

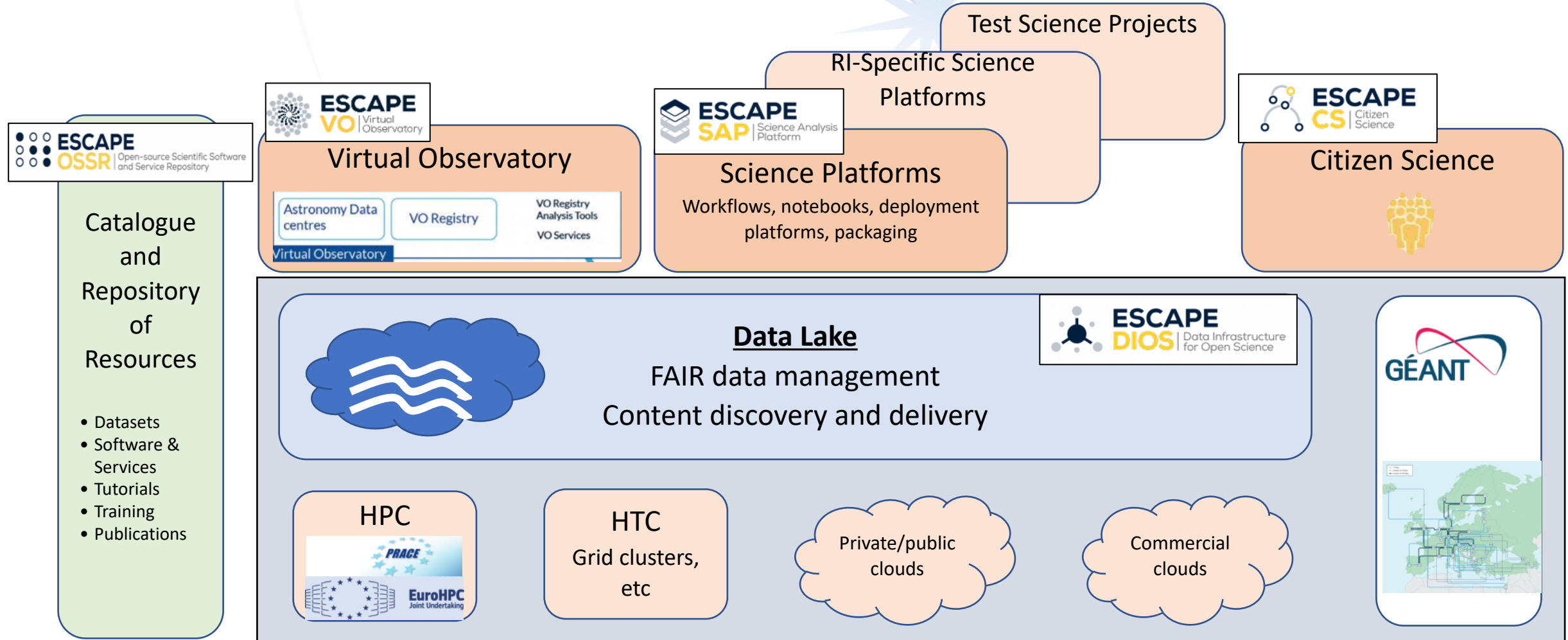
ESAP Overview



ESCAPE EOSC cell

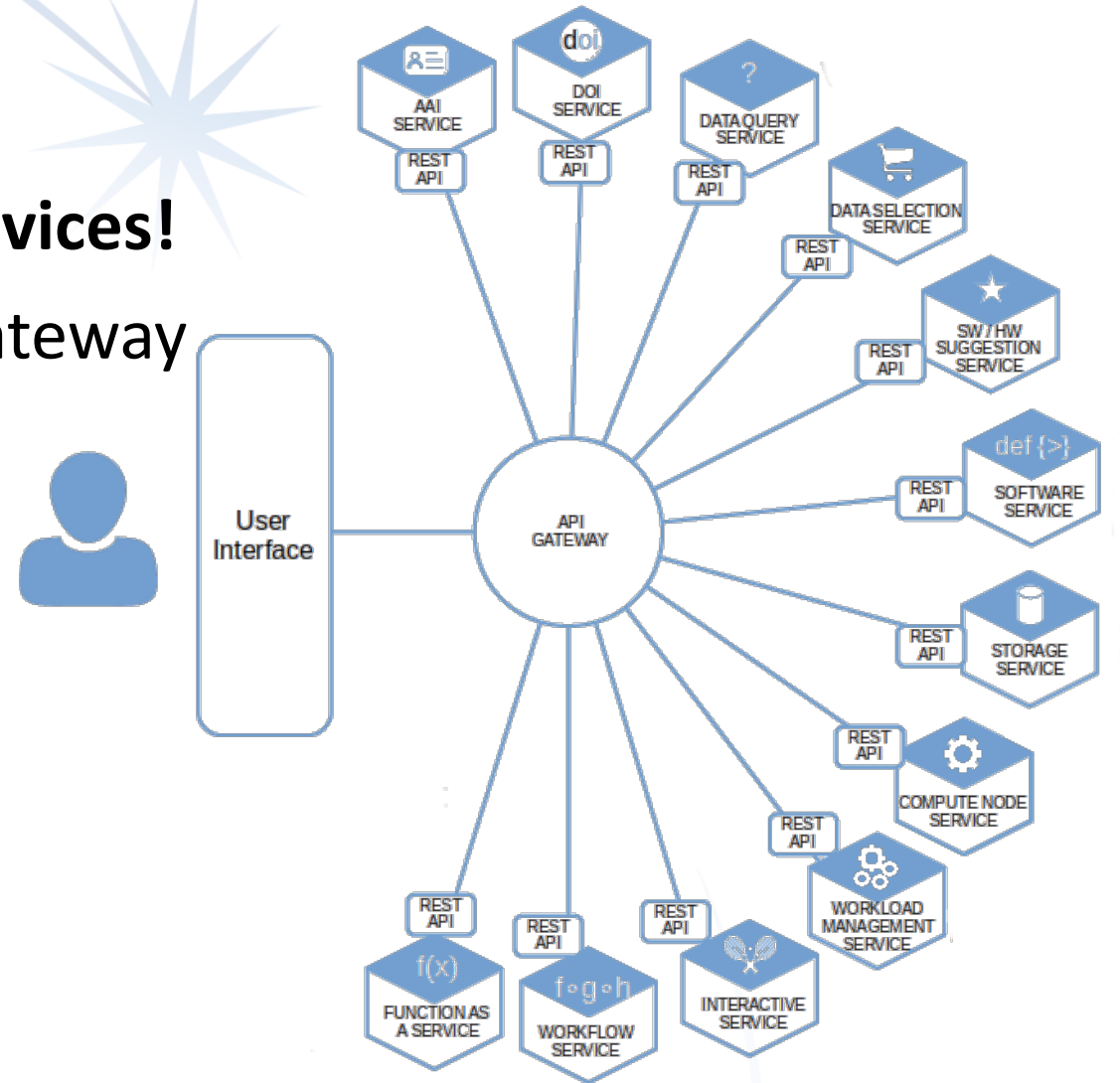
Promoting, implementing and committing to **Open Science**

- Envisage ESCAPE services moving into the EOSC-Exchange layer, and connections to the Interoperability Framework.
- Rely on EOSC-Core for underpinning aspects, e.g. AAI



