9th December 2016

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Subject: **Consultation Note on "Model for Nation-wide Interoperable and Scalable Public Wi-Fi Networks"**

Dear Sir,

This is in reference to your Consultation Note No. 108/2016 dated 15th November 2016 on **"Model for Nation-wide Interoperable and Scalable Public Wi-Fi Networks".**

As desired, we hereby enclose our response to the questions raised in your above mentioned Consultation Note. We hope our response will be given due consideration. We shall be obliged to address any further queries from your good office in this regard.

Thanking you and assuring you of our best attention always.

Yours sincerely,

Satya Yadav
Addl. Vice President – Corporate Regulatory Affairs
Tata Teleservices Limited
And
Authorized Signatory
For Tata Teleservices (Maharashtra) Limited

Encl: As above

Nationwide Interoperable and Scalable WiFi
Issues for Consultation

Q1. Is the architecture suggested in the consultation note for creating unified authentication and payment infrastructure will enable nationwide standard for authentication and payment interoperability?

TTL is of the view that, though the main objective of the consultation paper is to allow any small or large entity to offer Wi-Fi with associated authentication and payment mechanisms, but there are many questions that need to be answered as given below:

a) While the architecture address authentication model, key issues in the proliferation of pubic Wi-Fi still remain. Some of the key issues that need to be solved to improve proliferation of public Wi-Fi are:
   - Right of way permissions for last mile fiber
   - Rental requirements from venue operators
   - Free Wi-Fi requirement which limits the revenue options and hence profitability
   - Use of Street Furniture at zero costs to enable more public Wi-Fi availability

b) The framework has too many players in the value chain leading to a no single ownership of key parameters like customer experiences, QoS, security and raises questions on economic viability for all partners in the value chain. These need to be studied in greater detail.

c) The proposed architecture needs to be evaluated for its impact on current Wi-Fi operators and their investments.

d) Proposed architecture requires additional investments which in light of questions on economic viability need to be studied.

e) The proposed architecture puts the role of Registration APP solely on Wallets and Payment Apps. The framework should be extended to include telcos and ISPs as well so that they can leverage their existing self-care APP or other APP to easily extend the WI-FI to their customers.

f) The proposed architecture is unclear on the guidelines applicable to Hotspot Providers, Registration App providers and registry. Key questions on the ability of the smaller players to provide QoS and appropriate security mechanisms need to be evaluated in detail.

g) The framework does not talk about customer care. Questions like "Who will responsible for setting up customer care?," "How will issues related to customer experience be solved?" need to be studied.

h) The telcom operators have approximately 1 billion customers for whom KYC has already been done. The framework should evaluate how this data base can be leveraged for easier and faster authentication.

i) The framework should look to include various models like users able to use their existing data packs towards Wi-Fi and automatic registering of these users with a profile for better customer experience.

j) The following should also be a part of the standardized architecture:

- Ability to integrate with the existing data packs of users with their telecom is important
- Interconnectivity to International Wi-Fi aggregators. Who will do this? Registry or registration APP providers or Individual hotspot owners?
- Points about infra structure and roaming is not clear in the architecture. Any regulation on whether all hotspots would be open to all is to be defined
- Authentication of devices in an IOT scenario

Q2. Would you like to suggest any alternate model?

TTL suggests an alternate model. The details are given below:

- The Wi-Fi provider should allow open access to the authentication mechanism provided the right access points are used by the venue operator. The right access points are key since customer experience can be greatly affected if compatible access points in controller mode are not used.
- An APP to allow seamless access to be provided by the Wi-Fi provider
  - APP should have the ability to allow a single touch access to Wi-Fi
  - The APP to have integration into micro-payment gateways to allow single touch payment access
  - APP to have simple integration to payment gateways to provide customers easy access to other payment methods like credit and debit cards
  - Ability for the customer to buy Wi-Fi data packs through their existing balances as a VAS service. Right now a revenue share of 70-80% is paid to operators and integrators and hence there is no viable business case for this approach. For Wi-Fi the revenue share to operators should not be more than 10% and 5% for aggregators
  - Ability for the customer to use their existing data packs with their operators on Wi-Fi at a pre-defined rate per MB

- TTL also suggests processes like GSMA's Mobile Connect, through which, WiFi service providers can leverage TSPs existing network and SIM authentication process, enabling seamless authentication of users on Wi-Fi provider's hotspots, eliminating the need for end-users to do an SMS+OTP separately.
- An open API ecosystem across all partners, vendors and operators should be encouraged so that the above mentioned integrations are done seamlessly
- Open API's for roaming across hotspots should be enabled by each Wi-Fi provider so that packs purchases can be used across hotspots of different operators
- Various blocks should get integrated – single point of ownership

Q3. Can Public WI-FI access providers resell capacity and bandwidth to retail users? Is "light touch regulation" using methods such as "registration" instead of "licensing" preferred for them?

