Towards a very high bit rate network

Computer networks occupy today a central position within the computing complex of the CEA. They enable transfer of large quantities of data generated by the computers to the internal processing and storage systems and then on to the users' workstations.

High capacity computer communication networks

The TERA and CCRT computing centers are fitted with the highest performing network equipment. More than a dozen of the latest generation of switches and routers make up the backbone. They provide an access bandwidth of 120 and (60+80) Gb/s respectively to each of the computers. The storage network for TERA-10 uses the InfiniBand technology. Its capacity enables it to transfer a volume of information equivalent to that contained in all the documents that make up the French National library, in just 10 minutes !

Providing users with high performance access to computer resources

For TERA

The CEA/DAM interconnection network links the local networks of the DAM sites, using services provided by the operator Orange Business Service. This provides secure and high-performance access to the TERA computing center for the community of business users.

The technical team administers all of the telecommunications equipment from Bruyères-le-Châtel.

For the CCRT

Users from CCRT access the computer using "RENATER" – *Réseau National de télécommunications pour la Technologie, l'Enseignement et la Recherche* (The French national network for technology, academics and research) – a network which was created in the 1990s to provide high bit rates for the French academic world and for large research organisations.

The network architecture, which is built using the latest generation of equipment, enables a highly secure exchange of data with partners outside of the CCRT.

Towards ever faster networks

Research teams from the CEA are collaborating in ground breaking projects such as CARRIOCAS. Subsidised by the state and local authorities as part of the System@tic competitiveness cluster, the CARRIOCAS project brings together partners from the world of research and industry. It is evaluating an innovative, experimental, very high bit rate network – 40 Gb/s per wavelength – which links the IRFU (CEA/Saclay), the EDF site at Clamart, the CNRS at Orsay and the CEA/DIF site at Bruyères-Le-Chatel. Among the involved partners, Alcatel-Lucent is supplying the switching and optical equipment and France Telecom is supplying the fibres and is managing the network.

Today, CARRIOCAS allows transparent access to data distributed over four sites, using the LUSTRE distributed file system. Tomorrow, it will provide the resources to produce high-resolution, collaborative visualization between the sites of Bruyères-le-Châtel and Clamart.