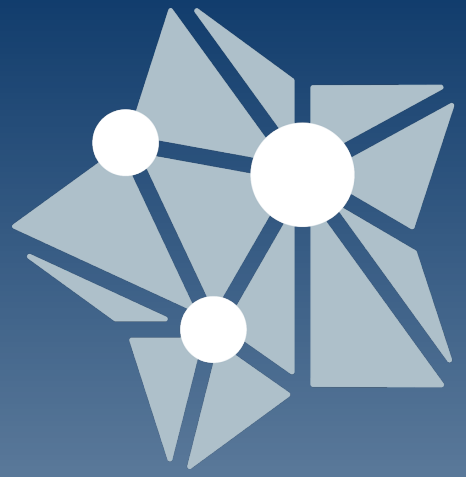


Science platforms

Ilse van Bemmel (JIVE/ASTRON)


JIVE
Joint Institute for VLBI ERIC
EUROPEAN VLBI NETWORK
Metsähovi
Onsala
JIVE
WSRT
Torun
Svetloe
Jodrell Bank
Irbene
Zelenchukskaya
Badary
Yonsei
e-MERLIN
Wettzell
Effelsberg
Tamna
Medicina
Yebes
Urumqi
Sardinia
Noto
Ulsan
Arecibo
Kunming
Tianma
Hartebeesthoek

Science platform: definition

- Bring user to the data: especially in era of SKA-VLBI

- FAIR data access:
  - **F**indable
  - **A**ccesible
  - (**I**nteroperable)
  - **R**eusable / **R**eproducible

Examples

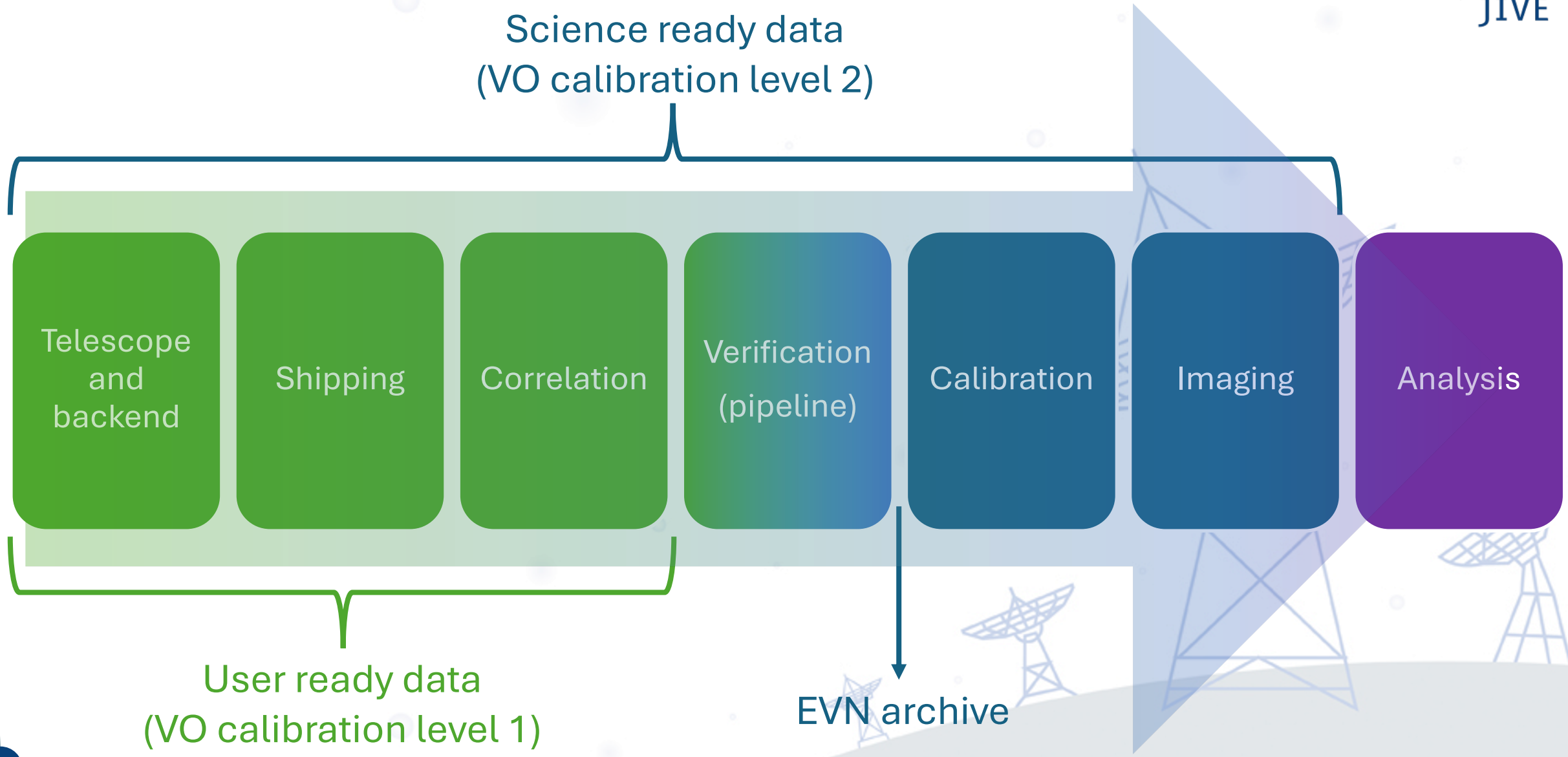
- CANFAR (radio)
- SDSS
- SciServer
- Rubin Science Platform
- Roman Space Telescope (under construction)
- SkyPortal (time domain)
- Astronomy Commons
- NOAO DataLab

Very few actively support radio astronomy…

JupyterHub at JIVE: exploring a science platform for the EVN

- Pipeline processing in CASA for EVN continuum
- Dedicated Jupyter notebook per observation
- No science ready data products
- DOI or other unique identifier

The data chain



What would we like to have for SKA-VLBI?

