

# **Memorandum of Understanding**

## **Serekunda Internet Exchange Point (SIXP)**

Version 0.2

Date: 28 Nov 2013

<http://www.sixp.gm>

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# 1. DEFINITIONS & GENERAL PRINCIPLES

For the purposes of this agreement, concerning the connection to the Serekunda Internet Exchange Point infrastructure, the following terms shall have the following meanings:

- 1.1. SIXP: The Serekunda Internet Exchange Point is a neutral Internet Exchange Point (IXP) service provided and operated by SIXP. It is based on a layer-2 switched peering LAN (Local Area Network, IEEE802.3/Ethernet) in Serekunda, facilitating the exchange of IPv4 and IPv6 Internet traffic between connected participants.
- 1.2. SIXP NOC: The SIXP Network Operations Center service is exclusively provided by SIXP and can be contacted by means of e-mail: <noc@sixp.gm> and telephone: available at <http://sixp.gm/about.html>
- 1.3. Participant: Organisation (legal entity) holding a valid SIXP Connection Agreement.
- 1.4. SIXP Location: Physical location where the SIXP shared infrastructure is present.
- 1.5. Core Area: Room, cage or otherwise dedicated and separated rack space at a SIXP Location where direct access to the shared infrastructure is provided.
- 1.6. Local Connection: The physical cable connection of a participant's co-located peering router to the SIXP shared medium.
- 1.7. Remote Connection: The physical connection path of a participant's distant peering router, using either participant's or third party cable and/or higher layer infrastructure to the SIXP shared medium.
- 1.8. Peering: It is the responsibility of each connected participant to establish bilateral peering agreements with other participants. An open and settlement-free peering policy is compulsory. To facilitate peering between like-minded participants, the SIXP operator will operate a BGP route server service that peering members may make use of free of charge. The only routing protocol allowed on the peering LAN is BGP4.
- 1.9. SIXP IP Address: Each participant gets one unique IPv4 and/or IPv6 address assigned per connection, out of a dedicated address range allocated for the SIXP peering LAN.

## 2. PREREQUISITES FOR THE CONNECTION

- 2.1. Autonomous System (AS) Number: **SIXP** participants are required to use their own properly assigned and globally unique AS number for any BGP4

peering session on the **SIXP** peering LAN. All advertised AS numbers on any peering session at **SIXP** have to be globally unique and properly assigned and documented by a RIR/LIR (Regional or Local Internet Registry) and the announcing **SIXP** participant needs to be authorised to use this.

2.2. IP Address Space: All advertised IP address space on any peering session at **SIXP** has to be globally unique and properly assigned and documented by a RIR/LIR (Regional or Local Internet Registry) and the announcing **SIXP** participant must be authorised to do so. Each Participant is required to register route/route6 objects for every block of address space that they will use.

2.3. Global Internet Connectivity: **SIXP** participants are required to have their AS number and IP address space provided with global Internet connectivity before the connection to **SIXP** is established.

### **3. SERVICES PROVIDED BY THE SIXP**

3.1. **SIXP** will provide and maintain the Connections for all **SIXP** participants under the same General Terms and Conditions.

3.2. Proper function of the **SIXP** core equipment and shared infrastructure is continually monitored, aiming at seamless operation.

3.3. **SIXP** is providing and maintaining a web page (<http://www.sixp.gm>) with links to the individual participants' homepage. Operational status, summary statistics and other information is also made public through this web page. More detailed views for participants, like port and peering statistics, are made available through a web portal, only accessible by individually registered staff.

3.4. **SIXP** provides and maintains a closed (password-protected) mailing list for operational information, where all participants are subscribed with a suitable role mailbox (noc).

3.5. **SIXP** is allowing regular physical access to the Core Area in general only under supervision by authorised personnel during normal working hours. Only in emergency situations, supervised access may be granted to individual participants also outside working hours (response time and off-hours access procedures for participants are subject to individual agreements with the respective **SIXP** Location).

