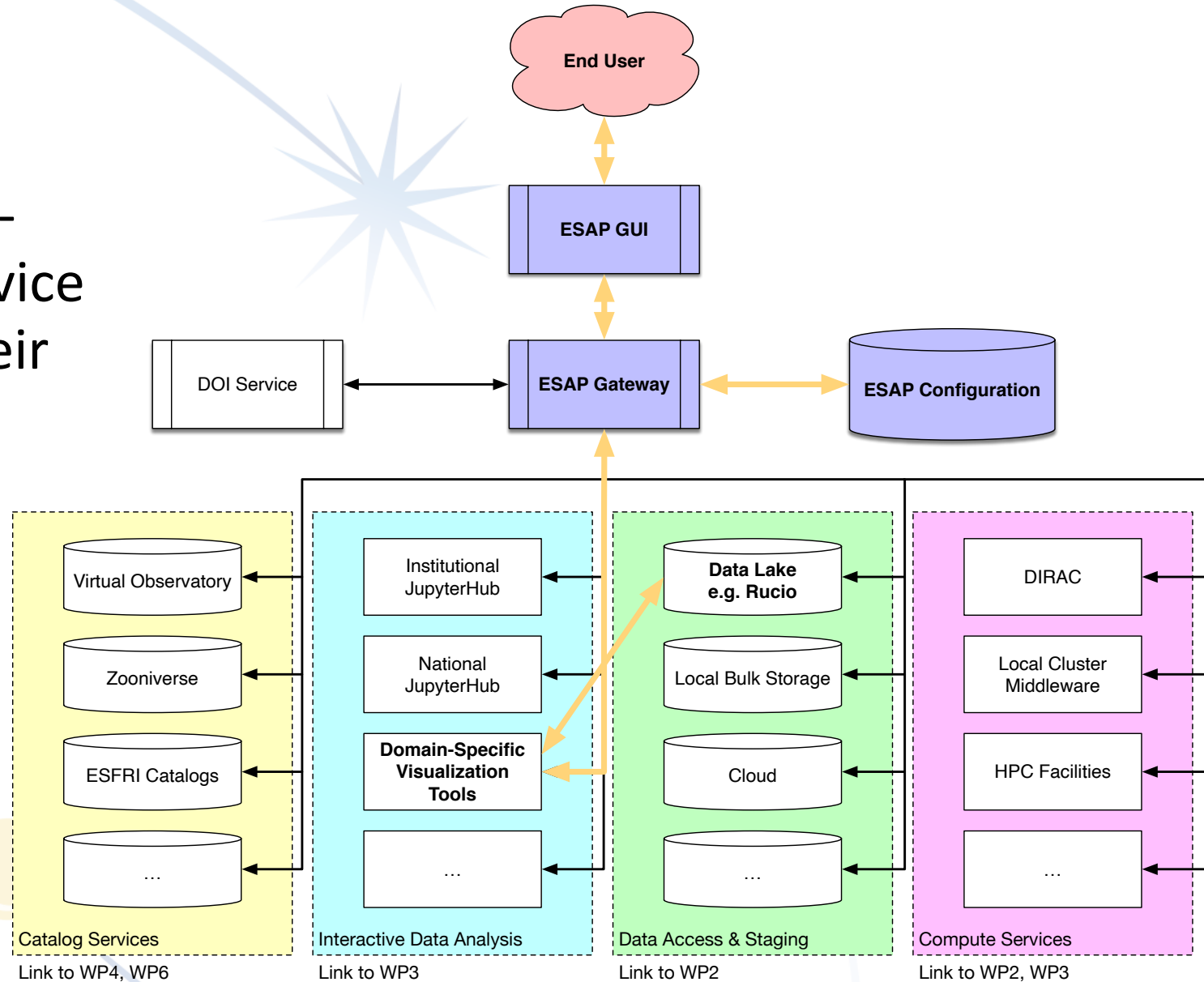
- User sends instructions for a batch compute job to the DIRAC cluster.
- Compute cluster retrieves the staged data from the Data Lake.
- Batch processing happens.
- Results are stored to Data Lake, and the user notified of completion.



