Data Models

Modeling how astronomers use their data

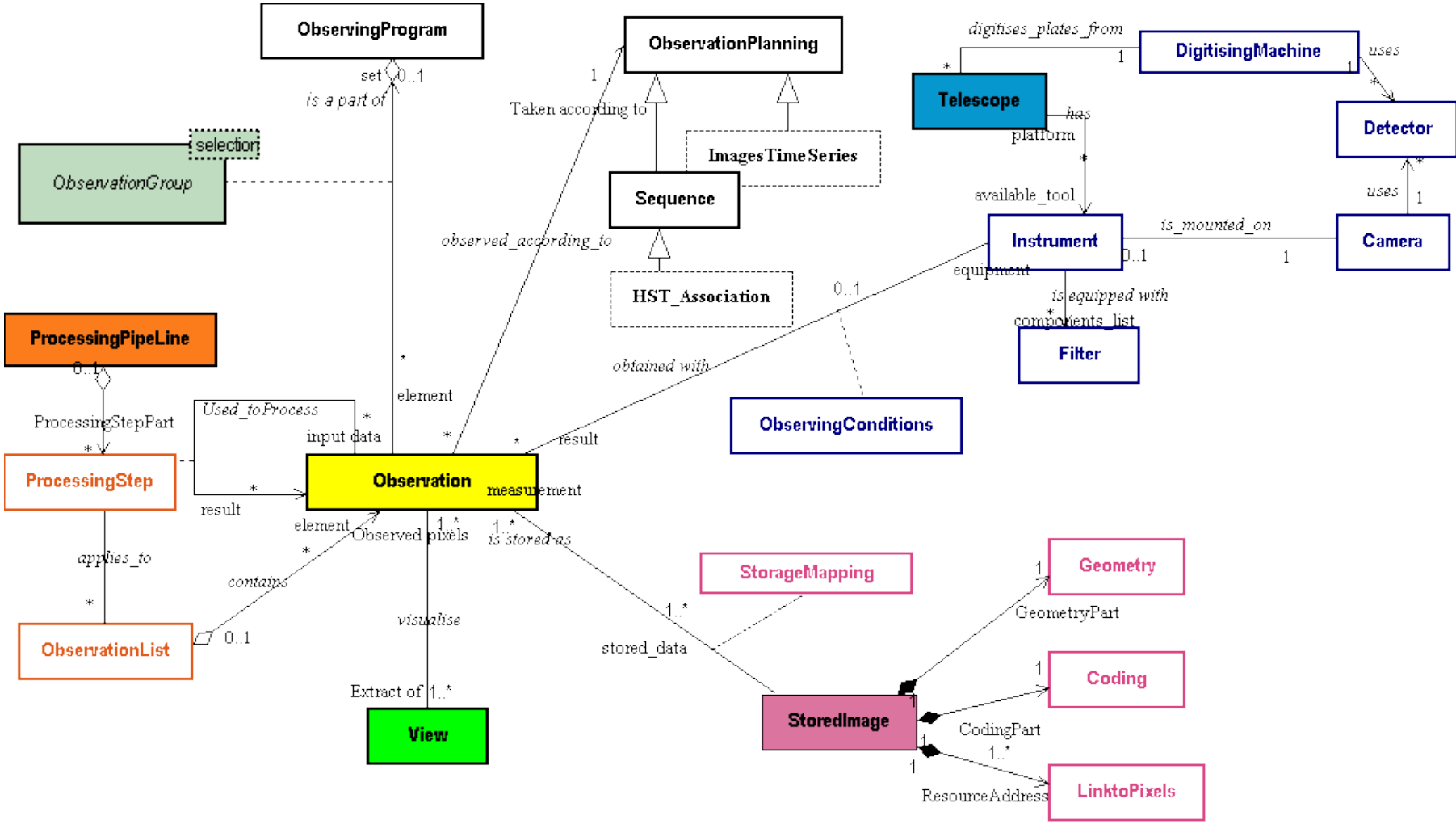
Data Models

- There are plenty of possible models for the VO metadata.
- Depending fully on the perspective, e.g
  - **Data storage** : data base design → logical diagrams, 'views' .
  - **Client/server** application → query process
  - **Applications** (Image Browser, reduction/calibration progs, cross match tools) → data interpretation
- Depending on the nature of the data
  - Regime radio, X-ray, optical,...
  - Dimensionality spectra, images, data cubes

