



## DRAGNET in LOFAR Operations

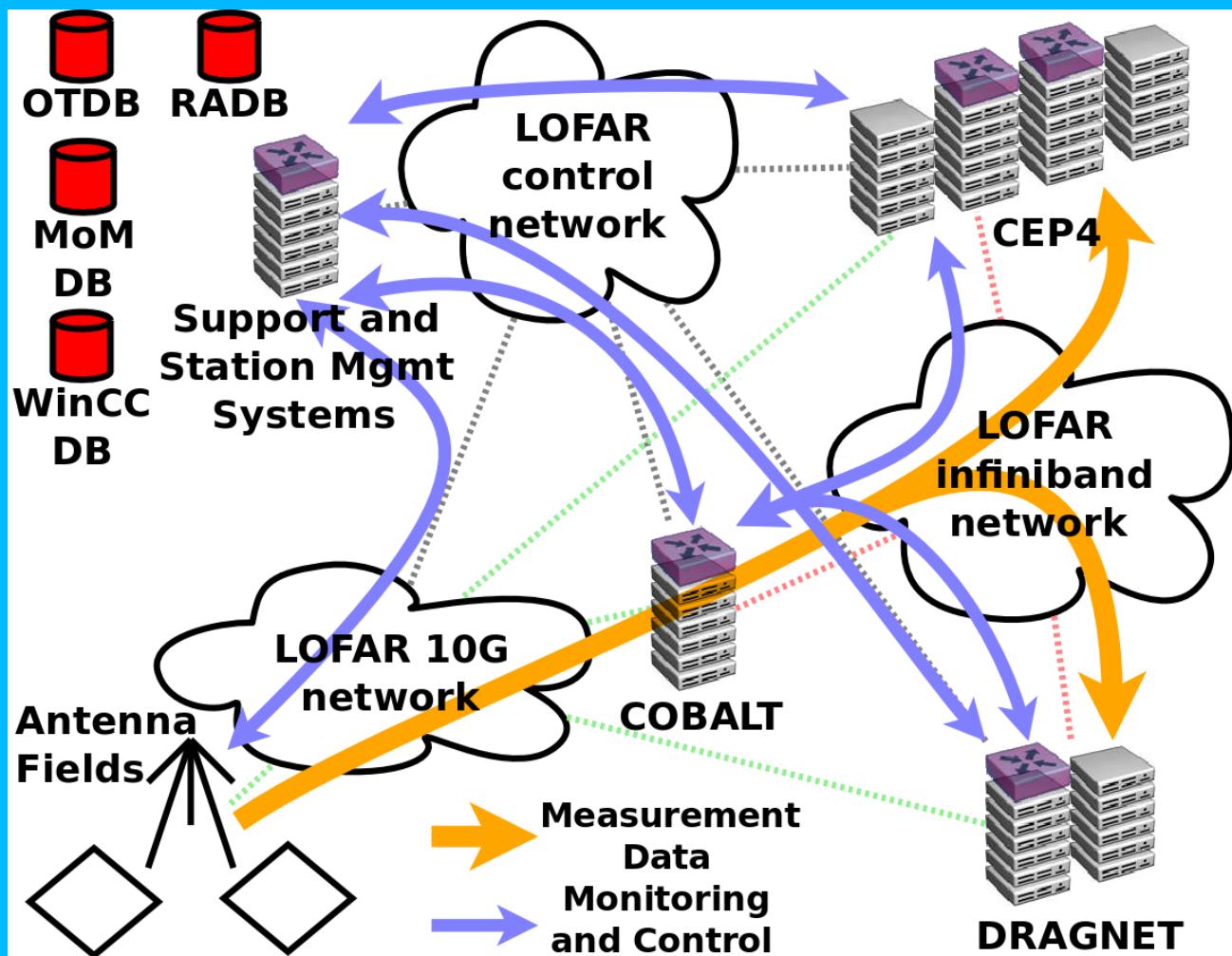
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# DRAGNET Cluster in LOFAR Operations

ASTRON



DRAGNET support: [dragnet@astron.nl](mailto:dragnet@astron.nl) (instead of <PI>@... or amesfoort@...)

