



Enabling Grids for E-sciencE

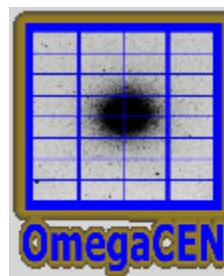
# LOFAR@EGEE

## Lofar Information System on GRID

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[www.eu-egee.org](http://www.eu-egee.org)

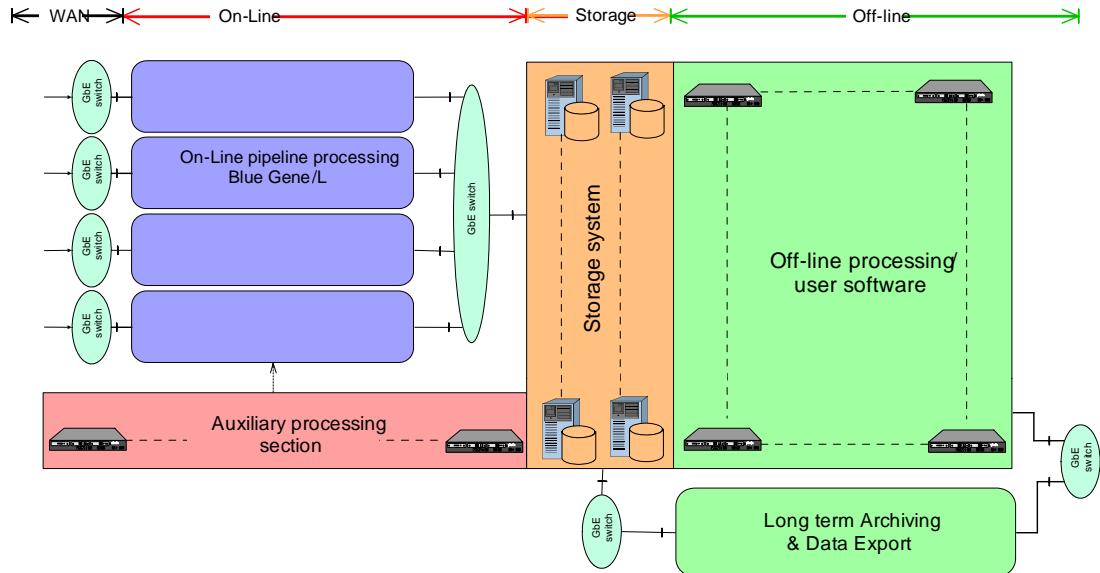


- **Lofar: the requirements to data storage**
- **Astro-WISE: a prototype of Lofar Information System**
  - principle features
  - GRID storage
  - GRID computing
  - migration to Lofar
- **Lofar-WISE: architectural design**

