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fast facts

Project: High Speed Backbone for Nepal Research and Education Network
Lead Organization: Nepal Research and Education Network
Country: Nepal

situation

High Speed Internet connectivity is a vital tool for fast data collection, as well as efficient online interactions. Nepal has been hampered by low data speed connectivity. There is Internet access, but Nepal lacks high-speed connectivity for research and education networks. Currently, the Nepali Research and Education Network (NREN) community operates over a low-speed network with an older infrastructure, and lacks access to communications tools such as video conferencing and other communications technologies. As such, is currently unable to share research and educational information in an efficient manner.

solution

The Nepal Research and Education Network (NREN) aims to connect universities, colleges, and research institutions through an advanced, high-speed Research and Education Network. However, field research shows that most of these institutions are only able to access the Internet via minimal (64 Kbps – 128 Kbps) network speeds. These low speeds do not facilitate the use of advanced video conferencing and other recent network technologies. The lack of updated networking devices, including network switches, routers, and a suitable lab environment, have also contributed to reducing the overall networking performance of these institutions. NREN addressed these resource constraints with this project, promoting a sharing environment and enhancing local networks for the purposes of advanced research.

During the first phase, four universities and ten colleges were selected to be a part of the high-speed Network. These educational institutions were selected because of their high student enrollments, existing network infrastructure, and administration capabilities. NREN conducted two technical workshops in order to train personnel involved with the implementation and operation of the high-speed Network. One session was conducted before the network enhancement and equipment handover, and the other was held after the network was in place.

The workshop on campus network connectivity has built confidence in the capabilities, willingness of, and cooperation among participants. The course has provided an avenue for sharing information, and participants were able to discuss their particular concerns in relation to their specific conditions. This session has opened the way for the next necessary steps, which include the acquisition of knowledge related to Network Planning and Design, Routing, DNS Setup and Configuration, BGP, and Routing Appliances will further enhance the collective network information knowledge base.

The project team has distributed a number of devices to the participating colleges to improve the existing networks' performance. These installations replaced existing wireless and ADSL connections with high-speed fiber-optic links, a change which has greatly broadened these networks' speeds and significantly increased the number of services they can offer.

NREN is currently in negotiations with three of Nepal's internet service providers to reach an arrangement about the potential cost and estimated timeline for improving and extending internet infrastructure on a national scale. These talks are expected to continue until each provider has been able to conduct their

own investigation into network usage within the areas for which they are responsible before making any sort of commitment on pricing.

broader impact

In addition to the work performed on the project itself, the team has undertaken a number of capacity building efforts meant to enhance the skills of local project participants and promote project sustainability. First among them being the creation of a mailing list containing contact details from 25 institutions; including the pilot colleges and workshop participants. This mailing list, in combination with the wiki containing project details, will facilitate open discussion among project stakeholder, as well as serve as a means to disseminate information related to the project and relevant topics.

Two formal meetings, as well as some informal meetings have been organized to gauge the response of the major stakeholders. These events have created the opportunity for the dissemination of the information related to project activities beyond Nepal itself. NREN board members and staff members have also given presentations to the Tribhuwan University Vice Chancellors office, Kathmandu University Faculties, National Academy of Science and Technology, International Center for Integrated Mountain Development (ICIMOD), Institute of Medicine, and Ministry of Science and Technology among others. These meetings and presentations have focused on the overall benefits of R&E Networks, NREN's public-private partnership model, and long-term viability of the project.

project contact

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One of NREN's training workshops