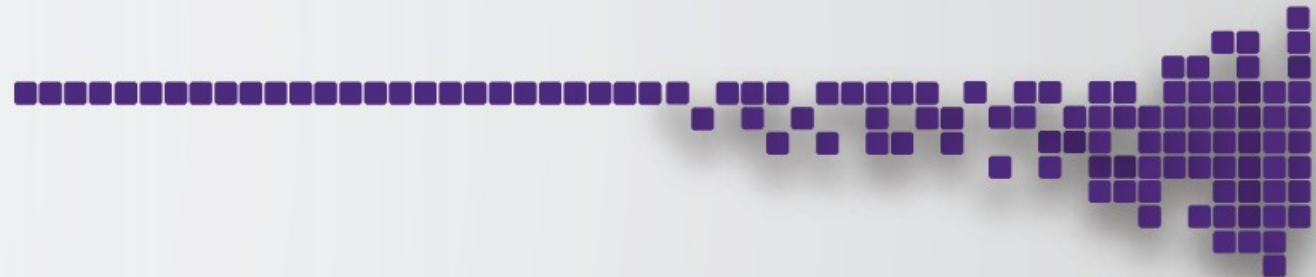




INDIGO - DataCloud

RIA-653549

Astronomical data format integration into OPHIDIA



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e-Research Summer Hackfest



INDIGO-DataCloud is co-founded by the
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Outline



- Background
- FITS format
- Our goal
- Implementation strategy
- Conclusions

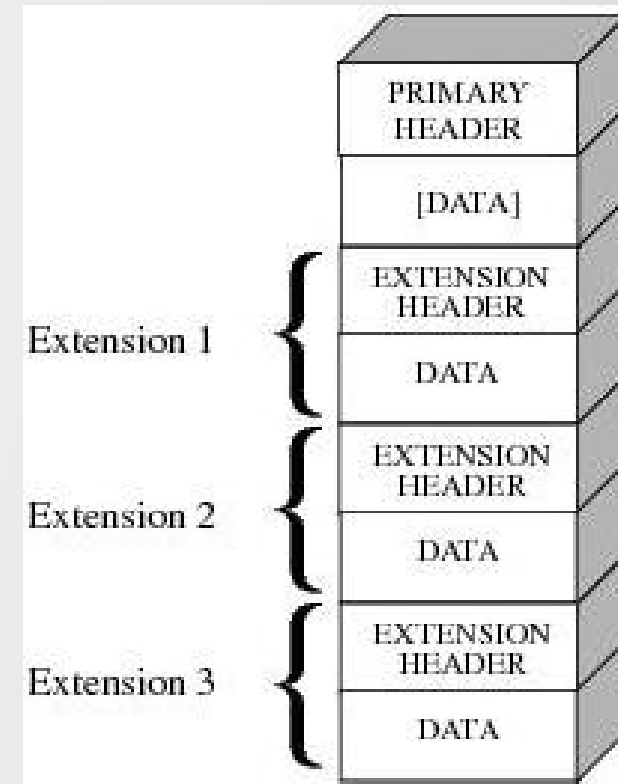
IA2 (Italian Astronomical Archive)

- Archiving system
- Data curation and preservation
- Distribution over several geographical sites
- Providing services and tools
- Data publication (in the VO)

- Data from several sources:
 - Telescopes (LBT, Asiago telescope, Telescopio Nazionale Galileo)
 - Simulations

FITS (Flexible Image Transport System)

- FITS: standard archival format for astronomical data
- HDU: header (text) + array (binary)
- Data array dimension --> NAXIS
- FITS from CCDs: NAXIS=2
- FITS reduction:
 - Dark subtraction
 - Flat-field correction
 - Bias offset calibration



Our aim: use OPHIDIA for data reduction

- Motivation:
 - Big data
 - In general $N_{AXIS}=n$
- Focus on data import in OPHIDIA
- Exploit OPHIDIA's strength for data reduction

Implementation strategy

- Tools needed to manipulate the FITS:
 - dump the data into human readable format
 - C libraries for reading/writing FITS
- Analyze the operations required to perform data reduction
 - Use available operators if available
 - implement them otherwise
- No time series --> find a suitable way to partition data

Summary and conclusions

- Data archiving in astronomy
- Use case: integrate FITS format in Ophidia
- Future developments for NAXIS>2