### **4. LIMITED EQUIPMENT HOUSING IN CORE AREA**

For simplicity and convenience **SIXP** participants may request rack space for their data communications equipment in the Core Area of the **SIXP** Location, provided that:

- 4.1. Only peering router, transmission, line termination and out-of-band management equipment will be installed; general purpose server machines may not be installed in the core area.
- 4.2. All equipment must fit within 6 rack units (40cm) of a standard 19" rack
- 4.3. Equipment is using standard 230V/AC supplies and a maximum of 500 Watts connected load in total.
- 4.4. Participant does not require extended UPS services, nor special environmental conditions.
- 4.5. Participant does not require guaranteed regular access outside office hours
- 4.6. Participant accepts full responsibility for purchase, insurance, configuration, maintenance and operation of its equipment and data communication lines
- 4.7. Participant accepts liability for any damage inflicted by its staff or installed equipment upon other property in the Core Area.
- 4.8. If - and as long as - all criteria detailed above are met and the SIXP Location still has enough capacity available, Participant's equipment may be installed on a shelf in an existing rack inside the Core Area. Rack units at SIXP can be requested through the administrative contact. These rack unit fees will be billed together with the port fees.

General purpose hosting agreements are available on request from the SIXP colocation provider(s).

## **5. RESPONSIBILITIES OF THE SIXP PARTICIPANT**

- 5.1. Participant has to continuously fulfill the Prerequisites according to Article 2.
- 5.2. The following contacts shall be appointed in order to represent Participant in specific matters:
  - 5.2.1. Administrative Contact (official addressee for any legal correspondence)
  - 5.2.2. Technical Contact
  - 5.2.3. Billing Contact
- 5.3. All organizational changes relevant for this agreement have to be immediately communicated to **SIXP**, at least by e-mail to [admin@sixp.gm](mailto:admin@sixp.gm) all operational and technical issues to [noc@sixp.gm](mailto:noc@sixp.gm).

- 5.4. Participant is responsible for arranging and contracting housing facilities (if not covered by Article 4) and all required data communication lines.
- 5.5. Peering with all other participants in the exchange point is mandatory.
- 5.6. Peering with other connected participants is not covered by this agreement. Participants are responsible for the conclusion of bilateral peering arrangements.
- 5.7. All routing prefixes which are announced to any peer at **SIXP** shall be registered with the authorised origin AS number in an RPSL based IRR (Internet Routing Registry).
- 5.8. A peering session with at least the **SIXP** service AS and/or the **SIXP** routing collector is required, whichever enables the Looking Glass service on the **SIXP** web page.
- 5.9. Only one unique Ethernet/MAC address may be visible on the peering LAN on any participant's Connection (port or port channel) to the **SIXP**. The **SIXP** port security will automatically shut down ports, which are violating the MAC address limitation.
- 5.10. Only the specifically assigned IPv4 and/or IPv6 **SIXP** peering LAN address may be used on any particular Connection.
- 5.11. ICMP Pings to these peering LAN addresses shall be allowed from within the **SIXP** peering LAN and from the monitoring machines of **SIXP**.
- 5.12. Proper configuration and performance of its Connection(s) shall be periodically verified by Participant by using the tools and views offered by the **SIXP** web portal that shows own port and peering statistics to Participant, and information regarding round trip delay and jitter, layer 2 views and layer 2 anomalies of all connected participants.
- 5.13. Notifications from the **SIXP** NOC regarding performance relevant issues of any of Participant's Connection shall be considered and confirmed within three working days.
- 5.14. Participant agrees to upgrade any of its Connection where the 95<sup>th</sup> percentile of the monthly traffic exceeds 80% of the port capacity in two consecutive months, or exceeds 90% of the port capacity in two consecutive weeks (95<sup>th</sup> percentile of the weekly traffic).
- 5.15. If Participant is using third party infrastructure for a Remote Connection (Article 1.6), Participant has to provide to **SIXP** contact details regarding this third party (Line Provider).
- 5.16. Broken Remote Connections have to be debugged directly between Participant and any third party provider first, before the **SIXP** NOC is involved. All costs caused by such third party troubleshooting have to be

accepted by the Participant, even if the fault is found at the **SIXP** shared infrastructure.

