JEDDAH INTERNET EXCHANGE (JEDIX)

Technical Policy & SLA

("SLA")

Contents

1. Definitions:

The following terms and phrases shall have the meanings ascribed to them below when used in this SLA:

Agreement	:	Contract between JEDIX Provider and the member outlining the services provided by JEDIX Provider to the member and associated terms;
BGP-4	:	Border Gateway Protocol version 4 used for the exchange of routing information for address families or classes in accordance with the Peering Arrangements between two or more members;
Business Day	:	Means any day that is not a Friday or Saturday or a public holiday in the Kingdom of Saudi Arabia;
IX ODF Panel	:	The Optical Distribution Frame (ODF) which provides the physical interconnect point between the cabling to the member and the IX Switch fabric;
IX Port	:	The physical or logical port (VLAN), which connects a member to the JEDIX network;
IX Route Server	:	A BGP-4 speaking server or router that directs information among Border Gateway Protocol (BGP) routers. The IX Route Server is an integral part of the IX Platform;
IX Switching Fabric	:	The network infrastructure made up of the JEDIX network equipment across all sites where JEDIX is present and with a demarcation point at the JEDIX ODF Panel;
JEDIX	:	The Jeddah Internet Exchange Platform and all services generated from or provided through this platform;
JEDIX Platform	:	All the networks, systems, cables, servers operated by the JEDIX to enable a Member to peer with other Members.
JEDIX Policies	:	All JEDIX policies set forth in the Technical Policy & SLA, the JEDIX Terms & Conditions, Service Order, and any other policies mandated on Members by JEDIX from time to time;
JEDIX Provider	:	The licensed legal entity contracting with Members to provide the JEDIX Platform; and
Member	:	Any organisation admitted to use the services of JEDIX pursuant to an agreement with the JEDIX Provider;
Peering Arrangement	:	Any bi-lateral or multi-lateral agreement for exchange of Internet traffic made between Members of the JEDIX using the IX Platform for the exchange;
Peering LAN	:	A layer 2 ethernet network allowing the exchange of traffic between Members;
Peering Subnet	:	The IPv4 and IPv6 networks assigned to the Peering LAN;
Regional Internet Registry	:	The bodies appointed by the Internet Assigned Numbers Authority to be responsible for the allocation of Internet Number Resources in a specific geographic region to their members;
Scheduled Maintenance Time	:	The period of time during which the IX Platform is not performing as intended and traffic among Members is effectively suspended. Members shall receive at least forty-eight (48) hours before the start of the Scheduled Maintenance Time;
Service Availability or Uptime	:	The period of time during which the IX Switch Fabric and IX Port operate as intended and pass Members traffic, excluding Scheduled Maintenance Time;
Service Credit Days	:	The number of days by which the initial service term will be extended where the service has failed to meet the availability metrics in accordance with section 12 of this SLA;
Service Order	:	Means an order, approved by the JEDIX Provider, for services to be provided to the Member by JEDIX Provider;

Transit Link	:	A link that is used to transmit or receive Transit Traffic; and
Transit Traffic	:	means where the receiving party contractually has committed to transport the traffic to any destination on the internet, even though the sending party might not have a direct peering agreement.

2. Purpose of this document:

2.1. This SLA applies to all Members of JEDIX.

2.2. In order to maintain the security and stability of the JEDIX Platform, ensure smooth operations of the JEDIX Platform, and achieve reach service level targets, the Members shall be bound to the protocols and standards set out in this SLA while connected to the JEDIX Platform.

2.3. The purpose of this SLA is to detail all technical requirements and policies that members must comply with ("Purpose").

3. Membership Policy:

3.1. Each Member agrees and undertakes to be responsible for the following obligations during the time the Member has access to the JEDIX Platform:

3.1.1. be a recognised legal entity or incorporated association and hold a valid trade license and/or company registration as applicable in the jurisdiction of incorporation;

3.1.2. present to JEDIX an autonomous system that is visible in the global routing table;

3.1.3. use BGP-4 for peering; and

3.1.4. New applicants must have an Autonomous System Number (ASN) as assigned by the applicable regional internet registry.

