Wifi.Hotspots@Bharat.In

India is a land of villages with 800 million people living in 6.5 lakh villages popularly called *Bharat*. It is a well known fact that in this cyber age the overall development of a nation has a direct relationship with broadband penetration. From this we can easily conclude that the country will be developed when rural masses are connected to the Internet through broadband. In India, despite the enormous benefits enjoyed through the mobile revolution by people in urban and rural areas, penetration of broadband in rural areas is negligible resulting into *Digital-Divide*. If these masses can be provided with broadband connectivity, it can lead to inclusive growth for masses and will contribute hugely to the overall economic development of the country.

The main reason for this state of affair is the perceived absence of a sustainable business case for rural broadband for which out-of-box thinking and collaboration among all the actors in the game is imminent. Due to sparse density of people and smartphones as well as the low income of rural masses, cost of service provision is more and affordability for paying for the service is low. One

positive finding from primary surveys has come out that rural masses are not aspiring for free WiFi but are willing to pay for this at affordable level (₹100, three percent of monthly income) for basic broadband connection. To make this happen all the artificial costs and levies like licence fee and service tax needs to be removed, existing infrastructure and facilities to be made use of and a very efficient and low cost technical solution which should be maintenance-free and manageable by local folks is required.

Innovative Technical Solution

For deployment in rural areas, cost is the major point which is make-or-break for a business case. Everyone wants a low cost solution, be it the telecom operators who want a cost efficient system for a viable business case or the customers who want a service where they need to pay less so that they can afford it.

A technical solution which can facilitate a sustainable business model for rural India (Bharat) should meet the 5L criteria – low cost, low power, low maintenance, local control, and local content.
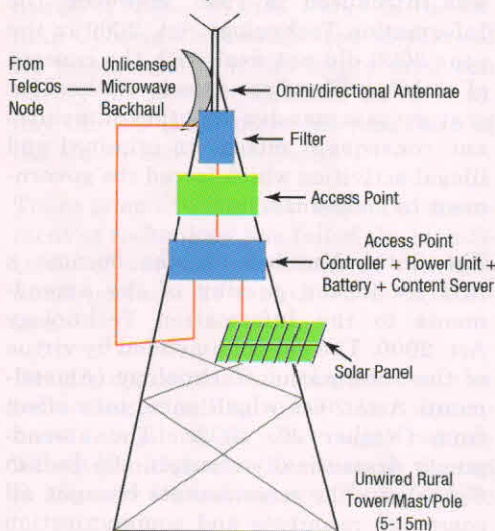
Satya N Gupta
Secretary General,
NGN Forum

the-shelf and can easily be *Made in India*, fast to deploy, includes power supply based on solar panels and rechargeable batteries as well as local content server.

Operation and Maintenance of Hotspots in Rural India

The other issue with a rural hotspot is its operation, maintenance, and management. There are peculiar reasons for uncertain performance of WiFi hotspots like interference from other WiFi sources being a free-to-all band, from other non-WiFi sources (man-made and industrial), and signal strength variation. Remote diagnosis and repair of these hotspots is especially needed as any visit required would involve significant cost since the distances involved are large; rural locations are relatively inaccessible; and the availability of trained personnel in rural areas is non-existant. To manage the hotspot locally, a local youth can be trained as a para-technical person in multiple basic skills for Level 1 upkeep, cleanliness, and sales as well as educating the rural users. Such trained youth can be funded through a micro-credit scheme under Star-UP India, and can be converted into a VLE (Village Local Entrepreneur), thus converting unemployment into entrepreneurship. ■

Green Public Hotspot on a Rural Structure

From Telecos Node — Unlicensed Microwave Backhaul

Omni/directional Antennae

Filter

Access Point

Access Point Controller + Power Unit + Battery + Content Server

Solar Panel

Unwired Rural Tower/Mast/Pole (5-15m)

The above characteristics can be delivered by an all-IP (packetized) solution putting ruggadized hotspot in a box and installing it on a existing structure/mast in the center of the village. Backhaul needs to be provided through USO fund of the government which is involved in taking fiber connectivity to villages through BBNL. This solution provides affordable access to the Internet and local content, via a low-cost mobile device without the need of a SIM card. The solution is based on cost-efficient standard modules most of these are available of-