

VTL/Reg/TRAI/1408/4201
August 19, 2014

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Subject: VTL Response on Consultation Paper on "Migration to IP based Networks"

Ref: TRAI Consultation Paper No. 08/2014 dated 30th June, 2014

Respected Sir:

Videocon Telecommunications Limited thanks the Authority to provide an opportunity to respond to TRAI's consultation Paper "on "Migration to IP based Networks". Please find attached herewith our comments on the same.

Kind Regards



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Encl: as above

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**VTL Response to Consultation Paper
on
“Migration to IP based Networks”**

Videocon Telecommunications Limited welcomes the opportunity to provide comments on the Consultation Paper on **‘Migration to IP based Networks’**

India still comprise many years old legacy TDM equipment and the challenge is to transform TDM network into a complete IP based network as traditional telecommunication systems needs to migrate towards more powerful and viable internet protocol based telecommunication systems and will result in co existence of legacy network along with IP based network.

Our response to the issues raised in Consultation Paper is as follows:

Q1. Is there a need to mandate IP interconnection? If so, what should be the time frame for implementation of the same? Please comment with justifications.

Resp.: We believe that IP interconnection of the networks is very important for provision of end to end IP connectivity and it has to be provided in a non-discriminatory manner for the entire system of telecommunication to function. IP interconnection amongst operators should be initiated immediately provided both have IP based Networks. Currently both TDM & IP interconnection should be allowed to co-exist and authority may consider mandating IP connectivity for all new interconnects sought after a span of 5 years. It is important that instead of adhoc replacements of TDM, it is preferable to have a planned transition to IP Interconnection.

Q2. Whether both TDM and IP interconnection should be allowed to coexist? If so, whether the existing regulation i.e. ‘Reference Interconnection Offer dated 12th July 2002’ addresses the requirements of IP interconnection also? Please comment with justifications.

Resp: Yes, this hybrid architecture where option of TDM and IP Interconnection is a better proposal considering both the continuity of legacy architecture and futuristic approach for new interconnects in the context of planned transition to IP.

As regards to the RIO Regulation issued by the Authority, we submit that these should envisage and provide for co-existence of both TDM as well as IP based interconnection.



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The existing RIO does not address the requirements of IP interconnection and therefore needs to be modified to specify IP interconnect specific parameters like QoS, Charging methodologies, coding schemes & negotiations, security & privacy.

Q3. In case IP interconnection is mandated in India, whether the enforcement of interconnection agreements should rely on

- (i) Bilateral agreements and dispute resolution; or**
- (ii) Mandatory reference offer**

Resp:As per the current practice, the interconnection between networks is governed by bilateral agreements with mechanism for dispute resolution. We suggest that this practice should continue but with appropriate amendments to include mechanism for dispute escalation in RIO.

Q4. In an IP based network scenario, which mode of interconnection is preferable to carry traffic:- peer-to-peer, Interconnect Exchange or combination of both? Please comment with justifications.

Resp: Service Providers should have the choice of direct IP connectivity on high usage routes with large volume of traffic on peer to peer interconnection. There should also be an option to connect through Interconnect exchange where direct IP connectivity is not feasible/ economical.

Q5. In case an Interconnect Exchange is required, should such Exchange be placed within each licensed service area or a single Interconnect Exchange will be adequate for the entire country? Please comment with justifications.

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Q6. Whether any regulatory intervention is required to mandate the locations and structure of points of interconnection (POI) for IP based network architecture? Please comment with justifications.

Resp. In order to reap the economic benefits of IP Interconnect, the concept of traffic switching within the LSA should be dispensed with. Interconnect exchanges may be initially located on a zonal basis with an option to locate sub-zonal interconnect exchanges at the discretion of the service providers based on the economics of handling traffic. Any Unified Licensee should be allowed to host interconnect exchange and should be allowed to transit any operator's traffic.



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However, the regulation on the NLD should be appropriately taken care.

Q.7 What are your views on the migration from the existing interconnection regime-measured in terms of minutes of traffic to an IP interconnection regime replaced by measures of communication capacity? Please comment with justifications.

Resp: There should be no discrimination on termination charges based on type of connectivity for any of the services. For all those services being provided on TDM, the same MoU criteria may be followed to avoid any negative impact on transition to IP Interconnect. Those services which are provided only through IP Interconnect may be measured and charged based on the communication capacity.

Q.8 In an IP interconnection between networks, comment on the type of charging principles that should be in place-

- (a) Capacity based in terms of Mbps.**
- (b) Volume based in terms of Mbps.**
- (c) QoS based.**
- (d) a combination of the above three.**

Resp: IP interconnect will provide a variety of services and a single type of charging would not cater to all the type of services that IP interconnect is capable of providing. Therefore, a combination of the above three types of charging principle would be the better basis for interconnect charging and settlement in case of the services which are available only on IP.

Q9. What should be the criteria to estimate the traffic minutes in IP environment if interconnection charges continue to be minute based? Please provide justification in support of your answer.

Resp: The commercially and widely available platforms of MSS/MGW and SBCs for routing etc. of the IP voice traffic (which would be deployed for the IP interconnection) are capable of converting the IP traffic into minute based usage for billing and to estimate the traffic.