# Lofar: the telescope



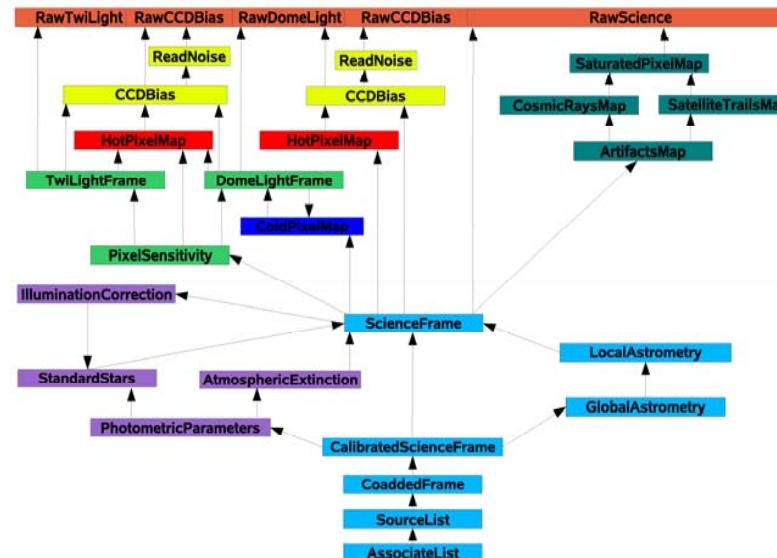
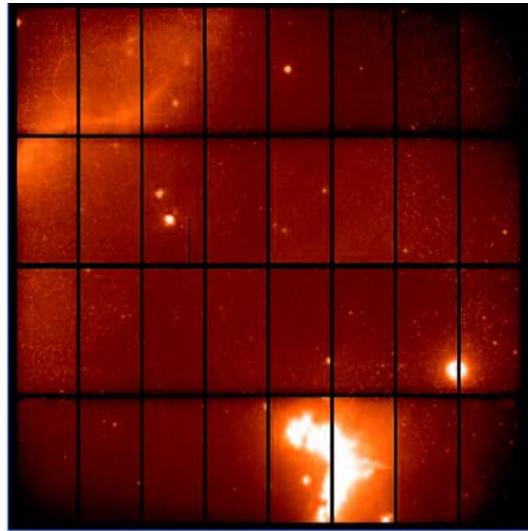
# Lofar: Data Processing



- **initial data processing**
- **data archiving**
- **data reprocessing**

- **Astro-WISE: a prototype for Lofar-WISE**
- **from TB to PB**
- **various hardware/software**