# Outline



## Pass 1

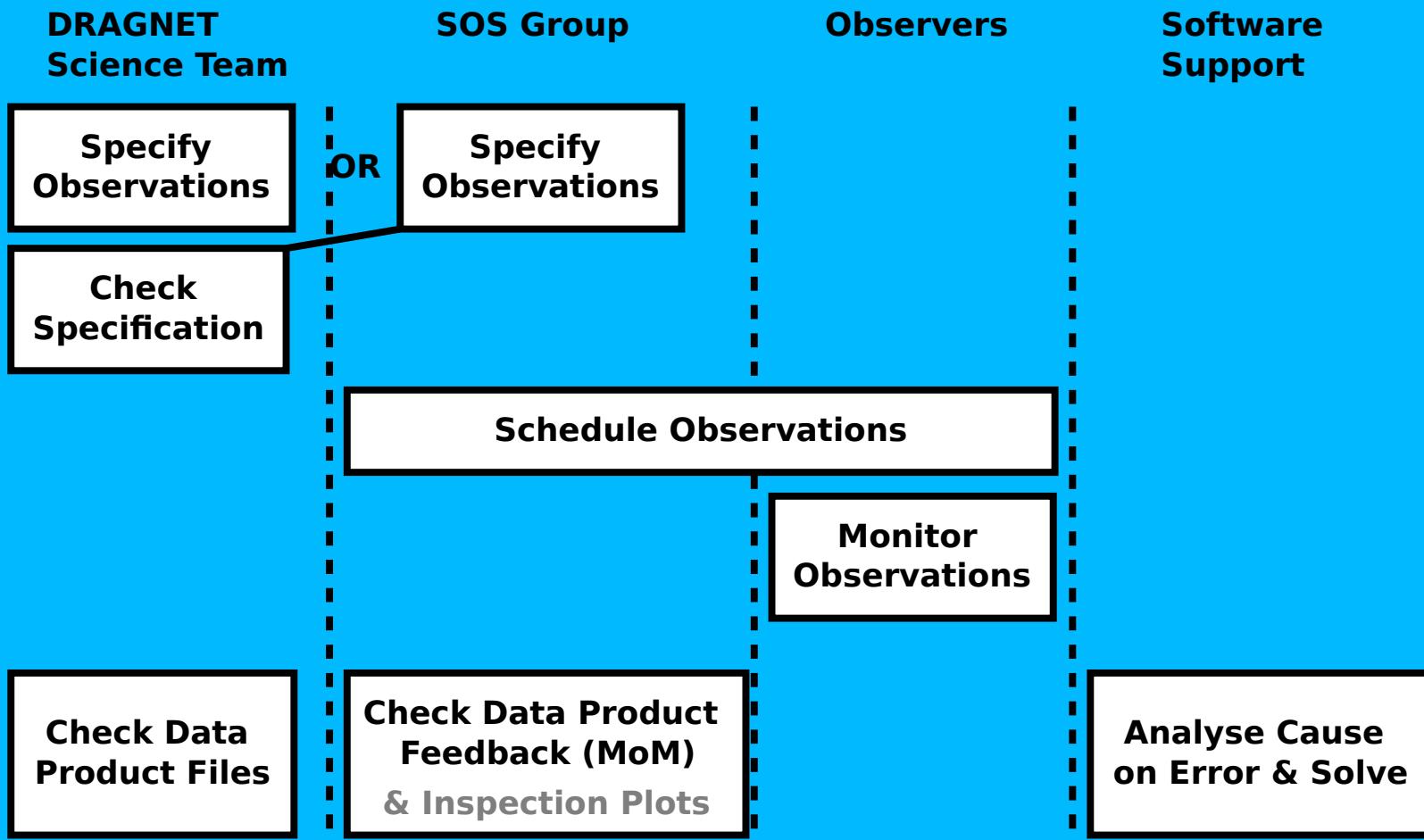
- How to observe to DRAGNET
- How to maintain observing capability to DRAGNET

## Pass 2

- Open discussion
  - I'll add notes and send slides around

# Observe to DRAGNET

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# Observe to DRAGNET: specification