In the view of the proposed model and shared architecture, a detailed study is required for this aspect. Reselling capacities gives rise to various questions like:

a) Who is this retail user?
b) How will the retail user implement the data security?
c) How will the retail user ensure security compliance?
d) How will the retail user ensure ZERO breach of privacy of the end user?
e) Who will be responsible for QoS?
f) In case of customer issues, who will be responsible for resolution within defined SLA?

There can be many such queries and concerns that may arise, while deciding on reselling the capacity and bandwidth to the retail user. Although TTL is of the opinion that Public WiFi access provider should be allowed to resell capacity and bandwidth to retail user to ensure faster growth of wired and wireless broadband infrastructure in the country, to achieve the vision of digital India, but it requires a detailed discussion and more clarity on the various aspects mentioned above.

Q4. What should be the regulatory guidelines on "unbundling" WI-FI at access and backhaul level?

TTL is of the view that before freezing on the regulatory guidelines on unbundling WiFi access and backhaul, the primary issue on Customer Experience, QoS and security needs to be answered for better clarity, which may arise as a result of unbundling. For example: questions on who would be responsible for maintaining SYSLOG and other security related information need to be studied and evaluated in detail.

Q5. Whether reselling of bandwidth should be allowed to venue owners such as shop keepers through Wi-Fi at premise? In such a scenario please suggest the mechanism for security compliance.

Mechanism for security compliance can be suggested once we get clarity on issues highlighted in Q'3 above.

Q6. What should be the guidelines regarding sharing of costs and revenue across all entities in the public Wi-Fi value chain? Is regulatory intervention required or it should be left to forbearance and individual contracting?

TTL is of the opinion that in the proposed model, it would be difficult to implement sharing of cost and revenue, with 5 different entities in picture. Also the costs and revenues for different hotspots would be different, depending upon their location and other factors. For example: an unconnected hotspot would entail a higher cost in connecting the place compared to a connected hotspot. Similarly hotspots in retail places like Malls tend to have a higher operational expense due to high cost of rentals and power. Hence, the revenue share and costing should be left to forbearance and individual contracting.

Apart from the above stated views, TTL views on various points given in the CP, are mentioned as below:

- **Point 13:** The Telecom operators have approximately 1 billion customers for whom KYC has already been done. Many of the Wi-Fi users would be from this pool of customers. Hence it is critical that this database also be opened up for authentication.
- **Point 14(a)** How many entities would be allowed as Registries? Who will own this? A monolithic structure would lead to poor customer experience. What would be the business model for these registries and how will they interface with each other?
- **Point 14(b)** The current guidelines for Wi-Fi are restricted to only ISP, UASL or UL holders? If it is ISP or UL, it would be very heavy for small hotspot providers to come into. Would there be separate license/guidelines for them? If the same guidelines are followed for hotspot providers, it may become too onerous for small providers of Wi-Fi
- **Point 14(c)** The architecture looks to make wallet applications and payment API applications as Wi-Fi aggregators. Telcos and ISPs should also be considered in this set. Telcos together have 1 billion customers and are in a best possible position to manage the customer experience of users. The KYC managed by Telcos/ISPs should also be considered sufficient for authentication. Moreover this would also allow International customers to download the APP (wallet and other payment APIs do not allow International Customer registration as a part of RBI mandate).
- **Point 14(c)** In light of the proposed architecture, the impact of such changes and integrations on current investments and flows by Telcos and ISPs need to be evaluated. The current telcos should be pre-approved in this framework and their APP should be allowed.

- **Point 14(d):** In the current architecture, who will be responsible for the security of the network and data privacy of its users. The criteria and tests to certify each provider of its ability to secure its own network needs to be defined a-priori. Again, expecting a small hotspot provider to do this would be extremely cumbersome and reduce the viability of a hotspot
- **Point 14(d):** As a part of its guidelines, Hotspot providers are required to maintain the Syslog and other information required for traceability of customers. The architecture indicates that this would fall in the realm of the hotspot providers. Again, expecting a small hotspot provider to do this would be extremely cumbersome and reduce the viability of a hotspot. Moreover distributing such critical information collection over multiple entities would lead to issues in enforcing this critical security measure
- **Point 15(a):**
    i. For existing customers of telcos, a direct way of provisioning the details should be possible. Given that ~1 billion customers are with telcos, this can be done easily. For new customers the profile addition needs to be added.
    ii. While the architecture allows for multiple logins using the same credentials, the DOT regulations explicitly prohibit simultaneous sessions using the same credentials.
- **Point 15(b):**
    i. All Telco provider APPs or any other APP should also be allowed for accessing Wi-Fi provided the APP complies with the guidelines
    ii. A simpler approach of integrating the APP to the backend directly through open APIs should be considered. Captive Portals need not be used.
- **Point (16) and (17):**
    i. The framework envisages a model in which the entity which owns the customers (Registration APP provider) is not the entity that provides the customer experience. This in turn can lead to poor customer experience, QoS metrics and security.

Too many players in the ecosystem raise questions of economic feasibility, profitability at each touch point and viable business models

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(4) letter

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For *TRAI*