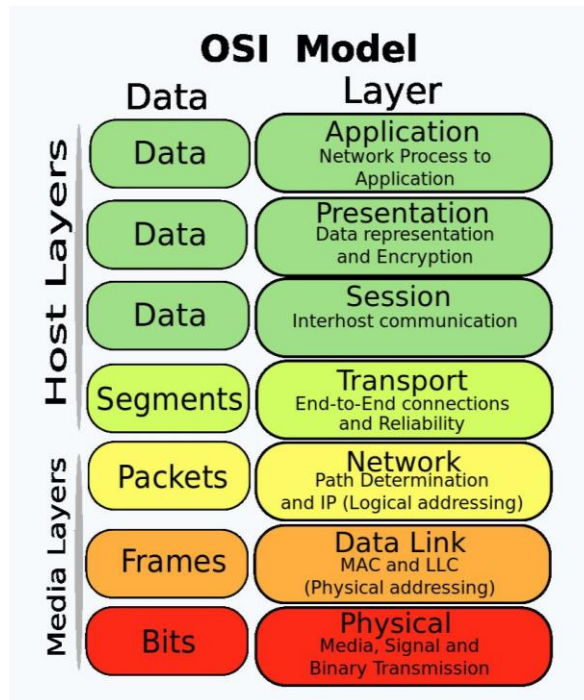# CONSULTATION PAPER ON ENABLING UNBUNDLING OF DIFFERENT LAYERS THROUGH DIFFERENTIAL LICENSING.

1. *Do you agree that in order to attract investment and strengthen the service delivery segment, Network services layer and Service delivery layer needs to be separated by introducing specific license for Network Layer alone? Please justify your answer.*

In a diversified and intricate demands of licensing enigma a clear mandate to form an apex body over the Infrastructure/Network Service Provider (ISP/NSP) is the need of the hour. A realistic and prudent decision is to form an apex body of representation to this call with resilience and tandem. The nature of the ISP/NSP activities should be in the domain of the host layers - 7th, 6th, 5th and 4th tier of the OSI model HOST layer. The MEDIA layer of 3rd, 2nd and 1st can be differentially leased out to bidders inline with the demand skew. Licensing differentially on the HOST and MEDIA layer to meet Industry landscape by the virtue of the ICT switching circuits demands. The usage demand will define the NSP resources optimally. The two tier of differential licensing threads will generate a healthy competition within the ISP's and NSP 's in Tier-1 and among small-medium players in the Tier-2 service – the delivery layer. The capex involvement of the Tier-2 vendors will be low to encourage newer Tier-2 players to join culminate the Tier-2 revenue earning mechanism model hereinafter. Optimum utilization of Tier-1 infrastructure will generate a better ROI overcoming the existing impasse leading to an enhanced upward skewing of revenue earning.

OSI Model Layer

Host Layers:
- Data — Application — Network Process to Application
- Data — Presentation — Data representation and Encryption
- Data — Session — Interhost communication
- Segments — Transport — End-to-End connections and Reliability

Media Layers:
- Packets — Network — Path Determination and IP (Logical addressing)
- Frames — Data Link — MAC and LLC (Physical addressing)
- Bits — Physical — Media, Signal and Binary Transmission

2. *Should the Network Services Layer licensee be permitted to take the Service Delivery Category licenses and provide the service? If yes, what kind of restrictions and safeguards are required to be built, in order to protect the competition and innovation in service delivery segment? Please justify your answer.*

The concern to entry barrier should be lucid and attainable. Few of the main documents can (a) Green certificates (b) profound definition of the necessity to Layered Multi Tier differential licensing policy (c) Significant Contribution to yearly restoration of environmental depletion.

Network service layer (NSL) in a sense – is the superset to the layers below - [1] Network Service Provider (media layer) as [2] Digital Service Provider [3] Virtual Network Operators [4] Application / Service Delivery Provider. If the super set becomes a subset of its own then mathematically it becomes a NULL SET a fallacy in commercial parlance. Same mathematical outcome holds good if, the NSO is allowed in the Media layer services. The tariff becomes unchallenged to small-medium service providers, therefore the domain of the NSP's cannot extend beyond HOST layer. We may justify to allow SDO's functions in slabs of seven years initially and subsequently for five year slabs. The minimum and maximum tariff should be capped to allow budding SDO's to groom. SDO's will generate business advantage through innovative bouquet of value added services. The case study of evolving CDMA technology amidst of GSM supremacy is of great importance to this parlance of this model of consultation.