- **xmlgen:** observation BLOCK

```
cluster = DRAGNET
```

**doc:** [https://www.astron.nl/lofarwiki/doku.php?id=operator:xml\\_generator](https://www.astron.nl/lofarwiki/doku.php?id=operator:xml_generator)

- Or edit XML for each SAP and data product type

```
<storageCluster>
  <name>DRAGNET</name>
  <partition></partition>
</storageCluster>
```

# Observe to DRAGNET: schedule & conflicts

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- Resource “web” scheduler

The screenshot shows a web-based scheduler interface with the URL `scu001.control.lofar:7412`. The search bar contains the same URL. The search parameters are set to `From: 2017-06-30 17:18:52` and `To: 2017-07-03 11:00:00`. The results table lists three tasks under the project `DDT8_001`:

Name	Project	Start	End	Duration	Status	Type	Size	Group ID	MoM ID	SAS ID	RADB ID	Cluster
J0652+47/1/TO	DDT8_001	2017-07-03 09:00:00	2017-07-03 09:20:00	00:20:00	scheduled	observation		796119	796120	598805	77587	DRAGNET
J0652+47/2/TO	DDT8_001	2017-07-03 09:50:00	2017-07-03 10:10:00	00:20:00	scheduled	observation		796119	796122	598807	77588	DRAGNET
J0652+47/3/TO	DDT8_001	2017-07-03 10:40:00	2017-07-03 11:00:00	00:20:00	scheduled	observation		796119	796124	598809	77589	DRAGNET

- On status="conflict"  
find conflicting claim(s)

**Task 77587**  
[observation log](#)  
[view observation parset](#)

## Claims

status	claimed (or conflict)
resource_name	drg01_storage:/data1
...	...

- Or use the `resourcetool` command-line utility

# Observe to DRAGNET: during & after

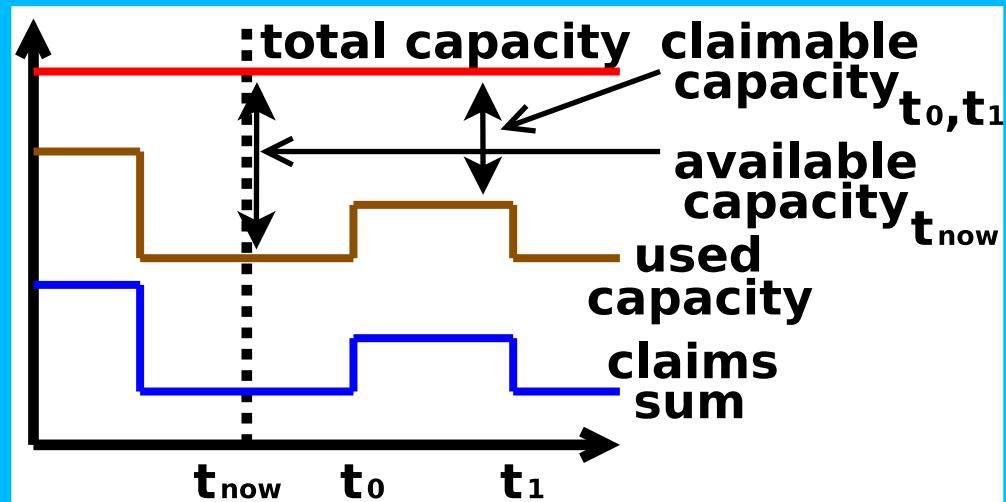


- Observation monitoring
  - WinCC/Navigator support for CEP4 & DRAGNET (Arthur)
- After observation to DRAGNET
  - No *observatory* pipelines: intentional
  - No inspection plots, also no beamlet statistics: doable
    - Discussed: run on DRAGNET to copy beamlet statistics & provide beamformed data file sizes
  - No LTA user ingest for beamformed data: really missing

# Observe to DRAGNET: resource allocation database

AST(RON)

- Resource Allocation database (“RADB”)
- Already scheduled tasks  
**not** affected on later  
RADB changes
- StorageQueryService and  
CleanupService not used  
on DRAGNET



