

AMS-IX CARIBBEAN INTER-IPX SERVICE LEVEL AGREEMENT

Inter-IPX SLA version 2013- v2

1 Introduction

This Inter-IPX Service Level Agreement (SLA) forms part of the Customer Connection Agreement (CA) between the Customer and AMS-IX Caribbean if so indicated in the CA. The term of this SLA follows the term of the CA, and termination of such CA shall constitute termination of this SLA.

In case of a conflict between the terms and conditions of the AMS-IX Connection Agreement and this SLA, the terms and conditions of the AMS-IX Connection Agreement shall prevail.

This SLA is applicable to the delivery and operation of the Inter-IPX Connection to the AMS-IX Infrastructure by AMS-IX to the Customer. This SLA defines the service levels, the quality of the services, the service credits for non-delivery, unavailability and the processes and procedures to be followed, and provides a mutual understanding of service level expectation.

Capitalized terms as used in this SLA shall have the meaning as set out in the CA or the AMS-IX General Terms and Conditions (GTC).

2 Limitations

1. This SLA is only valid if the 5-minute average load on the applicable Customer Inter-IPX Connection (see definition below) does not exceed 70% of its maximum capacity in a given month.
2. This SLA is only applicable to the Customer Inter-IPX Connection as long as the Customer is in compliance with all the terms and conditions as set out in the CA and GTC.
3. BGP routing issues are specifically excluded from this SLA.

3 Service Definition

This SLA is provided on the Inter-IPX Connection to the AMS-IX Infrastructure and is applicable to availability of the Connection. An Inter-IPX Connection consists of a regular AMS-IX fibre connection and can be one of the following:

- A Single GE connection.
- Multiple GE connections in a so-called LAG configuration.
- A Single 10GE connection.
- Multiple 10GE connections in a so-called LAG configuration.

A LAG consists of 2 or more single connections (connection members) of the same bandwidth that together behave as a single logical connection, i.e. two times a single 1GE connection forming a logical 2GE connection.

The Customer Inter-IPX Connection(s) (or the individual members of the LAG) are terminated on the AMS-IX patch panel. This patch panel is the demarcation point between the Customer and AMS-IX. See Figure 1 for a schematic layout of the setup. The responsibility for the (LAG) connection between the Customer's router and the AMS-IX patch panel is with the Customer. The responsibility for the (LAG) connection from the AMS-IX patch panel is with AMS-IX. In case of a LAG connection not all member connections of the LAG necessarily terminate on the same patch panel.

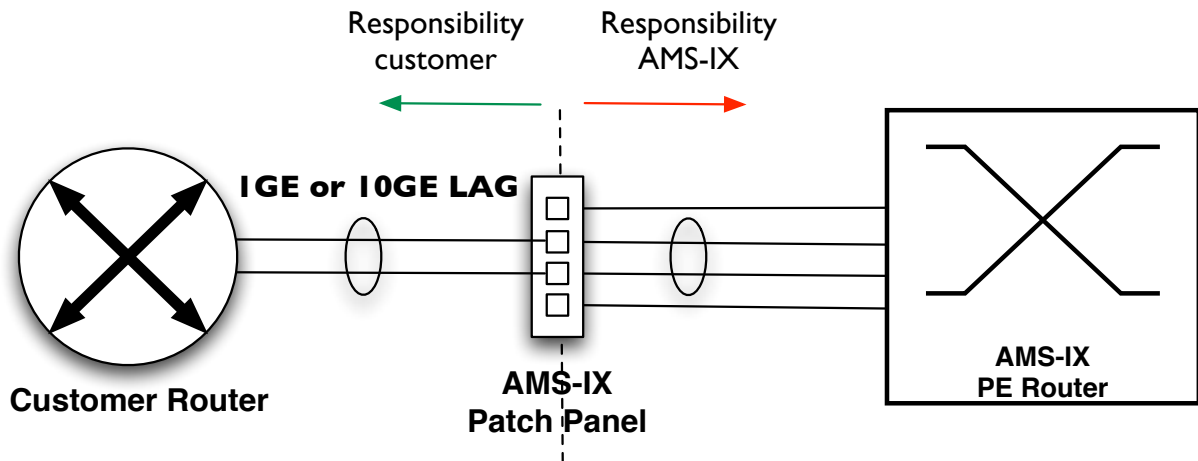


Figure 1 : Inter-IPX customer connection on AMS-IX platform. The AMS-IX patch panel is the demarcation point for responsibility

Connections are further specified as described on:

<https://cw.ams-ix.net/technical--2/specifications-descriptions/interface-cabling-specifications>

4 Service Provisioning

4.1 Initial Inter-IPX Connection

The initial provisioning of a Customer Inter-IPX Connection will take a maximum of five (5) working days (Mon-Friday 9.00-18.00 CET) after acceptance of the Customer order, providing that the Customer has an agreement with the chosen AMS-IX colocation and after return of the signed AMS-IX Connection Agreement by the candidate customer, or on the envisaged date of Connection, as indicated by the Customer in the port request form.

