Login and authentication procedure for access to Wi-Fi hotspots

Current Challenges and Simplification Solutions

## Summary of Recommendations

This group would like to recommend:

1. The establishment of a Unique Telecom Identification Number (UTIN) as a means to register for and avail of services across multiple telecom service providers. Such UTIN could facilitate the digital authentication of user credentials as also payment for services across service providers
2. The consideration of device based access to Wi-Fi services across providers as available in other countries
3. The implementation of Wi-Fi roaming agreements between service providers across India (WRIX) in the near term

## Background

Public Wi-Fi in the country is still perceived as a free and unfettered service at most locations. However, where it is being provided as a commercial service to customers, the login and authentication procedures at Wi-Fi Hot Spots are as follows:

At present, numerous challenges exist with regard to the execution of the above process. While relevant and essential for national security, this procedure is cumbersome and often inconvenient for the general public. These challenges include and are not limited to the following:

1. While a relevant/pertinent Photo based id for foreigners is yet to be decided upon, photo ids in the case of domestic users are often found to be fake. Several sections of society, particularly dependent women, still do not have valid identification proofs. Even if valid ids are available for scrutiny, there is no single agency at the central or state level that is mandated to carry out verification/authentication at this time.
2. Secondly, sms based One Time Password (OTP) based authentication processes often become non-viable because of frequent network congestion. Additionally, unlike in countries like China, such an OTP mechanism is unavailable to foreign tourists unless they are using a local mobile connection
3. In most such Wi-Fi Hot Spots today, a single login allows for only one device connection thus seriously restricting single users with multiple devices or sharing across multiple users
4. At a service level, interoperability guidelines are still unavailable, therefore, entailing repeated authentication at each instance of access. Standards with regard to charge collection are unavailable as well.
5. Across such Hot Spots, little or no standardization has been worked out with regard to login/authentication processes- again putting unnecessary burden on the users

## Measures and Solutions

In order to address the challenges stated above the group would like to make the following observations and suggest a mechanism similar to the EPIN concept used by the Employee Provident Fund scheme. Creating a Unified Telecom Identification Number, like the Universal Account Number (UAN) number for employee PF contribution, would save customers from the repetitive and redundant procedures of re-registration again and again for the various telecom services, including access to a public Wi-Fi system.

1. In the case of mobile and landline connections the onus is on the service provider to authenticate a new user at the time of registration. However, such authenticated credentials are not digitally captured for future retrieval or for re-authentication in the case of registration for another service.
2. It is, therefore, imperative that a Unified Telecom Identification Number (UTIN) be instituted. A unique id, this could be generated by the user’s service provider (ISP/TSP/VNO etc) upon first registration and authentication and should be made valid across all service providers. Digital storage of the authenticated credentials could be maintained in a centralized-cloud based digital portal for storage and future authentication. Such a portal count be maintained by the MHA/UIDAI/TRAI and both individual users and the registering service providers could be given access to such a portal
3. Such a UTIN could facilitate access to different telecom services and payments for the same could be digitally made if the UTIN were connected with a digital payment wallet
4. Foreign users too could be issued such a UTIN upon request with their Visa applications. A similar request mechanism is being used by Taiwan. In this case, the UTIN could be connected to the tourists credit card/Pay Pal number

The UAN number has proved to be a great initiative by the PF regulator in terms of PF contributions added to the employees PF account. On the same lines as the UAN, (not exactly applying the same process), the creation of UTIN would start from the initial interface of the citizen occurring with any of the TSP, ISP or even a VNO for creation of UTIN. The due diligence as per the norms of regulator would be followed for procuring the photo identification proof from the subscriber as applicable when applying for any telecom service. The most preferred would be authentication through Aadhar biometric authentication. Other documents may be considered in absence of Aadhar.  There may be other ways of submission of authentication documents online such as using applications like- Digital Locker. Once a UTIN is created citizens would have access to an online portal, governed by the regulator, displaying the details of telecom services used by the citizen mapped to the UTIN. This portal could also reconcile the payments the citizen has made for various services.

Once his/her UTIN is active and a citizen wants to access Wi-Fi in a public hotspot, the access could be made available by entering the UTIN number and obtaining an OTP on any of the mobile numbers attached to the UTIN.  The payment can then be done through the UTIN portal or the operator portal. It is suggested that both in urban and rural areas multiple retail solutions including Wi-Fi scratch cards be made available to citizens. Multiple ways of recharge could also be created for recharging, like:  input of a recharge voucher in the UTIN portal (routed through the provider’s portal) or the provider’s portal, e-payment mechanisms on UTIN/Provider’s portal, and recharge through a single USSD code attached to the UTIN number. Making a portal for UTIN and by adopting various costing models, different IPs can be activated and attached with the same UTIN.

It should be noted, that the suggested UTIN is not a replacement or a substitute for existing authentication regimes available in the country. It is meant to be the equivalent of a “Customer Relationship Number” in the telecommunications domain that would facilitate the electronic interoperability/linkage between a customer’s authentication credentials (Aadhar, Digilocker etc), telecom services (Services and Providers) and Payment details (e-wallets, credit cards etc) in order to better manage ICT (Information and Communication Technologies) service delivery to citizens.

In addition to the UTIN mechanism outlined above, a device based solutions could also be effected:

1. A portable device based wireless internet access, operable across all the networks and service providers could be provided. Similar services are available from providers like Teppy in Lithuania and operators in Israel. Such a device could be made available at the Indian Embassy which potential visitors could pick up while applying for a Visa or at the point of entry into the country
2. Bilateral or Multilateral Wi-Fi agreements with nations for Wi-Fi roaming like the one between Singapore and the US may also be considered for facilitating tourists wanting to avail of telecom services in India
3. Measures should be taken so that foreigners can use **Boingo** and **iPass** as in other countries

A prerequisite, however, for both the above solutions is the implementation of Wi-Fi roaming agreements between service providers across India (WRIX).

## References

1. <https://itaiwan.gov.tw/en/faq.php#foreigner> (Accessed Dec 2016)
2. <http://www.ut.ee/eLSEEConf/Kogumik/Magi.pdf> (Accessed Dec 2016)
3. <http://www.straitstimes.com/singapore/singapore-and-us-cities-join-first-city-wi-fi-roaming-project> (Accessed Dec 2016)
4. <http://www.telegraph.co.uk/travel/advice/Free-Wi-Fi-networks-the-worlds-most-connected-cities/>(Accessed Dec 2016)

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