The Current Situation and Improvement of IHEP Network

Network Group, Computing Center

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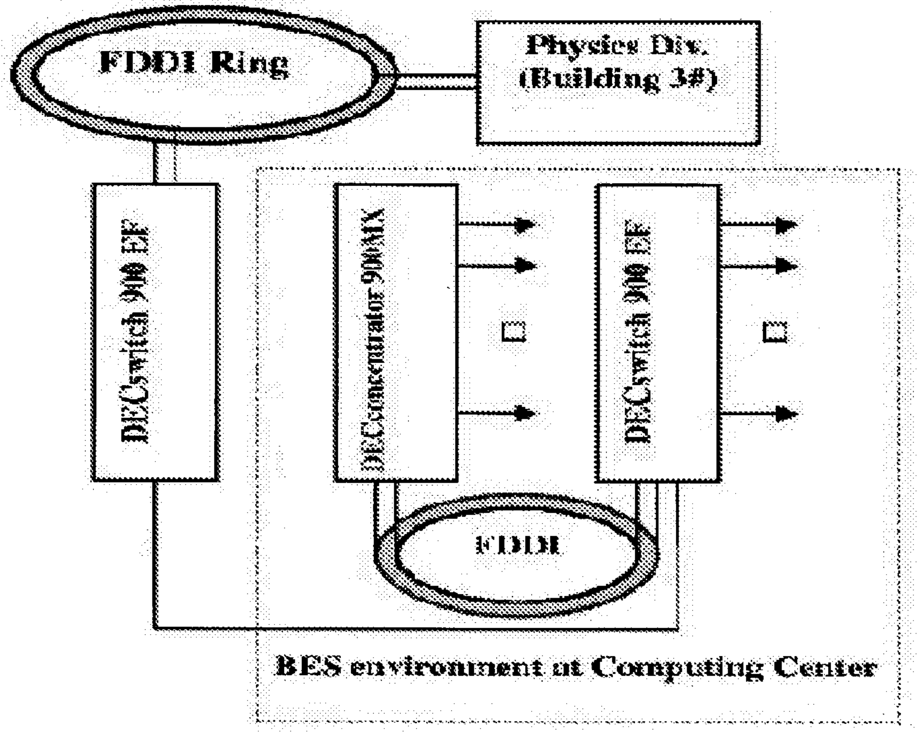
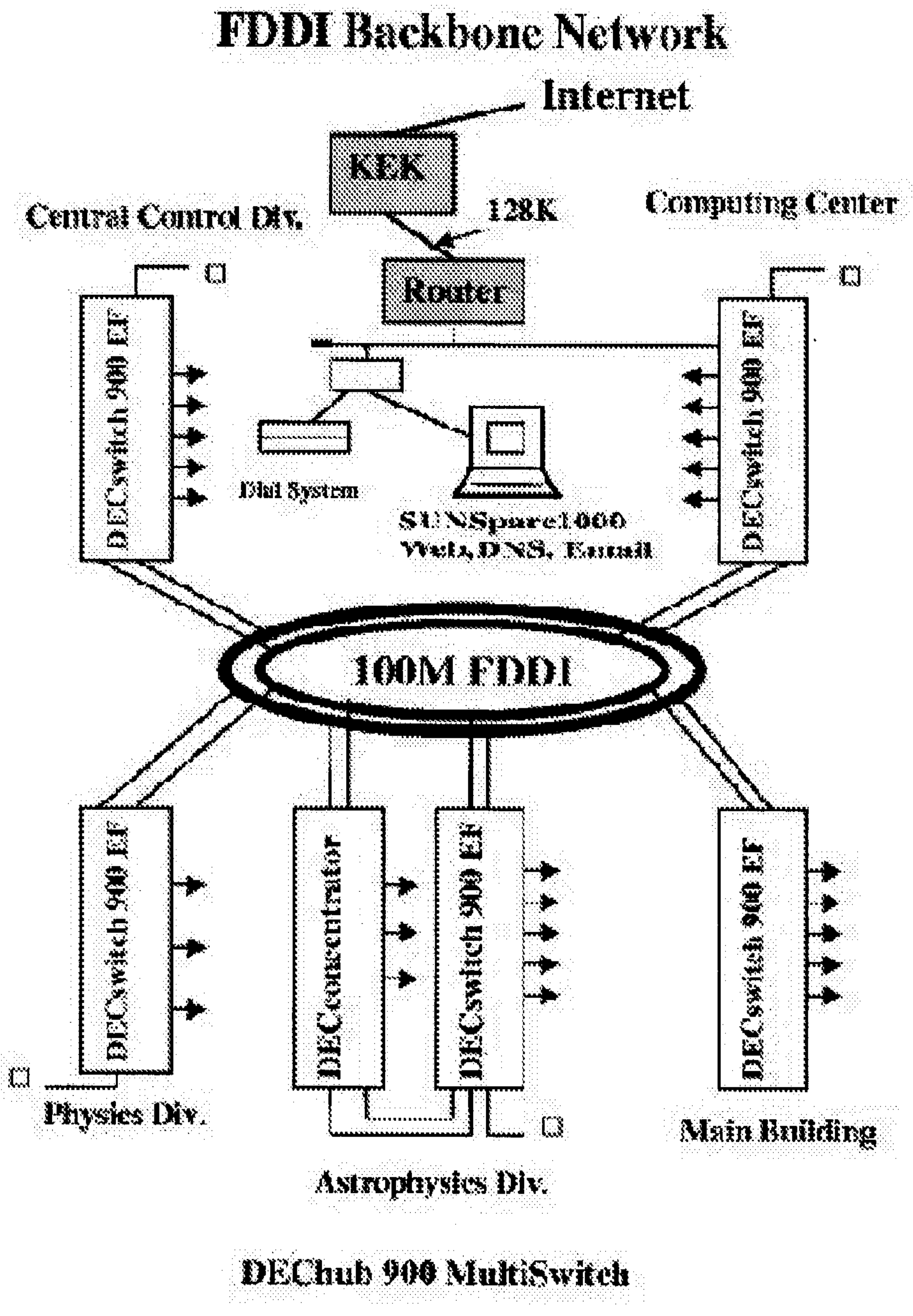
1. The Current Situation of IHEP Network