3. *Whether certain obligations should be imposed on the existing Unified Licensees, and other measures should be taken to encourage UL licensees to provide their network resources to VNO licensees particularly in mobile service segment? Please suggest the measures in detail.*

    In an inter alia parlance of optimum infrastructure usage, revenue upscaling, and technological innovativeness as a prima facie objective to this consultancy, UL should be restricted per-se, the concept of layered approach of licensing should be encouraged. Layered approach will promulgate equal opportunity to newer entrants to enjoy a moratorium period of growth and steadiness and compete with levelled competitors and scope of innovativeness within the domain layer. The interest of the small-medium players goes into an uncertainty in terms of infrastructure and tariff scheme etc. to the downstream service providers and VNO's.

    TRAI has a vital role to play in framing the licensing policy at each layer to prevent the downstream service providers to have an even playing ground. A similarity can be drawn from RBI mandates over retail banks on loan index rates. The index set by RBI gives an even ground to the smaller banks.

4. *In case network layer and service delivery layer are separated by creating separate category of licenses, as proposed in Q1 ;*

    a) *What should be the scope for Network layer license and Service Category licenses ?*

        Network layer is well understood to be the lifeline (central pivot) of the business model envisaged in this consultation paper. Referring back to the answer of Q1, in the OSI model diagram, the HOST layer is the extent of the NSP's. The Layer-I of the media will be the innovative incubator to the small-medium service category.

    b) *Out of various responsibilities and obligations enumerated in Unified License, what should be the respective responsibilities and obligations of Network layer licensees and Service delivery category licensees? Please elaborate with justifications.*

UL license as mentioned to the answer of Q3, should be restricted upto the HOST layer of the OSI model. The licensed NSP;s prima facie focus in setting up the infra in the areas of –

1. Establishing upload and landing (footprints) satellite stations.
2. Multi channel resonators and apertures.
3. Switching / Transmission infra.
4. Towers and related devices of boosting and distribution.
5. Multi variate Network harnessing interfaces.

NSP should adhere to TRAI guidelines should extend an unbiased and fair interface to the Application Service Provider(s) (ASP) and above any insinuation.

Service Delivery Providers (SDP) are the key revenue earners in this process of consultation. Needless to mention TRAI has to set profound guidelines to these densely packed SDP's to follow a fair practice in the domain –

1 VPN / Internet with Last mile connectivity.
2 Voice / Data / Content service.
3 E-Commerce.
4 Augment varied innovative and lucrative services.
5 Information services (news, weather forecast, share market information's , digital contents etc……).

c) *What mechanism should be put in place to regulate the access to network services of Network layer licensees by the service delivery Category licensees? Whether certain obligations should be imposed on Network layer licensees to provide the network resources in a time-bound, transparent and non-discriminatory manner ?*

A jitter free well laid down policy is a process of quantifying a fuzzy domain amidst multivariate factors in consideration. The firm plinth of the allotment procedure will call upon the success of this multi layered differential licensing model. A synchronous cohesiveness is a mandate to success. The allocation layers vis-a-vis services should adhere to the following norms.

1. ASP's should be registered initially with TRAI for the particular service to render for a minimum period of seven years. Subsequent renewals will be in five year slabs.

2. Initially a letter of intent (in a pre-specified digital format) should be submitted to TRAI to evaluate and grant of allowance to all successful intenders.