ESAP: The hub in ESCAPE's wheel

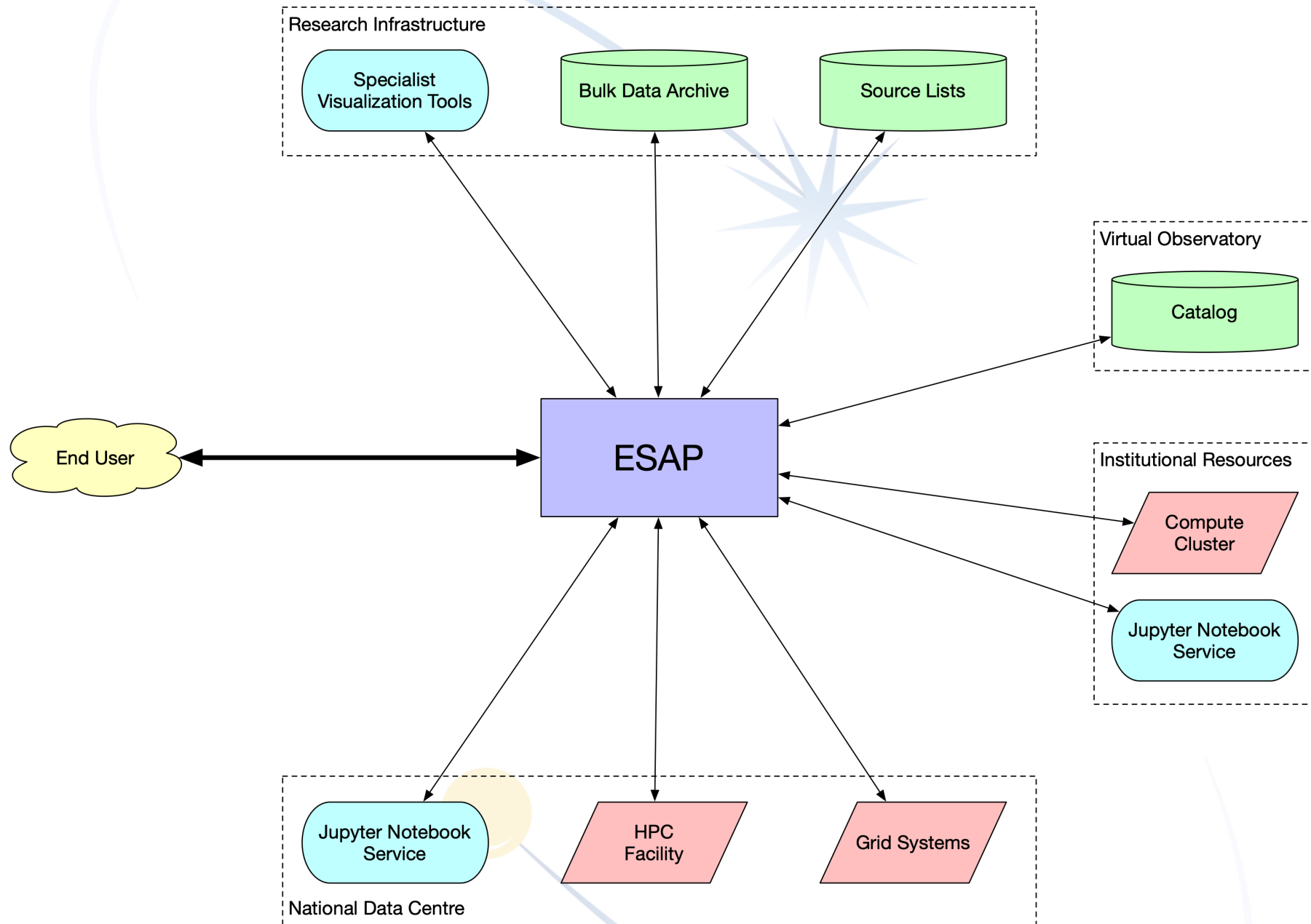
- A “science platform toolkit”:
bring your own infrastructure and services!
- Two part structure: web UI, and API gateway (...plus DB)
- Focal point of a range of pluggable, independent microservices
 - WP5 will write some...
 - ...you can add your own
- Designed to be robust & extensible



Wait... it's not just JupyterHub?

- Science Platforms: all things to all people.
- WP5 is *not resourced* to build and maintain Jupyter or batch computing services for common/EOSC access.
 - Many WP5 partner institutions do make available systems for testing, developing, and experimenting on.
- ESAP is designed to provide a focal point for integrating diverse services which are drawn from other providers.
- At a variety of scales...
 - “EOSC-ESAP”, providing flexible and convenient access to ESCAPE services across the whole EOSC system.
 - “Institutional ESAP”, providing a way for individual instruments, experiments, etc to quickly integrate diverse capabilities into a unified service offering.

