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PRESS RELEASE

Lugano, 3 December 2014

High-end connection for rapid large-volume data transfer

The Swiss National Supercomputing Centre (CSCS) has become Switzerland's first service provider for the scientific community to offer a high-performance, 100 gigabit per second network connection. Now, up to five times as much data can be transmitted in the same length of time, significantly speeding up the transfer of data between users and the computing centre.

In this age of "big data", the rapid exchange of data between research institutions and computing centres is essential. The Swiss National Supercomputing Centre (CSCS) is playing a pioneering role by becoming the first institution in Switzerland – apart from the major research facility CERN – to have a 100 gigabit per second (Gbps) connection to SWITCH, the Swiss Education and Research Network. SWITCH began to renew and extend its fibre-optic network two years ago in order to speed up the optical transmission of data. Now, 100 gigabits of data per second can be transmitted over the SWITCH network on up to 88 channels. A modernised, 1000-kilometre-long fibre-optic loop running from Geneva to Zurich then to Lugano and back to Geneva recently went live.

Five times faster than before
CSCS will make good use of this new infrastructure to serve scientific institutions: thanks to the 100 Gbps connection, the computing centre in Lugano can now transmit five times more data than before. A volume of data equivalent to two-and-a-half DVDs can be sent down the line every second. For domestic users, who generally have a connection of only 50 to 100 megabits per second, it would take 600 times longer to send a single DVD, i.e. about 10 minutes.

With its new fibre-optic connection, CSCS is well equipped to cope with the ever increasing volumes of data. Big data is becoming a more important issue now that large-scale research projects like the Large Hadron Collider at CERN are generating and analysing enormous volumes of data, for example in the search for the Higgs boson particle. With increasingly high-performance supercomputers, it is possible to run more detailed high-resolution calculations and simulations to resolve challenging questions in areas such as materials research, physics or Earth sciences.

Even better services
In Switzerland, CSCS is currently second only to CERN in terms of the transfer of scientific data: according to Daniel Bertolo from SWITCH, CSCS accounts for about 5 to 10 per cent of the SWITCH network usage. Currently, most of the research institutions carrying out computing operations at the CSCS currently only have a 10 Gbps connection for data transfer. However, with the new high-speed connection to CSCS, several of these research institutions can use the full capacity of their connections at the same time. CSCS expects there to be other benefits for users too: for example, those who store their data at the computing centre should be able to access it more easily and quickly. "Having a good connection to data traffic is absolutely

essential for our user lab if we are to provide outstanding and reliable services," says CSCS Director Thomas Schulthess.

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About the Swiss National Supercomputing Centre (CSCS)
Founded in 1991, the Swiss National Supercomputing Centre (CSCS) develops and provides the supercomputing capabilities required to solve challenging problems in science and society. CSCS offers users the opportunity to carry out cutting-edge research in a scientific user lab that is open to both Swiss and international researchers through a transparent, peer-reviewed allocation process. CSCS resources are available not only to the scientific community but also to users from industry and the business sector. The centre is operated by ETH Zurich and is located in Lugano.

About SWITCH
SWITCH first brought the Internet to universities in Switzerland 25 years ago. Today, the non-profit organisation, which has 100 employees and is based in Zurich, develops Internet services for lecturers, researchers, students and commercial clients.