3.2. Each Member must achieve operational peering within three months of becoming a Member and this is achieved by:

3.2.1. Member must subscribe to at least one port connection from JEDIX;

3.2.2. Member must be peering with the route collector; and

3.2.3. Member must be peering with at least one other Member or the route servers.

3.3. Each Member undertakes that usage of the exchange and its Services will not be harmful to the JEDIX Platform. For the purposes of this SLA, "Harmful" means usage which, in the reasonable opinion of the JEDIX Provider:

3.3.1. does not conform with the JEDIX Terms and Conditions or this SLA;

3.3.2. causes undesirable load and/or traffic patterns; and

3.3.3. adversely affects other Members and/or the JEDIX Platform.

3.4. Failure by a Member to comply with the obligations in this section 3 shall constitute a material breach, and shall give rise to the JEDIX Provider's rights of termination under the "JEDIX Terms and Conditions".

4. Physical Access Policy

4.1. Physical access to the JEDIX Platform site is restricted to staff and third parties authorized in writing by JEDIX.

4.2. Members' cable termination to the JEDIX Platform may only be performed by staff or third parties authorized in writing by JEDIX.

5. Connectivity Policy

5.1. **General Provisions**

5.1.1. Each Member must obtain one IX Port on the JEDIX Platform. Members may request more than one IX Port for redundancy or capacity or load-balancing purposes. JEDIX will provide ports subject to availability and in accordance with this SLA.

5.1.2. JEDIX shall allocate IX Ports to Members directly. Members are strictly prohibited to resell, assign, transfer, license, lease or in any other way allocate a IX Port to any other party whatsoever, including other Members unless prior written approval is obtained from JEDIX.

5.1.3. Access to the JEDIX Platform will only enable the Member to exchange traffic to part of the internet. As such Members will be required to access the internet through alternative means such as transit links provided by third parties locally or internationally.

5.1.4. The IX Platform shall not be used to exchange Transit Traffic.

5.1.5. The IX Platform shall not be used for the purpose of tunnelling e.g. IPSec.

5.2. **Provisioning New Ports**

5.2.1. Any new connections will be put into quarantine condition. In this situation, the Member's connections are isolated from other Members by being confined within an isolated network (known as a "Sandbox Environment"). This is required in order to conduct tests to verify whether the Member's connections and configurations are compliant with the Technical Policy including but not limited to:

    a. compliance of the equipment with layer 2 requirements (e.g. IPv4 ARP, IPv6 NDP, Ethernet framing, MAC layer addresses);

    b. compliance of the equipment with layer 3 requirements (e.g. IP address requirements); and

    c. compliance of the equipment with higher layer requirements (e.g. BGP with a route server process, handling of BGP announcements/confederations).

5.2.2. The necessary technical verification will take up to five working days, and two working days for preparing equipment to be fully integrated into the switching environment, accordingly the Members will be notified for preparation and full operation.

5.3. **Connectivity Services outside the IX Platform**

5.3.1. JEDIX does not provide connectivity services outside the JEDIX Platform.

5.3.2. The Member will be responsible for obtaining connectivity up to the IX ODF Panel.

5.3.3. Members may seek connectivity services from other data centres providers.

5.3.4. Termination to the IX ODF Panel will be carried out only by parties authorized by JEDIX.

6. Technical Requirements Policy

Customers use of JEDIX Platform shall at all times conform to industry best practices as defined by the Internet Engineering Task Force (IETF) in the Request For Comments (RFC) series as well as all relevant IEEE 802 standards.

6.1. **Physical**

6.1.1. **Interface setting**: With respect to Members' ethernet interfaces, it is recommended that speed and duplex settings be configured to be auto negotiating.

6.1.2. **One network per port**: Each IX Port will allow only one network; that is each IX Port will be restricted to an individual MAC address and IP as specified by the Member.

6.1.3. **Interface types**: JEDIX Provider shall provide IX Ports to Members as either 1GE-LX, 10GE-LR or 100GE-LR4 using single mode fiber.

6.2. **MAC Layer**

6.2.1.**Ethertypes:** Frames forwarded to IX Port shall have one of the following ethertypes:

   a.   0x0800 - IPv4

   b.   0x0806 – ARP

   c.   0x86dd - IPv6

6.2.2.**Unicast only:** Frames forwarded to IX Ports shall not be addressed to a multicast or broadcast MAC destination address except as follows:

   a.   Broadcast ARP packets

   b.   multicast IPv6 Neighbour Solicitation packets

6.2.3.**No link-local traffic:** Except IPv6 ND and ARP, Traffic for Link-Local Address shall not be forwarded including but not limited to the following link-local protocols:

   a.   IRDP

   b.   ICMP redirects

   c.   IEEE802 Spanning Tree

   d.   Vendor proprietary discovery protocols, for example but not limited to

   e.   Discovery protocols, for example but not limited to CDP and EDP

   f.   Interior routing protocol broadcasts, for example but not limited to OSPF, ISIS, IGRP, EIGRP

   g.   BOOTP/DHCP

   h.   PIM-SM

   i.   PIM-DM

   j.   DVMRP

6.3. **IP Layer**

6.3.1.Interfaces connected to IX Ports shall only use IP addresses and netmasks (prefix lengths) assigned to them by JEDIX. In particular:

   a.   IPv6 addresses (link & global scope) shall be explicitly configured and not auto-configured; and

   b.   IPv6 site-local addresses shall not be used.

