Minutes of Meeting LOFAR Software

Date:	2008-02-06
Next meeting:	2008-01-16 9:15-10:15
	Paviljoen West room
Present:	
Andre Gunst	Yes
Ronald Nijboer	No
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	Yes

cc: Arthur Coolen, Jurjen Sluman, Pieter Donker, Chris Broekema, Martin Gels, Joris v. Zwieten, Marcel Loose, Adriaan Renting, Ger van Diepen, Max Avruch, Peter Boonstoppel, Michiel v. Haarlem, Jan Reitsma, Ger de Bruyn, Arno Schoenmaker, Hanno Holties, Corina Vogt, Jan Noordam, Joe Masters, Lars Bähren, Dion Kant, Johan Hamaker

Remarks previous minutes

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Announcements

- Tomorrow Ruud Haring will hold a talk about the next generations of Blue Gene.
- Next Monday the input cluster will be removed from the operational datapath.
- IEEE paper is submitted
- Long term archive document was distributed
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Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
40	20070710	Revise software plan. First draft is sent to KSPs.	Michael/Andre	20080131	Closed
46	20080109	Testing SAS/MAC on CS001T with the new OLAP software. SAS part is producing a parameter set which can be used by OLAP. Almost done. The connection to Groningen was down, which needs to be solved.	Ruud	20080116	Ongoing
48	20080116	Plan discussion about HDF5	Michael	20080214	Open
49	20080116	Simultaneous data storage of TBB and in OLAP to validate inverse poly phase filter bank of Kalpana	John/Andre	20080204	Open
50	20080130	Check H7 which was distributed by Ruud about the metadata	All	20080206	Closed
51	200080206	Ruud made a meta data chart. John should check the inputs and the outputs of the online subsystem and Ronald of the offline subsystem.	John, Ronald	20080220	Open
52	200080206	What functionalities are required for the 18 stations (expected end 2008).	Andre	20080220	Open
53	200080206	Estimation of work if CS1 is scaled up to 18 stations.	John, Ruud, Ronald	20080227	Open

Progress

Stations (André):

Achieved since last meeting:
- The cost optimized HBA prototype works. However, due to different switches the compensation circuits (when the delays are off) have to be changed. These changes affect the delay. The consequence is that the delays of the new prototype have an offset. Hence, it was decided not to produce one tile of with these units.
- The problem of clocking in the pps at different samples by the RSP boards is solved.
- The least two bits of the source MAC addresses of the RSP boards are changed for each packet. The result is that the station switches balances the load of the four RSP boards equally over 3 fibres. As a consequence the observing bandwidth can be increased (note at CS008 and CS016 the old RSP boards are operational, which cannot be updated with this feature).

Problems / current activities:
- Long distance delay tracking is not tested again
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Next actions:
- Step 4

OLAP (John):

Achieved since last meeting:
- Peter solved again two bugs in the kernel. It seems to converge, but it is not stable enough.
- Martin is ready for testing the BG/L part for multi-beaming.
- John discovered that one link of CS010 was degrading. Operations should take the responsibility for this.

Problems / current activities:
- John was busy writing raw data after the buffer in the BG/L solution, which is necessary for the Kalpana experiment and for pulsar observations. This includes course delay tracking.
- Robustness for failing disks is not included yet.
- Chris worked on the CEP procurement document and preparing installation of new switch (for coming Monday).
- John is busy writing a paper for IEEE Computer Magazine.

Next actions:
- Step 4

Offline pipeline (Ronald):

Achieved since last meeting:
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Problems / current activities:
- Joris is working on the global solver and making progress.
- Maaike worked on the implementation of the Karhoene-Louve ionospheric model in Meqtrees
- Ger and Maaike have worked on the visualization of the calibration solutions.
- Pandey is completing the validation and testing of the pipeline including UV-fitting.
- Coding for BBI is essentially done. Related Step 4 activities will focus on testing and validation. We need some documentation as well as an overall testing and validation plan.

Next actions:
- Step 4.

SAS + MAC + SHM (Ruud):

Achieved since last meeting:
- Pieter did some measurements with the TBB board in continuous mode. He is getting 6000 triggers per board. In single shot mode 450 triggers per second are generated, which is the maximum the LCU can handle. Conclusion is that the trigger algorithm is too sensitive right now.
- In Marcel's software the geo centric coordinates are changed (this solves the coordinate issue).

Problems / current activities:
- Pieter is busy to work on the cable length compensation, which must be set from the LCU. Furthermore he is working on the temperature control with a low priority.
- Max is busy to make the web application of SHM with subband statistics, cross let statistics, beamlet statistics and diagnosis statistics.
- Arthur is working on Navigator 2.0 screens, which looks very usefull. This Navigator version gives much more insights in the relation between hardware, observation and the processes running.
- Ruud made changes in SAS, PVSS and MAC for supporting multi-beaming. Databases are updated and ready to be tested.
- Ruud will check with Pandey the DP3 interface.

