BGI demonstrated genomic data transfer at nearly 10 gigabits per second between US and China

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BGI, the world's largest genomics organization, announced today that a group of scientists and researchers successfully demonstrated genomic data transfer at a sustained rate of almost 10 Gigabits per second (Gbps) over a new link connecting US and China research and education networks. This data rate is equivalent to moving more than 100 million megabytes -- over 5,400 full Blu-ray discs -- in a single day.

The data transfer demonstration was part of a June 22nd event in Beijing celebrating a new 10 Gigabit US – China network connection supported by Internet2, the China Education and Research Network (CERNET), the National Science Foundation (NSF), and Indiana University. Three centers and their representatives participated in the demonstration – BGI, Dr. Xing Xu, Director of Cloud Computing Product; UC Davis, Dr. Dawei Lin, Director of Bioinformatics Core of Genome Center; and National Center for Biotechnology Information (NCBI), Dr. Don Preuss, Head of Systems Group. Aspera Inc., the creator of the technology that moves the world's data at maximum speed, provided software to support the data transfers.

BGI performed the live demos of ultra high-speed data exchanges between the three world-class genomics institutions. For example, BGI transferred 24 Gigabytes of genomic data from Beijing to UC Davis in less than 30 seconds. A file of the same size sent over the public Internet a few days earlier took more than 26 hours.

"The 10 Gigabit network connection is even faster than transferring data to most local hard drives," said Dr. Lin. "The use of a 10 Gigabit network connection will be groundbreaking, very much like email replacing hand delivered mail for communication. It will enable scientists in the genomics-related fields to communicate and transfer data more rapidly and conveniently, and bring the best minds together to better explore the mysteries of life science."

Dr. Xu said, "This was the first time that large genomic data were transferred between China and the US over a 10 Gigabit network. BGI is excited to demonstrate this achievement and looks forward to the potential opportunity to incorporate this breakthrough into our service capabilities to facilitate more rapid and efficient exchange of big genomic data globally."

Genomics has revolutionized the life sciences. While the cost of DNA sequencing is steadily decreasing, the amount of data generated with next-generation sequencing (NGS) technologies is growing at an unprecedented pace. In the age of "Big Genomics Data", how to conveniently share the tremendous volume of data has become a significant research bottleneck. The 10 Gigabit Internet connection may provide a significant new tool for tackling "big data" and increasing scientific collaboration, education and cultural exchange between the two countries.

Provided by BGI Shenzhen