

National Knowledge Network - Second Annual Workshop “Enhancing Research Collaborations through NKN”

National Knowledge Network (NKN) project is aimed at establishing a strong and robust Pan-India network, which provides secure and reliable connectivity with a quantum jump in bandwidth.

NKN is a revolutionary step towards creating a knowledge society without boundaries. It will provide unprecedented benefits to the knowledge community and mankind at large.

Using NKN as a backbone, institutions with a vision and passion for their field of work have been able to transcend the limitations imposed by space and time. Accessing information and deriving the associated benefits of knowledge on a high speed network have become a reality. Establishing NKN is a significant step towards ushering in a knowledge revolution in the country by connecting over 1000+ institutions. NKN is intended to connect all 1500+ knowledge and research institutions in the country using high bandwidth / low latency light paths, thus creating an e-Infrastructure for India.

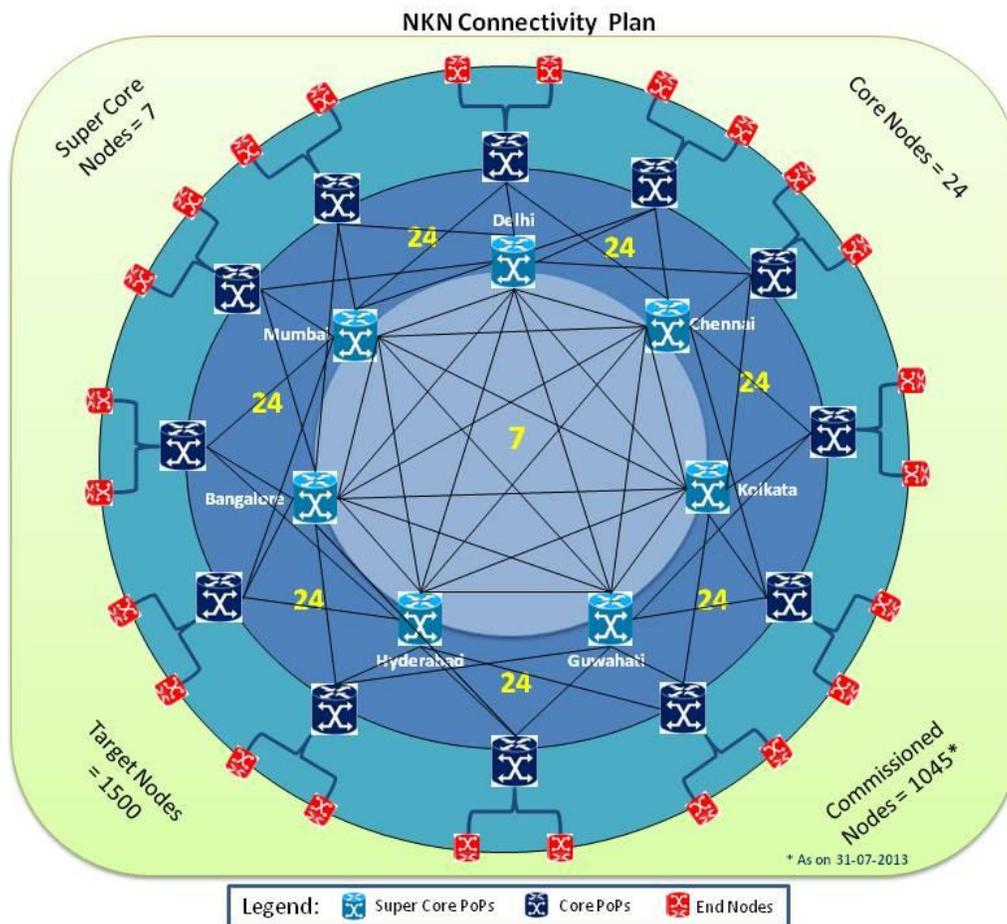
NKN aims to bring together all the stakeholders from science, technology, higher education, healthcare, agriculture and governance to a common platform for enabling them to share information / data / knowledge without any bottlenecks.

Globally, frontier research and innovation is shifting towards a multidisciplinary and collaborative paradigm requiring substantial communication bandwidth and high end computational power. In India, NKN with its multi-gigabit capability aims to connect all universities, research institutions, libraries, laboratories, healthcare and agricultural institutions across the country to address such a paradigm shift. By facilitating unhindered flow of information and knowledge, the network addresses the critical issue of access and creates a new paradigm of collaboration to enrich the research efforts in the country. The network design is highly scalable and takes into account the future requirements that would need to be addressed as the network grows. NKN is a game changer, as it is bringing a knowledge revolution that will be instrumental in transforming the society and promoting inclusive growth.

KEY HIGHLIGHTS

The architecture of NKN has been designed with scalability in mind and consists of a core layer that is inherently capable of moving to multiples of 10/40/100 Gbps. The architecture is complimented with distribution and edge layers at appropriate speeds.

The idea of setting up the NKN was deliberated & finalized at the office of Principal Scientific Advisor (PSA) to the Government of India (GoI) and the National Knowledge Commission (NKC). NKN is an outcome of a collaborative engagement with key stakeholders including experts, potential users, telecom service providers, educational and research institutions.

