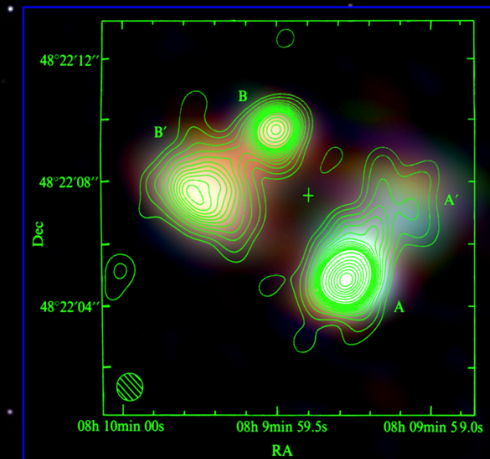
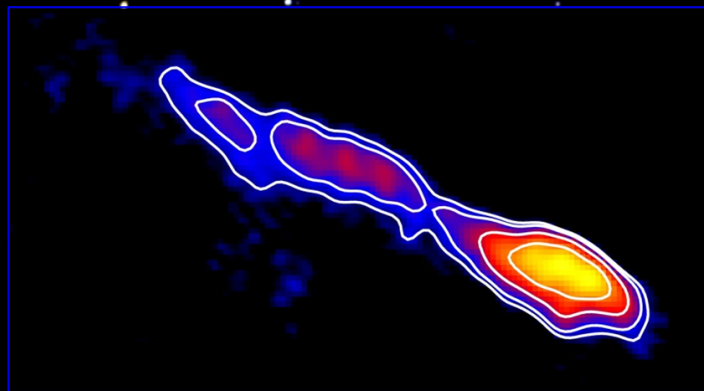
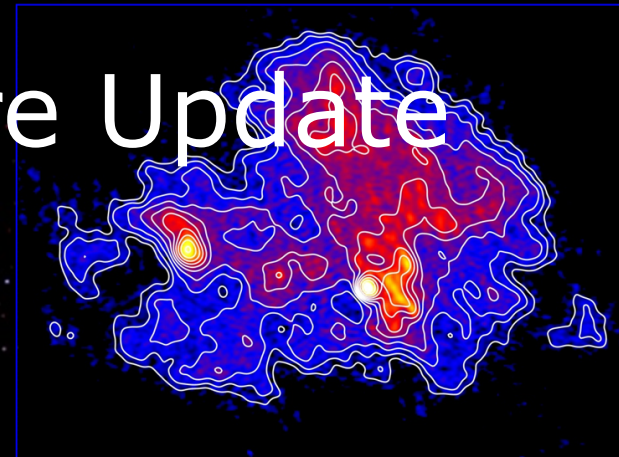