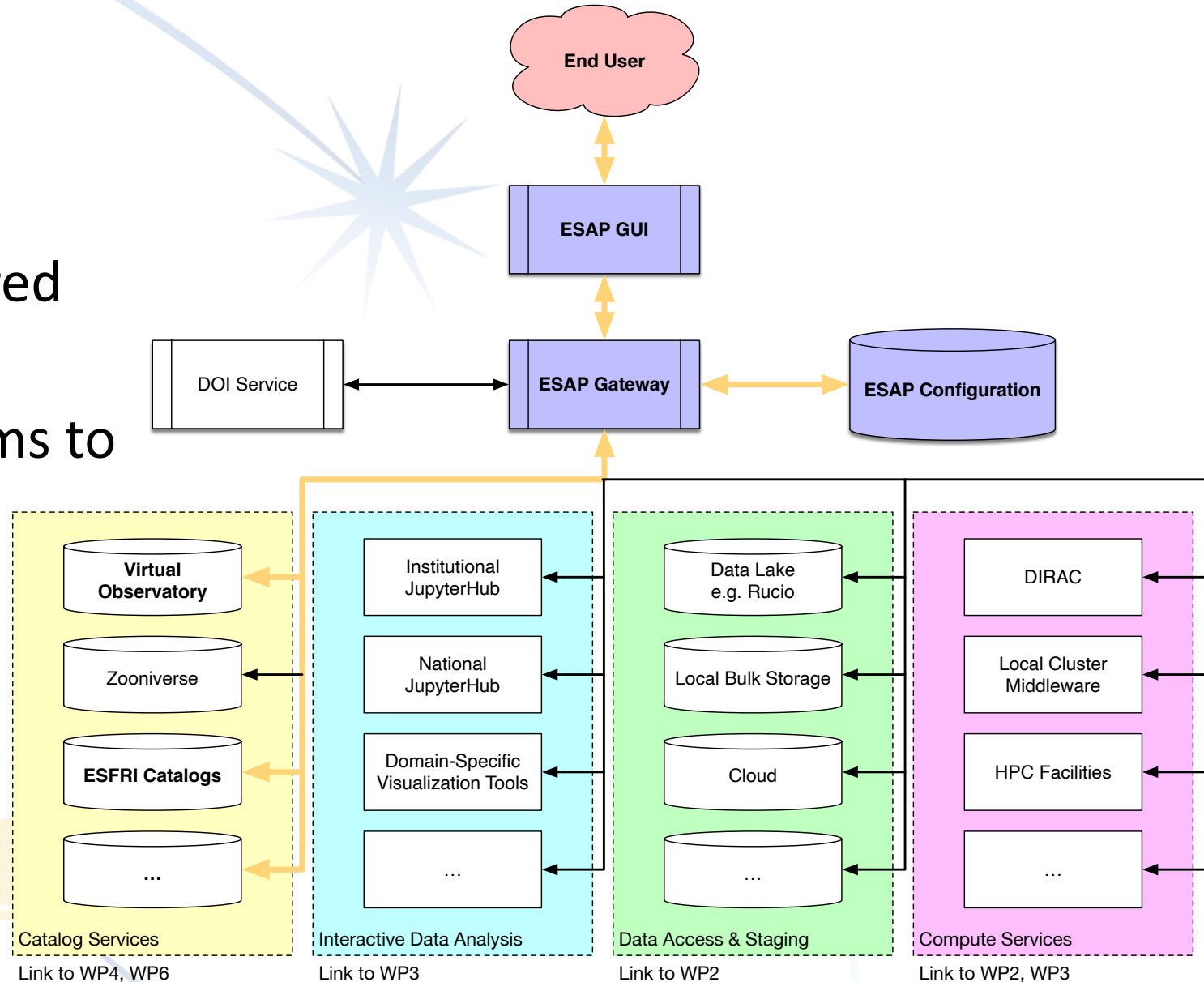




Example Workflow

1. Query

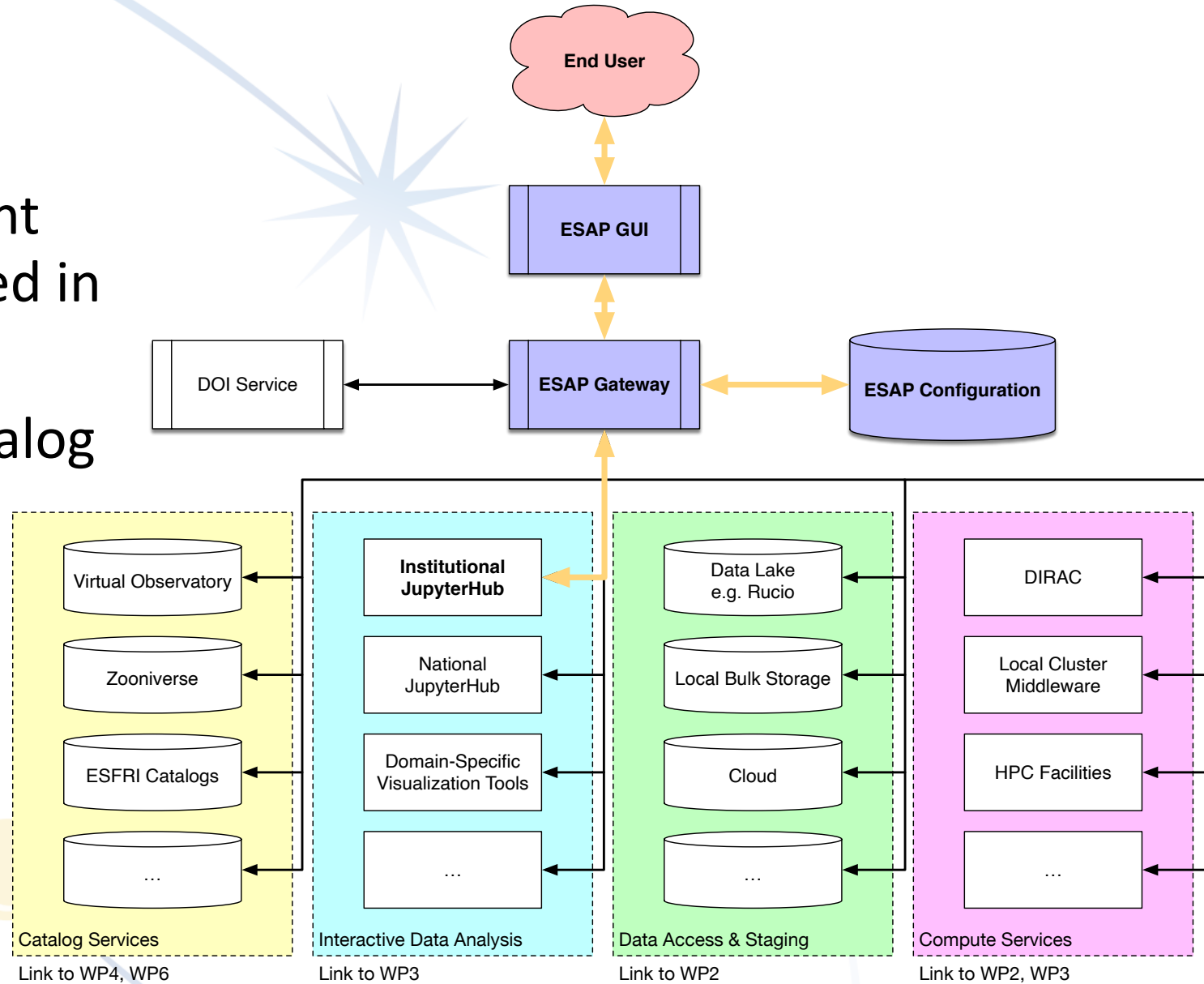
- User identifies relevant catalog services configured in this instance of ESAP.
- User submits search terms to multiple catalogs using consistent ESAP UI.
- Search results returned to user and displayed in unified form.



