Making the Home Delivery of Broadband Happen in Rural India (Bharat)



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If unconnected masses in rural areas can be provided with Broadband connectivity, it can lead to inclusive growth and can contribute hugely to overall economic development of the country.



India is a land of villages with 800 million people living in 6.5 lakh villages also 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. This means that the country can develop faster when rural masses are connected to the internet through Broadband speeds as in urban areas. In India, though voice connectivity has covered the masses through the mobile revolution, penetration of broadband in rural areas is negligible resulting in Digital-Divide i.e. the Digital Access Deficit between voice and data. If these unconnected masses can be provided with Broadband connectivity, it can lead to inclusive growth and can contribute hugely to the overall economic development of the country.

The main reason for the above dismal state of affair for rural data connectivity 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. However, our visionary Prime Minister, Shri Narendra Modi has realised it very well and hence the government at the Centre has taken it as a mission.

Digital Divide in telephony which existed in erstwhile India, was removed by liberalisation in the telecom sector including the creation of the independent regulator (TRAI) in 2000 and USO Fund in 2002. For the fixed lines the USO Fund which was created for the increased penetration in rural areas served a limited purpose, but the lead

was taken by mobile as it was cost-effective and faster to deploy. Later on, the USO Fund was allowed to be used for mobile telephony as well, to help the cause.

But, the real Digital Divide still exists in form of access to data services (Broadband), especially in rural areas. To handle this, the Government further decided to include Broadband too in the definition of Telecom, so that USO Fund could be used for delivery of Broadband in rural areas as well. Subsequently, the NOFN Project (rechristened as BharatNet in 2015) was created in 2011 with the mandate of taking optical fiber based data connectivity to 2.5 lakhs Gram Panchayats, but till 2014 not much happened on the ground. It was only in the period 2014 to 2018, the emphasis to this project was given as per the 'Digital India' Mission of Prime Minister Shri Narendra Modi and now it has already come halfway within such a short span of time and it is poised to achieve the target by March, 2019.

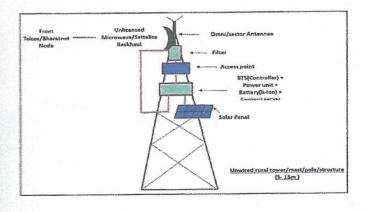
The short-term approach of the erstwhile policymakers to ignore the 4 lakh villages from their plan as well as not to keep an end-to-end home delivery of the broadband services to the masses as an overall objective of the project has been devastating. In fact, the program gathered momentum by the concrete step taken by the Modi government only. As a result, this has been considered by the current Government headed by Shri Narendra Modi as a part of National Digital Communications Policy (NDCP) - 2018.

As the market players in past did not see any business case to provide Data Services in rural areas, it was left for the Government to fund and implement it as last resort. The unique exception to this situation is the Government-owned service provider, BSNL, who has the idle/under-utilised infrastructure in form of digital capacity as well as towers which are touching around 50,000 rural locations. This existing infrastructure is being utilized by the "Managed Wi-Fi Hotspot Service Providers" in a PPP mode with BSNL to convert the villages into Wi-Fi Hotspots so that the delivery of broadband can be made in the hands of rural masses in the vicinity of such Wi-Fi Hotspots.

Everything on Tower (EOT) with 5L – A solution for Last Mile Access tailor-made for Bharat

"Everything on Tower (EOT)" is an innovative game-changing concept of Shri Narendra Modi Government which brings out a solution for the creation of a public Hotspots for use of the telecom service providers to enable them to provide muchneeded Broadband Access to rural masses as a business case without any perpetual subsidy. It is based on the availability of backhaul on revenue share basis and making use of abandoned /discarded towers of MARR (Multi Access Radio Relay) legacy or some other existing structure of around 10-15 meters height. The solution for this follows 5L Principles of value innovation namely; Low cost, Low Power, Low Maintenance, Local Control, Local Content, to make the deployment cost-effective and sustainable.

The concept which has been already deployed at more than 1000 rural sites is depicted as below: Normally the creation of a hotspot needs a building space/shelter, a power supply source, a tower on which the access network equipment is to be installed.



