

---

**Kartikeswar Koppula**

Haefenzeile 8  
Berlin 13627, Germany

M: +49 (0) 175 805 3305

[kartik@koppula.in](mailto:kartik@koppula.in)

22nd November 2016

**Shri Arvind Kumar**

Advisor (Broadband and Policy Analysis)  
Telecom Regulatory Authority of India  
New Delhi 110002, India

Subject: Comments and suggestions on TRAI's Consultation Note: Model for  
Nation-wide Interoperable and Scalable Public Wi-Fi Network

Dear Sir,

With reference to TRAI's consultation note as mentioned in above subject, I  
will be happy to submit my comments and suggestions.

Please find my responses in below Annexure-1 to specific questions posed in  
Chapter 2 of the consultation note.

Sincerely,

**Kartikeswar Koppula**

---

## Annexure - 1

### **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?**

Response 1: At the onset I would like to appreciate to the fact that experts have noted that Authentication and payment mechanism is cumbersome in existing public Wi-Fi Networks in the country.

Having said that the architecture suggested in the consultation note in Figure 1 seems to be good to support 1-click authentication procedure.

But based on the design, I cannot think of the seamless handover of the users from one Hotspot provider to other hotspot provider or with different hotspot of the same provider. From the users point of view having multiple payments for each hotspot is not a nice idea. We should also think of some level of mobility for the users which I would like to explain with an example.. For example: Let's assume a venue which has two Hotspot service provider, one is ISP and one is venue owner. If the signal of connection is different for each service provider at two different location in same venue, then users should have flexibility in roaming from one hotspot to other irrespective of the hotspot service provider. Also it will not need one user from paying for two different hotspot provider.

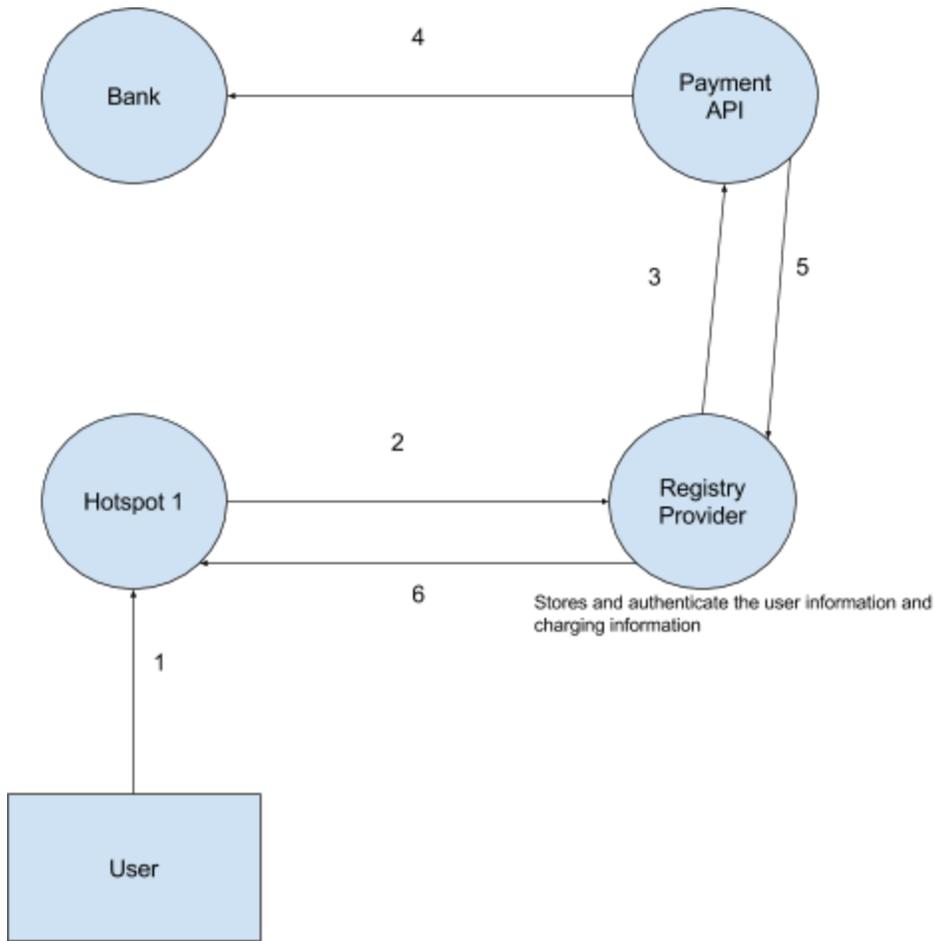
The concept of registry provider can also be extended to support one stop authentication and unified payment for all hotspot provider. This way we can see early adoption and win-win for the users as well hotspot provider and also it will help in load sharing. Hotspot provider can monitor the data usage and can charge this from the registry provider.