Example Workflow

2. Winnow

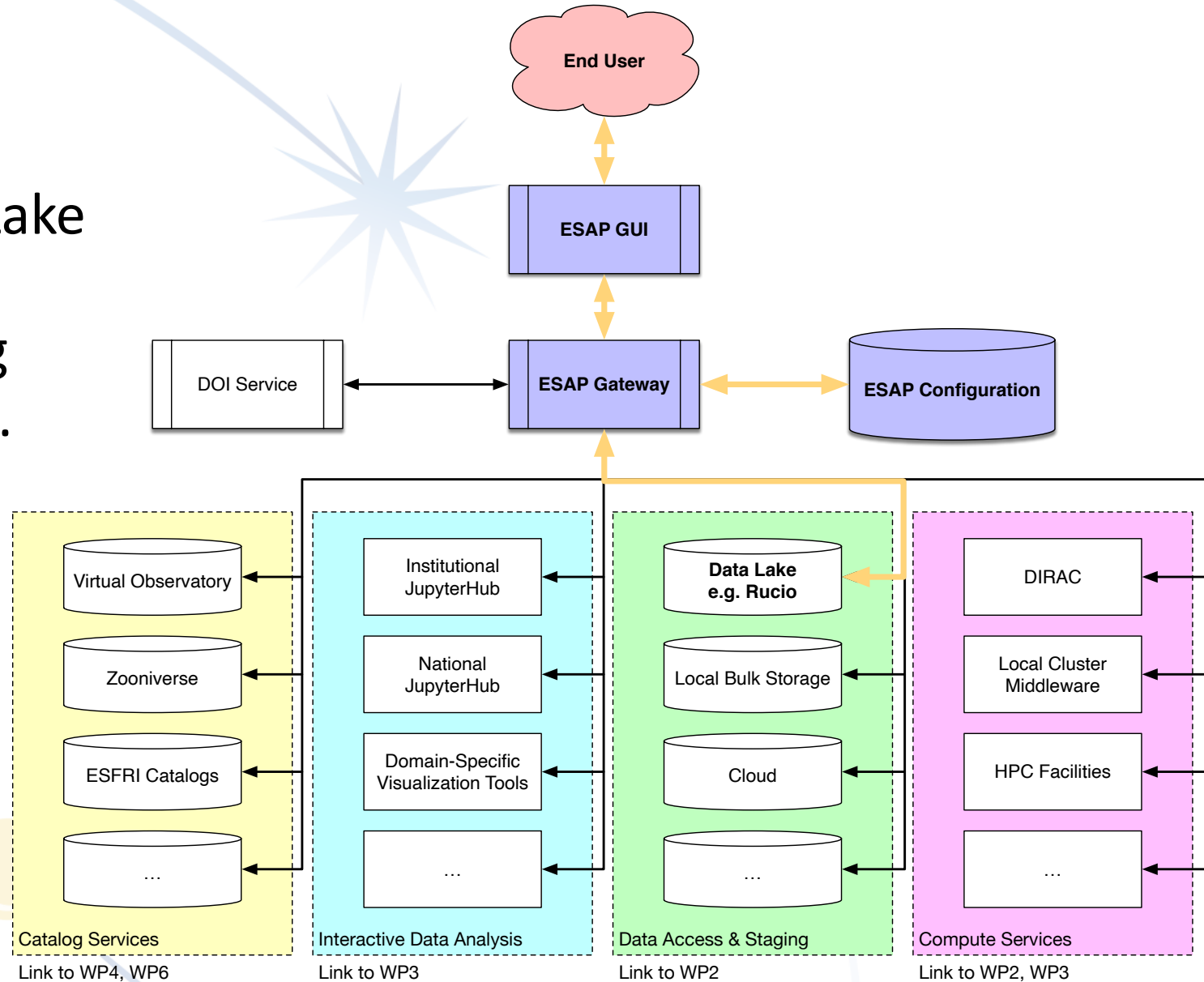
- User identifies convenient Jupyter system configured in this instance of ESAP.
- User sends retrieved catalog data to notebook.
- Interactive analysis session in notebook identifies most promising candidates for bulk processing.