The bandwidth of IHEP- KEK network is 128Kbps. IHEP LAN was begun to build over 5 years ago, its current topology structure is a 100Mbps FDDI backbone network and 10Mbps Ethernet subnetworks. Our network equipment is DEChub 900 MultiSwitch. There are almost 1000 hosts at IHEP.

BES network environment:



The map shows BES network environment at IHEP. We built a mini-FDDI network for BES group so that BES LAN could be separated from Computing Center LAN and has an independent and stable network environment.



This is a map of IHEP FDDI backbone network, which shows our network equipment---DEChub 900 MultiSwitch. There're five stations on this FDDI backbone network: Computing Center, Physics Division, Astrophysics Division, Main Building and Central Control Division. The stations connect to FDDI backbone network through DECswitch 900 EF.

2. The Problem of IHEP Network

Here, they're bottleneck, collision, old server and so on.

. Bottleneck exists between 100Mbps FDDI backbone network and 10Mbps subnetworks.

. Collision exists because of the current unreasonable topology structure.

. Old network service system

The SUN workstation that has been our server for DNS/Website/Email/PPP has been working for five years. If this old machine stops working suddenly someday, our network will be down.

. There's no network management software and accounting system to suit IHEP network environment.

. No direct route to other hosts in China from IHEP. This brings pressure on the connection between IHEP and KEK. So we access other domestic hosts very slowly.

3. The Improvement of IHEP Network

. The Improvement Principles

-- High capability of network system

-- Expansion of network system

-- Security of network system

-- Management capability of network

-- Open capability of system technology

. The Improvement Plan

-- To build a 1000Mbps backbone network, which will connect with Computing Center, Astrophysics Division, Main Building and Physics Division

-- To establish the 100Mbps connection between Physics Division/Main Building and their own buildings respectively