### **Q2. Would you like to suggest any alternate model?**

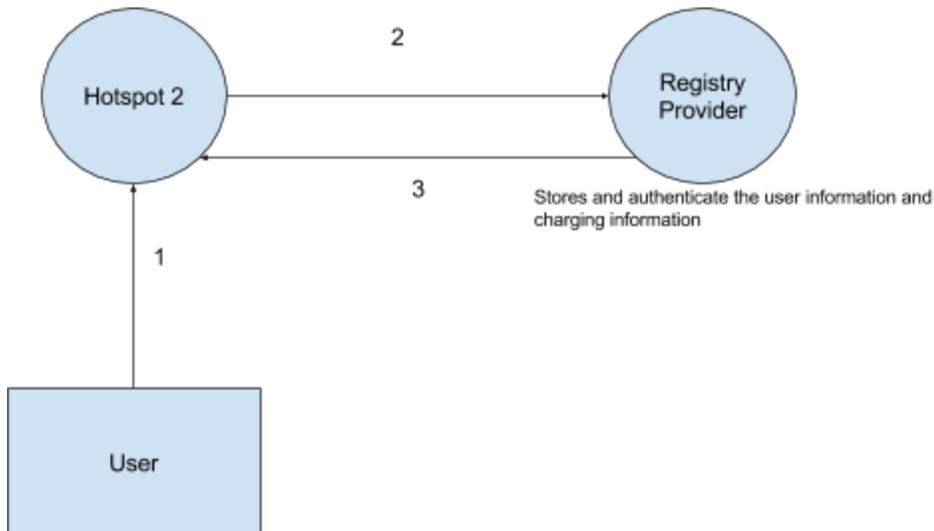
Response 2: Based on my response of Question 1 above, I suggest below model for supporting unified payment and authentication and seamless handover and unified service for the users. I would like to suggest one time one click registration.

In one step registration, when user try to connect first time to hotspot, it sends the user credential to Payment registry which will authenticate the user from database and take the payment information from Payment API. Once this information is stored registry will act as central node for accounting. Subsequently if the user try to connect to new hotspot, the new hotspot will again try to authenticate the user with Registry and if the registry

finds the information already available with it, it shall not do the payment step if the charging information is valid.



**Figure 1: One time 1 click registration.**



**Figure 2: Subsequent connection with other Hotspot.**

---

**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?**

Response 3: The scenario for reselling of bandwidth can ideally happen only in licensed spectrum of Wi-Fi network. Whereas if the unlicensed wifi spectrum is used, there is no point in reselling the bandwidth. For the capacity, use reselling of Wi-Fi capacity can be done by Wi-Fi Access providers to the users. Definitely Light touch regulation is suggested for keep the market for this service growing.

**Q4. What should be the regulatory guidelines on “unbundling” Wi-Fi at access and backhaul level?**

Response 4: NO Response

**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**

Response 5: Yes, reselling of licensed bandwidth should be allowed. But also it should be not left to Wi-Fi access providers with free hand to decide the reselling price. There should be regulatory intervention in capping the price of spectrum.

**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?**

Response 6: This should be left to market forces to decide. But spectrum reselling cap should be regulated, else the service can become costly for the end users.