

Cyberinfrastructure and China Science and Technology Cloud Plan in Chinese Academy of Sciences

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Chinese Academy of Sciences has 104 research institutes, 12 branch academies, three universities and 11 supporting organizations in 23 provincial-level areas throughout the country. These institutions are home to more than 100 national key labs and engineering centers as well as nearly 200 CAS key labs and engineering centers. Altogether, CAS comprises 1,000 sites and stations across the country.

As the science research methods develops, we are coming to the fourth paradigm of the science research—Data intensive science research. Data, compute and the link of them, network has played an more important role in science research. All the institutes have various demands in cyberinfrastructure.

China Science and Technology Cloud(CSTC) was constructed in order to meet the needs of the research institutes under the Chinese Academy of Sciences and even the whole scientific and technological community in China. It is an IT-based resources management and cloud service platform with smart resource dispatching and user self-service. It constructs a new-generation information infrastructure which is at high speed, dynamic and self-adaptive; speed up the state-level high-performance computing environment development, and achieve one-stop service for scientific computing. It integrates cloud computing and cloud storage facilities to enhance data recovery capabilities of the whole academy's scientific data assets and application systems. It also integrates and gather various scientific and technological information resources, and sets up a smart cloud service platform to provide scientific and technological resources and information services.

CSTC has maintained long-term partnerships with world-class research organizations such as U.S. National Center for Supercomputing Applications and Forschungszentrum Jülich. The predecessor of CSTC, China Science Technology Network (CSTNET) was one of the founding organizations of the Global Ring Network for Advanced Application Development (GLORIAD) which connect the North American with 10Gb/s bandwidth. Based on CSTC, we build an expandable basic environment which can carry Big Data resources and support Big Data analysis and processing, realizing management and on-line processing of massive scientific data; targeting fields of relevant disciplines, as well as major research projects and special projects of the state and the academy, to deploy a batch of Big Data driven scientific research and application service in the fields of astronomy, biology, high-energy physics, etc..

The CSTC plans to build a test bed for network research and big science research, for example a Dynamic Virtual Dedicate Network for VLBI research, a DMZ for Advanced Light Source, an Open Network Environment for LHC. We are looking forward for further cooperation with global science research institutes.

Desired length

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