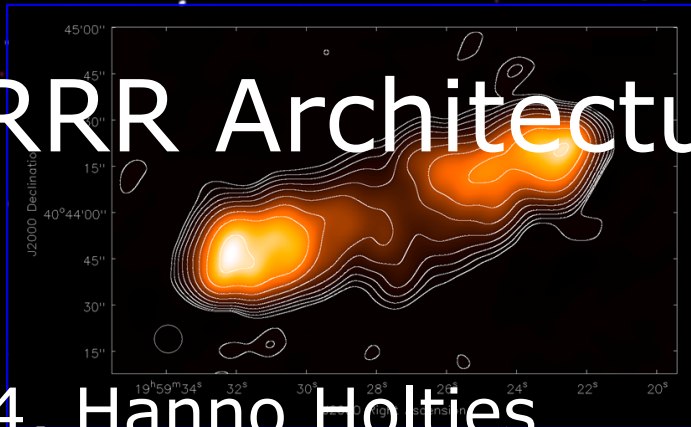
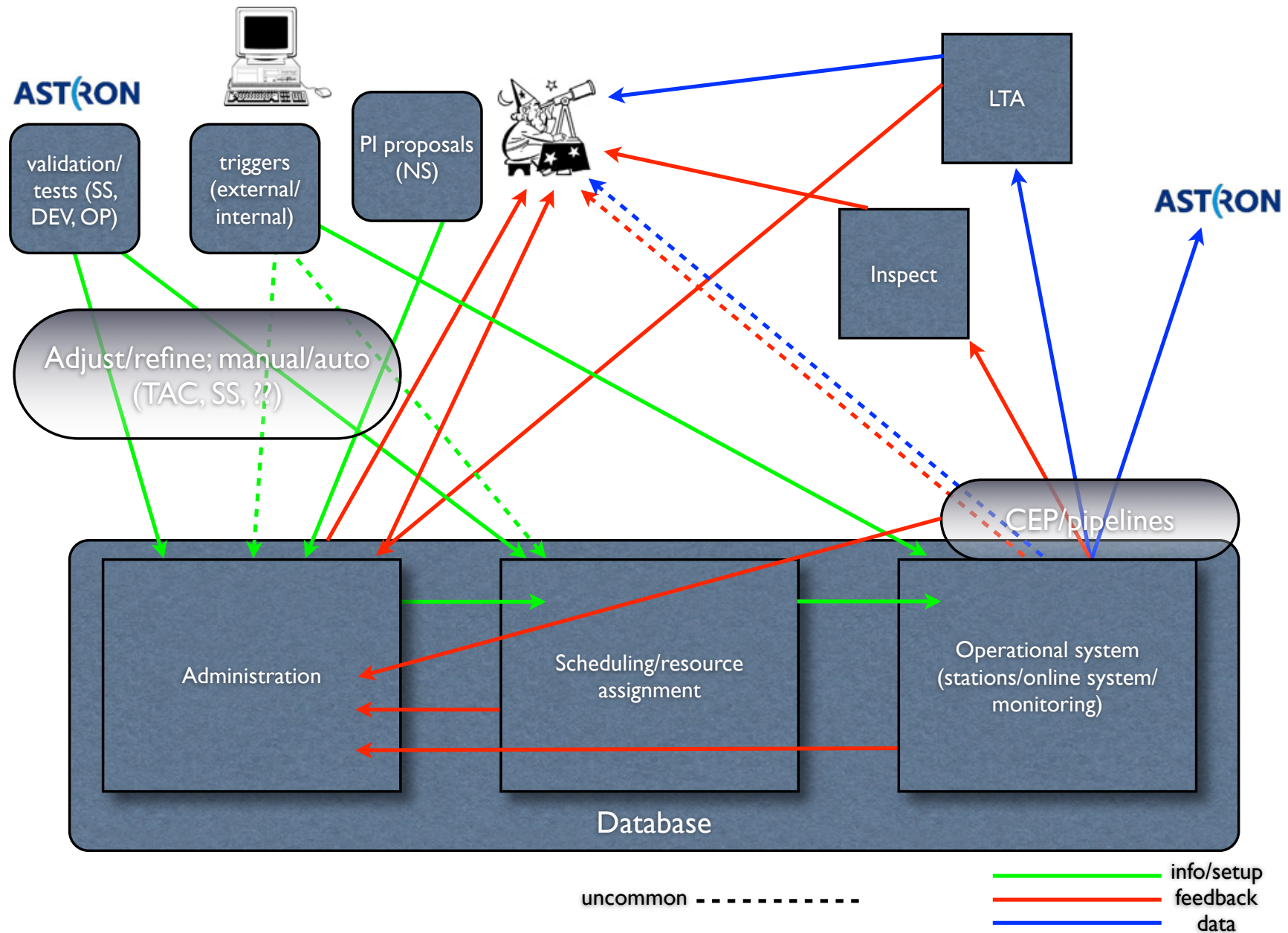