In addition to the availability of reliable power supply and a backup source, it also requires a lot of cabling to carry the bandwidth from the backhaul termination point to the BTS and from BTS to the Antenna. This involves a lot of work, cost and maintenance and also creates pollution. Under the concept of "Everything on Tower", the solution does away with all the above mentioned cumbersome and costly requirements and physically put everything on the tower in a secured and safe manner. The various network elements which are mounted on the tower are antennae, filter, backhaul dish, BTS (Controller, power unit, battery, local content server) and solar panel. The advantage of such solution is that it does not require indoor space, no cabling from building to the tower and no grid power supply connection and more than anything else it is totally Green. Such a solution can work for more than 30 hours without charging and free from any requirement of the external power supply and needs very little maintenance efforts.

Also, the cost of such setup which makes use of unlicensed spectrum, existing infrastructure and 5L Principles of rural communication, will be very low in comparison to the conventional technology. This system can also be used to bring the voice connectivity also as a value-added service of the Broadband to the 36,000 leftover villages which are still connected for voice also.

1.2 "Sangam"- Mission Mode approach of Prime Minister Shri Narendra Modi to bridge the Digital Divide

Vision for the 'Sangam'- the confluence of mission mode projects:

The Four mission mode programs which the Govt. of India under the able leadership of Prime Minister Shri Narendra Modi has started are:

1. The Digital India mission is the dream project of PM Shri Narendra Modi aiming at transforming India into a digitally empowered knowledge economy and bringing as many as 2.5 Lakhs Gram Panchayat under broadband connectivity and delivering urban speed in the rural. To take the broadband access into the hands/homes of rural masses, public hotspots based on Wi-Fi are being planned through.



- 2. Make in India mission portrays back to the history before Independence where our freedom fighters solely concentrated on the materials made in India and discarded the import of foreign goods (Swadeshi Movement). Even today, this MAKE IN INDIA mission is concentrating in making India a country where goods will be produced in India for local consumption and export of such products. For a rural hot-spot, most of the equipments have the potential to be manufactured/sourced in India, and further exporting these as well.
- 3. **Skill India** is concentrating on polishing the talents of India to make it more productive. India is known for its talents, from the famous scientists to the famous doctors, from the famous engineers to the famous business personalities. Prime Minister Shri Narendra Modi has also emphasized this fact as for how Indian talents can be used to make India a skilled nation and especially increasing their productivity through Multiskilling.
- 4. Start / Stand Up India Mission aims at creating entrepreneurs and converting "Job Seekers" into "Job Givers". Whereas one Village Level Entrepreneur (VLE) especially among the literate rural women, will be created per village i.e., around 6.5 lakhs and one multi-skilled champion per gram panchayat i.e., around 2.5 lakhs adding some more related activities jobs will ultimately contribute to one million Blue Collared Broadband Champions, in the country. Some of these can be funded by Gram Panchayat, People representatives (MP/MLAs), CSR funds and financial agencies like Mudra, Bandhan Bank under the micro-credit schemes at easier conditions and reduced interest rate.

National Digital Communications Policy (NDCP) 2018 - 'Brahmastra' for killing the 'Digital Access Deficit'

NDCP -2018 is a landmark policy initiative which aims to really remove the Digital Divide & Digital Access Deficit in rural India, which is also the objective and main pillar of Digital India.

As far as the rural broadband proliferation is concerned the following are the salient features:

- NDCP 2018 aims to ensure broadband connectivity to all uncovered areas of the country. Every citizen will be provided with the connectivity of up to 50 Mbps while Gram Panchayats will be provided up to 1 Gbps connectivity by 2020 and 10 Gbps by 2022.
- Establishing a 'National Broadband Mission – Rashtriya Broadband Abhiyan' to secure universal broadband access.
- Implementation of the following rural broadband initiatives, to be funded through USOF and Public-Private Partnerships:
- BharatNet Providing 1 Gbps to Gram Panchayats upgradeable to 10 Gbps.
- GramNet Connecting all key rural development institutions with 10 Mbps upgradeable to 100 Mbps.
- iii. JanWiFi Establishing 2 Million Wi-Fi Hotspots in rural areas.
- iv. Strengthening institutional capacity of USO Fund to ensure the effective rollout of services in uncovered, remote and rural areas.

Way Forward — 'It is all about timely Execution': The new policy captures the salient features in focused manner.

Hence a targeted implementation and action plan with the milestone as well as accountability of the implementation agency have to be carved out and enforced. This cannot be left to the government agencies alone who cannot boast of any such time-bound implementation of such challenging and complex projects. Hence the PPP (Public Private Partnership) mode is ideally required for this by involving best brains/talent of the county. In fact, it should be all-inclusive and should have People, Panchayat, Public, Private, Partnership (5P). We can make it happen together if there is a will and way + managed service/ system model.

