

Query-Driven Visualization

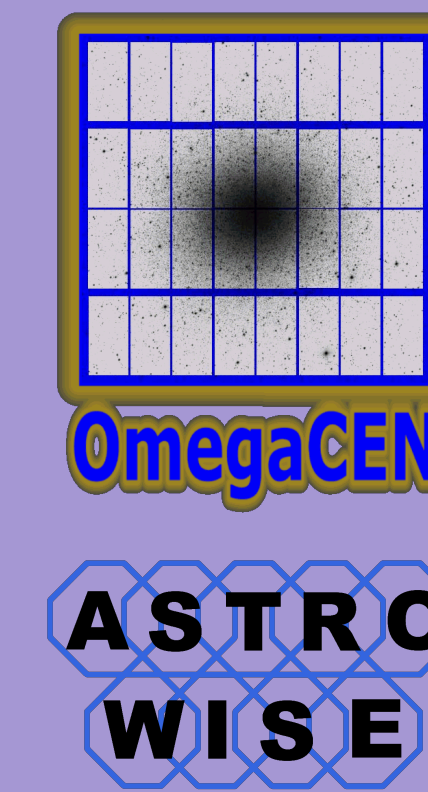
H. Buddelmeijer, E. A. Valentijn
OmegaCEN, Kapteyn Astronomical Institute/Target



The request-driven way of processing data in Astro-WISE is extended to a query-driven way of visualization. A typical workflow is demonstrated on this poster.

- Steps 1,3,5: The scientist can focus on the science he or she wants to perform with the data on a conceptual level. The *what* is important, the *how* is automated.
- Steps 2,4: On the background, the information system automatically handles the data in an optimal way, taking care of all the scalability and administration issues.

Requests from scientists are generalized to maximize reusability of created science products, while the required processing is reduced to a minimum for scalability.