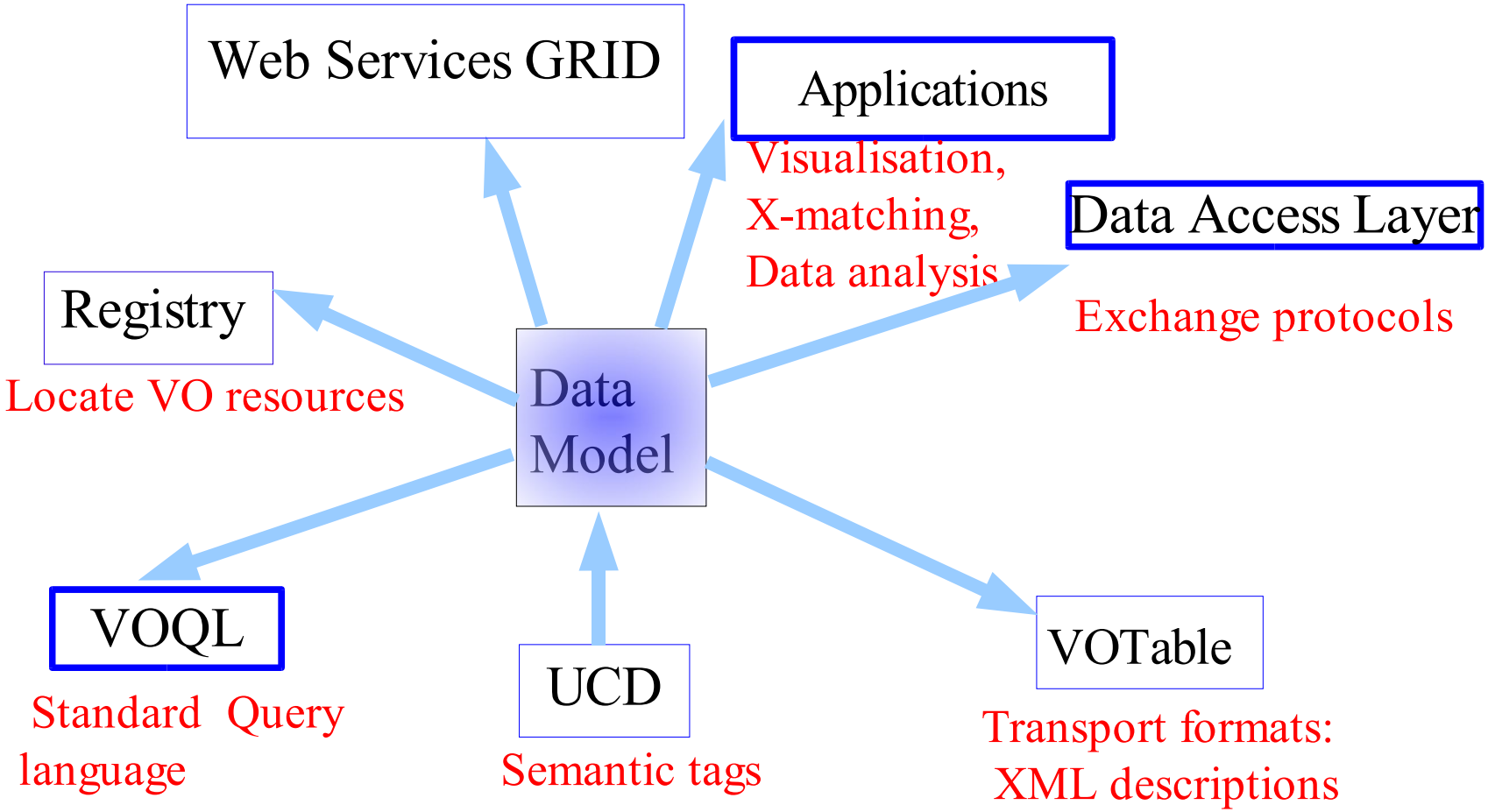
How to proceed

- **Federate** the different needs/specifications in a common model
  - Describe common notions
    - object position, wavelength, flux, coverage,
    - data formats as images, spectra, luminosity functions, etc..
- **Derive** views of the model focused for specific tasks and astronomers' usage.
- In practice:
  - Rely on lessons learnt: FITS, existing services, previous modeling efforts.(IDHA)
  - Iterate the joint constructions of specific DM views, use cases and a general DM.

IDHA


ObservingProgram
set
0..1
is a part of
ObservationPlanning
Taken according to
1
ImagesTimeSeries
Sequence
HST_Association
observed_according_to
selection
ObservationGroup
digitises_plates_from
DigitisingMachine
uses
Telescope
has
platform
Detector
available_tool
uses
Instrument
is_mounted_on
Camera
0..1
equipment
is equipped with
components_list
Filter
ProcessingPipeLine
0..1
ProcessingStepPart
ProcessingStep
Used_toProcess
input data
result
element
obtained with
ObservingConditions
Observation
measurement
result
element
Observed pixels
1..*
is stored as
applies_to
contains
ObservationList
0..1
visualise
Extract of
1..*
View
StorageMapping
stored_data
1..*
Geometry
GeometryPart
Coding
CodingPart
StoredImage
LinktoPixels
ResourceAddress
DataProduct
ObservingConfiguration
Storing purpose
Processing
Visualisation purpose