6.3.2.IP packets addressed to JEDIX Peering LAN directed broadcast address shall not be automatically forwarded to IX Ports.

6.4. **Peering and Routing**

6.4.1.JEDIX Provider follows open-peering policy where Members may establish Peering Arrangements between each other either by:

   a.   Using the Route Servers, or

   b.   Bi-lateral arrangement as long as the arrangement does not violate JEDIX Policies,

except where required by the CITC or by the applicable law, as in that case Members must follow the directions and policies set by the CITC or by the applicable law.

6.4.2.JEDIX Provider has set up route collectors for monitoring and troubleshooting; Members must peer with these servers.

6.4.3.JEDIX Provider must comply with any regulatory requirements mandated by any applicable regulatory authority in the Kingdom of Saudi Arabia. Accordingly, Members must also ensure compliance with any and all regulatory requirements in the Kingdom of Saud Arabia, including but not limited to peering and switching.

6.4.4. All exchange of routes across the IX Platform shall be via BGP-4.

6.4.5. AS numbers used in BGP-4 sessions across the IX Platform shall not be from ranges reserved for private use (Private ASN). The only exception to this is when a BGP speaker is collecting routing information for analysis and not for immediate routing decisions. In this case the BGP speaker may use a private AS number. If it does so it shall not advertise any routes.

6.4.6. The IPv4 and IPv6 Peering Subnets shall not be advertised to other networks without prior explicit permission of JEDIX.

6.4.7. All routes advertised across the IX Platform shall point to the router advertising them unless agreement has been made in advance in writing between JEDIX Provider and both route Members involved. For the avoidance of doubt, the IX Route Servers are not routers and shall advertise routes pointing to the advertising router.

6.4.8. All routes to be advertised in a peering session across the JEDIX Platform shall be registered in the RIPE or other public routing registry.

6.4.9. Members may use more than one ASN for their peering provided that all ASNs presented share the same NOC and peering contact details.

6.4.10. Traffic shaping is prohibited.

6.5. **Forwarding**

6.5.1. Traffic shall only be forwarded to a Member when permission has been given by the receiving Member:

    a. by advertising a route across the JEDIX Platform; and

    b. explicitly in writing.

6.5.2. Traffic shall not be routinely exchanged between two IX Ports owned by the same Member.

7. Confidentiality and Regulations

7.1. Members and JEDIX each are bound by an obligation to keep certain information. For the purpose of this SLA "Confidential Information" shall mean any and all information, not already in the public domain, passed between JEDIX and/or its Members shall not be passed or revealed to any third party outside of the JEDIX membership, without the prior written consent of the JEDIX Provider.

7.2. Unless required by the applicable law and/or regulations the JEDIX Provider may not monitor any IX Ports or connections or view or collect the contents of Member's data or traffic except in the following circumstances:

7.2.1. JEDIX may monitor any control traffic, flow data by standard sampling methods or TCP/IP header and protocol information necessary for the operation, problem resolution and engineering of JEDIX's network;

7.2.2. JEDIX may collect statistical information derived from your data traffic for the purposes of the proper operation, problem resolution and engineering of its network; and

7.2.3. If Member has requested the specific monitoring or have consented to it following a request from JEDIX.

The rights granted to JEDIX pursuant to clauses 7.2.1 to 7.2.3 shall not include a right to monitor or access the personal information of any of your customers, suppliers, employees, contractors, directors or officers.

JEDIX shall not be entitled to disclose or provide such information or any statistical information derived from such traffic data to third parties unless otherwise required to do so by applicable law and/or regulation.

7.2.4. This Clause 7 shall not be interpreted to prevent JEDIX collecting and publishing aggregate statistics, provided these do not identify any JEDIX member.