# Astro-WISE: Data Processing



raw image  
↓  
calibrated image  
↓  
catalog

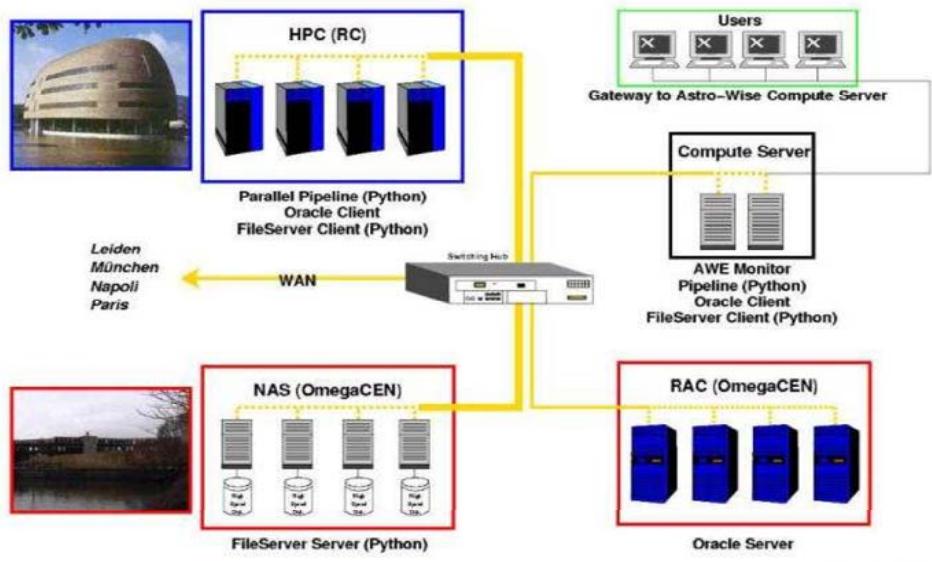
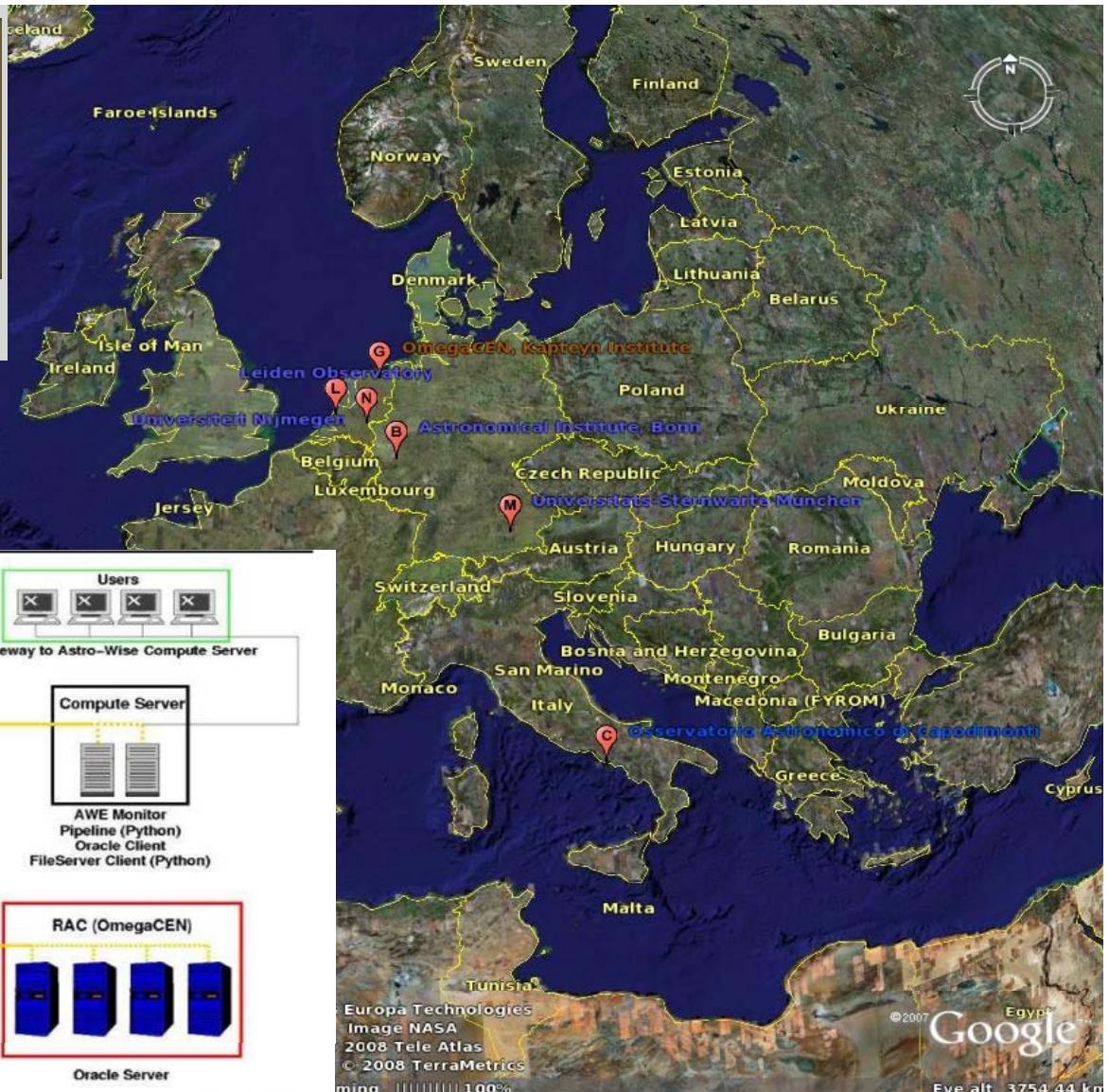
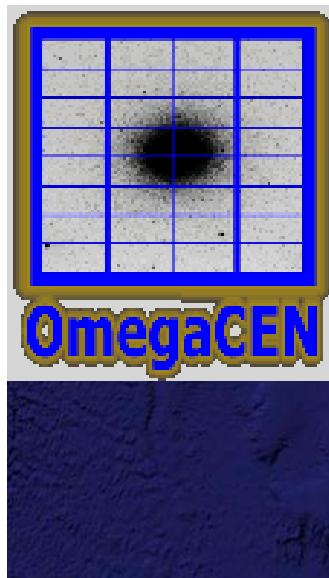
initially – data processing and storage system for wide-field optical astronomy