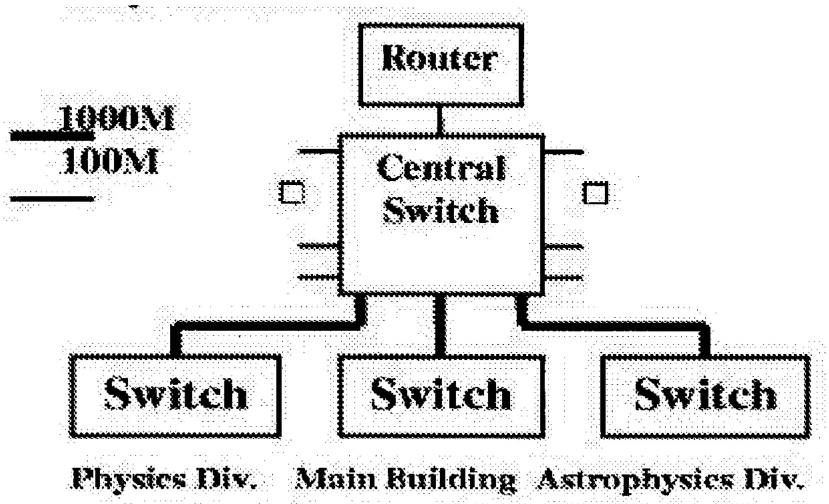
-- To establish the 100Mbps connection to other buildings from Computing Center respectively

-- To build 100Mbps Ethernet to desktop

-- To build a group of public network servers

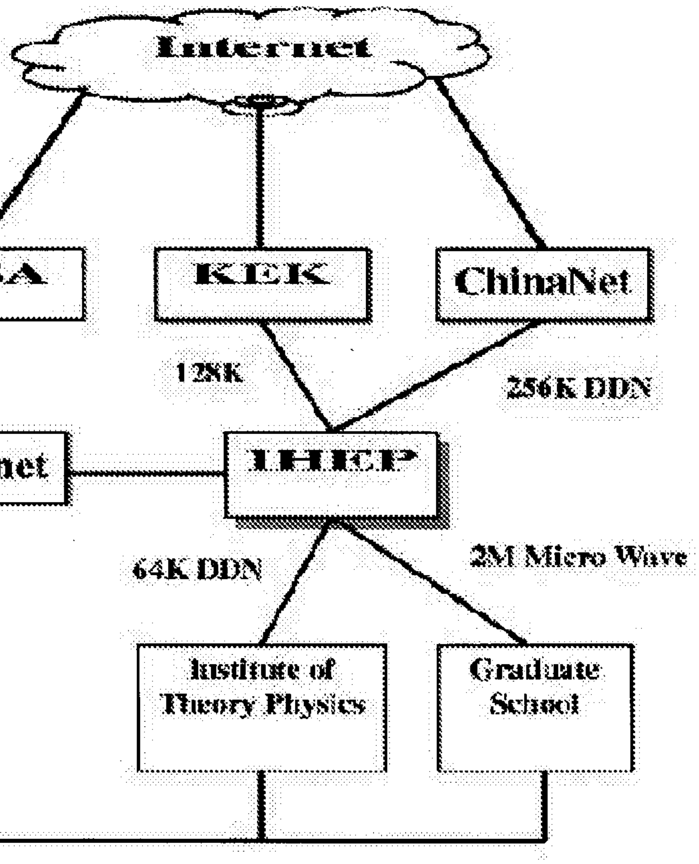
-- Just established the connection to ChinaNet

-- To establish the connection to China Science & Technology Network (CSTnet)