3. Successful ASP's will then approach to the NSP's in line with the TRAI guidelines.

4. **On receipt of the service harness/interface/s, NSP's will complete the requisite administrative and technical processes and issue harnessing / interface within twenty five working days of the NSP to the ASP's. A copy of the agreement between NSP's and ASP's will then have to be registered with TRAI for review and subsequent go-ahead on finding it acceptable by TRAI. On getting the green signal from TRAI, ASP's should start its operation within seven working days (preferably TRAI). Subsequent amendments / augmentation to the service/s has to be cleared by TRAI at-priori.**

5. **Tariff and billing should be transparent and unbiased, a grievance cell at the primary level should be set up by the NSP's. In case the grievance is not resolved within seven working days by the NSP, then the ASP can appeal to TRAI grievance cell with necessary pre decided documents and TRAI will resolve within ten working days. Consumer services will continue in this interim period.**

6. **Time to time TRAI will have complete authority to check the adherence of its functioning and QoS of the NSP's and ASP's as a decorum to policy.**

d) *What incentives (for example, lower license fee, lower SUC, etc.) could be provided to Network Layer licensees in the new unbundled licensing regime to encourage the investment in the Network layer? Please justify your answer.*

A the turn of a fiscal year essential CAPEX investments by NSP's will tax exempted thereinafter OPEX investment will have 50% tax exemption. UL licensees will enjoy prorata exemption on switching over to layered multi tier differential licensing architecture / model.
Tax exemption as above will hold good for setting up of core infrastructures in developing regions like Silvassa, Solan, Bhiwadi, Baster, Dantewada, Kashmir ….. to name a few.

e) Whether the existing Unified Licensees should be mandated to migrate to the unbundled licensing regime, or the new regime should be introduced, while keeping the existing regime continued for existing licensees till the validity of their license, with an option of migration?

The NSP UL licensees will be allowed to continue till the already issued license validity, however they will be encouraged to shit to the multi layered differential licensing model to enjoy the benefits as stated in 3(d).

f) Whether existing VNO licensees be mandated to migrate to service delivery category licenses as per unbundled licensing regime?

VNO;s will have marginal impact to shift to the multi layered differential licensing model. VNO's will be left with the option to continue with the older unbundled model till the end of its validity or can shift to the multi layered differential licensing model to benefit the technological advancements.

g) Whether service delivery category licensees be permitted to parent with multiple network Service layer licensees? Please justify your answer.

The service delivery layer - ASP's can harness multiple NSP's to render consistent and cost effective and feasible service . Any possibility to re-route network traffic illegally through other NSP/'s and creating hindrance to any QoS of other NSP/'s will stand prohibated. On such proven instances ASP's license will be liable to get terminated.

5. Any other issue related to the subject may be raised with suitable explanation and justification.

   Points of Relevance :

   ➢ **TRAI should prima facie act as a facilitator and vigil on NSP's, DSP' and ASP's as an apex body in the ICT domain. The role TRAI will be manage the setup a conducive and corruption free balanced environment friendly performance focussed revenue earning model.**

   ➢ **TRAI will publish credibility list in public domain on a quarterly basis to encourage healthy competition among the SP's (detail evaluation criteria will be taken up on acceptance of this note).**

   ➢ **TRAI will act as a consultant to end user customers to migrate to multi tier architecture at marginal fees.**

   ➢ **TRAI will monitor unhealthy nexus among the SP's as well as representatives of TRAI.**

   ➢ **As we see a tumultuous need for computation infrastructure with the inception of Virtual Reality (VR), BI, Robo as a service (RaaS) and many many more to come, it has now become a mandate to redefine a new guideline from DoT vis-a-vis TRAI.**

   ➢ **DoT can take the model of Planning Commission Of India (PCoI) similar to the protocol functioning now. DoT representatives will meet the industry experts and CSP's in a common forum and organise a cross platform high level of discussion and understand the new need and gaps in between. Post session expert panel of DoT will critically moderate and analyse the data and decide on future course of actions, modifications, conflict resolution and draw a line of**

action to promulgate the CSP's a modus operandi and a review of the TRAI guidelines framed.

The roadmap to future is undoubtedly will demand brontobytes[++] and more of data at any slice of time over the network supporting diverse set of devices churning out / harnessing petabytes of information. A workable solution will be multi-layered approach with each layer catering to customised needs of the business cases. The layers will definitely comprise of Infrastructure Providers (Host Layer) [1] Network Infrastructure Provider [2] Network Service Provider and service providers (media layer) as [3] Digital Service Provider [4] Virtual Network Operators [5] Service Delivery Provider.

Needless to mention, we the future Technocrats will cruise into a new realm of fourth dimension of virtual reality – never seen before.