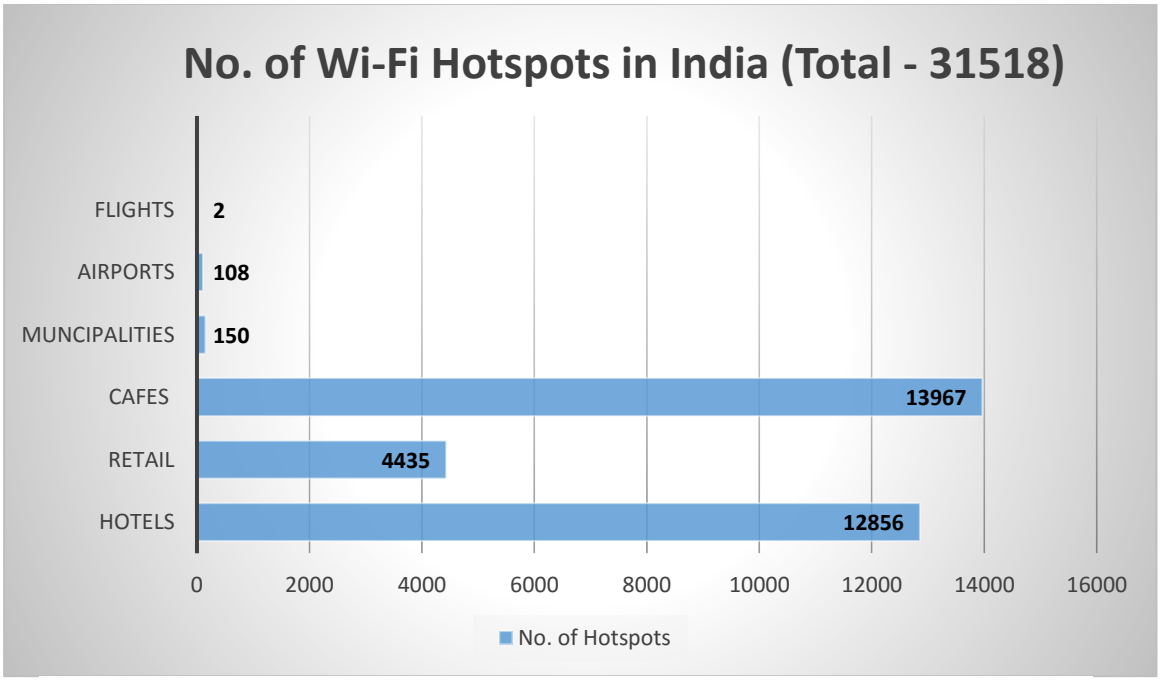
TAIPA Response to TRAI Consultation Paper on Proliferation of Broadband through Public Wi-Fi Networks

1. At the outset we would like to thank the Telecom Regulatory Authority of India to bring out a consultation paper with the objective to examine the need of encouraging public Wi-Fi networks in the country from a public policy point of view, discuss the issues in its proliferation and find out solutions for the same.

2. Presently, mobile network data usage in India is significantly higher than other forms of Internet usage mainly due to cost and affordability of broadband services, depth of fixed-line coverage and lesser number of public Wi-Fi zones. The situation of Wi-Fi is not encouraging in India, few of the facts highlighting it are as below.

- We represent one sixth of the world population and our share in WiFi hotspot is less than 1/1000.
- As per a study, globally there has been an increase of 568% whereas for India it has been 12% only.
- Globally there is 1 WiFi hotspot for every 150 people and in India, 8 lakh additional hotspots have to be installed to have one WiFi hotspot for every 150 people
- In addition, countries like France, USA & UK had 13 million, 9.8 million and 5.6 million WiFi hotspots respectively as compared to only 29,205 WiFi hotspots in India (data as of 2014).