multipurpose informational system

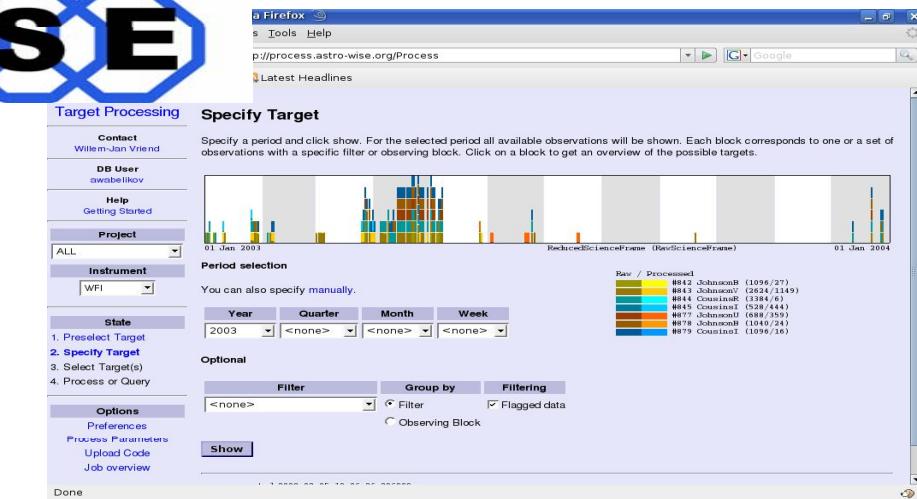
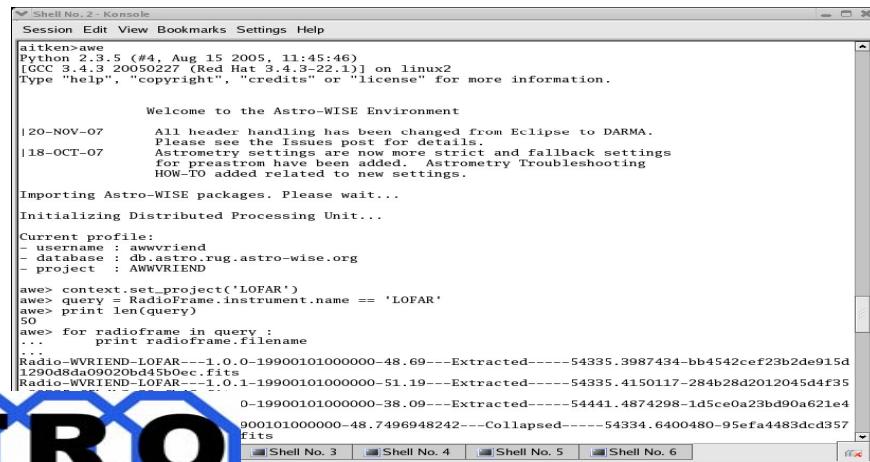
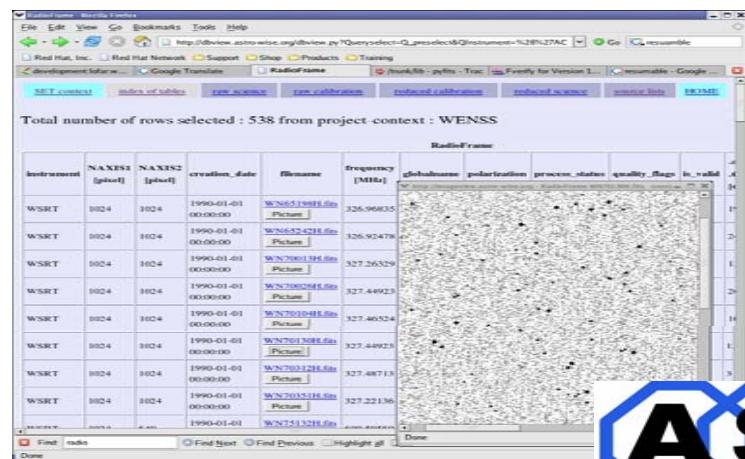
## Astro-WISE: Architectural Design