LOFARRR Architecture Update (ScS)

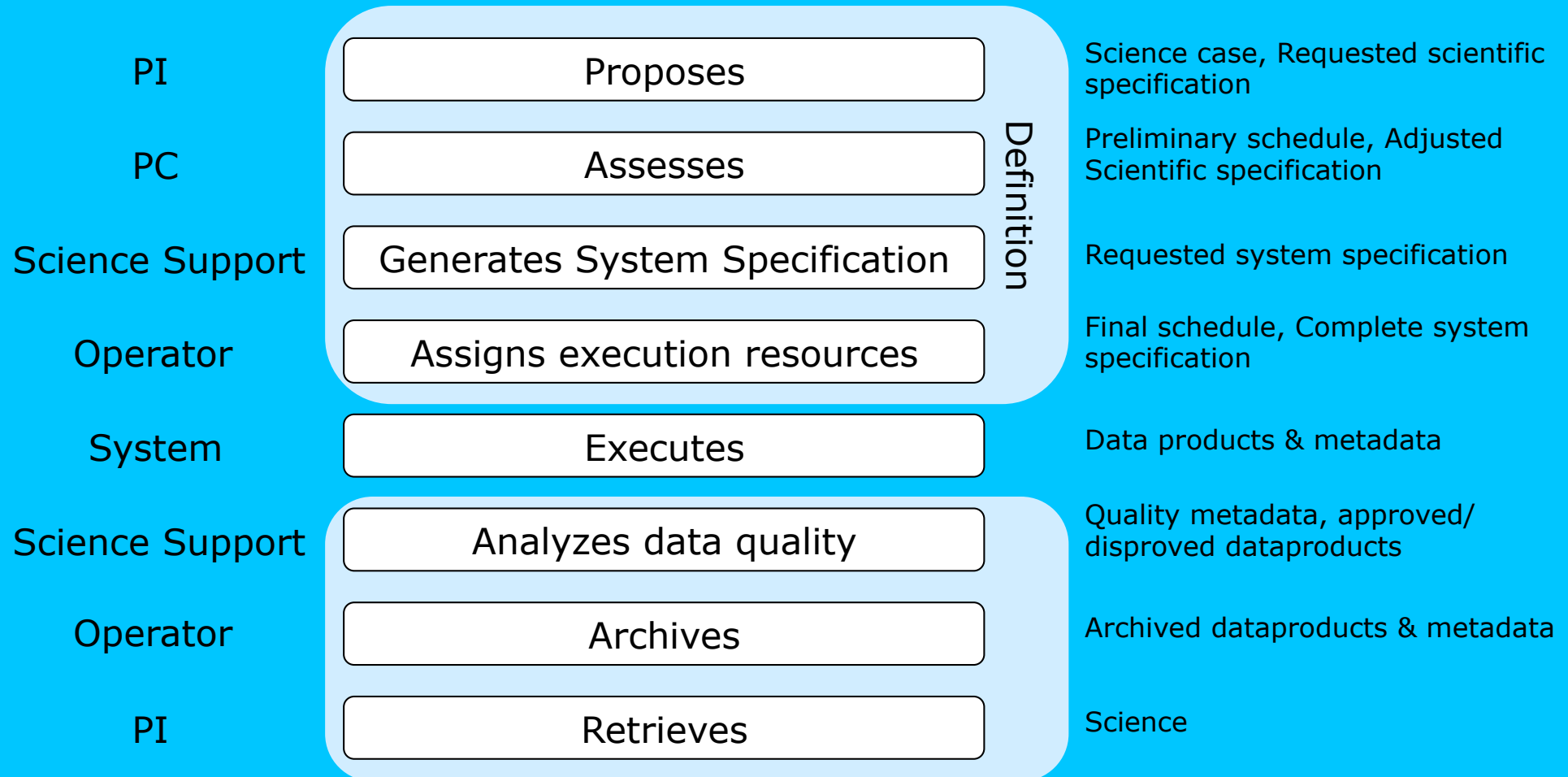
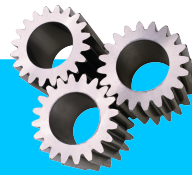
2/7/2014, Hanno Holties