Example Workflow

3. Stage Data

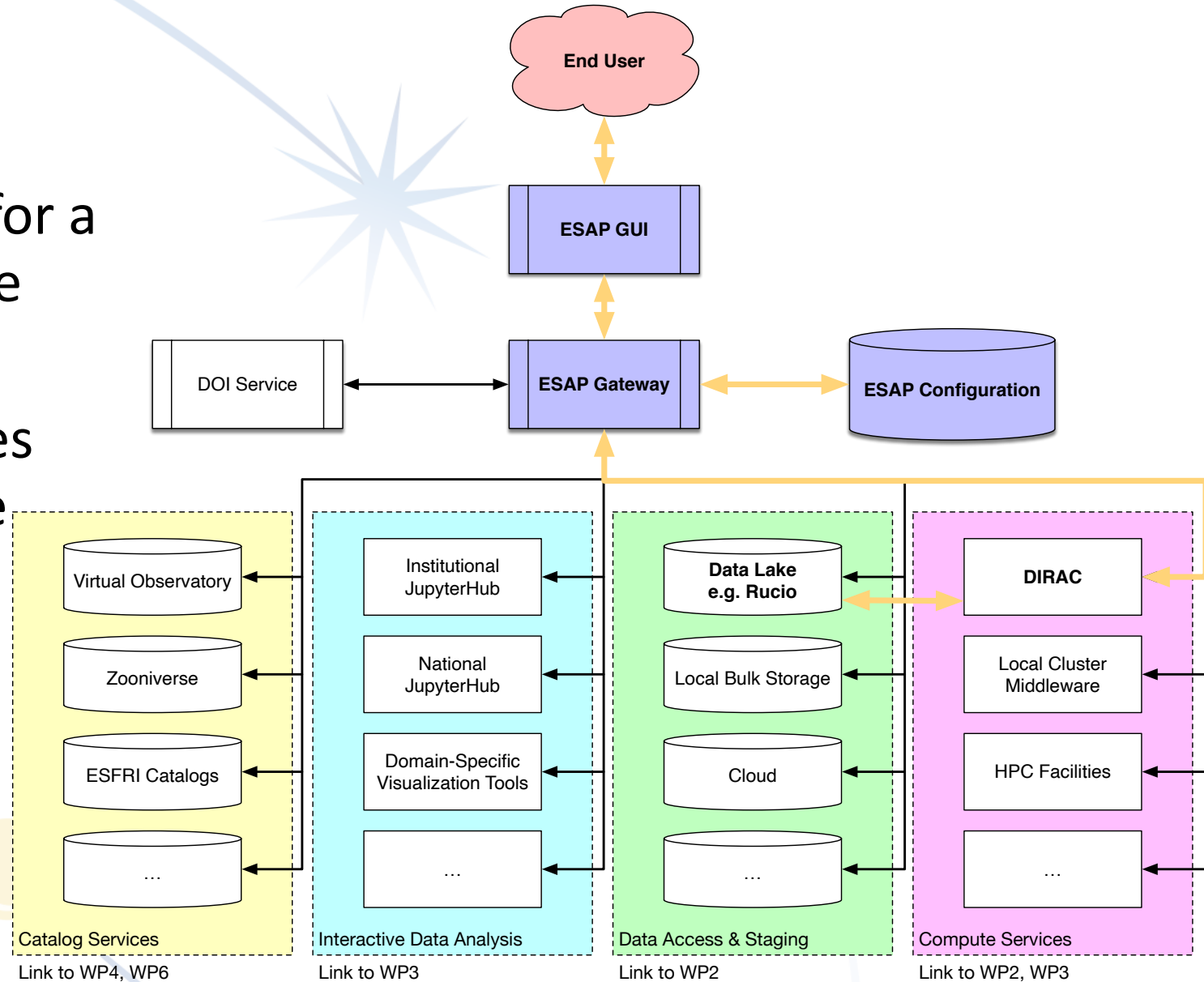
- User instructs the Data Lake to “stage” archived data corresponding to catalog entries to online storage.