Upon first provisioning of service, at the Assignment Date, the individual port will be placed in the quarantine VLAN. This allows the Customer to physically install/configure his router and other equipment at the housing location(s), finalize the cabling arrangements with the colocation or layer-2 service provider and subsequently verify basic (L1/L2 and ping) connectivity to the AMS-IX Infrastructure. Also, this stage of the process allows the AMS-IX NOC to verify that Customer's equipment is configured according to the conditions for connecting as set forth in article 7.5 of the GTC. Once this is done and the AMS-IX NOC has concluded that the interface is free of any errors and/or unwanted traffic, it is placed into the appropriate production VLAN, this defines the Production Date. Provisioning is deemed to be at the Assignment Date.

The initial Provisioning SLA only applies to 1GE and 10GE ports, until otherwise mentioned 100GE ports are excluded from the provisioning SLA.

4.2 Inter-IPX Connection changes

For changes in the configuration without contractual implication, AMS-IX schedules a provisioning time of three (3) working days. Orders have to be placed using the my.ams-ix.net portal.

For configuration changes with a contractual implication, e.g. additional connections or port upgrades, AMS-IX schedules a provisioning time of a maximum of five (5) working days after acceptance of the order and receipt of the signed revised Attachment to the AMS-IX Connection Agreement. Orders have to be placed using the my.ams-ix.net portal. Customer can always indicate its own envisaged date of delivery, which AMS-IX will honor as much as possible.

The change Provisioning SLA only applies to 1GE and 10GE ports, until otherwise mentioned 100GE ports are excluded from the provisioning SLA.

5 Availability of the service

The aim of the service availability is 99.95% per month. AMS-IX defines availability as the amount of time per month that the AMS-IX Infrastructure and the connection under consideration to it are available to the Customer.

To calculate availability the following formula is used:
$$P = \frac{A-B-C}{A-B} * 100$$

Where:

- A = Number of hours in a month
- B = $\sum_{i=1}^n Bi$ Sum of all outages due to announced maintenance,
- C = $\sum_{j=1}^m Cj$ Sum of all outages
- P = Availability percentage

AMS-IX considers the service unavailable when:

- The Inter-IPX Connection of the Customer to the AMS-IX Infrastructure is not operational due to a problem within the responsibility sphere of AMS-IX (see fig. 1)
- The Inter-IPX Connection of the Customer to the AMS-IX Infrastructure is operational but 5% or more of the other Customer's routers in the same Inter-IPX LAN are unreachable
- If the Inter-IPX Connection of the Customer consists of a so called LAG and one or more of the individual links in this LAG are down due to a problem within the responsibility sphere of AMS-IX and the average traffic load on the remaining links exceeds 70%.

The unavailability period starts when:

1. An authorized Customer representative contacts the AMS-IX NOC and opens a trouble ticket in mutual agreement.

Or

2. A trouble ticket has been opened by the AMS-IX NOC after a customer-affecting problem is detected. The affected customers will be mentioned in the trouble ticket

The unavailability ends when the trouble ticket is closed in mutual agreement in case of 1, providing the Customer 24 hrs availability, or by the AMS-IX NOC in case of 2.

Exceptions to the unavailability (C in the formula) are:

- Photonic cross connect swaps in the AMS-IX Infrastructure and relating to 10GE ports below 200 milli-seconds
- Prolonged swap time after a photonic cross-connect swap due to certain conditions. In case such a condition exists, the AMS-IX NOC while testing your port, will notify you on this. Examples are:
 - in case Customer uses LACP for port aggregation
 - in case Customer is connected behind a DWDM infrastructure on which the swap is not correctly propagated.
- Outages needed for requested change orders to the connection by the Customer.
- Outage periods reported by the Customer in which no fault is observed or confirmed by AMS-IX
- Outages due to force majeure.

6 Scheduled Maintenance

Scheduled maintenance is a necessary element of network operations and therefore not counted as “service unavailability”.

AMS-IX NOC will announce maintenance at least 72 hours in advance by e-mail to the relevant technical distribution lists. For example, these are tech-l@lists.cw.ams-ix.net for the Internet Peering LAN, grx-tech@ams-ix.net for the GRX peering LAN and ipx-tech@lists.cw.ams-ix.net for the IPX peering LAN. The notification will include at least the following information:

- Start date and time of the maintenance
- Expected end date and time of the maintenance
- Expected impact on availability and AMS-IX Infrastructure performance
- Impacted customers

Scheduled maintenance is confined to the following periods:

- * Tuesday or Thursday between 04:00 and 06:00 hours (AST) when a service interruption (or potential service disruption) for any customer connection is expected.
- * Monday to Friday between 00.00 and 04.00 hours (AST) for non-disruptive maintenance.
- * In rare cases where scheduled maintenance with potential service interruption needs longer time windows it will be announced at least 2 weeks in advance.