Scientist Explores Data

1 Request Data

- In a conceptual way
- Possible from visualization



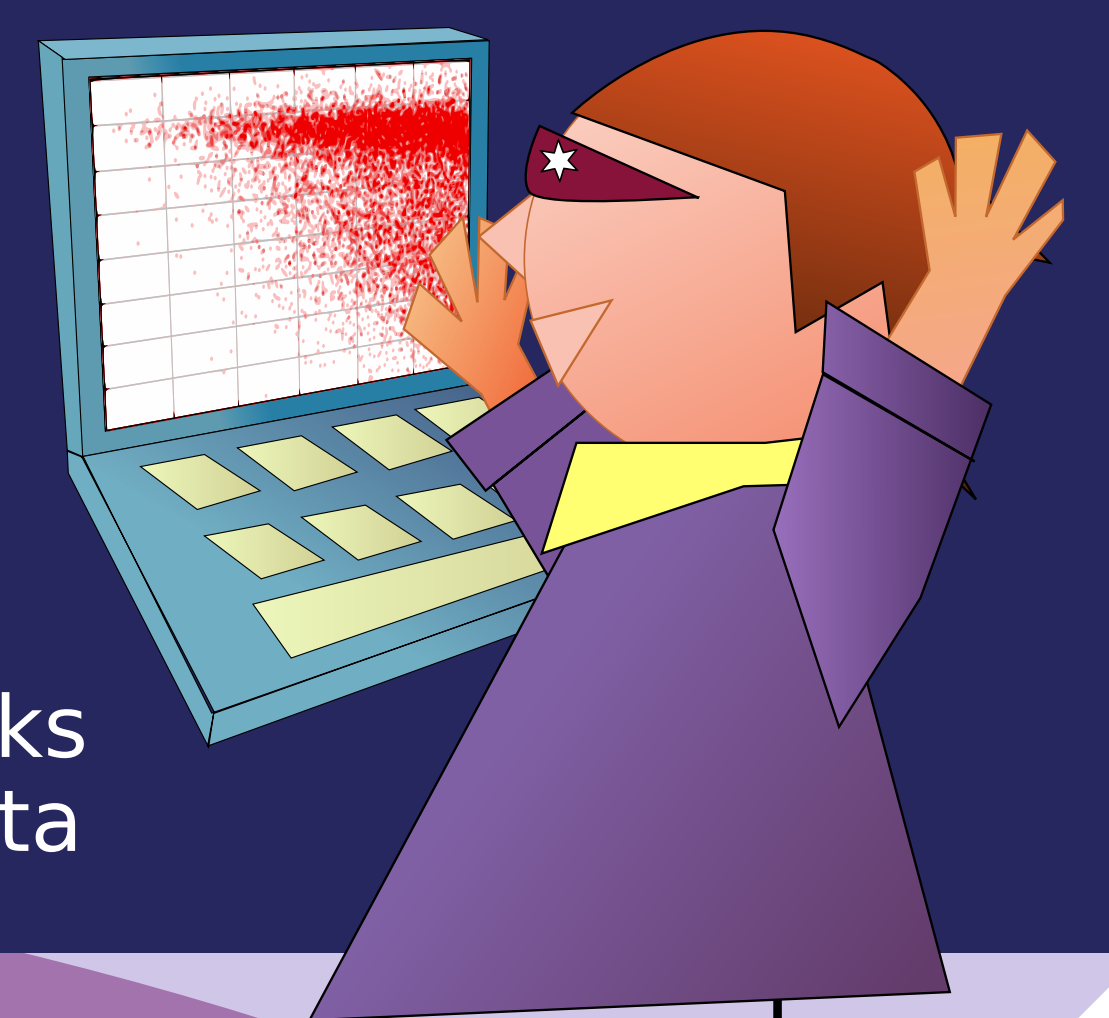
3 Configure Processing

- Optional
- Various levels of interaction



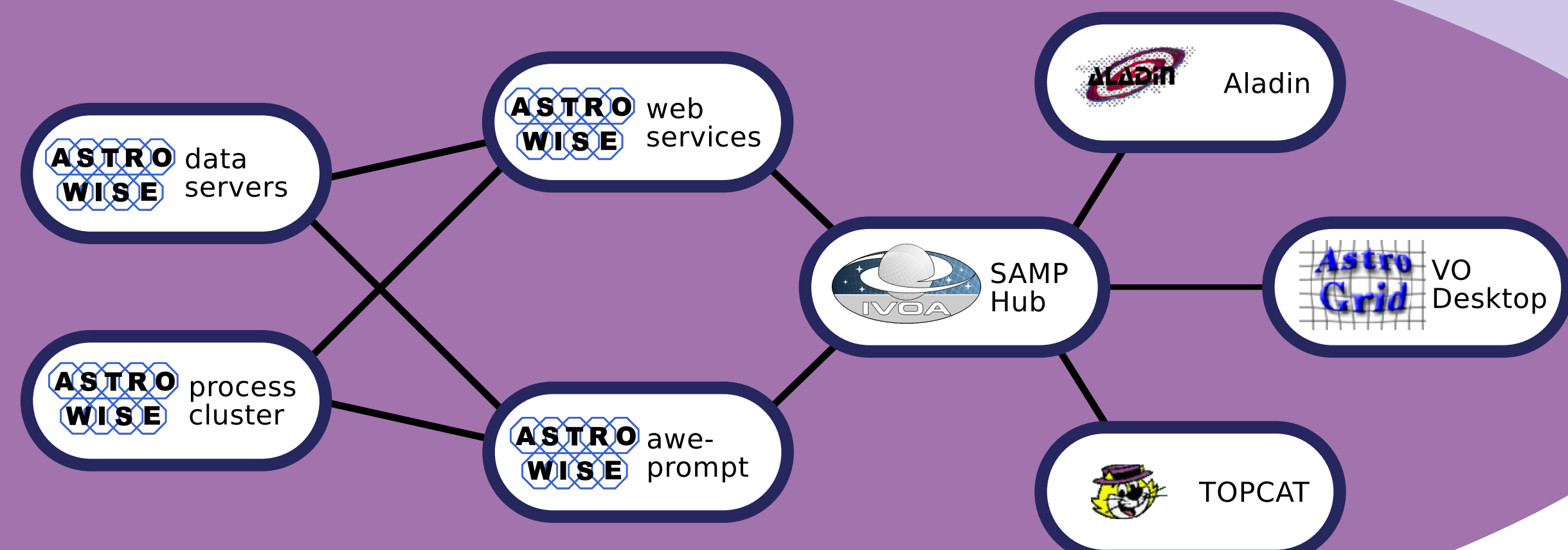
5 Interact & Analyse

- Using any SAMP tool
- Automatic links to original data



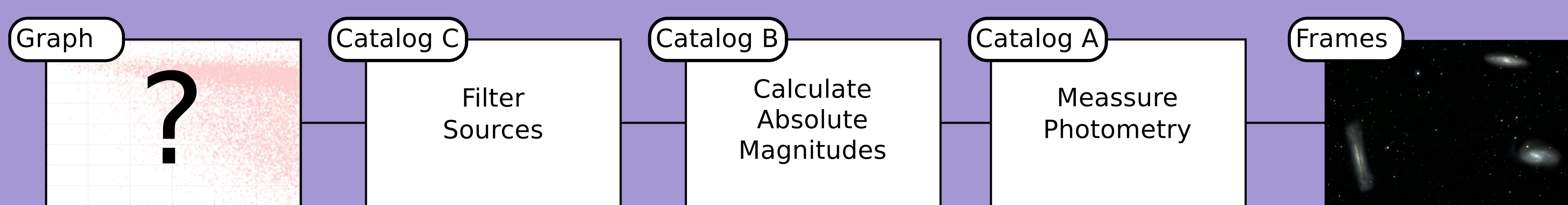
Communication through SAMP

- Simple Application Messaging Protocol, a Virtual Observatory standard.
- New messages are designed.
- ▶ Visualization does not require detailed knowledge of the information system.



Information System Manages Data

2 Generate and Store Dependency Tree of Targets*



* Each box is a Target: an object representation of a science product, derived from its dependencies.

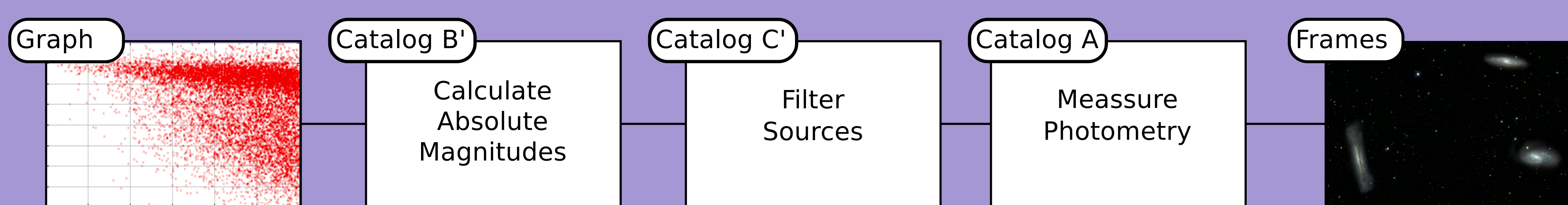
Generalized for optimal reuse. Discovered and reused.

A tree of Targets is generated starting from the final Target:

- Existing Targets are discovered and reused, and implicitly shared.
- New Targets are created as generic -and thus as reusable- as possible.
- The Targets are stored without processing their data.

The optimization below effectively swaps catalogs B and C.

4 Optimize Tree, Process Targets and Store Data

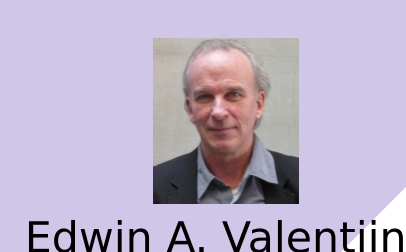


The tree is optimized for scalability and processed:

- Targets are replaced with temporary Targets that represent subsets of the originals by reordering them.
- The temporary Targets are processed on applicable hardware.
- Produced data is stored if necessary and as part of the original Targets.



<http://www.astro.rug.nl/~buddel/ADASSXXI>



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