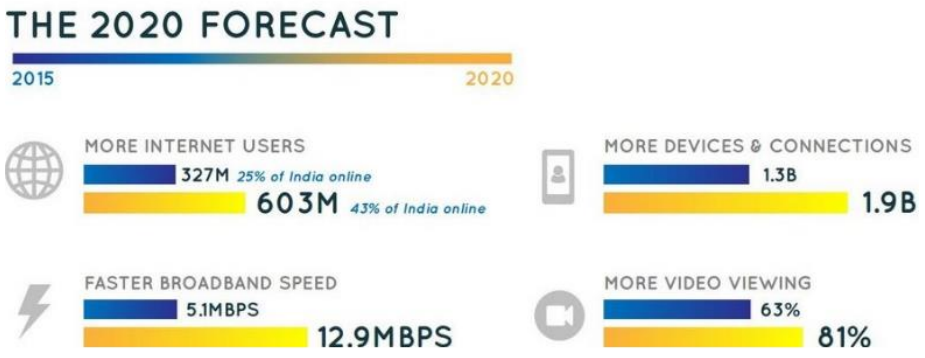
3. It is pertinent to mention that the growth of Internet penetration in India and realization of its full potential is closely tied to the proliferation of broadband services. However, India ranked at 108th position globally in terms of affordability of fixed-line broadband services and at 97th position for mobile broadband services. Thus, there is a need for better proliferation of Wi-Fi networks that offers an affordable, versatile & flexible method for scaling up of Internet Access. Presently, the public Wi-Fi hotspots in India are segregated as –



As of 31 March 2016

4. Wi-Fi uses radio waves generally at a frequency of 2.4GHz & 5GHz to create wireless networks. The widespread adoption of Wi-Fi can be attributed to significant advancements in the years since 1997. The subsequent advancements in technology have enabled better speed, reliability and security in the usage of Wi-Fi networks. Wi-Fi's popularity has also been fuelled by that fact that the equipment needed to create a Wi-Fi hotspot is relatively inexpensive.

5. **Data Growth Projections** - It is projected that in India mobile data traffic will grow 12-fold from 2015 to 2020 and mobile data traffic will reach 1.7 Exabytes per month by 2020 from 148.9 Petabytes in 2015. Therefore, mobile network infrastructure has to be ready to handle this spur in the use of data which can be achieved by connecting the people by Wi-Fi hotspots.



Glimpse into Future Demand *| Data Source: Cisco VNI, Image Source: trak.in*

6. **Challenges for implementing Wi-Fi –** Various regulatory challenges that are hindering the growth of Wi-Fi across the country include

    a. **Right Of Way –** Laying of fibre is required for enabling Wi-Fi connectivity across the nook & corner of the country. However, there are several Right of Way challenges such as acquisition of sites, exorbitant fee charges, etc. which leads to delay in roll out of fibres and establishing Wi-Fi networks. Multiple documents and NoC are required which further leads to delay

    b. **Absence of Single Window Clearance Mechanism –** As mentioned above, for obtaining RoW permissions, approvals and NoC from multiple authorities are required which leads to delay in laying of fibre and establishment of public Wi-Fi networks.

    c. **High Fees/ Levies –** The challenge is not limited to obtaining permissions, but also to the payment of charges for obtaining Right of Way. The States should follow a uniform nominal one time administrative fee for granting RoW permissions.

7. **Role of Infrastructure Providers in enabling Public Wi-Fi** – The registration certificate of IP-Is covers in its mandate for IP-I companies' establishment and maintenance of the assets such as Dark Fibre, Right of Way, Duct space and Tower. The registration certificate of IP-I states that
Quote
Registered IP1 to establish and maintain the assets such as dark fibres, Right of Way, Duct Space and Tower for the purpose to grant on lease/ rent/ sale basis to the Licensees of Telecom Services licensed under section 4 of Indian Telegraph Act, 1885.
Unquote

8. Infrastructure support for the telecom companies is one of the areas for the tower companies in establishing Wi-Fi Hotspots. The IP-I can provide Wi-Fi infrastructure support to telecom players

such as laying of fibre, etc. and share it with the licensed TSPs on a non-discriminatory and transparent manner.

