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Test of data transfer over an international network with a large RTT

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We have measured the performance of data transfer between CERN and our laboratory, ICEPP, at the University of Tokyo in Japan. The ICEPP will be one of the so-called regional centers for handling the data from the ATLAS experiment which will start data taking in 2007. More than petabytes of data are expected to be generated from the experiment each year. It is therefore essential to achieve a high throughput of data transfer over the long-distance network connection between CERN and ICEPP. A connection with several gigabits per second is now available between the two sites. The round trip time, however, reaches about 300 msec. Moreover the connection is not dedicated to us. Due to the large latency and other traffic on the same network, it is not easy to fully exploit the available bandwidth. We have measured the performance of the network connection using tools such as iperf, bftpl, and gridftp with various TCP parameters, Linux kernel versions and so on. We have examined factors limiting the speed and tried to improve the throughput of the data transfer. In this talk we report on the results of our measurements and investigations.

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