TRAI Consultation Paper on "Improvement in the Effectiveness of NIXI

CHAPTER 5 - ISSUES FOR CONSULTATION

5.1 What is the basic reason holding back effective utilization of the NIXI? In your view what actions are required to ensure all domestic traffic passes through NIXI?

We would like to mention here that NIXI is doing fairly good job as was mandated to them. NIXI is already exchanging a significant portion of the domestic traffic within India. However, the same can be substantially improved by re-organizing the existing infrastructure, network, trained manpower needs to be immediately augmented to cater for future expansion and providing quality of service. Further, NIXI should be headed by an independent full time CEO to give the direction and manage to achieve the Vision of Broadband Policy. NIXI should be extended to other important locations in India like Bangalore and Hyderabad etc.

The mission of NIXI should be that all users of internet should connect to all servers located in India through domestic connectivity only. This would reduce latency, and hopefully costs as well.

5.2 Should all ISPs or their Up stream providers be mandated to connect at NIXI? If So,

Not all ISPs should be mandated to connect directly with NIXI, as NIXI is right now present in 4 locations only. Most of the category B & C ISPs which are far from these locations find no incentive to connect to any of NIXI NOC due to very high cost of domestic leased lines. However, arrangements need to be made to assist Up stream service providers in providing connectivity to ISP's with the nearest NIXI node at optimal /subsidized rates or more Nodes should be added to reduce the cost of connectivity from ISPs to NIXI as mentioned above.

5.2.1 Should minimum connection size, space requirement, power requirements etc be also defined based on the slab of customer base of the ISP?

This cannot be mandated as various other parameters like the capability of the NIXI infrastructure and resources have to be assessed and probably such attempt should be made when NIXI has grown up-to a level from the current scenario.

5.2.2 Will it increase interconnect cost with upstream provider?

As explained above, this will not be though directly proportional to the above as the primary objective of the NIXI being a Section 25 company, not to make profits and if surplus is being generated from the interconnects, then the surplus can be always extended by way of subsidy to such interconnects by way of giving free space, power but not the interconnect by itself.

5.2.3 Will there be any limitations when an ISP has multi-homing?

Primarily, there will not be any limitations. However, this is purely depended on the routing plan at the NIXI and also interconnectivity in-between the NIXI points in the country.

5.3 Should ISPs connected to NIXI be mandated to announce all of their routes on NIXI? If so

YES. ISPs connected to NIXI must be mandated to announce all its routes to NIXI. However, leverage may be given on certain blocks which ISP may reserve for meeting various SLA (Service Levels) with his customers especially during tunneled circuits, MPLS, IPLC, etc.

5.3.1 Should only regional traffic be announced on NIXI regional node?

YES as it make sense to announce regional routes to the respective NIXI Nodes as routing become easy and efficient.. However, BGP routing on NIXI interlinks will make it more efficient in terms of saving international bandwidth.

5.3.2 How to handle situations where connecting ISPs have regional presence?

TRAI should come out with differential prices for such ISPs. TRAI may put a ceiling for NLDs to provide special tariff for ISPs wish to connect to any of the NIXI from their PoP. There should not be a situation where one segment of service providers pay high or interconnect but enjoys little advantage of being connected to NIXI and also where a segment of service providers pay low for interconnection and enjoys huge advantage of being interconnected to NIXI.

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5.3.3 Whether announcing all routes at NIXI node can result in misuse of national backbone of class A ISPs?

NO. Rather it will help better routing of traffic and utilization of NIXI. Though a particular segment of service providers think that there should not be any interconnectivity in between the NIXI points, this may not be correct as considering the way the domestic traffic patterns and utilization is growing, it makes more sense to have the NIXI points have interconnects with each other and an virtual cost be levied by one NIXI point to other NIXI point which will be off course shared with the service providers interconnecting at the respective pops. In such a scenario, even if some one is trying to misuse the interconnect; he will still be paying for it. Off course, the billing system at NIXI should be decent to handle such traffic scenarios and do bilateral billing.

5.3.4 What are the alternatives and solutions?

Private or one to one peering is already allowed. ISP can choose to whom they wish to have one to one peer arrangement.

5.4 Do you feel Interconnection of 4 nodes of NIXI is necessary? If so

Interconnection and Transit should be allowed in a limited manner as explained above that it is non competitive against the members as explained above. TRAI should review the tariff for domestic leased lines immediately to enable the smaller ISPs which are out of the preview of NIXI NOC can find it financial viable to connect with NIXI though leased line. Interconnection will help us save huge International bandwidth and the same can be observed, as explained above, from the traffic patterns emerging these days from the Indian users. Freeing up the international bandwidth will rather help is attracting more of software export / BPO business into India as the same can be offered at substantially lower prices then and sometimes create surplus.

