

Wi-Fi available here: and everywhere

POLICY BRIEF

Smart Cities are proposed as the starting point to make Wi-Fi a widely available public good. The city administration of proposed smart cities and metros would be the nodal administrative bodies. A technology infrastructure solution is proposed, comprising a set of interoperable standards, a single payment solution and a central server for accounting and billing of data usage. Along with this, regulatory measures for encouraging interoperability are also proposed. Demonstration of success in these urban clusters would give the nation the necessary confidence and evidence to expand coverage towards rural areas as well. The resulting widespread digital empowerment would enable many more of our citizens to climb further on the ladder of socioeconomic development.

SUMMARY OF FINDINGS/ RECOMMENDATIONS FOR INTEROPERABILITY

- Public Wi-Fi to be included as an integral component of the Smart Cities Mission of Government of India
- City administration to be entrusted as the nodal Government body in charge of design and implementation of the roll-out of public Wi-Fi in proposed smart cities and metros
- City administration to formulate a PPP model that provides a viable and sustainable business proposition for prospective investors, entrepreneurs (including startups) and citizens as consumers
- Nodal civic body to implement existing standardized technology solution, with the following features
 - Will provide interoperability among different Wi-Fi networks (as well as between cellular and Wi-Fi networks) of ISPs, by connecting all ISPs to a central server in each telecom circle
 - Will consist of a single window payment solution that tracks data usage and does centralized billing
 - Will provide a mechanism to attract entrepreneurs to set up and manage public Wi-Fi hotspots to cover the whole area, according to pre-specified Service Level Agreements, on a remunerative basis
- Implementation of public Wi-Fi to be extended to rural areas, based on the

lessons learned during its implementation in urban areas, thereby building on the Bharat-Net model and providing connectivity till the last mile.

THE RESEARCH

Public Wi-Fi as a component of Smart Cities Mission

Due to the different stages of their implementation, NOFN/BharatNet and implementation of Public Wi-Fi should not be undertaken under the same policy. Instead, the implementation of Public Wi-Fi should be included under the Smart City Mission. Here is why:

- Internet connectivity and interoperability among IoT devices is a fundamental requirement of Smart Cities. The Mission as well as Digital India initiative clearly states the need for integrating communication infrastructure in new urban development plans
- The political will to push the Smart Cities program is very strong; it enjoys support of the PMO as well. The progress of this mission is being tracked directly by the MoUD on high priority.
- Most of the Smart City finalists have instituted nodal agencies for the mission

and these are under the ULG institutions in the respective cities with fair representation from the state administrative machinery

Implementation Model: Municipal Public Wi-Fi

- Nodal agency under Municipal Corporation incorporates setting up of backhaul infrastructure in PPP model. The city is divided into smaller areas for the purpose of setting up of Wi-Fi hotspots.
- Compared to a nationwide implementation this can be more focused, it will also enable extension of the city circles to adjoining rural areas as the city limits are increased annually
- India had 29,205 Wi-Fi hotspots in 2014 (31,518 in 2016). In comparison, top ranking countries like France, United States, and United Kingdom had significantly higher numbers at 13 million, 9.8 million and 5.6 million hotspots, respectively

The demand to set up Public Wi-Fi in India originates from the need to reach a goal of one hotspot for every 150 people, 8 lakh additional hotspots will have to be installed. This will help to overcome the lacunae of Municipal Public Wi-Fi models in cities like Atlanta, Philadelphia & Boston which saw such projects fail due to lack of demand for Wi-Fi networks.

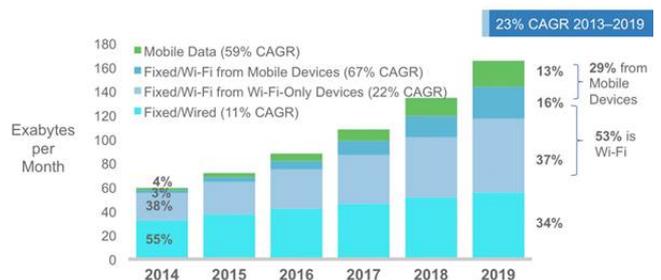
The Technology Solution

The IEEE standardized central server (Intelligence Node) is to be set up in the Telecom Circle which is divided according to Telecom Circle areas of ISPs. This Intelligence Node (IN) will ensure interoperability among different ISPs. The IN can also be placed at some localized center and a common lease line can be taken from the Main Switching Centre of every ISP to this centralized location. A Network Operating Centre (NOC) can then be formed at that location, which will manage the complete Wi-Fi operations. Any

private operator, entrepreneur or Govt. Organization can deploy Public Wi-Fi Hotspots in any area after entering into a Service Level Agreement with the Nodal Civic body. The minimum amount of application fees would be charged to them depending upon how many Wi-Fi hotspots they want to deploy in any area. The agency who is deploying the Wi-Fi Hotspot will be responsible for managing the networks. The entity who will deploy the Wi-Fi Hotspot can take the internet bandwidth from the Point of Presence from any ISP and can start offering his services to users. The IN would be responsible for user authentication which would be done by making payment through a single payment portal as soon as a customer connects to any Public Wi-Fi hotspot of the city. The SSID should be kept same for every city. The IN node will take care of determining the data usage of all ISPs. Since the initiative is taken by the entity who is first responsible for deploying the network, hence the first token of money should be given to him and ISPs should be given the bandwidth usage charges.

Extending till the Last Mile

Given the progress of the BharatNet project, it can be safely assumed that by the time the first phase of roll-out of public Wi-Fi in urban areas is completed, all Gram Panchayats of the country would have been connected via optical fiber cable (or other appropriate technology). This would allow us to replicate a version of the city Wi-Fi model in the rural areas too. The district administration can be tasked with establishing a PPP model where ISPs, village level entrepreneurs and the local community play an active part in the setting up and management of public Wi-Fi hotspots. This would complement very well with the Bharat Net infrastructure. The operators could adopt suitable local options in each context, such as Virtual Network Operators and TV White Space Radios, in order to help



extend connectivity till the last mile. This will be

a definitive step in bridging the divide between
'India' and 'Bharat'.

SOURCES

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