4. The Prospect of IHEP Network

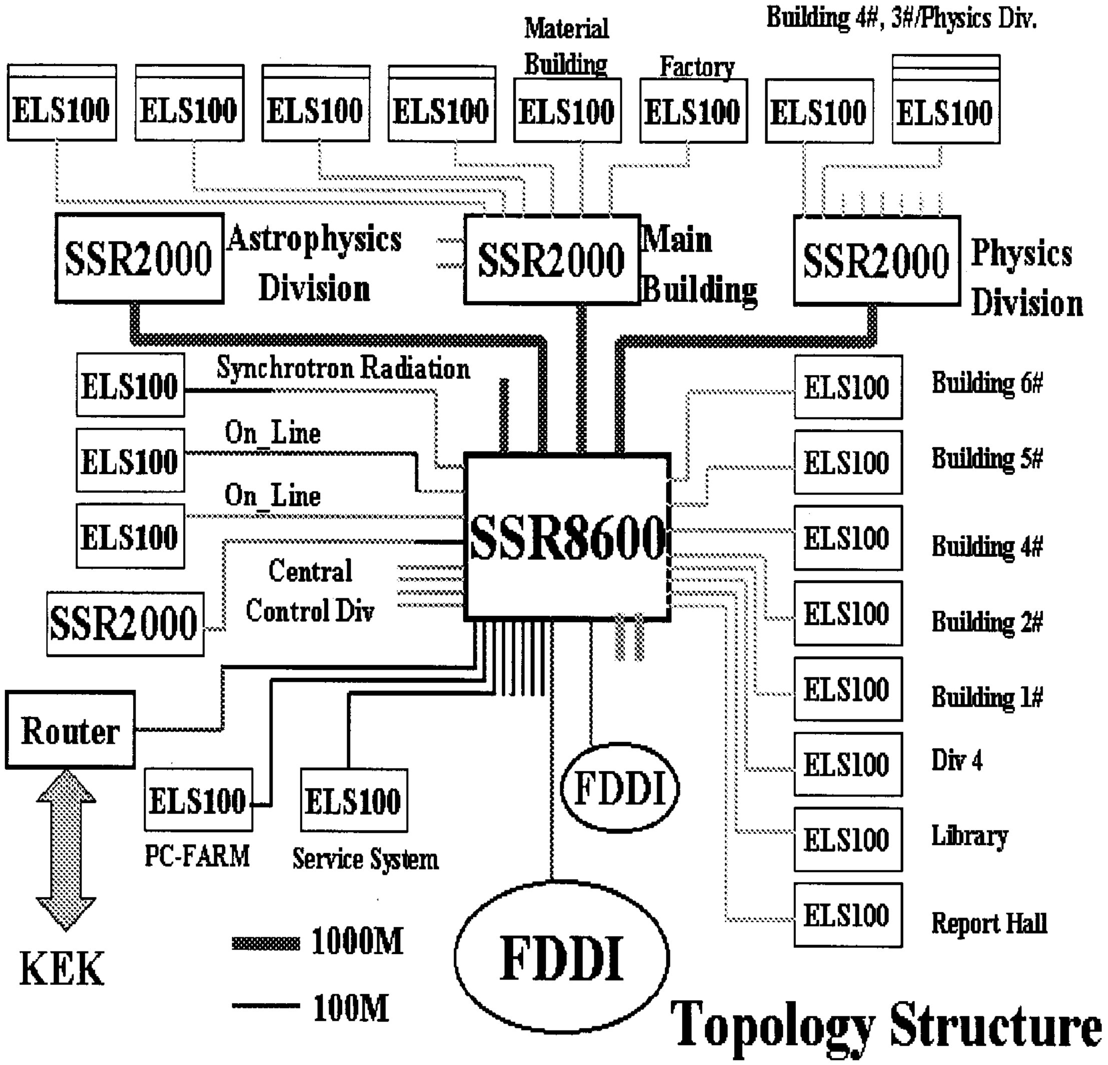
.The Prospect of IHEP WAN



We have just established a 256K DDN from IHEP to ChinaNet and will have established the connection from IHEP to CSTnet by the end of this summer. So it's easier for us to access other hosts in China.

Meanwhile, it's not necessary to pass through IHEP-KEK network when we access other hosts in China, which will eliminate the pressure of IHEP-KEK network and it will be faster to access foreign hosts.

. The Prospect of IHEP LAN



The map shows the topology structure of improved IHEP LAN.

The central switch at Computing Center will be the center of exchange information for IHEP network. There are 1000Mbps connection to Physics Division, Main Building and Astrophysics Division from Computing Center respectively. There're 100Mbps connection between the two stations and their own buildings respectively. And also there are 100Mbps connection to other buildings from Computing Center respectively. In order to protect the original investment, we'll still keep the two FDDI rings working. One is the current 100Mbps FDDI backbone ring, the other is that mini-FDDI ring was built for BES.

In the coming future, our improved LAN will support

.20G exchange capability

.Multimedia communication capability between any hosts

.1000M communication capability between different public network servers.