Next actions:
- Step 4

User Software (Michael):

Achieved since last meeting:
- First version of socket TBB reading program is ready.
- Joe made a version to read in the raw station beam data and convert it to HDF5 files. The question raises if this is one file per station instead of one file per subband or per few subbands. The reason for the question is because the input cluster is removed and data goes now directly to BG/L. This changes the way the raw station beam data is written.

Problems / current activities:
- Webserver machine is going down frequently. A newer machine will be setup (LOFAR26).
- Lars made updates to the connection between DAL and the cosmic ray pipeline tools. It includes the ability to read and access the TBB data.
- Lars updated the documentation for the cosmic ray pipelines (to include also the connection with the other cosmic ray applications).
- Next step for Lars is to work on the near field imager (skymapper). Lars wants to test it with LOFAR data.
- Joe will make the hooks in DAL to include metadata (some of the metadata should end up in the header of the dataproducts).
- Joe is checking how much work is required to connect DAL to CASA core for using the HDF5 data format
- Next actions are: to update the document about the beamformer product format and do profiling on the data access layer.

Next actions:
- Review activities for Step 4.

Software integration

Achieved since last meeting:
- Version control numbering is implemented in the RUP tool. The software builds and a version can be included. Ger van Diepen distributed a mail with instructions how to read the version and revision number of the build and write it to a log file at start up of an application.
- First draft of the software plan is sent out to the KSPs.

Problems / current activities:

- Marcel is busy with streamlining the build environment
- Compile a list of anticipated data products and calibration or metadata files associated with each of the pipelines.
- LOFAR development software needs to be build in Kubuntu (Michael has volunteered)

Next actions:
- Define the length of Step 4.
- Step 2+: A test program will be initiated to verify the functioning of the LOFAR software in a more structured way. In OLAP it is possible to store the raw station data and feed this into the pipeline later on. This makes it possible to define a standard data set, which can be applied to the pipeline as soon as major software changes have been taken place.

Decisions

ID	Date submitted	Decision
02	20061220	Every Step will start with a Kick-off meeting, in which the complete software team participates.
~~03~~	~~20061220~~	~~The project team starts immediately with the preparations of the next CDR in order to preserve progress of the CS1 realization~~
04	20070116	This meeting will take place every week on Tuesday 11:00. The existing software team meeting with all developers will stop to exist.
05	20070130	Step 1 will be changed to 16 subbands instead of 32 subbands.
06	20070130	Step 2 will contain a multiple node BBS. 6 μStations/Station will be postponed. Instead of this, 32 subbands measurements will be realized.
07	20070206	Step 1 will support 160 MHz observations. The other steps will support 200 MHz as well.
08	20070424	Step 2 will support 16 subbands @ 200MHz and 24 MHz at 160 MHz
09	20070424	During the rest of step two, OLAP will only support observations during the weekend.
10	20070522	The number of subbands per Measurement Set is set to 6 or 8 default.
11	20070522	Scheduler activities will be preferably activated in Q4 2007.
12	20070522	Procure, three Local Control Units to accommodate 12 microstations in CS010 in a quick way.
13	20070529	Integrate version numbers in all software.
14	20070529	Distinguish the software between a production version and an engineering version (partly now already the case).
15	20070605	All developed software under CVS will be transferred to Subversion. The main reason for this is that Subversion supports the integration of version numbers in the executables. In this way you can always retrieve which software is used for a certain build. First the impact of the transfer will be investigated by Marcel.
16	20070619	Marcel Loose will be the librarian of the LOFAR software. The available time for this will be shared with his BBS work.
17	20070710	The known pulsar survey mode will be the next mode to support (not in its full extent but partly on-line and off-line).
18	20070710	The temporarily off-line part of the known pulsar mode pipeline will not be under control of SAS/MAC. This will be put under control of SAS/MAC as soon as that software is available in the on-line part of the system.

19	20070814	Joe Masters makes the routine to read in the TBB data.
20	20071002	Fault tolerance of the system (mainly OLAP) is put at the top of the priority list after closing the SAS-MAC and CEP integration.
21	20071123	Kubuntu 7.10 desktop 64 bit OS is chosen for all machines except the BG/L and MAC/SAS machines
22	20071123	Station calibration work is smeared out over Step 4 and Step 5.
23	20071123	Global bandpass shape is moved to Step 5 because of its low priority.
24	20071211	Multiple beams per observation will be implemented instead of multiple observations (this is consistent with the plan).
25	20071211	Step 3 will be closed next Thursday. Any open items will be finished in Step 4.
26	20080130	Multiple beams are defined as multiple directions with the same set of antennas. Hence, only the angle, subbands and beamlets can be modified per beam.
27	20080206	Step 4 and Step 5 for MAC/SAS will be changed. The control of the offline pipeline will be postponed because the offline subsystems are not fixed yet. Currently the definition and design of the metadata flows will be set as goal for Step 4 and the implementation of the metadata flow will be the end goal of Step 5. Hence, after Step 5 (part of) the metadata is included in the Measurement Set.

Last: 27

Table round

- Next week the SAS/MAC team is on a holiday:
    - Arthur: 13 – 21 Febr,
    - Pieter 11-15 Febr,
    - Ruud 11-22 Febr (available for problems)