To make sure that maintenance announcements are seen by the Customer, it is the responsibility of the Customer to make sure the relevant contact details are registered and known to AMS-IX.

In addition to the above, it may occur that equipment needs to be replaced immediately, because of hardware or software malfunctioning detected by the AMS-IX NOC. In such cases the replacement work may involve so called Unscheduled Maintenance which will also be announced to the above mentioned mailing lists, however it will not be announced well in advance. This, of course, follows from the immediate nature of the required repair activity and is always up to the discretion of the AMS-IX technical team.

7 SLA Reporting

A monthly SLA report will be made available through the Customer specific my.ams-ix.net website or directly via email a maximum 10 working days after the end of the month. If the report is via the website, then notifications are sent out. The Customer needs to accept or reject the report for SLA's met, 10 working days after notification the report will be accepted automatically. After a report has been accepted no more service credits apply to the particular period.

In case of rejection of the report the dispute resolution process starts (see section 10)

8 Cases, trouble tickets and escalation

The NOC actively monitors the AMS-IX Infrastructure 24 hours/day, 7 days/week. Inter-IPX Customers will report outages to the NOC via telephone (+31 (20) 520 0300).

Queries regarding the I-IPX SLA service will be addressed to the SLA management via email: sla@ams-ix.net or via telephone (+31 (20) 520 0307) Monday to Friday 09:00-18:00 CET.

The Customer will receive regular updates preferably by email. A ticket opened for an individual Customer will not be closed without the Customer's consent (providing that the Customer is reachable via its designated contacts as set forth in article 4.3 in the GTC).

In case the Customer feels there is a need to escalate a problem, the requests are relayed to the Chief Technical Officer of AMS-IX.

All SLA-cases and trouble tickets can be reviewed through the customer portal on the AMS-IX website. In many cases larger problems are discussed on our interactive tech-l@lists.cw.ams-ix.net mailing list to which the AMS-IX NOC and customers technical contacts are subscribed.

9 Service Credit Scheme

Upon late delivery and unavailability the Customer can request service credits from AMS-IX relating to the applicable Customer Connection. Service credits need to be requested through the customer environment in my.ams-ix.net within 10 days following the SLA report. The AMS-IX Service Manager will process the service credit request within three (3) working days and report back to Customer.

Note: Not more than 100% of the monthly fee is credited in any given month. In case of several incidents in a particular month AMS-IX will aggregate the requested service credits.

In case a service credit request is submitted, Customer is required to pay outstanding and future invoices as they are submitted without anticipating the service credit. Once the service credits are accepted and/or disputes settled AMS-IX will offset any service credit on the next following invoice.

9.1 Initial delivery & changes

In case the initial delivery and implementation or changes exceeds the target time the below service credits apply. Any process that is delayed due to events outside AMS-IX control or due to the Customer's or third party actions does not apply for service credits. If the Customer requests changes to the initial order the process shall start again from that date.

Type	Measure	Monthly Service Credit
Initial port	Over 5 working days	50%
	Over 10 working days	100%
Non-contractual impact changes	Over 3 working days	50%
	Over 6 working days	100%
Contractual impact changes		As above at ports.

Requested and agreed service credits for initial service delivery will be applied to the first invoice the Customer receives. In case of fees waived for the first month of service no credits shall apply.

Requested and agreed service credits regarding changes shall be applied on the next scheduled invoice the Customer receives.

9.2 Availability

In case the Customer experiences a service availability below the targeted availability during a given month, Customer is entitled to request a service credit according to the table below. The percentage is applied as a decrease to the monthly service fees.

Monthly Calculated Availability (P)	Approximate Monthly Minutes downtime*	Monthly Service Credit
$P \geq 99.95\%$	0-22	0%
$99.95\% > P \geq 99.9\%$	22-43	50%
$P < 99.9\%$	>43	100%

* depends on actual number of days in the month.

This service credits scheme as set out in this paragraph 10 constitutes the Customer's sole remedy with respect to late delivery and/or unavailability of the services rendered by AMS-IX.

10 Dispute Resolution

Disputes with regard to the SLA report (including cases) can be filed by the Customer by sending in a dispute report through the individual customer environment on my.ams-ix.net within 30 days following the report issue. After the 30 days period, no service credits will be awarded.

The AMS-IX Service Manager will process the dispute report and request investigation from the AMS-IX NOC where applicable. AMS-IX NOC will conduct a thorough investigation and will report back to AMS-IX Service Manager to resolve the dispute based on its findings and issue any service credits. The AMS-IX Service Manager will inform the Customer. In case the Customer is not satisfied with the resolution, the dispute will be escalated to the AMS-IX Management Team.