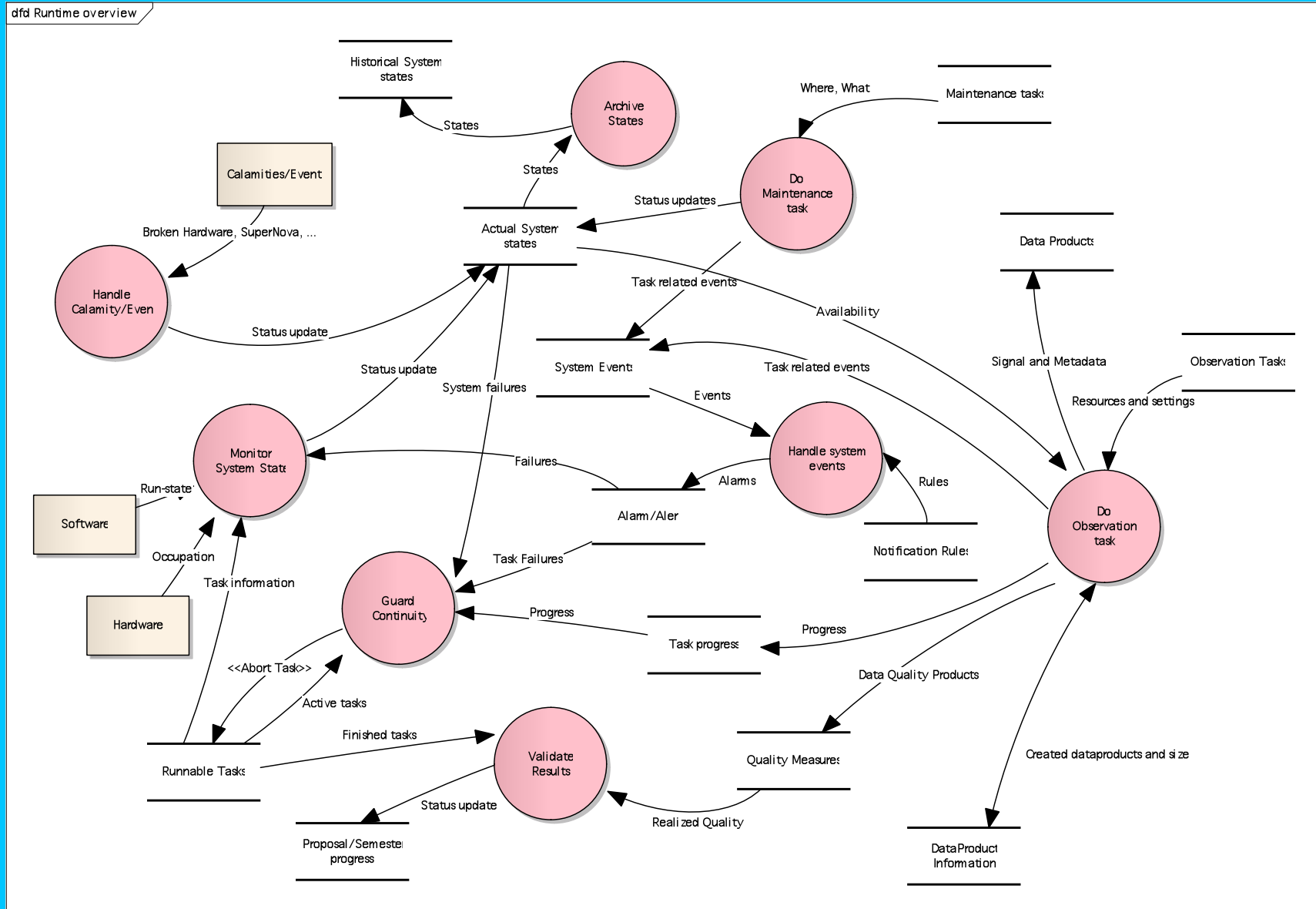
Science Support View



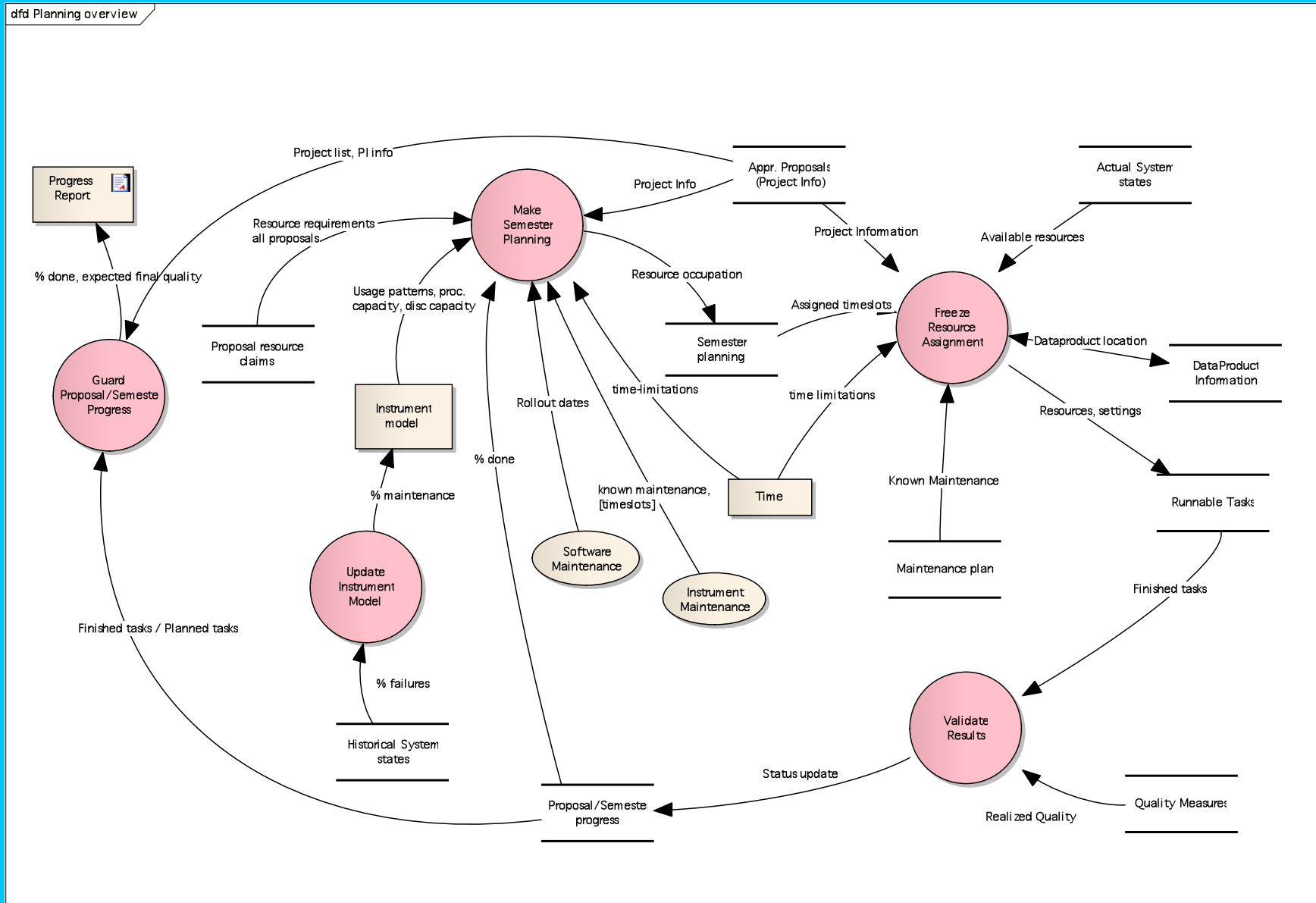
Nominal Workflow



DFD Runtime Overview



DFD Planning Overview



Reference architecture

Motivation



- Dot on the horizon
 - Focus & guide for design of new and adapted functionality
 - Idem for future refactoring of existing components
- Best practices
 - Many roads leading to Rome
 - Some better than others, not always clear
 - Build on proven architectural design principles
 - Re-use knowledge, tools, etc.
- When detailing design for an aspect/some functionality
 - Map to reference/target architecture
 - Validate that requirements (functionality, performance) can be met
 - If necessary: motivated deviation

