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Sub : Recommendations on 'Improvement in the Effectiveness of National Internet Exchange of India(NIXI)'

The National Internet Exchange of India(NIXI) was set up by Department of Information Technology (DIT) in the year 2003 on the basis of recommendations of TRAI. The main purpose of NIXI was to ensure that Internet traffic, originating and destined for India, should be routed within India. This was envisaged to enable optimum domestic bandwidth utilization for routing of the domestic traffic resulting in reduction of bandwidth utilization cost and improvement of QoS.

2. It has been observed that the very purpose of establishment of NIXI has not been served as only 27 ISPs out of 135 operational ISPs have joined NIXI nodes at four places. A majority of domestic traffic is still not routed through NIXI. Therefore, the Authority is making these recommendations to the Government *suo-motu* in accordance with section 11 (a) (iv) of TRAI Act 1997.

3. The Authority has adopted light regulatory approach. It is hoped that implementation of these recommendations will improve effectiveness of NIXI platform for exchange of domestic traffic resulting in reduction of content download prices which may encourage use of broadband due to net reduction in its usage charge. Department of IT may consider taking suitable action on these recommendations. I am enclosing a brief statement clearly stating the action points.

4. The copies of recommendations and press release are attached.

5. These recommendations are also being posted on TRAI's website www.traigov.in.

Yours sincerely,

(Nripendra Misra)

Encl. As above.

Mr. Jainder Singh,
Secretary,
Department of Information Technology,
Electronic Niketan, CGO Complex
New Delhi.

Annexure 'A'

SUMMARY OF RECOMMENDATIONS

- I. Interconnection of ISPs at NIXI
 - (i) All ISPs or their upstream providers should either be connected at all NIXI nodes or to International Internet bandwidth provider through separate domestic peering link.

Action DOT/TRAI*
 - (ii) All the ISPs providing International Internet bandwidth should be connected at all the 4 nodes of NIXI.

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 - (iii) In case of multi-homing ISP, such ISP will decide one of the up stream provider to carry domestic traffic to NIXI or to ISP providing International Internet bandwidth through domestic peering link.

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 - (iv) Domestic traffic shall either be routed through NIXI or through dedicated domestic peering of ISP with International Internet Bandwidth providers.

Action DOT/TRAI*
2. Announcement and acceptance of all routes on NIXI
 - (i) All ISPs announce and accept all their routes (including that of their down stream providers) at NIXI nodes or at direct peering point as the case may be.

Action DOT/ TRAI*/ DIT
 - (ii) Provision of stringent penalties may be made in the licensing conditions to curb the tendencies of misuse at any interconnection points by ISPs.

Action DOT
 - (iii) It is desirable that details of the routes declared and accepted by various ISPs be intimated in advance to NIXI and put on its website under protected folders so that same can be viewed by NIXI members only. This will help to curb the possibilities of misuse of NIXI connectivity.

Action DOT/DIT

- (iv) It will be desirable that NIXI works out model route announcement code and makes it mandatory for all its members to follow the same.

Action DIT

3. Segregation of domestic and International traffic

- (i) All the ISPs who are providing International Internet IP port in India shall be permitted to have peering for exchange of domestic traffic with other ISPs provided such integrated ISPs segregate domestic and International traffic using any technique/ technology suitable to them. This will enable alternate domestic peering points and will bring competition ultimately benefiting the subscribers.

Action DOT/TRAI*

4. Up gradation of NIXI nodes to facilitate implementation of IPv6

- (i) It is desirable that NIXI may setup test bed to exchange IPv6 routes between IPv6 enabled networks as well as IPv4 networks based on overlay tunnel. This may be completed in time bound manner, say six months so that NIXI is able to commercially support IPv6 exchange of routes.

Action DIT

5. The Authority has already sent recommendations regarding improvement of Quality of Service of NIXI to DIT in Jan 2007. These need to be considered in a time bound manner.

Action DIT

- * TRAI will take measures for issuing regulation once these recommendations are accepted by the Ministry of Communication and Information Technology.