The LOFAR phase II cluster (update)
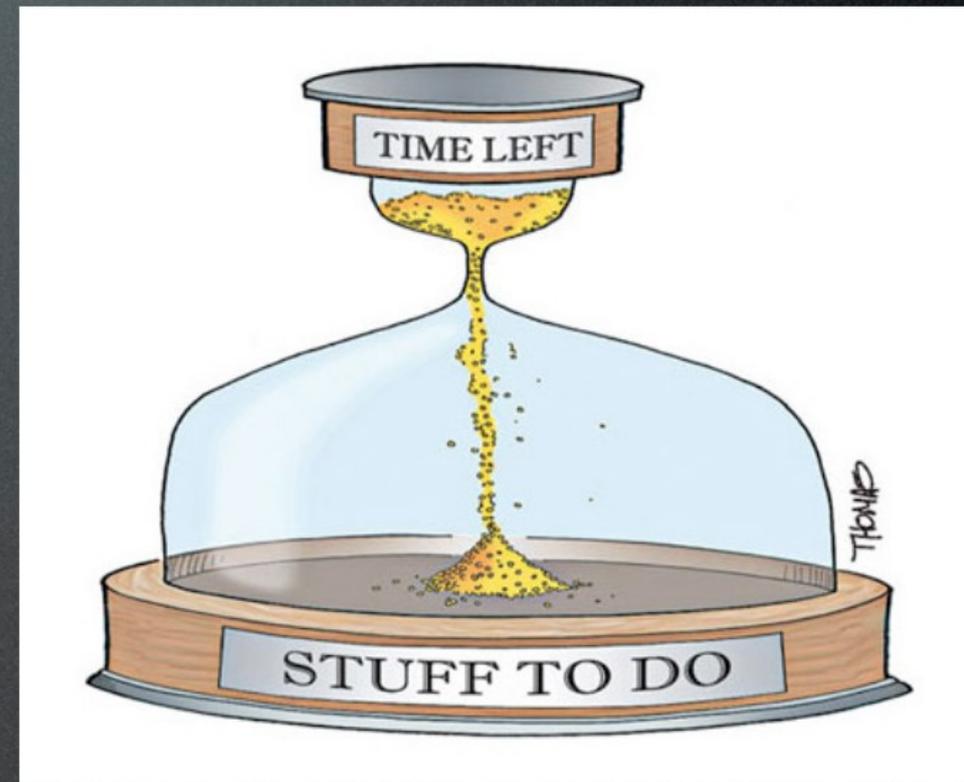
Chris Broekema

on behalf of
Harm Paas (RUG), Teun Grit, Arjen Koers (RUG) and Andre Gunst

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LOFAR New Year's Resolutions

- More taart (i.e. nice results).
- More short LSM presentations about observational and reduction results.
- Communicate more between groups.

Rough planning

Preliminary schedule CEP 2.0 cluster installation

ID	Task Name	Start	Finish	Duration
1	Hardware installatation	1/17/2011	2/11/2011	20d
2	Network	1/31/2011	2/11/2011	10d
3	Bridge configuration	1/24/2011	2/25/2011	25d
4	OS etc	1/24/2011	2/25/2011	25d
5	Acceptance tests	2/14/2011	2/25/2011	10d
6	Porting applications	1/24/2011	2/25/2011	25d
7	Migrate production	2/28/2011	4/1/2011	25d
8	Migrate staging	4/4/2011	4/29/2011	20d
9	Migrate development	4/4/2011	4/29/2011	20d