Example Workflow

4. Compute

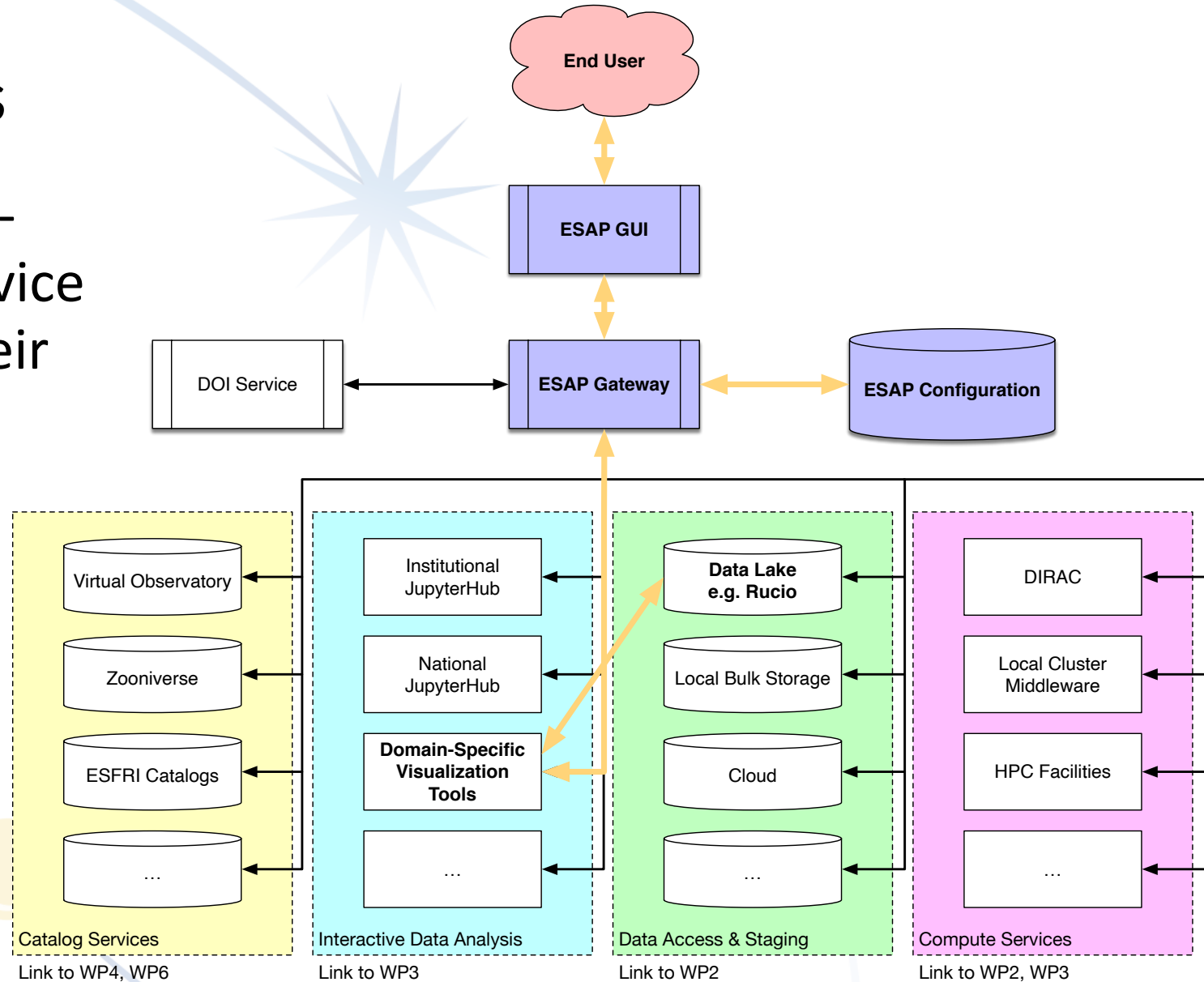
- User sends instructions for a batch compute job to the DIRAC cluster.
- Compute cluster retrieves the staged data from the Data Lake.
- Batch processing happens.
- Results are stored to Data Lake, and the user notified of completion.