CE+SE

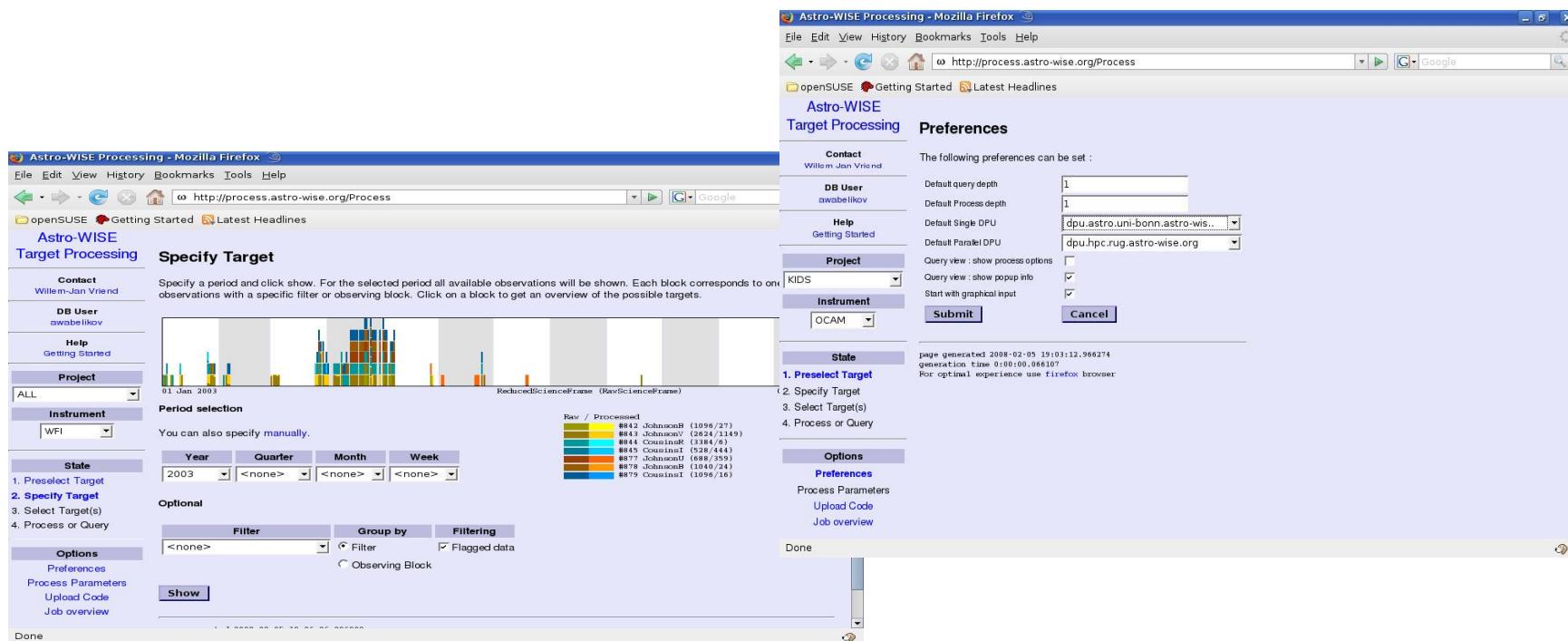
python



# Astro-WISE: Services



# Astro-WISE: Grid Computing



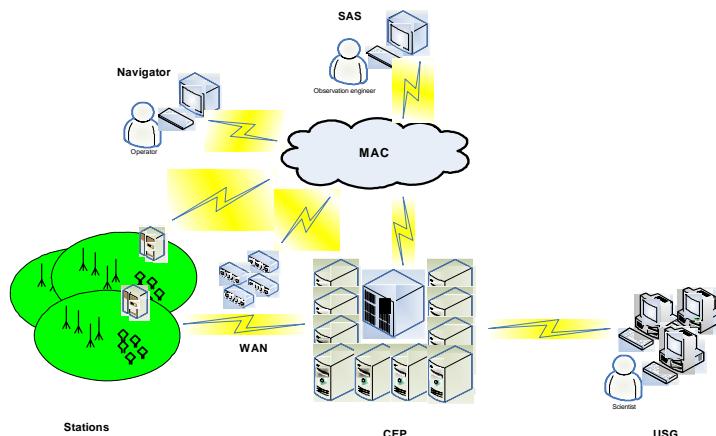
The screenshot shows two overlapping browser windows. The left window displays the 'Specify Target' page, which includes a timeline visualization of observations from January 2003, a 'Period selection' section with dropdown menus for Year, Quarter, Month, and Week, and an 'Optional' section with filtering options. The right window shows the 'Preferences' panel, which contains settings for contact