Reference architecture

Requirements

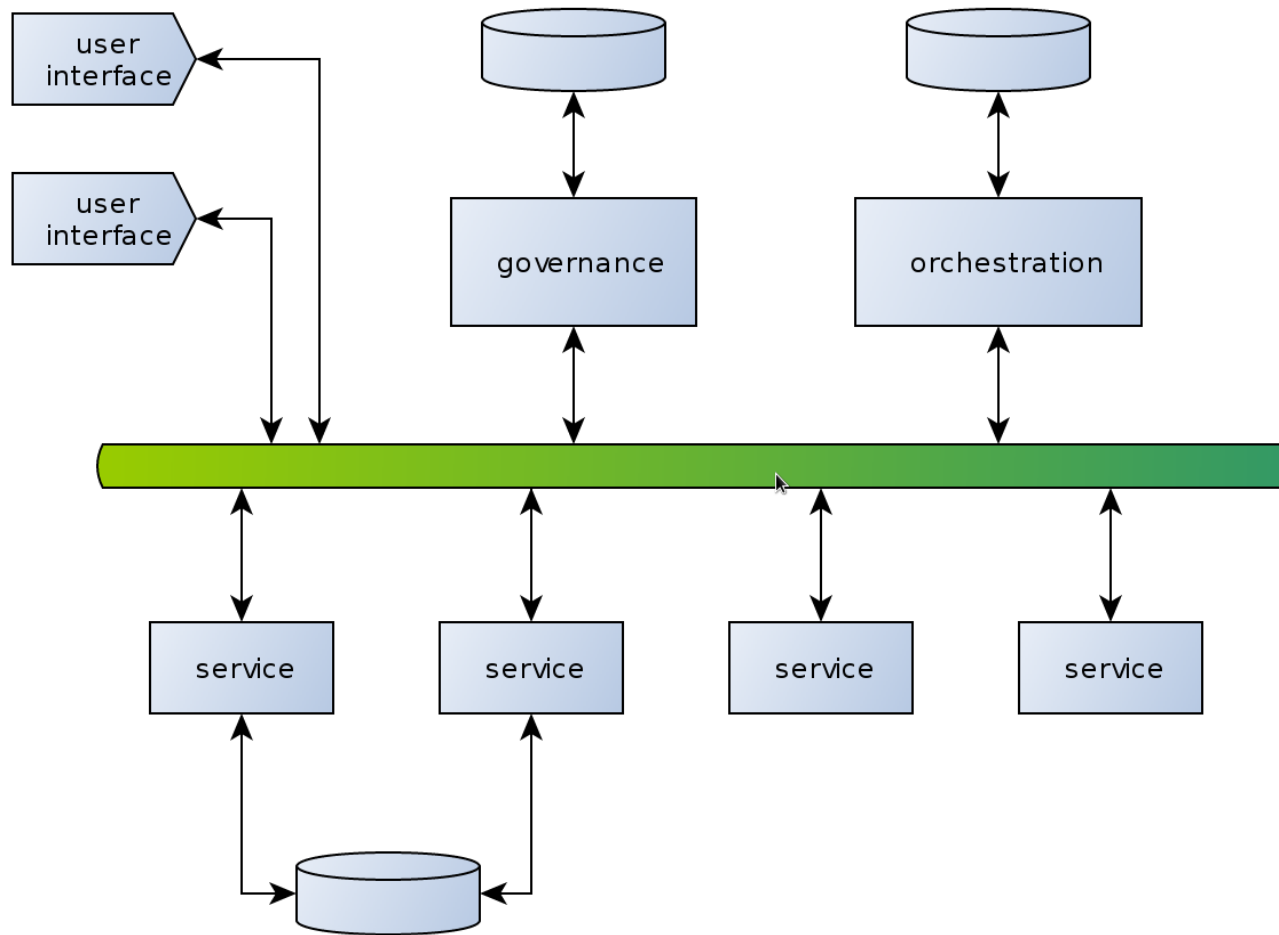


- Data and event driven model
- Modular independent blocks
- Stateless process interfaces
 - Allow for diverse user interaction patterns
 - Keep status of components (in database)
 - Database access through data access component
- Loosely coupled interfaces
 - Properly documented API (validate) and version control
 - Unit testable
- Parallel handling of multiple requests
 - Scalability: Allowing multiple instances of the server/service