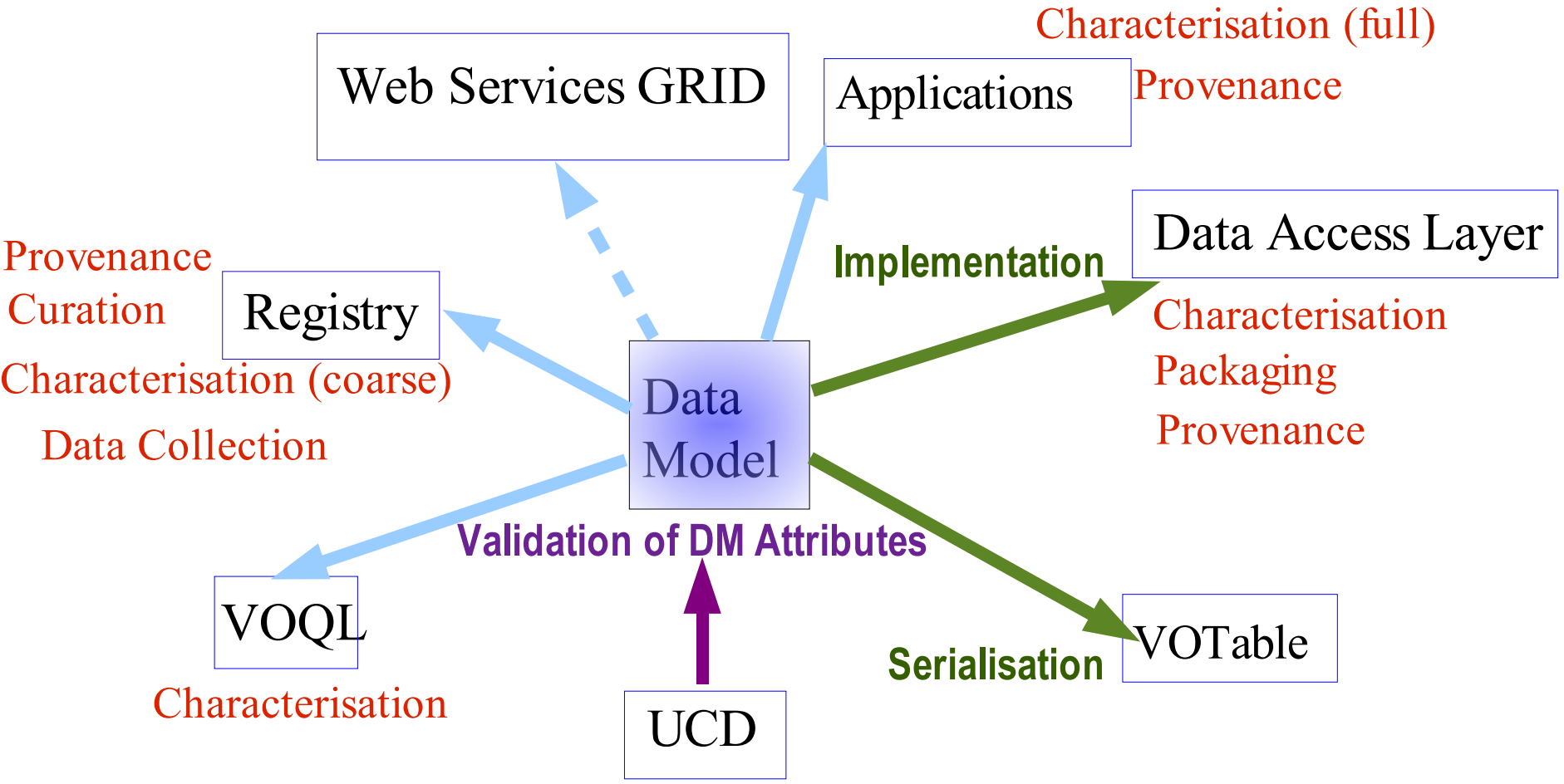
Interactions with other WG



Status of development

- IVOA Observation Data Model
  - Working Draft + UML diagrams+ XML schema description IVOA Observation DM
- Proposed recommendation for Characterisation at next IVOA meeting (Pune, sept 04)
- Proposition to DAL WG for the evolution of the Simple Image Access protocol
  - → hierarchy

Sharing concepts with other WGs



Conclusion

- The Data Model WG has **connections** with most of the IVOA WG.
- It helps to formulate the **commonalities** of the metadata used and handled by all the VO actors.
- **Implementations** in action.
- Long term **iterative process** to converge.

Documentation

- Main page http://ivoa.net/
  - Documents of the DM group

    http://www.ivoa.net/twiki/bin/view/IVOA/IVOADataModel
  - Last version of UML diagrams for ObservationWorking draft

    http://alinda.u-strasbg.fr/IDHA/dmobsIvoa
  - DAL interaction: evolution of the Simple Image Access Protocol

    http://www.ivoa.net/Documents/Notes/SIAPEvol/