information, DB User, Project (set to KIDS), Instrument (set to OCAM), State (set to 1. Preselect Target), and various checkboxes for process options. Both windows have the URL <http://process.astro-wise.org/Process>.

selection of computing element of Astro-Wise

storage element defined a priori

EGEE as a computing element

# Lofar-WISE: Requirements



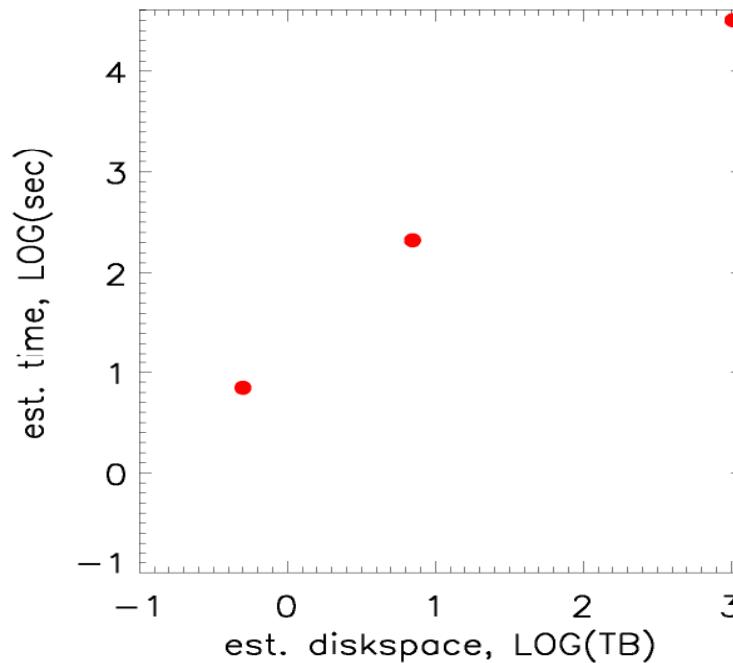
**up to 4PB per year**

**online storage**

Astro-Wise

dataserver

|        |        |
|--------|--------|
| 0.5 TB | 7 sec  |
| 3.5 TB | 20 sec |
| 1 PB   | 8 h    |