Reference architecture

Three tier architecture with message bus

ASTRON



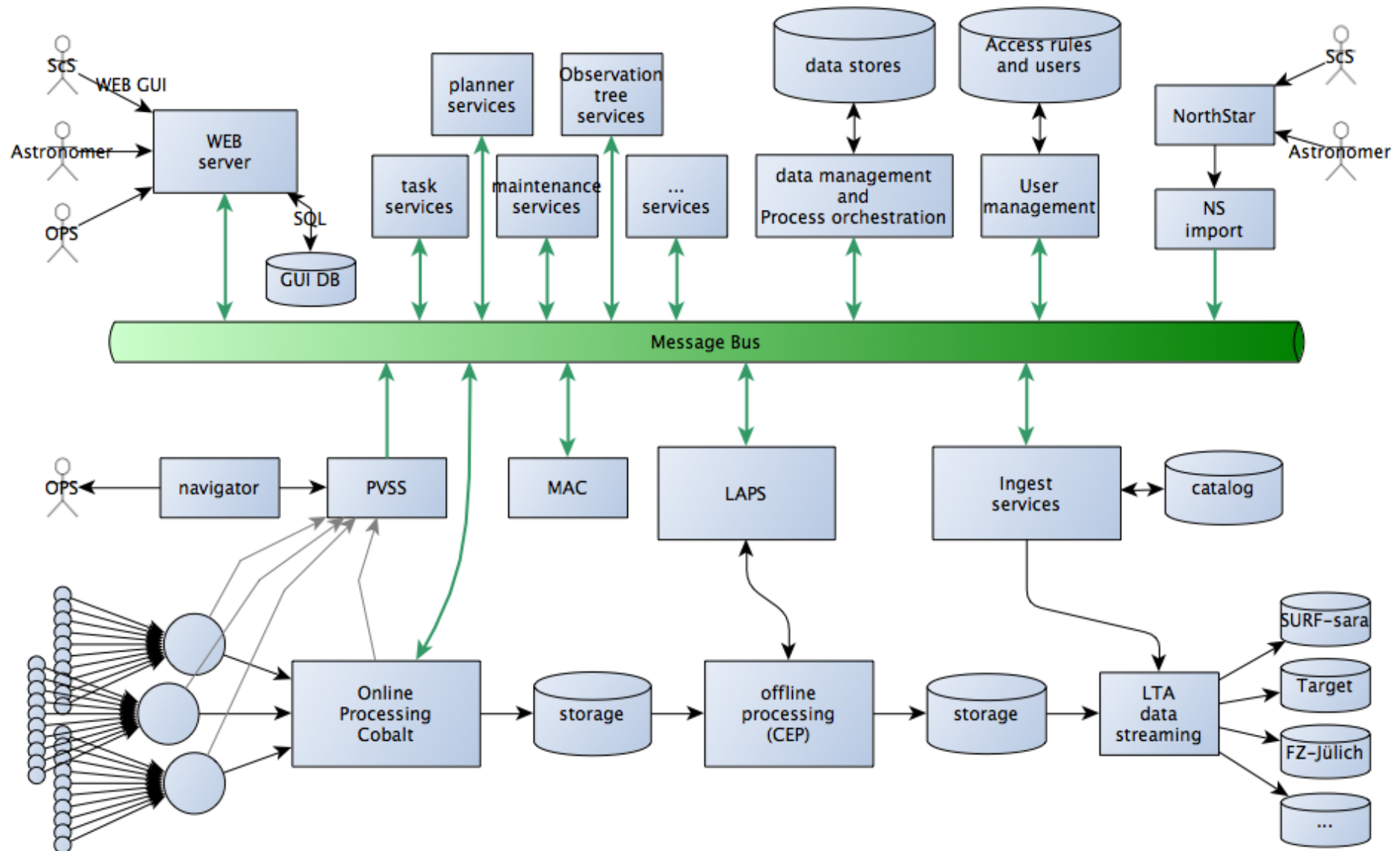
Message broker Bus structure.