Current status

- Bi-weekly planning / scheduling meeting

- LSM updates for foreseeable future

- ClusterVision finished preparing the racks

    - All rails, cables and switches in place

- First pilot hardware has arrived

    - Testing of the base software stack

- Burn-in testing of the rest of the hardware

- Expected start of installation: 7th February

Current status

- First networking steps taken Jan. 17th
  - Moved international stations to different switch
  - Migrated to new station – BG/P connection scheme
- Next: move phase 1 to make room for phase 2
  - Planned for Feb. 7th
  - Will involve disruption of service to phase 1 cluster
- Zernikeborg – Landleven trunk expected soon
- Pilot hardware available to pilot users very soon
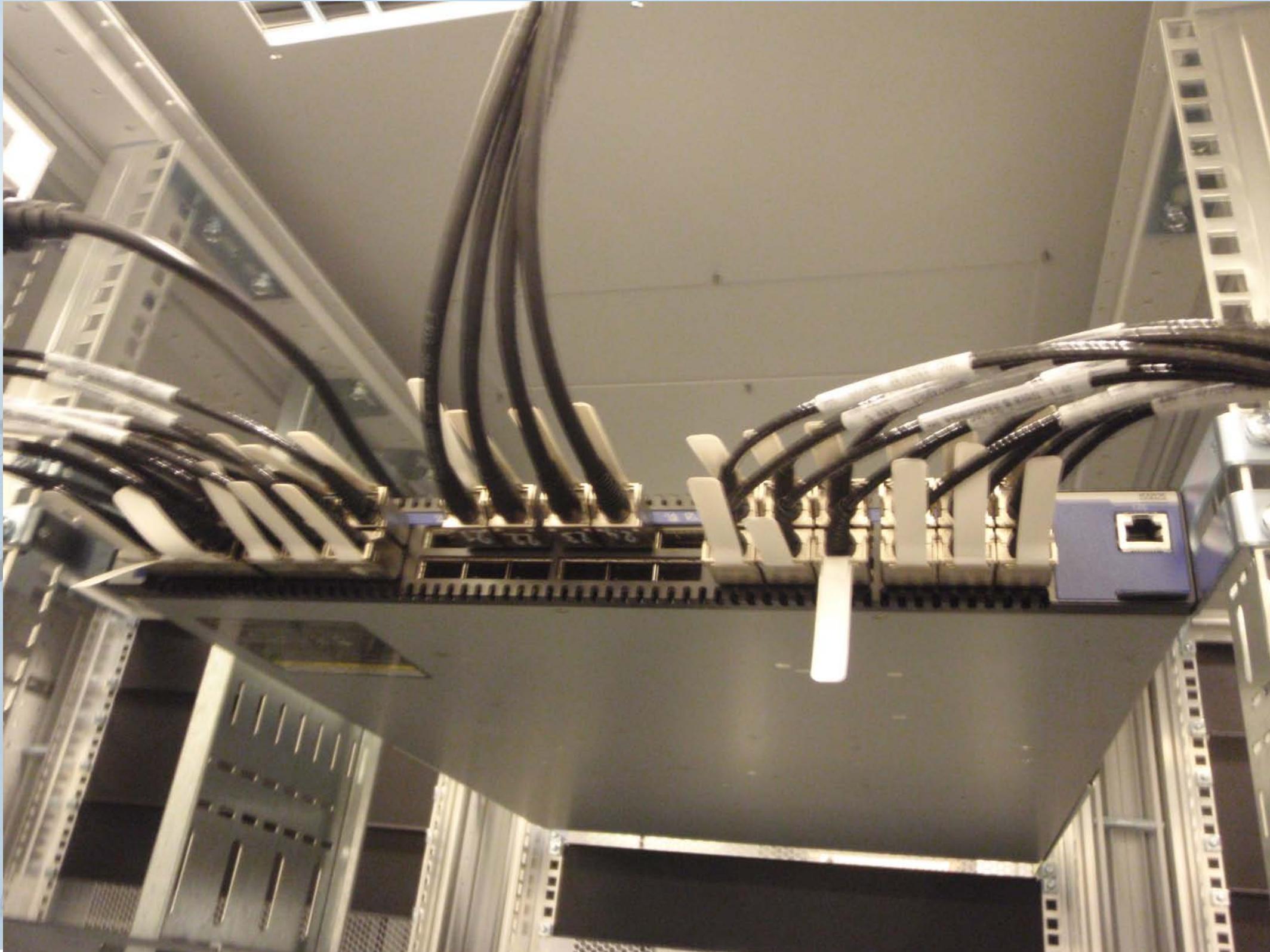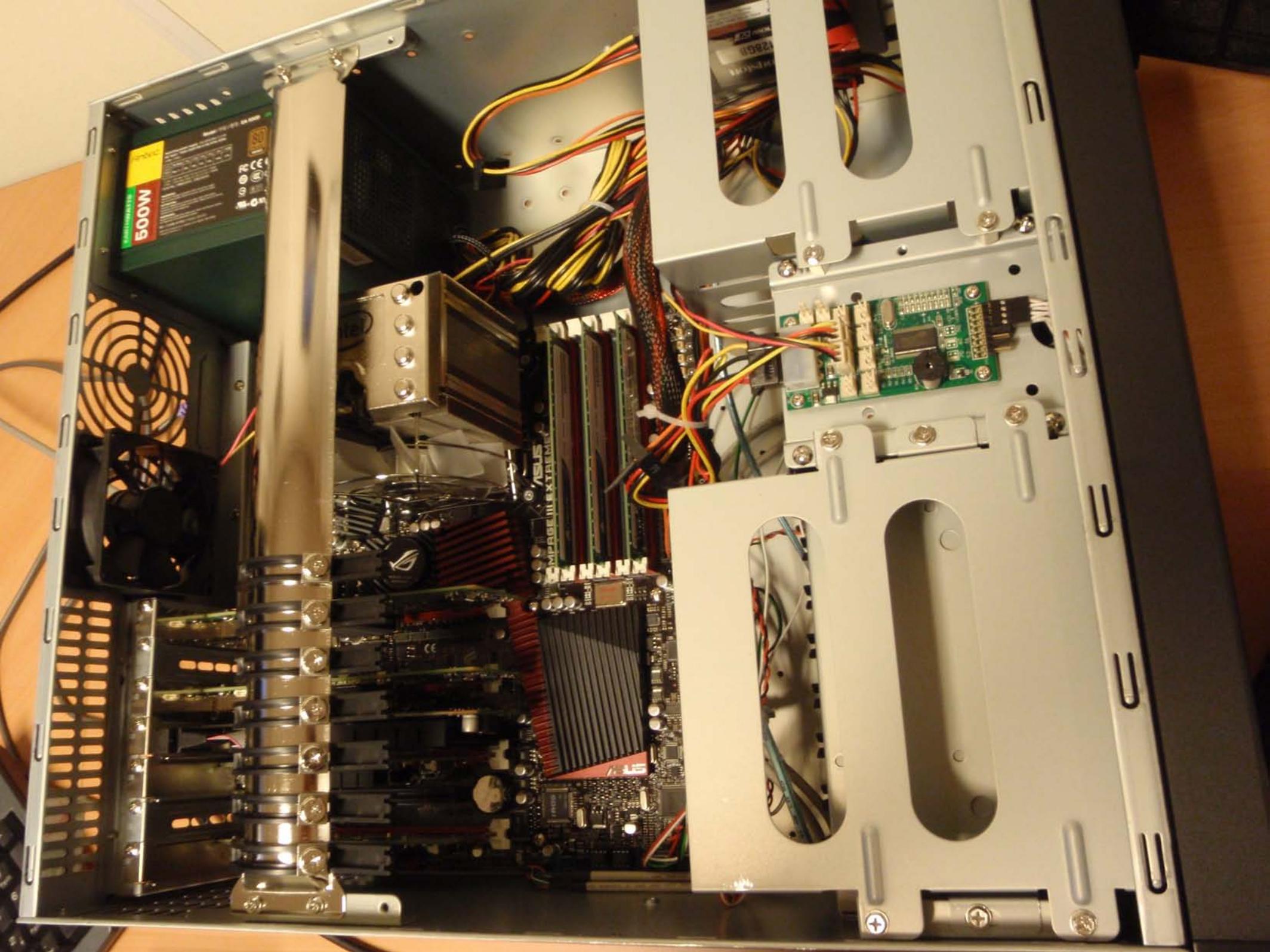 - Port software stack and pipelines