- Storage claim end time initially set to task end time + 1 year
- Periodically end storage claims and update available capacity
  - `[drg01 ~]$ resourcetool --broker=scu001 -E -U`
- doc: <https://www.astron.nl/lofarwiki/doku.php?id=operator:resourcetool>
- `resourcetool` also useful for diagnosis and maintenance

# Maintaining DRAGNET in Operations

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- Minimize breakage
  - Inform DRAGNET team on changes
  - But LOFAR is complex: parts break from time to time



- Detect breakage early at minimum effort
  - Testing in various stages
  - More testing per stage: diminishing returns
  - Test diverse cases: achieve high(er) test “coverage”
- DRAGNET in PreRelease, post roll-out tests? Discussed: yes & how

# Maintaining DRAGNET: software roll-out

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- Software release roll-out dates and release notes:

[https://www.astron.nl/lofarwiki/doku.php?id=public:important\\_dates](https://www.astron.nl/lofarwiki/doku.php?id=public:important_dates)

[https://www.astron.nl/lofarwiki/doku.php?id=maintenance:lofar\\_release\\_notes](https://www.astron.nl/lofarwiki/doku.php?id=maintenance:lofar_release_notes)

- LOFAR packages on DRAGNET:

- Keep Online\_Cobalt in sync on COBALT/CEP4 and DRAGNET!

The screenshot shows a Jenkins dashboard for the LOFAR DRAGNET cluster. The URL in the browser is <https://support.astron.nl/jenkins/view/LOFAR%20Subsystems/view/DRAGNET/>. The page title is "Jenkins". The left sidebar includes links for "New Item", "People", "Build History", "Edit View", "Delete View", and "Print/Email". The main content area has a header: "Software build, roll-out, and release selection for the LOFAR DRAGNET cluster (contact: dragnet@astron.nl)". Below this is a navigation bar with tabs: "Build Triggers", "Cobalt", "DRAGNET" (which is selected), "Docker Pipelines", "OTB\_Java", "Offline builds", "OutputProc", "Subsystems builds", and a "+" button. A table lists two build configurations:

S	W	Name	Last Success	Last Failure	Last Duration
		DRAGNET_LOFAR_Activate	20 days - #5	4 mo 1 day - #1	1.1 sec
		DRAGNET_LOFAR_Build_and_Deploy	20 days - #14	25 days - #12	13 min

- To test PreRelease switch to it & back, or designate a test node
- Vlad, Cees may need access to Jenkins, Redmine, LOFAR svn, ...

# Maintaining DRAGNET: resource changes



- Node or disk unavailable (broken or into test system)
- Use `resourcetool --broker=scu001 drg01_storage:/data1 False`
- Inform observers to reschedule already scheduled observations!
  
- Change total or available resource capacity
- Use `resourcetool --broker=scu001 drg01_storage:/data1 100000000,100000000`
  - and adjust periodic auto-update
  
- Ability to work around the system is *intentional*

# Maintaining DRAGNET: other changes



- Stop-days
  - DRAGNET not in stop-days (but portal & switches are)
  - Discussed: tests to DRAGNET after stop-days (“genvalobs”)
- LOFAR build breakage
  - Install new dependencies on DRAGNET
- Discussed: Reconsider pipeline preemption via slurm or service

# DRAGNET Dependency List



- LOFAR repository packages

LOFAR/trunk/CMake/variants/variants.dragnet

From LOFAR/trunk/SubSystems/Dragnet/CMakeLists.txt

```
lofar_package(Dragnet DEPENDS Online_Cobalt Offline_ResourceTool XML_generator)
```

- StaticMetadata antenna positions, ...
- Jenkins, Redmine/JIRA, resource scheduler, ResourceAssignmentService
- casacore measures/IERS tables from ASTRON FTP (auto-update)
- qpid messaging middleware settings for:
  - observation feedback
  - resourcetool --broker=scu001.control.lofar ...
- Usual network services: DNS, NIS, mail server, inet gateway, ...
- Lustre client kernel module settings

# End of Pass 1



- DRAGNET now part of operational LOFAR system
  - Interactions between and roles of stakeholders
- DDT8-001: all 3 observations today finished fine (“heel gegeven”)
- On to Pass 2: Open discussion (discussed items added/updated)