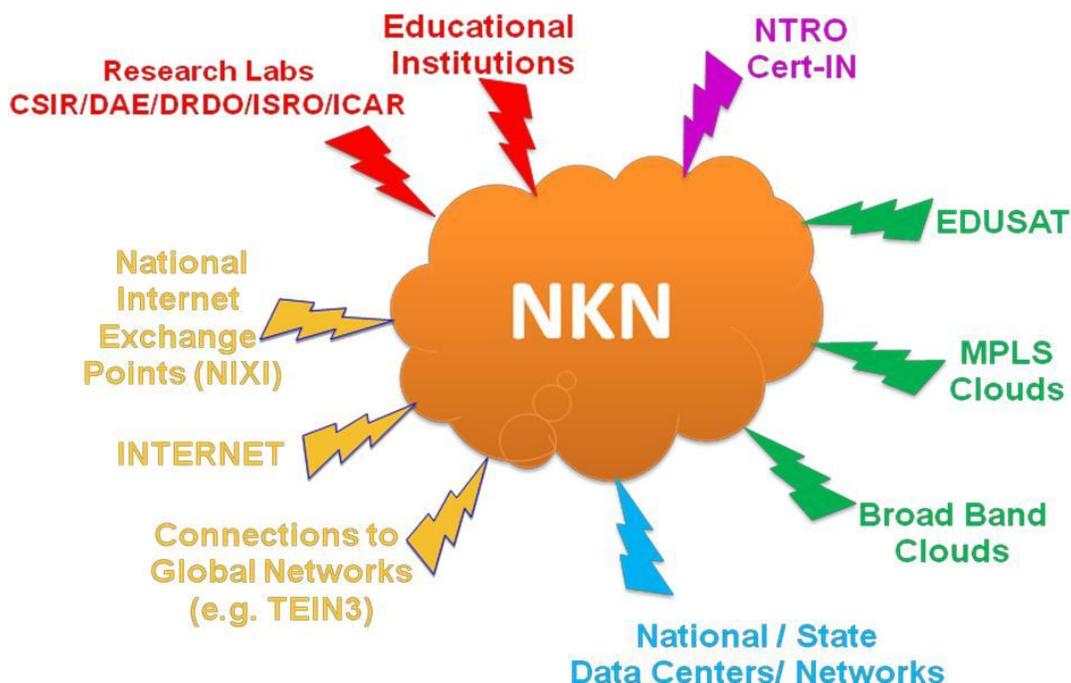


NKN Connectivity Plan

NKN backbone is fully meshed with 7 Super Core locations which initially had a 2.5 Gbps bandwidth, and has now migrated to 10 Gbps. The network is deployed through 24 Core distributed locations with multiple of 2.5/10 Gbps links. The distribution layer connects the entire country to the core of the network using multiple links at speeds of 2.5/10 Gbps. The end users are being connected to links of 100 Mbps or up to a speed of 1 Gbps.

The network architecture and governance structure allows users with the option to connect to the edge or distribution layer. NKN enables creation of Virtual Private Networks (VPN) for special interest groups. NKN provides international connectivity to its users for global collaborative research. Today India has International connectivity with a 2.5 Gbps link between NKN & GEANT through the TEIN4 project. Western Coast of India is connected with the Europe POP

of GEANT. The Eastern Coast of India is connected with a 2.5 Gigabit link to the Singapore POP. NKN is also working on establishing high bandwidth connectivity with USA and Japan.



Currently, NKN is functional with 7 super nodes (in a mesh topology) and 24 core nodes connecting over 1000 institutes. The objective is to connect the remaining institutes by March 2014. In addition, 66 virtual classrooms have also been established across NKN nodes. The NKN Grid infrastructure consists of Garuda Grid, DAE Grid and regional LHC computing Grid. Many applications such as Collab-CAD, Open Drug Discovery project of CSIR and ESRF synchrotron remote operation & control are running on NKN.

Objective of the 2nd NKN Annual workshop

The objective of the 2nd Annual NKN workshop is to focus on enhancement of research collaborations through NKN in different sectors/areas where NKN can play a significant role in terms of delivering innovative services to the target groups. This would also help different user communities such as doctors, scientists, professionals, scholars, teachers and students in their endeavors by providing them cost effective access to the desired data/information/ knowledge.

It is planned to organize the 2nd annual workshop of NKN at Bangalore from 17th to 19th October 2013 jointly by the National Informatics Centre (NIC) and the Indian Institute of Science (IISc), Bangalore. It is expected that representatives from all major academic institutions across the country would participate actively in this workshop demonstrating applications which they are working on using NKN at the core. This workshop would also facilitate increased collaboration among researchers from different entities to enable sharing of scientific data and remote access to advanced research facilities.

The first two days of this workshop would be dedicated to various applications on NKN while the third day would focus on NKN Tutorials.

The Team with a Vision:

Mr. Sam Pitroda, Advisor to Prime Minister on Public Information Infrastructure and Innovations – Chief Patron

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