Target LOFAR architecture

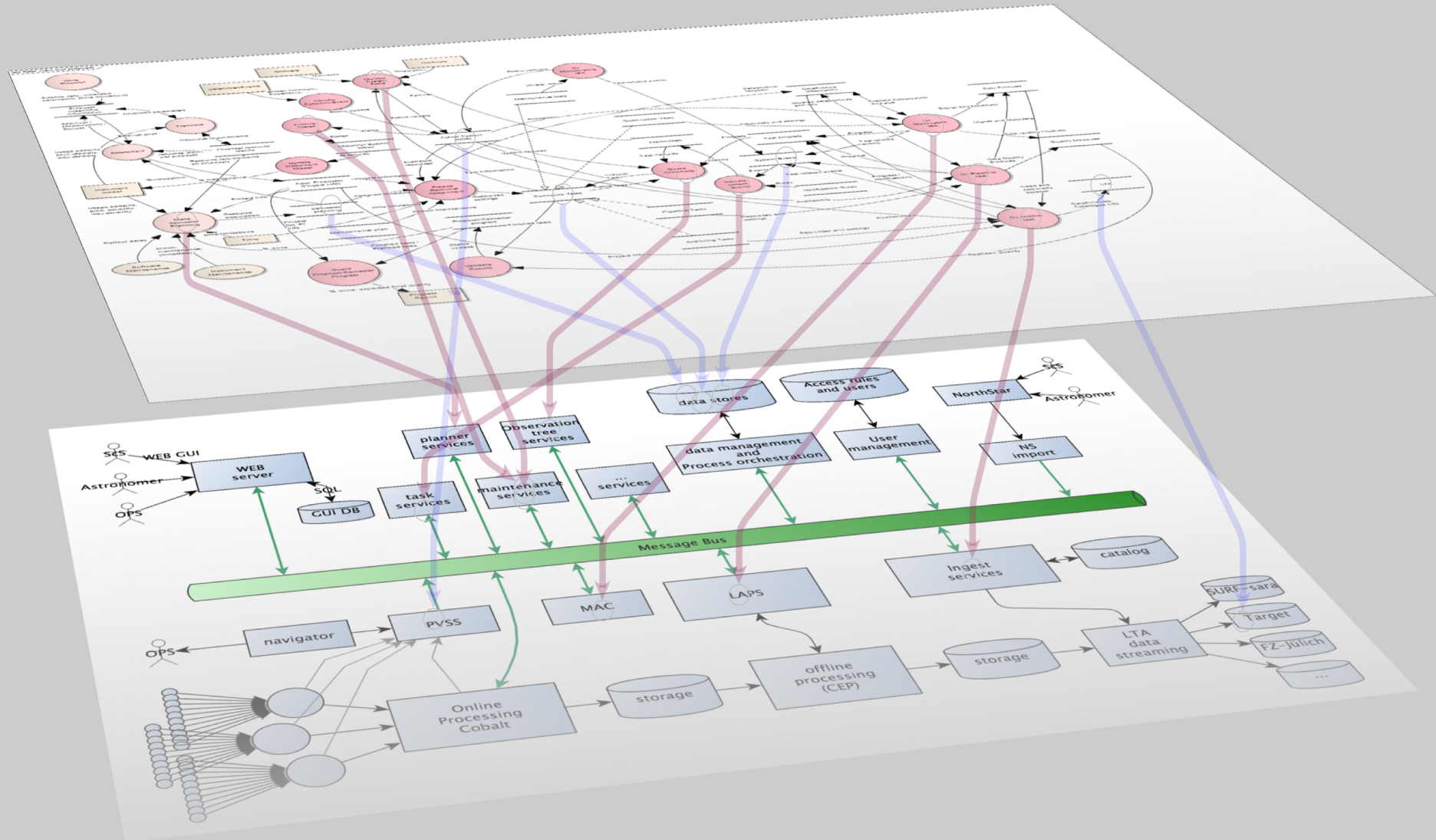


- Message bus supports multiple communication channels
 - Information exchange
 - Notifications and alerts
 - Logs
 - ...
- Public interfaces via web-server
 - Many reusable tools & components available
 - No firewall issues etc.
- Strive for consolidation of databases and data access services
 - Prevent concurrency issues & inconsistencies
 - Reduce technologies that need to be supported
- Long term perspective, full implementation probably not in scope of 3R
- Feedback welcome, to be discussed in targeted follow-up meetings

Target LOFAR Architecture



Mapping DFD and Target Architecture



Next steps



- Discuss and finalize high level Target LOFAR architecture
- Map RRR objectives on Current and Target architecture
 - Identify migration steps
 - Reduce risk by making steps manageable (i.e. not too big)
 - Aim for best result with least effort
 - Do not phase out existing components until full replacement operational
 - Get closer to Target architecture
 - Engage stakeholders for detailed design
- Continue work to complete architectural documentation in parallel
 - User requirements, Performance indicators, Information architecture (DFD), Application architecture (as presented)
 - TBD Technical architecture