Example Workflow

5. Visualize Results

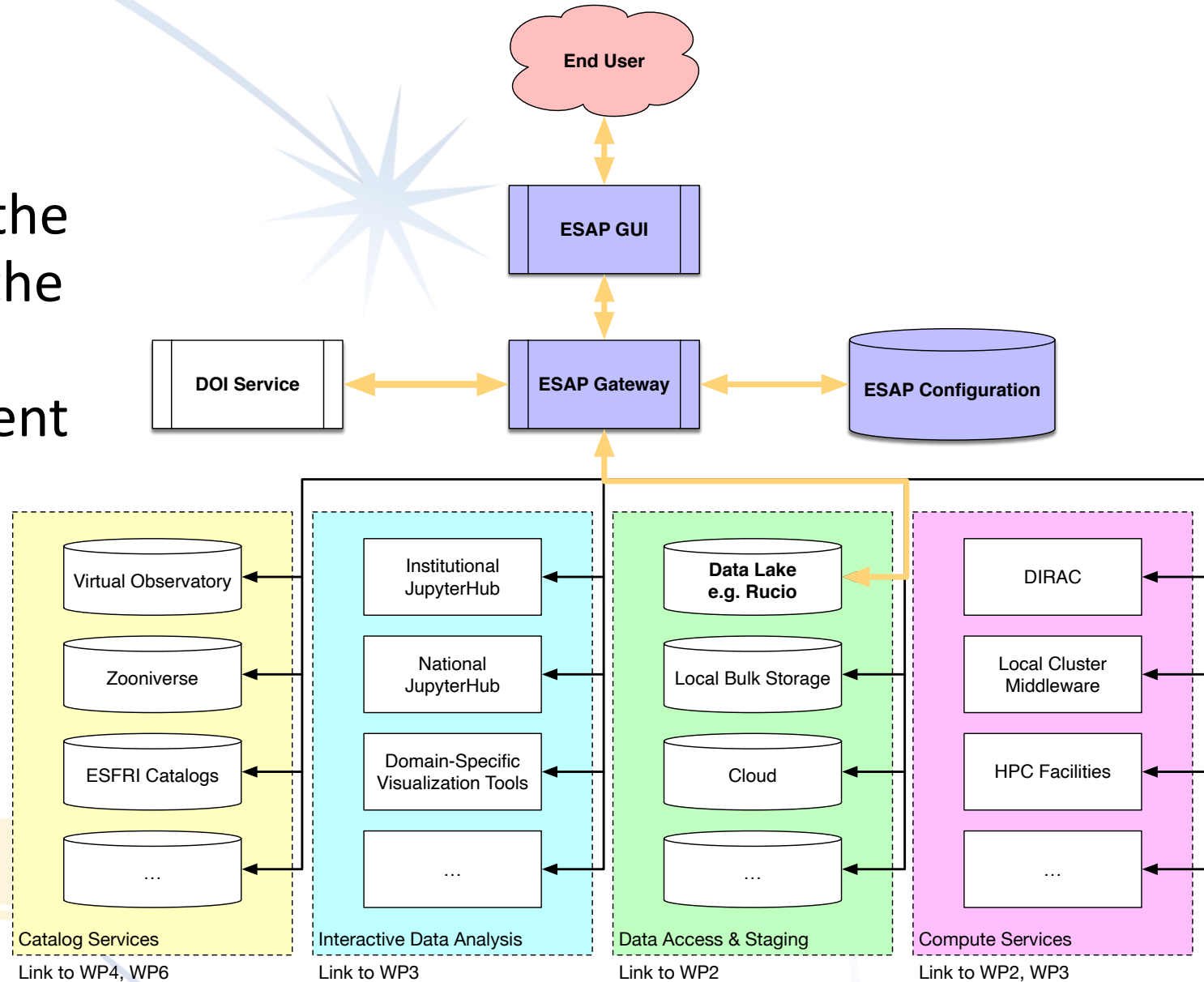
- User identifies a domain-specific visualization service that can help analyze their data.
- User initiates a visualization session, passing location of compute results.



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!



What interfaces will we ship?

- Largely driven by availability of effort & enthusiasm.
- We will aim for at least:
 - Querying archives corresponding to ESCAPE ESFRIs and related projects;
 - Virtual Observatory, including SAMP;
 - Querying the Data Lake / Rucio;
 - Interactive data analysis, likely through BinderHub;
 - Batch processing, perhaps through DIRAC.
- If there are services you care about, *now* is a great time to engage with WP5 and make sure they are supported.



Current & upcoming development priorities

- Refine / improve the interactive data analysis / Jupyter workflow;
- Integration with Rucio, and support for the WP2 “DAC21” effort;
- Integration with the OSSR;
- Batch computing, e.g. through DIRAC;
- Improved query capabilities, e.g. simultaneously search multiple archives;
- Prepare for production deployments.



Try it yourself!

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

- Be aware that this is a test system:
 - There are known glitches
 - Uptime is not guaranteed
 - Please be tolerant!
- Your feedback is welcome: <https://edu.nl/ycjv6>