7.3. Where JEDIX does monitor a port/connection, it will endeavour (if possible) to make sure that any monitoring will neither:

7.3.1. have a substantially adverse effect on the services provided to you; nor

7.3.2. compromise your confidentiality, or that of your Affiliates and your and their customers, suppliers, employees, contractors, directors, officers, agents, successors, and assigns.

7.4. Where JEDIX does monitor a port/connection, unless prevented by law, JEDIX will use reasonable efforts to notify the Member whose port/connection is being monitored.

7.5. JEDIX shall use commercially reasonable efforts to secure its network from unauthorized access, transmission, or use and shall cooperate with you to address security issues and develop security procedures.

7.6. Members may under no circumstance monitor, intercept or tap any traffic not directly destined for the member IX Port.

7.7. Members shall not undertake any activities that are illegal or in breach of applicable laws and/or regulations or guidelines.

8. Service Availability

8.1. **Scope**

JEDIX commits to a service availability based on the uptime of the exchange as outlined in the clauses below:

- Service Availability means the time the JEDIX Platform is available for use and access by Members.

Failure to meet Service Availability will result in the Member being entitled to a Credit (further explained in Clause 8.2.3 below).

8.2. **Service availability**

8.2.1. The service monitoring tool tests every path between every member facing edge device in the exchange. A count of all sent flows for each 5 minutes is kept. The following calculation is used to calculate Service Availability. The figure is displayed in the customer portal and excludes periods of maintenance

$$\text{Percentage Service Availability} = 100 - \left(\frac{\text{Total Number of Dropped Queries} - \text{Number of Dropped Queries within Planned Maintenance}}{\text{Total Number of Queries Sent}} \times 100 \right)$$

8.2.2. Service Availability is calculated based upon the JEDIX Platform and does not include any Member or data centre equipment. The committed Service Availability is 99.75% as described in 8.2.1 above.

8.2.3. Failure to meet the Service Availability in any calendar month will result in the following Credits as shown in Table 1 below:

Table 1 - Service Credits for Service Availability

Service Availability during monthly period	Service Credit Days
99.75% or greater	0
99.75% to 99.5%	2
99.5% to 99.3%	4
less than 99.3%	6

8.3. **Calculation of Credits**

8.3.1. A quarterly review will be held, and service credits will be calculated based upon the Table 1 above. Any Credits will automatically be added to the end of the current contractual term extended the period of service.

8.3.2. If a JEDIX Service is cancelled during any monthly period for any reason, no Credit will be payable to the Member in respect of that JEDIX Service for that monthly period.

8.3.3. The Member must claim any Credit in writing within 10 Business Days of the date on which the Member could reasonably be expected to become aware of a failure by JEDIX to meet the targets specified in clause 8.3 of this SLA. The Member shall not be entitled to any Credits in respect of a claim unless and until JEDIX Provider has received written notice of the claim. Should JEDIX Provider require additional information from the Member, the Member shall not be able to claim any Credits until JEDIX Provider has received all information it reasonably requests.

8.4. **Exclusions to Payment of Credits**

Credits will not be payable under the following circumstances (to be determined by JEDIX Provider in its sole discretion):

8.4.1. the Member failing to comply with this SLA or other document as agreed between the Member and the JEDIX Provider;

8.4.2. the fault is due to Member's negligence or a failure of the Member's equipment;

8.4.3. any event comprising a Force Majeure as set out in clause 14(5) of the JEDIX Terms & Conditions; and

8.4.4. a failure by the Member to respond to the JEDIX Provider regarding requests for information or access to any equipment related to the provision for the purposes of investigating and rectifying any fault.

9. Fault Reporting and Management

9.1. **Faults**

Any suspected faults should be reported to the JEDIX Provider Network Operations Centre (NOC) The preferred method of contact is via email at support@linx.net.

9.2. **Fault Management**

The NOC operates with the following service response times:

- Answer Call – less than 60 seconds
- Ticket Reply – 30 minutes

Once an initial response is given and an issue is being investigated, the JEDIX Provider operates with the following Follow Up Response Times based on the priority assigned with P1 being the highest priority issues

Service Type	Peering LAN	Route-server	Collector
P1	Customer Port down, significant number of errors 1 hour	Session down 1 hour	Not Applicable
P2	Minor number of errors 4 hours	Not Applicable	Not Applicable
P3	Change Requests 6 hours	Maximum Prefix limit warning 12 hours	Session down 6 hours
P4	Information requests 12 hours	Information Requests 12 hours	Maximum prefix limit warning and information requests 12 hours