9. Alternatively separate Wi-Fi providers may be registered on the lines of IP-1s. Such neutral hosts shall cater to license holders only for providing Wi-Fi. Neutral hosts will provide SSIDs to ISP (be it local or national or international players) and TSP (for data offload) and manage connection with gateways well. This would ensure interoperability as well across WiFi networks of different service providers. Further, no ISP license should be mandatory for such neutral hosts or small resellers for boosting Wi- Fi penetration and usage. Such neutral hosts should be able to deploy and operate Wi-Fi services like PCO model in the past, thus creating more enthusiasm and reachability for Wi- Fi services in the country.
10. **Digital India & Smart Cities Mission** Proliferation of Wi-Fi services across the country will play a critical role in enabling access to internet to the farthest corner of the country. The flagship program of the Government, Digital India Mission, objective is to transform India into a digital empowered society and a knowledge economy. It is an umbrella term that covers three critical areas

    - Digital infrastructure as a utility to every citizen.
    - Governance and service on demand.
    - Digital empowerment of citizens

In India, nearly 31% of the total population lives in urban areas and contributes over 60% of India's GDP. As more people shift to the urban cities, it is projected that urban India will contribute nearly 75% of the national GDP in the next 15 years. Thus, it is of immense importance that we plan our urban areas well which are well connected digitally and otherwise. The Government of India's innovative initiative called the Smart Cities Mission that enables local development by harnessing technology for creating smart outcomes. Smart cities will involve smart infrastructure, smart governance, smart energy & environment, smart buildings and housing, smart mobility and smart health. Information & Communication Technology (ICT) will play a critical role in creation of smart cities.

Further, the consultation paper has rightly mentioned that "public Wi-Fi networks" has broader meaning, and is not limited to the Wi-Fi hotspot created by licensed TSP/ISP at public places. Also, the development of smart cities and implementation of Digital India mission would require deployment of Public Wi-Fi networks for ubiquitous connectivity.

Technology will be the backbone of the Digital Bharat dream, and significant investments are required for upgrading the telecom infrastructure. Telecom infrastructure will be playing a vital role in realising the digital India vision and create inclusive growth. Thus, telecom infrastructure providers should be mandated to

The **National Telecom Policy, 2012** recognises telecom service, including broadband connectivity, as a basic necessity like education and health services and aims to work towards the "Right to Broadband". Thus, provision of internet services through the public Wi-Fi system will help the government in achieving its policy objectives and will go a long way in providing a seamless experience to users.

Issue 1) Are there any regulatory issues, licensing restrictions or other factors that are hampering the growth of public Wi-Fi in the country?

No Comments

Issue 2) What regulatory/ licensing or policy measures are required to encourage the deployment of commercial models for ubiquitous city – wide Wi-Fi networks as well as expansion of Wi-Fi networks in remote or rural areas.

The infrastructure Providers (IP-1s) should be encouraged to establish required infrastructure for the Wi-Fi. This can be done by following a model similar for building telecom towers that is, the IP installs the infrastructure and the ISP/TSP provides the services. Further, the institutions or establishment seeking Wi-Fi connectivity should be at liberty to place the requirement of Wi-Fi in their area either to the ISP/TSP or to even an IP if the IP is confirming internal tie-up with a licensee. The TRAI recommendation should clearly establish the key role in proliferation that could be played by active involvement of the IPs.

Also, from a regulatory point of view, the activity of creating telecom infrastructure required for public Wi-Fi and from provision of internet services to end consumer should be separate as these two activities are complimentary to each other but are two distinct and different activity and each activity needs separate.

Also, sharing with multiple operators/ISP must be mandated in all public spaces and no installation of Wi-Fi equipment in public space should be for exclusive use of any one ISP/telecom operator.

Issue 3) What measures are required to encourage interoperability between the Wi-Fi networks of different service providers, both within the country and internationally?

Infrastructure Providers (IP-1s) should be encouraged to install common Wi- Fi infrastructure to host multiple service providers on the same network. Installing individual infrastructure by service providers will result in multiplication of network and hence shall lead to huge avoidable costs. It would be beneficial to all stake holders when Infrastructure Providers (IP-1s) install the required Wi-Fi infrastructure and service providers share the same.

Interoperability between the Wi-Fi networks of different service providers can be enhanced by adopting model that support technologies such as WRIX (Wireless Roaming Intermediary Exchange). WRIX standard has been developed by Wireless Broadband Allianz (WBA) and GSMA which facilitates roaming between Wi- Fi hotspots of different agencies both national and international.

Aggregators like Boingo, iPass, Syniverse, etc. are owning millions of hotspots across countries and are providing roaming among Hotspots to the mobile operators based on WRIX standard.

Issue 4) What measures are required to encourage interoperability between cellular and Wi-Fi Networks?

Though the TSPs and the ISPs can address the active sharing issues, the scale of the problem could significantly reduce if the IPs – who are already building the infrastructure for cellular operators - are brought in to also build Wi-Fi infrastructure and be a neutral host to the licensees.