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* Hardware installation **[25%]**
  Resposibility ClusterVision
  - **[X]** pilot hardware
  - **[ ]** install all nodes
  - **[ ]** connect network to patch panel
  - **[ ]** DOA test of all equipment

* Network **[50%]**
  - **[X]** Blue Gene rack R02-M1 less IO rich
  - **[X]** Add extra 10G module RX16 Core
  - **[ ]** Move phase 1 cluster from Core to BG-L
  - **[ ]** Add patches for phase 2 cluster
  - **[ ]** Configure ports for phase 2 cluster
  - **[ ]** Add patches for Target
  - **[ ]** Configure ports for Target
  - **[X]** Move international stations to BG-L
  - **[X]** Add shortcut links from BG-L to BG0 - BG3
  - **[ ]** Connect RS205 to port reserved for RS410
  - **[X]** Arrange patch panel for TARGET
  - **[X]** Arrange patch panel for Phase II cluster
  - **[ ]** Connect LOFAR to DAS-4 cluster

* Bridge configuration **[%]**
  - **[ ]** Install three bridge nodes in default configuration
  - **[ ]** Configure Blue Gene to use single bridge for first tests
  - **[ ]** Design a way to divide bridges among IO nodes efficiently
  - Use fourth node for experiments to increase performance

* OS installation **[33%]**
  - **[ ]** build and install a central node that can provide services that will not travel through the bridge
  - **[X]** new bootleg image using 10.04 LTS
  - **[ ]** test and roll-out

* Acceptance tests **[%]**
  - **[ ]** Bandwidth test from Blue Gene to disk
  - **[ ]** Store 35 Gbps raw data from Station beamformer for offline corralation (requested)

* Porting applications **[%]**
  - **[ ]** Make one new frontend node available to pilot users ASAP
  - **[ ]** Make sure all installed applications on the old cluster are ported to the new cluster
  - **[ ]** Have RO point out pilot users that will actively port the applications when frontend is available

* Migrate production
  - **[ ]** do full production run on new hardware
  - In this period the old phase 1 cluster will still be available for production while we bring the new phase 2 cluster online.

* Migrate staging **[%]**
  - **[ ]** Configure at least one of the four partitions as part of a distributed filesystem
       - Test pvfs2
  - **[ ]** Install gridftp client
  - **[ ]** Configure connection to LTAs

* Migrate development **[%]**
  - **[ ]** Add distributed filesystem mount to nodes
  - **[ ]** probably divide cluster into three components with varying size:
       - Development of offline algorithms
       - Commissioning work
       - Compute intensive tasks not directly related to production
  - We may need to configure a cluster scheduling tool for the last task
       Does anyone have experience with a scheduler?

* Commissioning **[100%]**
  - **[X]** Migrate LOFAR system to new connection scheme
  - **[X]** Make sure optimized network configuration is correctly implemented