

§50. Recent Progress of the Remote Data Acquisition and Archiving in “Fusion Virtual Laboratory (FVL)”

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Since 2008, the LHD data acquisition and archiving system, *i.e.* “LABCOM system”, has been used for QUEST experiment at Kyushu University and GAMMA10 at University of Tsukuba as the common data access platform of “Fusion Virtual Laboratory (FVL)”¹⁾. Its remote access network is based on the fusion research dedicated virtual private network “SNET”²⁾, which is virtually constructed on the academic network backbone SINET4 carried by National Institute of Informatics (NII).

At the QUEST experiment, seven data acquisition (DAQ) nodes are running which are remotely controlled and monitored by NIFS LABCOM group. As for the GAMMA10 experiment, three DAQ nodes are running with the same manner and in addition the rest of all the data acquired by the legacy local system are also transferred and registered to the LABCOM data archive once a year after

every annual campaign ends.

In GAMMA10, the waveform data acquired by the legacy CAMAC digitizers are managed per each channel having a different “port” name individually. In order to keep their names, we once stored them as many individual diagnostics. The total number of them, however, is more than seven hundreds, and consequently the lengthy list of the data names made the user friendliness worse in choosing and retrieving the data as they want.

In order to solve this inconvenience, we have modified the data uploading/registering utility “dbStore” to deal with the signal “tag” names so that users can retrieve data not only by the channel number of each diagnostics but also by the tag name of each channel. This modification will also very much improve the lump-sum uploading speed for these 700 data because we will be able to do it just by a single call of dbStore.

The whole data amount accumulated in LABCOM data archive has gone up about 0.6 Peta-bytes in which the QUEST data occupy about 9.9 TB and GAMMA10 about 4.7 TB, respectively. The total number of entries has been over 122 million and the annual download count was 1.39 million for three experiments of LHD, QUEST, and GAMMA10 last year.

- 1) H. Nakanishi, *et al.*: Fusion Eng. Des. **87** (2012) 2189.
- 2) T. Yamamoto, *et al.*: Fusion Eng. Des. **85** (2010) 637.

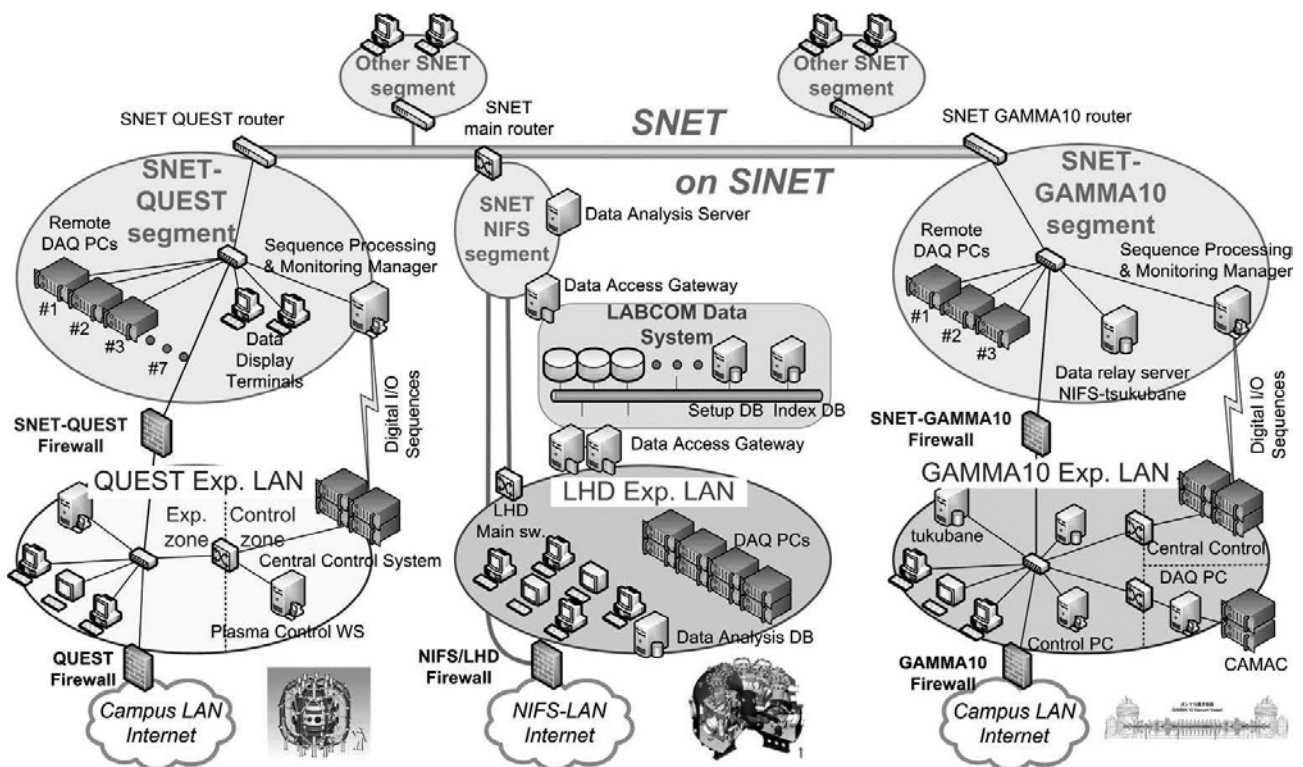


Fig. 1 Schematic network diagram of “Fusion Virtual Laboratory” participating sites and SNET: LHD, QUEST, and GAMMA10 are almost equivalently connected to each other through the SNET on SINET4.