Issue 5) Apart from frequency bands already recommended by TRAI to DoT, are there additional bands which need to be de-licensed in order to expedite the penetration of broadband using Wi-Fi technology? Please provide international examples, if any, in support of your answer.

Wi-Fi is typically deployed within unlicensed spectrum over 2.4 and 5GHz frequency bands. We believe that more spectrum should be delicensed / earmarked to handle the growth of Wi- Fi in time of come.

- Bands in TV White Spaces have been unlicensed in countries like USA. The TV White Spaces Spectrum (470-582 MHz) in the Very High Frequency (VHF) and Ultra High Frequency (UHF) band is currently earmarked for TV broadcasting but not being used, may be allotted for provisioning of Wi-Fi services in India.
- 60 GHz band has also been delicensed in most countries which should also be done in India to support large number of hot-spots.
- 5.725- 5.825 GHz band as already recommended by Authority must also be delicensed.
- Along with the growth of Wi-Fi, backhaul of mobile networks shall be required to be strengthen. For this purpose, very high capacity E band (71-76/ 81-86 GHz) and V band (57 -64 GHz) may be considered for allocation to telecom service providers for backhaul purpose

Issue 6) Are there any challenges being faced in the login/ authentication procedure for access to Wi-Fi hotspots? In what ways can the process be simplified to provide frictionless access to public Wi-Fi hotspots, for domestic users as well as foreign tourists?

No comments

Issue 7) Are there any challenges being faced in making payments for access to Wi-Fi hotspots? Please elaborate and suggest a payment arrangement which will offer frictionless and secured payment for the access of Wi-Fi services.

No Comments

Issue 8) Is there a need to adopt a hub-based model along the lines suggested by the WBA, where a central third party AAA (Authentication, Authorization and Accounting) hub will facilitate interconnection, authentication and payments? Who should own and control the hub? Should the hub operator be subject to any regulations to ensure service standards, data protection, etc?

All possible options of payment for use of Wi- Fi hotspots by the users should be given.

Issue 9) Is there a need for ISPs/ the proposed hub operator to adopt the Unified Payment Interface (UPI) or other similar payment platforms for easy subscription of Wi-Fi access? Who should own and control such payment platforms? Please give full details in support of your answer.

No Comments

Issue 10) Is it feasible to have an architecture wherein a common grid can be created through which any small entity can become a data service provider and able to share its available data to any consumer or user?

The separation of Wi-Fi infrastructure built by an IP, who shall provide the neutral host would facilitate this model, as a neutral host would further facilitate sharing.

Issue 11) What regulatory/licensing measures are required to develop such architecture? Is this a right time to allow such reselling of data to ensure affordable data tariff to public, ensure ubiquitous presence of Wi-Fi Network and allow innovation in the market?

No Comments

Issue 12) What measures are required to promote hosting of data of community interest at local level to reduce cost of data to the consumers?

No Comments

Issue 13) Any other issue related to the matter of Consultation.

Infrastructure Providers should be encouraged to establish the necessary communication infrastructure for Wi-Fi Hotspots. The sharing of Telecom Infrastructure by IP-Is is time tested as they share it with the licensed TSPs on a non-discriminatory and transparent manner.

The same model would assist in faster spread of Wi-Fi and also help reduce the costs for the licensee.

Conclusion

1. Public Wi-Fi networks has broader meaning, and is not limited to the Wi-Fi hotspot created by licensed TSP/ISP at public places. Also, the development of smart cities and implementation of Digital India mission would require deployment of Public Wi-Fi networks for ubiquitous connectivity
2. Various regulatory challenges that are hindering the growth of Wi-Fi across the country include Right of Way Issues, Absence of a single window mechanism, High fees/ levies etc.
3. Infrastructure Providers (IP-1s) should be encouraged to install common Wi- Fi infrastructure to host multiple service providers on the same network. Installing individual infrastructure by service providers will result in multiplication of network and hence shall lead to huge avoidable costs.
4. Infrastructure Providers should be encouraged to establish the necessary communication infrastructure for Wi-Fi Hotspots. The sharing of Telecom Infrastructure by IP-Is is time tested as they share it with the licensed TSPs on a non-discriminatory and transparent manner.