

EU-India cooperation on e-Infrastructures: from EU-IndiaGrid to e-INIT project

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Since 2006 INFN set up a cooperation with India on Grid technology and e-Infrastructures, further developed along the years with the EU-IndiaGrid/EU-IndiaGrid2 and CHAIN/CHAIN-REDS projects. These projects, co-funded by the European Commission within the Research Infrastructures Workprogramme, supported the exploiting of e-Infrastructures across Europe and India for the benefit of a variety of scientific disciplines, including biology, earth science, material science and the Indian collaboration for the Large Hadron Collider (LHC).

Since the very beginning international cooperation of Indian leading actors with relevant European and Asia-Pacific Institutes represented one of the main asset for the development of the Indian e-Infrastructure and the benefit of the concerned scientific applications.

The e-INIT project: India-Italy cooperation on e-Infrastructures support for High Energy Physics applications, is funded by Italian Ministry for Foreign Affairs and International Cooperation within the frame of the Executive Programme of Scientific and Technological Cooperation between Italy and India, where was selected as one of the six Significant Research Projects approved by the Programme. The project leading partners are INFN, the Italian National Institute of Nuclear Physics and the Office of Principal Scientific Adviser to Government of India (PSA). The project capitalized on the experience and the achievements of almost 10 years of projects in the area of e-Infrastructures addressing India and the Asia-Pacific region. These projects were led by INFN on the European side and premium research Government Institutions on the Indian side.

The e-INIT project worked for four years (2012-2015) in close synergy with the CHAIN and CHAIN-REDS project which set the activity within a worldwide context. Following the way paved by previous EU-IndiaGrid and EU-IndiaGrid2 projects it addressed the support of cooperation of major European and India e-Infrastructures to the advantage of several scientific domains with particular focus on the LHC experiments, where India and Italy collaborates in the context of the ALICE and CMS experiments.

A major step in Indian e-Infrastructures development was the set-up of the National Knowledge Network (NKN). The PSA office to Government of India conceived and proposed the National Knowledge Network plan, approved by the Indian Government in 2009 with a budget exceeding 1 billion euro for a period of over 10 years. In these years NKN developed as “the e-Infrastructure of India” connecting with a high speed network backbone for all knowledge related institutions in the country. At present over 1000 Institutions are connected. The e-INIT project actively supported the development of connectivity between NKN and GEANT, the Pan-European Research network, in particular within the context of the Trans-Eurasia Information Network Programme (TEIN3 and TEIN4).

In cooperation with the CHAIN and CHAIN-REDS projects e-INIT also supported the interoperation and interoperability between Indian and European grid/cloud infrastructures. Project partners as CDAC, spearhead of GARUDA India National Grid Initiative, played a key role, together with the strong cooperation of INFN with ALICE and CMS Indian Institutes, managing the Indian component of the Worldwide LHC Computing Grid Infrastructure.

Summary

In a period of about 10 years India e-Infrastructures experienced a most impressive evolution. A policy plan to support LHC experiments and strategic scientific sectors, as well as the international cooperation of Indian leading Institutions with key players in Europe Asia-Pacific gave a fundamental contribution. The presentation describes the major developments of 10 years of India e-Infrastructure within the perspective of a series of S&T cooperation projects whose Indian partners were at the core of this developments.

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