

7. Collaboration Using SINET3

SNET is the network for the collaboration research built on SINET3 by L2/L3VPN. SINET3 is the academic network operated by National Institute of Informatics (NII). SNET directly connects the universities, research institutes and NIFS. NIFS has operated SNET for the category of “LHD experiment remote participation” since March 2002. The categories of “Remote use of supercomputer system” and “All Japan ST research program” were added to SNET in FY 2005.¹⁻³⁾ The number of sites is on the increase, 21 sites participate to the SNET as shown in Fig. 1.

The operation of Kyushu Univ.'s spherical tokamak experiment equipment (QUEST) was started in July 2008. It is already connected as “ST Japan Research Program” with L3VPN. To reduce the number of network equipments due to gain high speed data transfer, the path between QUEST and NIFS's data acquisition system (LABCOM) at NIFS has newly established with L2VPN. The measurement data of QUEST is collected by LABCOM via SNET and is distributed to remote sites of SNET.

In FY 2008, GAMMA-10 at Tsukuba Univ. (4th site) and High Density Plasma Experiment-I (HYPER-I) experimental device at NIFS (5th site) have been added to “All Japan ST research program” category. The measurement data from GAMMA-10 is collected by their DAS system and the data are sent to LABCOM through SNET for distributing to other sites. The remote collaboration of HYPER-I is now the test

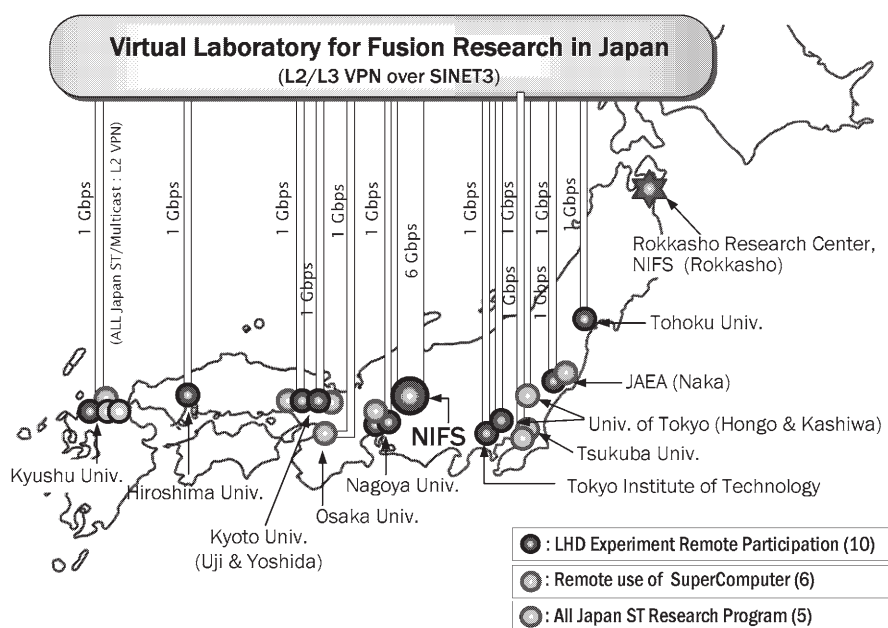
phase and the researcher at Kyushu Univ. will be soon able to monitor the status of Hyper-I and would discuss the result with his collaborator at NIFS in the near future.

The multicast is one of the key technologies for the virtual laboratory. At “LHD experiment remote participation”, the video which is projected on the center display in the control room of LHD, which shows the summary graph of the last shot and so on, is distributed to the remote sites. For the first step, Kyushu Univ. and NIF has joined “Multicast trial” supported by NII with L2VPN in FY 2008. The demand for the bandwidth to distribute the video might be dramatically reduced by multicast.

In the category of “Simulation scientific research” program, SNET connects the gateway server of Plasma Simulator, which was replaced by Hitachi SR16000 in FY 2008. JAEA has newly joined SNET as the 6th site of this category. The researcher can transfer the results of the simulation on Plasma Simulator to their terminal with high speed.

- 1) Horiuchi, R., et al., NIFS-MEMO-51, 2006.
- 2) Tsuda, K., et al., Ann. Rep. NIFS (2006-2007) 402.
- 3) Yamamoto, T., et al., Ann. Rep. NIFS (2007-2008) 389.

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Fig.1 Connection map of SNET