



SMOOTH ROAD TO CONNECTIVITY



The National Highways Authority of India (NHAI) is responsible for the development, maintenance and management of national highways in India. The Authority has been entrusted with the projects under National Highways Projects.

In addition, NHAI is also responsible for the maintenance and development of golden quadrilateral, north-south and east-west corridors, providing port connectivity and some selected projects like Naini bridge, Hapur bypass, and Durg bypass. A part of the largest highway project of independent India called National Highway Development Project (NHDP), NHAI needed a fast and reliable communications infrastructure at a low cost, to enable coordination between its head office, nationwide road construction sites, and toll booths.

Says Atul Kumar, general manager, information technology and planning, NHAI, "We realised that to fulfill and manage the mandate of creating a network of world-class highways across the country, we would require appropriate technology. The scope of the mission and the scale of operations necessitated investments in an IT network that will enable efficiency and ensure transparency across the organisation." Thus arose the need to set up a network with appropriate after-sales support.

By surveying existing technology NHAI found IP to be the best way to build a scalable infrastructure that will grow as India's national highway system grows. Based on a set of generic specifications and performance levels, a committee appointed for the purpose chose Cisco's IP-based solutions. An IP-based communication network was deployed at NHAI's New Delhi-based headquarters for its campus-wide converged Local Area Network (LAN) supporting voice and data traffic.

"The purpose was to achieve maximum with minimum infrastructure. In the age of convergence, the obvious choice is to drive voice, video, and data through a single network," explains Kumar. "We knew that the use of VoIP would be deregulated and the technology has a great future." The LAN network currently supports over 75 users and is scalable up to 1,000 users. Further, the systems are capable of supporting up to 1,000 VLANs, giving NHAI the capacity to interconnect different departments to share information and manage all elements of communication for its team across India.

The LAN also has spare capacity for connecting printers, phones and other devices. The infrastructure is based on a Catalyst IP local area network (LAN) comprising of Cisco Catalyst switch at the core, 35xx series switches at the floor level, IP telephones, unity and router. Through NHAI's IP phones, Kumar and his NHAI colleagues are using messaging and XML applications to communicate via text and voice, access databases and websites, access unified messaging to have emails read to them, exchange information, and provide updates on the progress of various projects. Says Kumar, "IP network has helped us save costs, reduced management hassles and introduced several new applications on the IP phones." Moving fast on the info highway, NHAI is all set to deploy a WAN that will connect around 60 construction sites and a number of toll locations nationwide. Most locations will have optical fibre backbone connectivity for which the organisation plans to tie-up with an ISP.

"Deploying our own WAN requires a lot of human resource, time, and revenue. So it's a better idea to ride the existing infrastructure of an established ISP," said Kumar. For areas where there is no optical fiber connectivity, there are plans to use VSATs and radio links. This will make it a 'hybrid' WAN. Currently, applications like VoIP, financial and HR databases, Geographic Information System, and drawing & document management systems run on the LAN. Once the WAN is fully functional, it will be integrated with the LAN.

Similarly, at present the company receives information like the pattern of vehicles running on the road, peak and off-peak traffic load and toll collection information through e-mail in the form of daily, weekly, and monthly reports. With WAN in place, the company hopes to receive these information real-time information

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