

Internet's last-mile challenges

The situation of Internet connectivity in India is like our roads. It is not about how much Internet is available in India, but the quality of its bandwidth

Despite good roads in Indian metros, we take no less than half an hour to reach a distance of 5-10km. Certainly, the reason is traffic congestion, red lights and more vehicles than the space to drive. In rural areas, too, the average speed is 20-30km per hour, although the reason here is not too much of traffic but poor road conditions, and in several areas almost no presence of roads.



The situation of Internet connectivity in India is like our roads. It is not about how much Internet is available in India, but the quality of its bandwidth. Our people living in rural areas or even the areas away from the highly concentrated metros, the definition of Internet is 256 kbps with more than 50% downtime.

India has more than 100 million Internet users. By the end of December, we will have about 121 million Internet users in India. And we are adding five-seven million Internet users every month, according to industry lobby group Internet and Mobile Association of India.

Ironically, we may be the third largest Internet user base in the world after the US and China, for me, this game-changing technology cum media is still dominated by users in the metros, cities, and towns. As much as 90% of the country has still not experienced Internet. In other words, India would be the highest contributor to the Internet-deprived population of the world.

According to an observation at *BroadbandIndia.com*, “Not many of us disagree that India ranks in the top 10 across the world when it comes to Internet user base, but has only four Internet firms listed on Stock Exchanges. India has amongst the best demographics for the Internet, with 50% of the population being younger than 25 years, but only 3% of ad spends online. India’s Internet penetration trails China’s 35% penetration by far, despite having started well before China in providing Internet access.”

The poor penetration of the Internet in India is purely because of the lack of government will. For example, two ministries—rural development and human resource development—could make Internet use expand to more than 50% of the population. While the rural development ministry has all the *panchayats* (local governance bodies) in its jurisdiction, the department of education of the human resource ministry oversees the universities, and schools of the country.

There are 250,000 *panchayats* in 635,000 villages through 3 million elected *panchayat* representatives. If we connect one *panchayat*, in turn it becomes a hub for potential Internet

users from two-three villages. And most *panchayats* are close enough to the government sub-district office where it is claimed that broadband connectivity is available through the communications ministry's SWAN (state wide area network) deployment.

But to connect all the institutional points around a block office, we would require to aggressively adopt the option of wireless networking, which would not only provide connectivity to all *panchayat* offices but also to all the majority of the 1.4 million schools in India, which are mainly located in remote areas where education quality is questionable. Connecting each school would in turn provide Internet access to all teachers and students, resulting in geometrical rise in the Internet user base. It is not that we have only WiMax technology to connect the last mile, which may be a costlier option. If we look at exploiting the free spectrum available on the 5.8GHz and 2.4 GHz frequencies, building wireless mesh network and starting a network is a much cheaper option.

For example, the three networks that we have built and have been deploying in Chanderi in Ashok Nagar district in Madhya Pradesh, in Bhawangarh in Baran district in Rajasthan, and in Garo Hill's Tura town in Meghalaya, our cost per node is about Rs. 25,000 to Rs. 30,000. Depending on the terrain, the cost could rise if the area is flat, where erection of tower may cost an additional expense. However, in the hilly areas, wireless mesh network has been found to be not only cheap, but perhaps the most viable option. Some details could be seen at <http://wforc.in>.

I would like to suggest four policy suggestions for so-called last-mile connectivity to increase the reach of Internet access.

One, in the framework of the Right to Information Act, the Indian government must consider Internet as a right and must consider providing it not only on demand but preferably as a rights-based scheme. Two, make it mandatory for all SWAN to use free spectrum to further reach out to the last-mile population by deploying wireless mesh networks or star networks. Three, make it mandatory to have each and every *panchayat* connected through Internet and complemented with *e-panchayat* suite of applications. And lastly, make it mandatory to have each and every school Internet-enabled and complemented with smart phones for school management.

Osama Manzar is founder and director of Digital Empowerment Foundation and chairman of the Manthan award. He is also a member of the Working Group for Internet Governance Forum at the ministry of communications and information technology. Tweet him @osamamanzar