§29. Data Analysis System for CHS Experiments

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CHS experimental data analysis and storage system continues to provide services for users. However, system hardware is getting old and frequently needs replacement of electronic components and their tuning. In the fiscal year of 2013, three of five CVCF (Control Voltage Control Frequency) electric power supplies had troubles in the battery monitor circuit. Since some electronic components are too old to be commercially supplied, they could not be fixed at all.

Another serious trouble occurred in the two of seven servers for data analysis. Sudden termination of these servers occurred five times without automatic recovery, which caused a situation of frequent out of service. The cause of this trouble is not clarified and the problem is not solved yet. Since these two old servers were produced at the same period, it is estimated that the trouble are caused by particular electronic components in these servers. We have been trying to find which parts are in trouble, but it is not successful at the moment.

In addition, number of error blocks is increasing in the old disk drive units. In order to avoid losing data reliability, two disk drive units with much errors were replaced with new units.

Access to the CHS server system is available through network (LAN) except some special cases. Network facilities of the NIFS Computer Center were reinforced this year. Network devices for CHS were also changed to keep compatibility.

Figure 1 shows the diagram of the new network topology. We did not change the setting parameter, communication protocol (including DECnet), and backbone speed on this replacement of the facility. However, following three items are to be noted.

1) VLAN for the new edge switch is assigned with the old ones, VLAN70, VLAN71 and VLAN72, but the VLAN/ID was changed from 1, 2, 3 to 70, 71, 72.

2) The DNS server (dns-70) of the CHS control room was closed. The IP recording address was transferred to the DHCP server of NIFS-LAN.

3) Management of the infrastructure for the CHS LAN is transferred to the NIFS Computer Center. In the case of connection change at the edge switch or new connection of terminal devices such as direct connection to RJ45 in future, permission of the Computer Center (net-wg) is necessary.

Present database system for CHS is operated under the operational system VMS and Tru64. Some data are duplicated and stored in the Linux system. System management of the CHS database in future will be harder, because there are a couple of anxiety. Hardware becomes old and there will be more chance for the electronic components to be faulty. Security vulnerability for the database will increase. Supply system for the present OS is unclear, because commercial share of them is decreasing. In order to keep the CHS experimental database for future, it is necessary to renew the total system with modern hardware and OS and transfer the database from the old system to the new one.
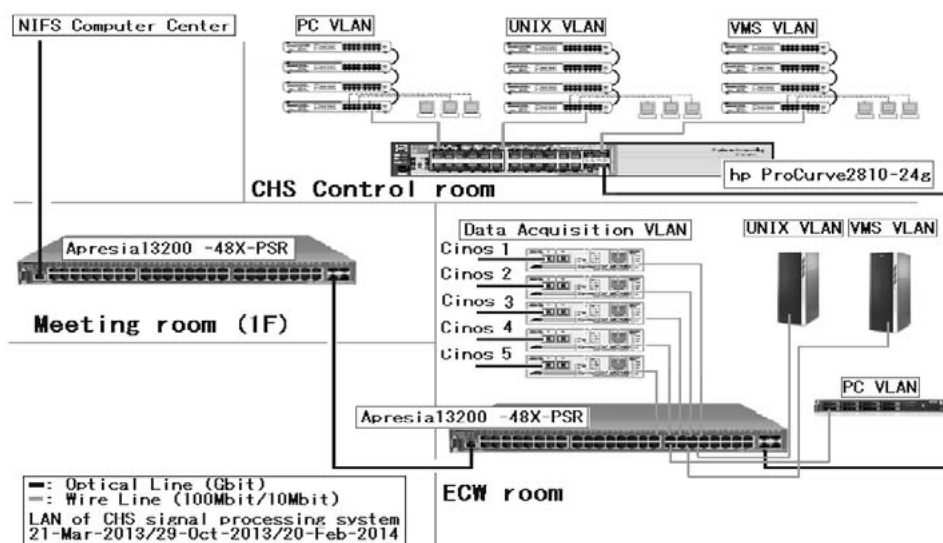

Fig.1. CHS LAN facilities were modified to the simple topological structure by new network switch.