However, as this is a much wider issue hence requires more deliberations and consensus amongst the ISPs connected with NIXI. This should be done by building consensus amongst the member ISPs.

5.4.1 Whether NIXI will become a transit service provider thereby competing with its members, contrary to the role assigned to it?

Yes, in one angle. But if one balances in between the benefits and competing factor, as long as NIXI is having effective routing, billing and infrastructure and is able to save International bandwidth in the interest of the Digital growth, one may not consider this as competition.

5.4.2 Whether NIXI will require any license from DoT as it will start carrying of traffic between two stations and distributing between the ISPs?

No license or permission should be required from DoT for NIXI. However, the same needs to officially confirm from DoT.

5.4.3 Can links interconnecting NIXI nodes be misused by connecting ISPs to carry their traffic between two stations on NIXI backbone? If so, can it be prevented technically?

Yes. However it can be taken care of Network Management for which professional infrastructure is required in NIXI. Same is also explained above that there can be a billing system that can handle this type of traffic and if some one is doing such routing, then also he pays proportionately for that quantum of bandwidth which he has delivered to his own other pop in other city via NIXI backbone. Also, while arriving at the charges for such traffic, such charges should be slightly higher than what if someone has direct connectivity in between their own networks would cost. It is like a scenario, where NIXI does not say “No” for such traffic, but charges higher than what service provider would have to pay if he does on his own network. This way, one again need not bother too much even of routing at the NIXI gets too complicated over a period of time. A simple, BGP routing will probably take care of many things on the networks and the interconnect.

5.4.4 Since NIXI is an organization not for profit, how cost towards interconnecting lease line etc will be collected from the members?

NIXI's existing charges are nominal and base on cost plus. In case of Interconnection of NIXI the same formula can be applied. The surplus can be always used for subsidizing other aspects such as power, space etc., and not interconnect and bandwidth by itself. DoT should allow competition by allowing private ISPs to set up the peering backbone as is allowed for NIXI . Licensing framework should be provided to limit the number of players, rollout obligations, tariff structure and license fee.

5.4.5 Whether interconnection of NIXI nodes will increase NIXI popularity and effectiveness.

Yes as explained above.

5.5 Is there a need to establish NIXI nodes at all state capitals?

Yes, however, we must prioritize the location based on the number of ISPs, traffic including e-Governance applications etc.

5.5.1 Whether there will be adequate traffic?

This should be kept in mind while opening up the new NIXI Node in any place.

5.5.2 What purpose will it serve if traffic is less?

Let us remember the latency reduction and better QOS to regional users to the servers located in the region.

5.5.3 What should be the basis to take such decisions?

Traffic patterns, Number of subscribers segment wise, Number of service providers etc.

5.6 How segregation of domestic and international traffic can be done when a ISPs is peering as well as transiting the traffic of other ISP?

This will not be a bigger challenge as with the kind of routing equipment available these days, this is very much possible.

5.6.1 Can NIXI platform be misused for routing international traffic?

No, it cannot be misused for international traffic.

5.7 Is there a need to upgrade NIXI nodes to facilitate implementation of IP V6?

YES. And the same should be kept in mind while opening up of new NIXI nodes. Infact, it would be more appropriate to have all the NIXI interconnects and internal routing only on IPv6 which may also address various concerns as expressed above.

5.8 Is there a need to define QoS for NIXI nodes? If so

Yes. Again before defining such QOS, the NMS system at NIXI should be robust and only then any parameters can be defined.

5.8.1 What parameters need to define and how should it be monitored?

NIXI Switching infrastructure should be non-blocking and should not be a performance bottleneck.

5.9 Should NIXI settlement formula be considered for modification to encourage Data center and WEB hosting in India? If so, give your suggestions.

As a matter of fact all the Datacentres must be insisted to have a mandatory interconnect with NIXI as it makes more sense for the both the content providers and the customers who can enjoy substantially increased access speeds and save huge international bandwidth.

5.10 Any other suggestion, which you feel will increase the effectiveness of NIXI?

Primarily, NIXI should be always regulatory neutral and cannot be impacted or influenced by any regulatory policy of the Government. The policy maker must always keep in mind that none of their policies current and future shall impact NIXI effectiveness directly or indirectly. A high level working committee may be setup that comprises of Technical, Regulatory, Financial and Management experts from the Internet and network industry to conduct a detailed study on NIXI in a short period. In every other country, though the IXPs have State financial contribution, the state will never have operational control directly or indirectly. Such procedures / system must be mandated in India also as we cannot fall apart from the “standard practices” across the World, which off course, we have already fallen apart in many other aspects today.

All content providers, data centers and servers whose service is extended to Indian customers should be announced to NIXI through ISPs. It is necessary that only ISPs connect to NIXI for proper administration and control.

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