## **6. USE and LIMITATIONS**

- 6.1. Participant is entitled to use the Connection for peering purposes only. This license is non- exclusive and non-transferable. Participant is not entitled to assign and/or sublicense any of its rights under this agreement to any third party without previous written consent of **SIXP**.
- 6.2. To actually exchange traffic at **SIXP**, bilateral agreements need to be established between participants. The required routing protocol for all **SIXP** peering relations is BGP4. Internal routing protocols must not be used on nor exported to the shared peering LAN.
- 6.3. Participant accepts full responsibility for its use of the Connection according to Article 5, specifically that it does not cause or is likely to cause any damage, or is in any other way harmful, to the **SIXP** infrastructure or to the normal operation, availability or functionality of the **SIXP** services or to the traffic exchanged thereon. Participant agrees to implement any reasonable measures that **SIXP** may propose to prevent or repair such damage or harm. Participant will observe relevant operational policies which are published on the **SIXP** web page and announced to the operations mailing list.
- 6.4. **SIXP** is entitled to (a) suspend or (b) discontinue the Connection, in whole or in part, and/or (c) to require that certain conditions be met before continuation thereof, if:
  - 6.4.1. The participant is infringing Article 6.3 and has not, within reasonable terms after a written (e-mailed) request from the **SIXP** operations staff, implemented adequate measures to prevent or repair such infringement;
  - 6.4.2. it is necessary for **SIXP** to comply with a judicial decision;
  - 6.4.3. it is necessary for installation or maintenance of hardware, software or infrastructure that is used or otherwise relevant for **SIXP**; such action, of course, has to be preceded by an adequately scheduled notification;
  - 6.4.4. The participant is in breach of one or more of its essential obligations under this agreement.
  - 6.4.5. The participant connects via an unstable or broken Remote Connection to **SIXP**.

## **7. AMENDMENTS and APPENDICES**

7.1. These General Terms and Conditions and all Appendices referred to herein form an integral part of the Connection Agreement:

7.2. Appendix I: Contact, Address and Invoice Information

7.3. Appendix II: Fees for SIXP Services

7.4. Appendix III: Additional Information for Remote Connections

Further amendments or supplements to the Connection Agreement are valid only if agreed in writing.

## **8. FEES and PAYMENT**

8.1. The Participant agrees to pay the costs for the Connection as specified in Appendix II in Dalasis, assuming all bank charges. Monthly costs will be periodically invoiced to Participant and shall be due as from the 1st of the month of connection. The setup fee is due with signing of the Connection Agreement and will be invoiced regardless of the establishment of the Connection. Payment must be made within one month of receipt of the invoice.

8.2. Discounts (e.g. for equal-speed, dual-site Connections) will be granted only according to published terms on the SIXP web site.

8.3. If Participant has requested router housing according to Article 4, Participant agrees to pay the costs for the rack units as specified in Appendix II.

## **9. TERM and TERMINATION**

9.1. The Connection Agreement comes into force on the date of signing the application by both parties and shall remain in force until its termination in accordance with this Article.

9.2. The Connection Agreement can be terminated at any time by any of the parties by means of a written notice to the other party; in that case this agreement is terminated at the end of the third month, following on the month in which the said written notice was sent.

9.3. The SIXP operator reserves the right to update or modify the articles and clauses of these General Terms and Conditions of the SIXP Connection Agreement - including Fees, Payment Terms and Appendices - at three



months' written notice. Such modifications shall take effect unless Participant objects in writing and gives termination notice within that period.

## **10. LIABILITY**

- 10.1. Neither SIXP nor the Participant shall be liable towards any other party for compensation of indirect or consequential damage, including lost profits and damage consisting of or resulting from loss of data or information.
- 10.2. Any liability of SIXP towards Participant for compensation of material damage directly resulting from the SIXP performance or non-performance of this agreement is at all times limited to the amount of fees paid by Participant under the SIXP Connection Agreement within the last 24 months from the event.
- 10.3. Any liability of Participant towards SIXP and other Participants for compensation of material damage to physical components belonging to any Connection resulting from Participant's performance or non-performance of the SIXP Connection Agreement, is limited to a reasonable value to be determined by SIXP.