Foundational IT projects of yesterday for today's Digital India –
ERNET

With UNDP grant of more than ten million USD and Turing Award winner Dr Vint Cerf (co-inventor of TCP/IP, currently with Google) as an Adviser, ERNET project brought computer networking and Internet to India. With the then five IITS (Kharagpur, Kanpur, Delhi, Madras and Bombay), NCST in Bombay, IISc in Bangalore and DoE (Department of Electronics) in Delhi, as the set of 8-nodes, ERNET brought a whole range of networking technologies and services to India.

There were several firsts that ERNET introduced

1 Government (the then Department of Electronics) could fund transformational projects that would positively impact all Indians over decades, through technology

2 Start the trend of inter-institutional projects that would leverage the talent and expertise, often found to be of sub-critical size in any single Institute and create a critical pool of technical expertise

3 Create an internal test-bed that would critically test out ideas before they can be rolled out to larger segments of the society

4 Constantly review the project to avoid major directional errors, yet encourage the young researchers with positive feedback

5 Use the best international resource persons to guide the project so that the best practices can be leveraged to the advantage of India

6 Government (Department of Electronics) playing the role of a facilitator (getting necessary approvals for telecommunication channels) and not merely the role of a funding agency

7 R&D organization (NCST in this case) performing (along with Government) the role of project management to ensure on-time and on-budget execution of the project, almost like a private for-profit agency

Students and IT professionals today would find it amusing to note that India's first dial-up network with speeds of up to 1,200 bits per second with the one and only "uucp" mail was built by ERNET in 1986 and the first leased line between NCST node in Bombay and DoE node in Delhi had to wait till 1991 and 64KBPS Internet highway was commissioned to connect NCST and UUNET Virginia, USA only in 1992.

Some interesting titbits

- The eight nodes had "creative" names – Vikram for the Delhi node and Betaal for the Bombay node; Shakti and Siva for IIT Bombay and IIT Madras nodes and Kalyan for IIT Kanpur (located in Kalyanpur on the outskirts of Kanpur city)

- ERNET had dedicated Class B Address 144.16.0.0, a big deal then!

- With telecom lines being very unreliable IIT Kanpur started an F-Mail where every week all e-mails will be copied onto a floppy and couriered to NCST Bombay that will send out the mails and copy back the incoming mails and

courier the floppy back to IIT Kanpur! It was many years later the world saw G-Mail!

When VSNL took off with Internet access to individuals in 1995, the key people involved were the people trained in the different locations of ERNET. **ERNET paved the way for the Internet revolution of the 90's.**

In 1998 ERNET became an autonomous Society (ERNET India) of the Government of India charged with the task of running the ERNET backbone. ERNET India continued to focus on providing a reliable and robust network infrastructure to facilitate the academic and research institutions to develop and disseminate related applications and contents. The network infrastructure was upgraded both in terms of technology and capacity. It also worked towards creating a truly global research community by facilitating connectivity to research networks in Europe, Asia-Pacific & South Asia and also forging stronger links with other research networks in the world. As domain registrar for the *.in* registry it has been managing domains under *edu.in, ac.in and res.in*.

ERNET India has been serving institutions in various sectors, namely, health, agriculture, higher education, schools and science & technology. It has been facilitating Internet access, hosting contents and providing turn-key ICT solutions to these institutions. Towards advancing the networking technologies it has been focusing on high-end research and development projects in the domains of cloud computing, IPv6, mobile networking, sensor networks, future internet research, Software Defined Networks(SDN), Internet of Things(IoT) and interoperability of grids. To create awareness among the target user community about the emerging cyber-infrastructure ERNET India has been hosting several workshops and conferences. It hosted the Asia Pacific Advanced Network (APAN) meetings in New Delhi in August 2011 and February 2017.

Committed to bridging the digital divide, ERNET India has been focusing on addressing the ICT requirements of the highly deprived sections of the society like the rural and remote school children, farmers and the disabled. It set up the IT Infrastructure at the Krishi Vigyan Kendras of the Indian Council of Agricultural Research, ICT vocational training centres to enhance the computer skills of children with disabilities across the country, and ICT centres in rural schools in Rajasthan and other states.

ERNET India is now actively participating in the Government of India's flagship programme of Digital India launched with the vision to transform India into a digitally empowered society and knowledge economy.

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