



## **btIX Operating Principles**

This document describes the charter, setup and operation of the Bhutan Internet Exchange Point (btIX)

### **Setup**

1. The IXP operates as an open neutral platform for interconnecting Internet networks in Bhutan.
2. btIX membership is open to all qualifying entities network operators, service providers, infrastructure operators, and content providers on a voluntary basis.
3. In order to become member of btIX, all entities must meet Clause B.6 under Principle of btIX Operation Principles.
4. An IXP Board will be created consisting of one representative from founding members of the IXP.
5. The IXP will be located at the Meet Me Room, Thimphu Tech Park, Wangchutaba, Thimphu.
6. The IXP operates on a cost recovery model. Each member contributes equally to the costs of the IXP.
7. The IXP board will determine the operational budget and the costs to be covered.
8. The IXP will use a Bilateral Peering model and mandatory peering with the route-server.

### **Principles**

1. Subject to the IXP board's approval, identified btIX Member will be responsible for the administration of the IXP.
2. The IXP host will provide resources essential to the operation of the IXP facilities including power, rack space, air conditioning, and secure access to the IXP site.
3. Identified BIX member maintains the IXP Ethernet switch and other IXP equipment installed at the IXP. btIX members will ensure that IXP will be adequately manned.
4. Each btIX member is responsible for setting up their own link(s) to the IXP site and all associated costs with those links.
5. Each btIX member can have up to 2 links per IX to the IXP Ethernet switch.
6. Each btIX member must have its own public ASN and public IPv4/IPv6 prefix assigned by APNIC (or other Regional Internet Registry) to be eligible to peer at the IXP.
7. Identified btIX Member is responsible for operating and administering the IXP website.

### **Fees**

1. An annual membership fee (attached as Annexure I as agreed by the board) shall be charged to each btIX member to cover the cost of operating, including depreciation expenses of IXP Infrastructure, and

administering the IXP.

2. A cost recovery model is encouraged for the IXP (to be agreed by the IXP board).
3. btIX Board will review Annual Membership Fee for BIX as in when required.

## IXP Infrastructure

1. The IXP infrastructure consists of a single Ethernet switch supporting 1Gbps and 10Gbps port speeds.
2. The IXP infrastructure also includes a host with a web server providing a list of btIX members, joining information, aggregate traffic graph, and a Looking Glass giving access to the list of prefixes available at the IXP.
3. The IXP infrastructure may include other devices only at the discretion of the IXP Board.
4. Each btIX member is recommended to have in place Cache Servers in their networks and share it across the IXP infrastructure.

## Connection Policies

1. btIX members shall not collocate their IXP peering router at the IXP.
2. Identified btIX member responsible for operation & management of IXP infrastructure shall assign IPv4 and IPv6 addresses to IXP members for use on the peering LAN.
3. btIX members must not leak IGP announcements to the IXP LAN.
4. btIX members must not leak DHCP or IPv6 Router Advertisements to the IXP LAN.
5. btIX members must not run network discovery protocols on the IXP LAN.
6. btIX members must provide MAC-ADDRESS of their connecting device for port security.

## Interconnection Policies

1. btIX members are free to choose with whom they peer except peering to router server which is mandatory
2. btIX members must run and configure external BGP with other IXP participants in order to peer.
3. btIX members MUST only advertise their own prefixes that were assigned by APNIC (or other Regional Internet Registry) to other IXP participants via eBGP. btIX members may advertise their transit customer prefixes if and only if their transit customers are not member to btIX.
4. Full BGP table and the default route must not be advertised to any IXP peer.
5. Each btIX member must only accept prefixes that their peer is entitled to originate.
6. No transit traffic is allowed across the IXP.
7. btIX members must filter their BGP announcements to and from the IXP.
8. btIX members must be registered in the Peering Database (peeringdb.com).



## Cabling

1. Each btIX member is responsible for their own cabling to the IXP Ethernet switch. The IXP host must advise each member of the cable path inside the IXP facility.
2. All cables terminated at each switch port at the IXP facility must be labelled correctly with the btIX participant name.
3. btIX member is responsible for providing their own optical transceivers and fiber patch cords to connect to the IXP Ethernet switch.

## Hosting of servers

1. No servers or other equipment for IXP may be hosted at the IXP without the authorization of the IXP Board.
2. Authorization for services and content to be hosted at the IXP must come from the IXP Board.

## Insurance

1. btIX members are responsible for the insurance of their own links and IXP infrastructure equipment.

## Non-compliance

The IXP board reserves the right to terminate any IXP member's link for non-compliance with IXP policies.

## Policy changes

The IXP board reserves the right to make changes to the IXP policies.