

§27. Local Area Network (LAN) for LHD Operation

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We have constructed LHD operational LAN and optical fiber network for LHD operation for 2 years (1996,1997)[1],[2]. In this year we extended the optical fiber network to the main hall in LHD building. Then, we almost finished the optical fiber wiring for LHD operation. We did the working test of the network in this year. The network devices of central control system as PC server, PC workstation, VME and PLC were induced first. We had the experience that the hot swapping function of the Omni switch under working leads to the central operation system's data acquisition down. We recognized it important that we use the network with the working status of all network terminals in the operational LAN in mind.

At the ending of March, which was the first day of LHD experiment, more than 50 network devices so as client and server PCs for LMS (LHD Man-machine interface System), for central control system and for plant data acquisition system were connected through operational network.

FireWall system has been installed LHD operational LAN. We designed LHD operational LAN with protecting the operation data against the trouble due to network in mind. The concept that the network itself is protected is applied. After the test running of it for about a half year, it started working practically at the beginning of March. WWW and FTP services only are available in communication between outside and inside operational LAN. Here FTP service is available for special data-server (FTP mirror server) outside operational LAN.

Some documents for the management has been made. The documents have the information about the distribution map of routers, ATM switches, FDDI switches and switching hubs, and about the present status of network devices so as a port or slot is

occupied and a function is enable. Usage status of optical fiber splice box is also summarized. Moreover, in order to show the outline of the LHD operational LAN to LHD experimental stuffs, we make the WWW home page where the information about LHD operational LAN is published. In Figure 1, a example is shown.

We installed the network monitoring system, which gets the information of the network devices' status using SNMP protocol. Now we are monitoring the working status of routers, FireWall and switching hubs, and network traffic through these network devices. Such data is useful for trouble shooting and for improvement of the network system.

- [1] Annual Rep. of NIFS, April 1995-March 1996, NAGOYA, p45.
- [2] Annual Rep. of NIFS, April 1996-March 1997, NAGOYA, p40.

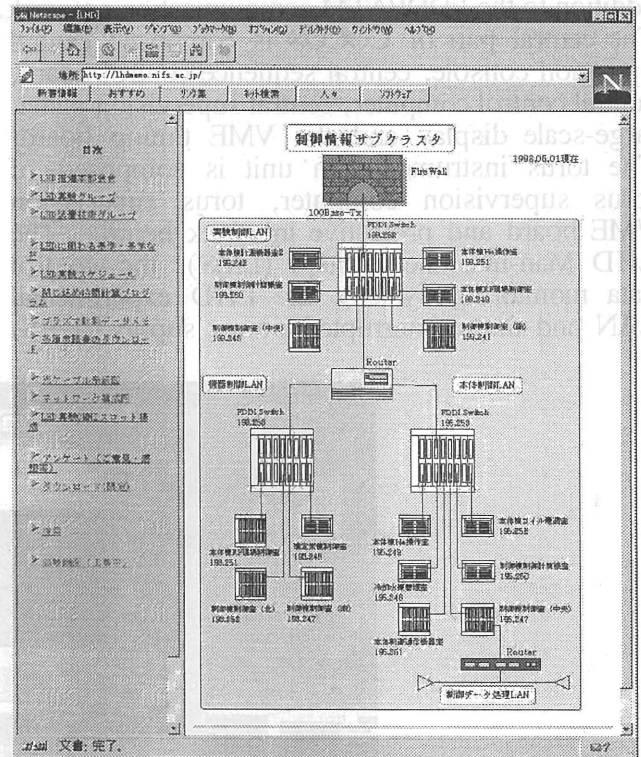


Fig.1 Example of information of the LHD operational LAN system published through WWW. (Sorry in Japanese)