Q10. In addition to the above, any other modifications or components of IUC which are required to be reviewed in the IP based network scenario? Please provide all relevant details?



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Resp : In IP based networks also minute based settlement may be continued for voice services. However, instead of E1 based port charges, IP Bandwidth charges needs to be considered for an agreed codec/group of codecs for carrying voice. It is suggested that a minimum set of codecs be standardized for providing an acceptable voice quality.

For Delivery of data services , IUC settlement is suggested on communication capacity basis. A set of minimum QoS (packet drop, packet delay, Latency etc.) may be specified .

Q11. Do you envisage any interconnection requirement for application & content service providers? If so, what should be the charging mechanism? Please provide all relevant details justifying your comments.

Resp: Yes, content service providers must also be covered under the guidelines. We do envisage interconnection requirement for application and content service providers in order to maintain the uniform quality of service benchmark across all the services and to estimate requirement of communication capacity.

The charging mechanism should be left to the commercial negotiations and mutual agreement between the various stake holders viz TSPs and application and content providers.

Q12. Whether the existing regulatory framework for measuring and reporting quality of service parameters as defined for PSTN/PLMN/Internet may continue to apply for IP based network services? Please comment with justifications.

Resp: Yes, the existing regulatory framework should continue. However, new parameters which are specific to IP Interconnect are required to be defined for maintaining quality of service.

Q13. In the context of IP based network Migration, if the parameters in the existing QoS regulation are required to be reviewed immediately then please provide specific inputs as to what changes, if any, are required in the existing QoS regulations issued by the Authority. Please comment with justification.

Resp: The existing QoS parameters from an interconnect point view has been in conformance to a TDM based network which will have to be realigned for an IP based network based on the recommendation of the relevant standards bodies. It is requested that these issues may be addressed through a separate consultation.

Q14. In case new QoS framework is desirable for IP based network, do you believe that the QoS



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be mandatory for all IP based network services. If yes, what should be QoS parameter and their benchmarks?

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Q15. What should be the mechanism for monitoring the parameters for end to end QoS in IP based network environment? What should be the reporting requirement in this regard? Please comment with justification.

Resp: As requested in Answer to Qs 13, a separate consultation may be considered.

Q16. Should sharing of the IP based core and Access network element by different telecom service providers be allowed in IP based network scenario? What are the challenges, opportunities and problems of such sharing? Please comment with justifications.

Resp.

- a) Sharing of IP based Core and Access Network may be allowed in the IP based network scenario in order to ensure efficient utilization of the Network Resources and to bring down the cost of providing the services.
- b) There is no challenge in sharing the access network as matured sharing technology exists in access networks. However, in case of the IP core, network partitioning and data segmentation with complete privacy between the sharing operators needs to be established.
- c) Sharing of the IP network will bring the benefits of economy of scale as both service and traffic handling entities are available in huge capacities in IP environment.

Q17. Do you see any issues concerning the national numbering plan with regard to the migration towards IP based networks?

Resp: Present numbering plan supports PSTN/PLMN networks. It differentiates on area and service. However, it does not take care of the new requirements like IP telephony & VOIP.

Thus it is mandatory to support new services based on IP especially after IP interconnect, we would need a more elaborate numbering scheme.

Q18. Do you believe that ENUM has to be considered when devising the regulatory policy for IP based networks as it will provide essential translation between legacy E.164 numbers and IP/SIP (Session Initiation Protocol) addresses.

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Resp: Yes ENUM is the required for providing Common numbering and addressing plan for Present TDM interconnect and proposed IP interconnect to leverage end to end efficiencies of IP interconnect.

Q19. Which type of the ENUM concept should be implemented in India? What should be the mechanism for inter-relationship between number and IP addressing, and how it will be managed?

Resp: Public ENUM is apparently the right choice because we have multiple UASL operators and multiple Internet service providers. It needs to be centrally regulated as ENUM would require Security & Privacy guidelines

E.164 numbers cannot be used on their own for addressing in IP based networks. The Internet Engineering Task Force has defined a mechanism for converting E.164 numbers to addresses relevant to services which the user wishes to use and which are accessible through means using IP. RFC 6116 [2] may used to define storing E.164 numbers and services related to a particular number using DNS.

As Indian ENUM DNS DB can be huge due to a large numbers of E164 numbers, a strict hierarchy may be followed to have a hierarchical structure allowing different organizations to have control of different parts of the overall structure. E.164 numbers also have a hierarchical structure based on CC-NDC-MSIN and same way this can be mapped onto the DNS structure on the Inter operator IP backbone network

Q20. Is there a need to mandate Emergency number dialling facilities to access emergency numbers using telephone over IP based networks platform? Please give your suggestions with justifications.

Resp: We suggest that the Emergency number dialing from IP telephony subscribers may be necessary. However, methodologies of such implementation be left to service providers. In case of any specific technical/regulatory issue arising from providing the emergency number dialing for IP based networks, the matter can be referred to DoT/TEC.

Q21. How will the issues, of Caller location delivery and priority routing of calls to the emergency centre in IP based networks environment, be handled? Please comment with justifications.

Resp: We also believe that there are several technical challenges and other implications with regard to emergency number dialing. The same needs to be discussed through a separate consultation.