Definition of data products:

- Calibration level
- Visibility data format
- Calibration meta-data format (e.g. intent in MS)
- Ancillary data access (e.g. polarization calibration)
- Instrument specific (meta-)data

Manage user expectations & make uniform products

What would we like to have for SKA-VLBI?

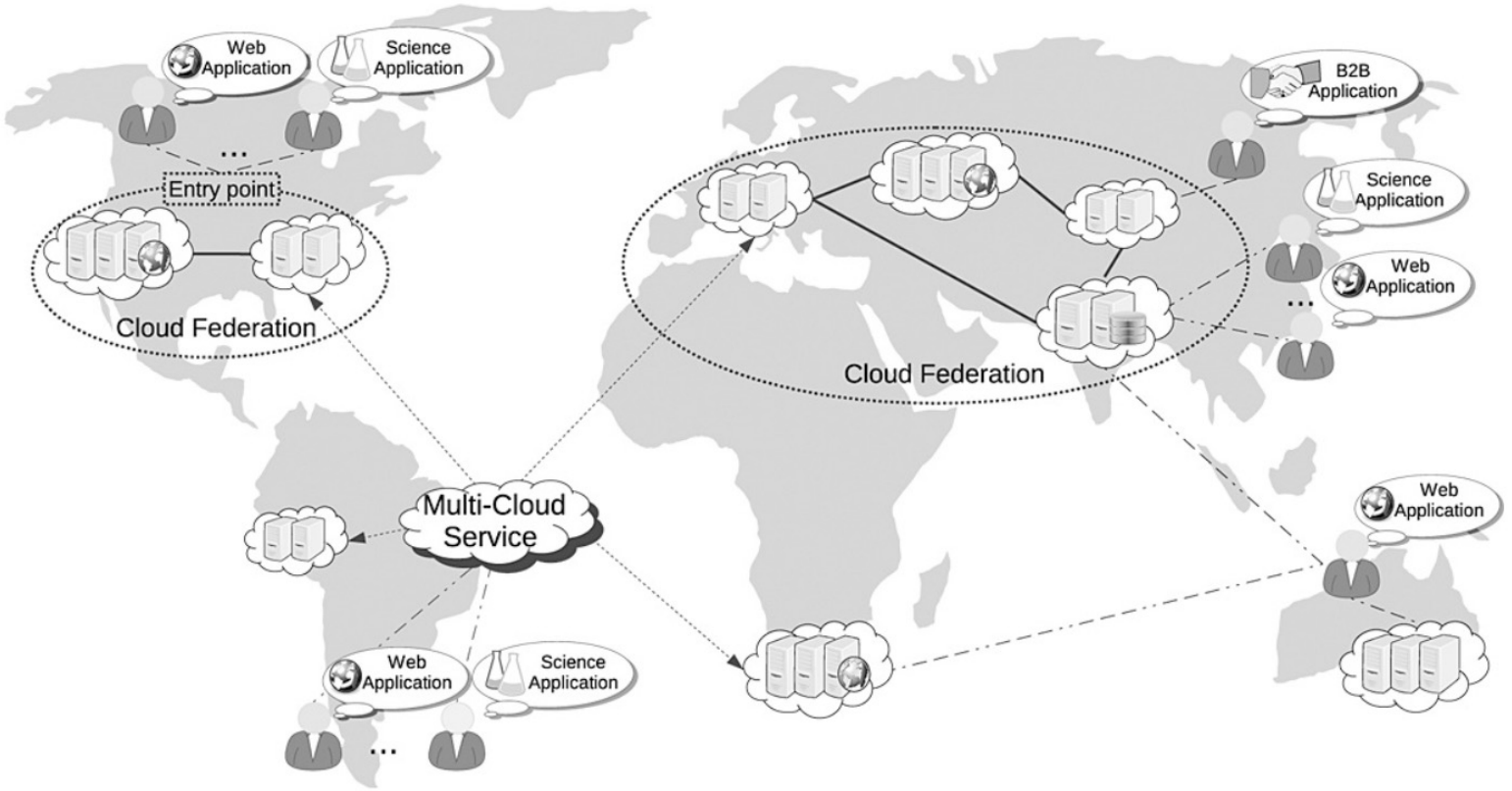
Definition of data flow:

- Data format for VLBI elements
- Shipping requirements
- Storage
- Correlation

Reasons to make science platforms ourselves

- HPC platforms:
  - Inefficient
  - Expensive
  - Impractical (especially for large collaborations)
- We require:
  - Customizable software
  - Scalable solutions
  - Reproducable results

This can be organised in a federated way



Lessons learned in JIVE

- Hosting a science platform is a core observatory task
  - Resources
  - Continued development and maintenance
  - User feedback system
  - Accountability (fair distribution of resources to users)
- Flexibility is key
  - User based solutions
  - Offer compute & software
- Authentication and authorization is tricky
- No replacement for pro-active user support