Minutes of Meeting #2 --- Shore-station at Portopalo for KM3NeT Ita 8 Towers detector

Indico Page:
https://agenda.infn.it/conferenceDisplay.py?confId=7006
Note: all the mentioned attachments are those present in the indico page

List of participants (all INFN)
G. Terreni (GT) - Sez. Pisa
T. Chiarusi (TC) - Sez. Bologna
M. Manzali (MM) - CNAF
M. Imbesi (MI), A. Orlando (AO), A. Rovelli (AR) - LNS
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-Agenda:
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0. Meeting motivation
This meeting was done to state the current status of the various sub-groups (Electronics, DAQ, SC) concerning the preparation of the Shore station for the 8 Tower detector.
The basic guideline for all the considerations is that we need to be prompt to start to elaborate the tenders in November. So the situation presented in this meeting must represent the final snapshot of the needed resources for the shore-station.

To be conservative is a mandatory approach. There is not time for further tests or considerations.

1. Status of onshore Electronics

FS reports about the status of the onshore electronic front end. Although some relevant progress was done on the "Octomux" and the possibility to host on a FCMServer the entire fornt-end of a tower, at the moment we should keep the previous design.

a) 4 optical channels / FCMServer;
b) one 10 GbE NIC for the optical data;
c) one 1 GbE NIC for the Slow Control data and acoustic stream;
d) the FCMServer typology is the **Supermicro *1027GR-TRFT+.,*** as previously indicated;
e) it is kept the DM - single Floor communication protocol (scalable also in the case that one single FCMServer could be the access to one entire tower).

Details in
- Ape3NeT.doc
- Infrastructure_for_TriDAS_Phase_3_2013_09_26_v0r1

documents in the Material section of the Indico Page.

2. Status of TriDAS

2.1 Trigger CPU server dimensioning.

TC and MM present the principal results of the measurements (HEPSPEC-06 benchmarking) of the computing power required by each TCPU process.
The study is reported in an internal note already available as pdf file `TCPU_Performances_2013_10_29_v4.2.pdf`
in the Materials section at the Indico Page.

The main goal was to determine the number and the characteristics of needed servers for the TCPU layer of TriDAS.
The result was that are needed >30 servers, with 128 HEPSPEC-06/server (basically 24 GB RAM + 8 physical cores).

The dimensioning of the rest of the TriDAS (HitManagers, EventManager, TriDAS System Controller) is unchanged with respect to the previous meeting.

2.2 Switching devices

TC reports about an on going collaboration with CNAF expert Stefano Zani, who accepted to contribute to define all the technical

specs to implement in the tender concerning the switches. TC is going to have a dedicated meeting with Zani in the next days.

2.3 Possibility to join a CNAF tender.
CNAF has set an "Accordo Quadro" tender with Olidata for the purchase of a large amount of servers for computing.
If the server specs are compliant to the TriDAS needs, it could be possible to join the tender. This would speed up the procedure of the purchasing the bulk of the shore-station computing resources.
TC is investigating about the viability of this solution (TC is waiting for a reply of CNAF technologist A. Chierici).
TC is asking for Riccardo Papaleo to intervene about this point.

3. Status of Slow Control.
3.1 AR stress about the importance of having the communication protocol released as soon as possible with the proper documentation.

3.2 Concerning the dimensioning of the SC + storage, AR confirm that we keep the previous proposed one, described into details in the document OnShore_SC_Readout_Architecture_part1.pdf in the Materials section of the Indico Page.
Among the details, the storaging resources allocated in Portopalo will be of ~ 10 TB (estimated for granting a buffer of ~10 days of post-trigger data).

3.3 AR and MI confirm that 3 racks should be enough for the TriDAS + FCMServers + DM. In any case, the average distance between the racks can be set ≤ 1 m (not larger than 5 m). This is a crucial parameter for the sizing the optical connections between the TriDAS servers and the main TriDAS 10 GbE swtich.

4. Deliverables
A final proposal of the shore-station will be presented to the KM3 Management by the beginning of the Collaboration Meeting (starting on 12th of November).

5. a.o.b.

5.1 TEST BENCHES
AO is stressing the need to define all the needed items for the various tests, probing the functionalities of all the DAQ systems.
TC is suggesting to keep separated the big tender for the effective TriDAS and the resources needed for the tests.

5.2. POWER RESOURCES

AO reports that the UPS in Portopalo could grant about 125 kVA, which should be largely enough, since draft computations account for < 50 kW for the global Shore Station.

In this way only minor intervention could be necessary.

In any case we need to consider about 200-210 W / server.

This point is important and must be defined in the next days.