PAKISTAN INTERNET EXCHANGE POINT (IXP) POLICY

An Internet Exchange Point (IXP) has been established at Islamabad, Pakistan with the following goals and benefits:

1. Members (ISPs and Mobile operators) will be able to exchange traffic with each other without paying large transit costs.
2. Cost savings in member operations will be passed onto the customers and for developing new and innovative services.
3. Lower cost of traffic exchange between members will result in local content development and hosting leading to an accelerated growth of digital economy.
4. A central point of traffic exchange will make an attractive venue for large global content hosting and content delivery network providers to establish their presence at the IXP. This will result in significantly improved access times as experienced by the consumers.

The IXP established in Islamabad, Pakistan is currently hosted at Pakistan Educational Network (PERN) of Higher Education Commission (HEC). The IXP board can also select any other independent and neutral location to provide equal opportunity to all member ISPs and mobile phone operators.

Following policy shall be followed for Pakistan IXP:

A. Neutrality:

1. All participating ISPs and mobile phone operators shall have equal rights and opportunities, regardless of the size of the network.
2. All ISPs and Mobile phone operators shall be connected at neutral venue, as decided by the board.

B. Pricing Mechanism:

1. No fee shall be charged for 1stsix months of IXP operations, from any of the operator

2. The cost of laying fiber reaching up to the HEC /PERN premises will be the responsibility of the member operator

3. Joining fee amounting to Pak Rs. 100,000/- and Pak Rs. 200,000/- shall be charged for 1 G and 10 G ports, respectively, from all participating networks including ISPs and mobile phone operators, to cover fiber infrastructure cost..

4. Monthly fee amounting to Pak Rs. 60,000/- for 1 G port and Pak Rs. 125,000/-for 10 G port shall be charged, after the grace period of initial six months to cover operational costs of IXP.

5. The IXP board may revise the charging mechanism from time to time, based on members feedback and operational costs of IXP.

6. Additional services provided by the IXP will be charged as decided by the IXP Management team. The IXP board will act as IXP management until a team is set up by IXP board.

C. Routing :

1. All participating networks shall use BGP protocol for IXP connection
2. Only layer 2 network connectivity shall be used
3. All participants must only use IP addresses / scheme, allocated by Pakistan for their connection with IXP
4. All participating networks shall disable Proxy ARP, ICMP redirects, CDP, IRDP, Directed broadcasts, IEEE802 Spanning Tree, Interior routing protocol broadcasts, and all other MAC layer broadcasts except ARP. Board may revise list from time to time.
5. All participating members shall use full duplex on all interfaces connected to the IXP.
6. Future peering with a route server may be mandated by the IXP board.
7. RFC 1918 address range shall not be acceptable as BGP routes.
8. Prefix greater than /24 shall not be acceptable.
9. IXP members should avoid installing default route in router'srouting table.
10. IXP member shall establish BGP session with route server only. Members may apply import and export routing policy at their end to filter specific routes.
11. Membersshould establish IX peering over routed port at their end.

D. **Security:**

1. All participating networks shall ensure security of their nodes and responsible to mitigate any unusual traffic from their networks
2. All participating networks shall arrange suitable security measures against security attacks like DDoS
3. IXP participants shall not use any type of 'sniffers' to monitor traffic passing through the IXP, except through their own ports.
4. The IXP may monitor any port for measurements and research but will keep any information gathered confidential and anonymized (if used in research), except where required by law or where a violation of this Memorandum of Understanding has been determined by the IXP Board.

E. Responsibility of IXP Host:

1. IXP host shall be responsible for provision of 24 x7 IXP services
2. IXP host shall be responsible for provision of trouble free redundant power, air conditioning, Physical security and monitoring through dedicated camera
3. Host's technical team will manage IXP switches installed for Pakistan IXP
4. Host's technical team will create consolidated and individual graph (either through MRTG or Solarwind Software)
5. Individual graphs shall only be shared with concerned IXP participant
6. Consolidated graph shall be uploaded at Pakistan IXP's website

F. **Internet Connectivity:**

1. All IXP participants shall arrange their own Internet connectivity through any legal bandwidth provider in Pakistan

G. **Quality of Service:**

1. SLA shall be signed between all IXP participants and representative of IXP Baord
2. Dedicated email alert shall be generated through mailing lists, in case of any downtime.

H. **Responsibility of IXP Participant:**

1. All IXP participants shall be responsible for laying of their own fiber upto the IXP premises.
2. All IXP participants shall clearly label their equipment / cable laid for IXP purpose
3. IXP participants shall not be allowed access directly to IXP cabinet, until and unless approved by IXP board
4. Any IXP participantdesirous to install its own equipment to improve its quality shall get approval from IXP board before installation.
5. All IXP participants shall ensure that their network is not used for any illegal activity