Lofar-Wise

data retrieved  
by URI

# Lofar-WISE: Data Storage



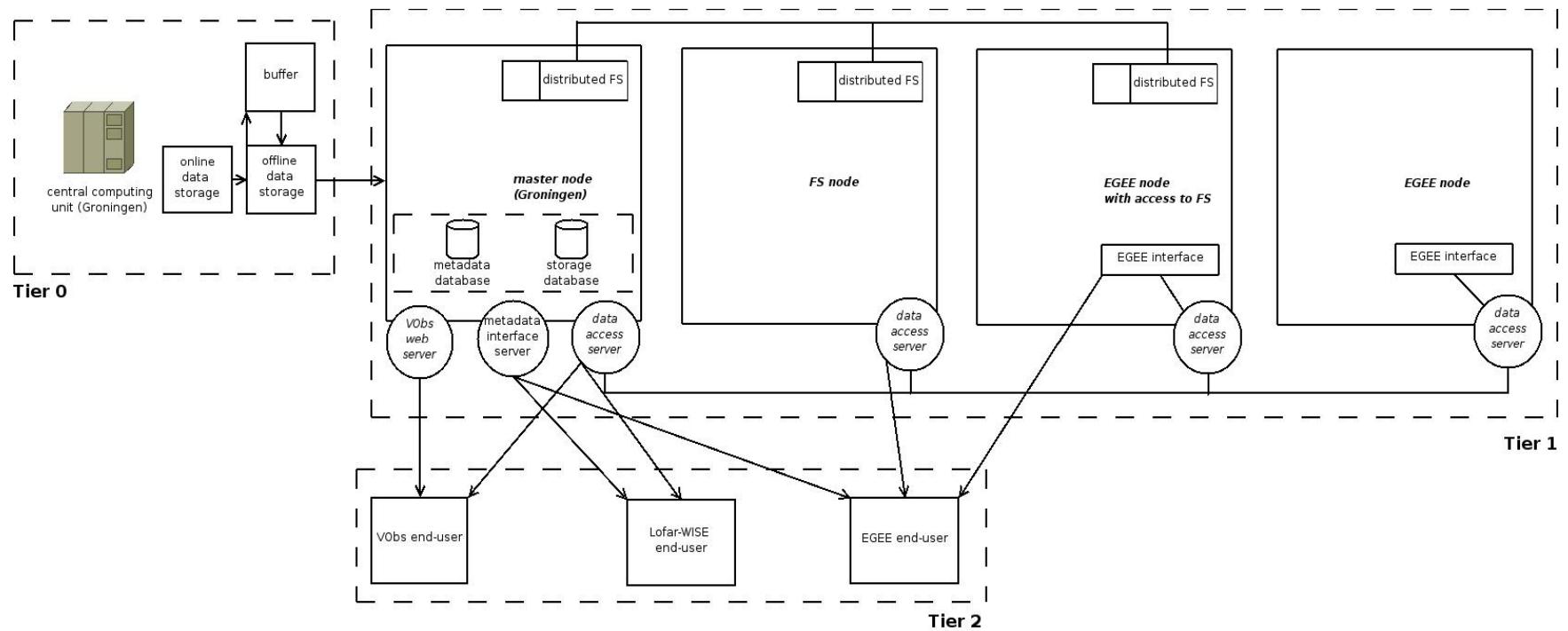
initial  
configuration

CIT,  
Groningen

SARA,  
Amsterdam



# Lofar-WISE: General Concept



**Tier 1 nodes: mixture of nodes of different types**

**single interface for users**

**single metadata database**

- Astro-WISE: EGEE interface realized
- Astro-WISE: EGEE as a computing grid
- Lofar: EGEE as a data storage grid

**EGEE node with backdoor**

**data insert, retrieval and deletion**

**pure EGEE node**

**operator of Tier 0**

**two-phase data insert**

**operator of Tier 1**

**user (Tier 2)**

**data retrieval**

**operator: all commands are wrapped**

**user: data access server**

**data access: system of privileges**

- **data access: ruled by Project Manager**
- **data access: metadata database**
- **data access: the storage is covered from user**
- **data storage: trusted users (operators) only**
- **data storage: user requests data storage**

- EGEE is a part of storage space
  - integration with other components
  - the type of Tier 1 nodes is not defined
  - Astro-WISE as a core of new system
  - Data access server
- 
- Architectural Design: 1 Feb 2008    done
  - Realization: 2008
  - In operation: end 2008