Example Workflow

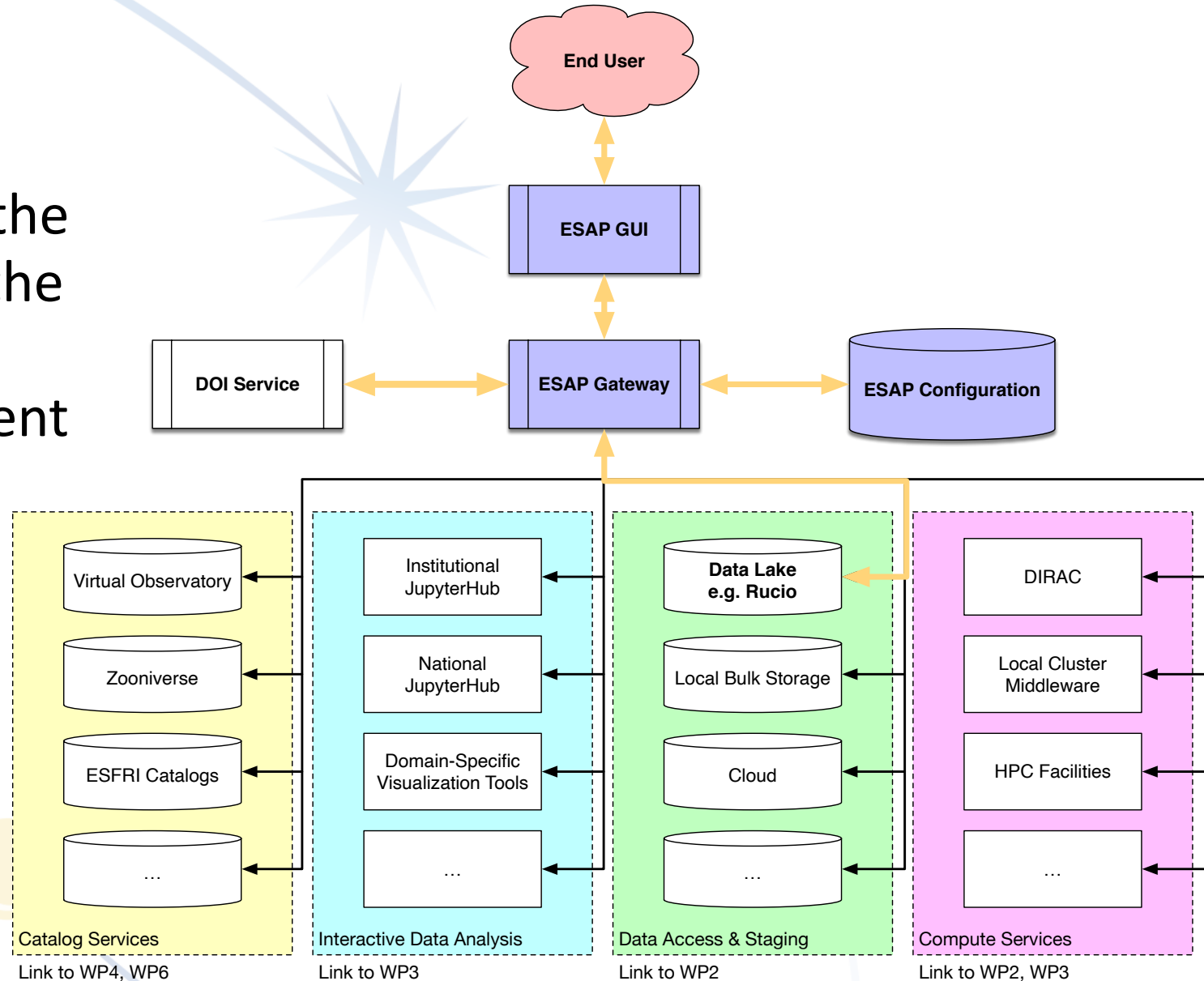
5. Visualize Results

- User identifies a domain-specific visualization service that can help analyze their data.
- User initiates a visualization session, passing location of compute results.



Example Workflow 6. Publish

- Having established that the results are noteworthy, the user instructs the DOI Service to mint a persistent identifier for them.
- The results are made available to the wider community.



Demo!



Try it yourself!

<https://sdc-dev.astron.nl/esap-gui>

- Be aware that this is a prototype system:
 - There are known glitches
 - Uptime is not guaranteed
 - Please be tolerant!



Conclusions

- ESAP provides a *flexible* and *customizable* window onto the wide variety of services being developed for ESCAPE.
- It has *extensive engagement* from *all* of the ESCAPE RIs, and can be *adapted to suit individual RI needs*.
- Due to its role, ESAP has *extensive interfaces* with WPs 2, 3, and 4; inter-WP collaboration has deepened through the project to date.
- The existing WP5 prototype already provides a *powerful* variety of functionality, and more is being added all the time.

