



NetherLight - Open Exchange

Service Level Specification

Author(s): SURFnet
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1 Service Level Specification

1.1 Introduction

This Service Level Specification (SLS) is intended to serve as a point of reference for managers of NetherLight connectors regarding service provisioning across multiple domains and also within a global production environment.

Open Exchanges (OEs) are critical elements of the Research and Education (R&E) infrastructure and hence connectors and users of these facilities are requesting transparency of service specifications. The SLS can be used to specify internationally standardized service parameters, including performance indicators, exclusively related to the Open Exchange's service domain. Service disruptions that result from outages originating beyond the domain of the Open Exchange, like for instance a fiber-cut on an international sea-cable, are not the responsibility of the Open Exchange and hence are not included in the scope of this SLS.

2 OE Service Parameters

2.1 Availability

2.1.1 Service description

Availability refers to the extent that the OE is operating without impairment or disruption to its users' traffic according to the service specifications. Availability is presented as a percentage, which will be calculated on a monthly basis.

2.1.2 Service indicator

Availability is the primary service indicator of a OE. Various factors may have impact on the actual availability of the OE. These factors, that include the power infrastructure and the maintenance-window, are outlined in more detail in Annex I.

2.1.3 Availability and availability percentage

Availability refers to the percentage of the total time that the OE has been available. Availability of the OE is 99,9% on an average monthly basis.

2.2 Outages

2.2.1 Service description

An Open Exchange (OE) comprises of one or more network devices performing switching, for example lambda or Ethernet. An essential element in service provisioning is the availability of a NOC including a helpdesk facility available for reporting service outages. Both the staffed helpdesk and the NOC are available 24x7x365 for registered contact persons. Reporting can be done by phone at **+31 88-7873660** or e-mail **noc@netherlight.net**.

The helpdesk is responsible for registration and coordination of reported outages, allocation of outages to the Network Operating Center (NOC) and coordination of the handling of outages. The helpdesk registers both planned and unplanned maintenance of the OE.

For registration and coordination purposes a ticketing system is used. Any information regarding a specific outage will be included in the ticket. Upon reporting of an outage a ticket will be created by the helpdesk after which the outage will be dispatched to the NOC. The ticketing system is used for interaction between the helpdesk and the NOC but also to inform (affected) customers of any updates on a specific outage.

2.2.2 Service indicators

Service indicators refer to the transparency of the process by which outages are handled, including the provision of adequate information regarding the status of an outage at all times.

The relevant service indicators are response time and repair time. This leads to the following service indicators:

- time elapsed between reporting of an outage and submission of associated ticket (response time);
- periodic updates on progress made regarding the handling of the outage;
- repair time of outages.

In case of outages or performance issues a classification of priority will be used that impacts both the frequency of information updates as well as repair times. This classification entails critical and non-critical outages.

Outage	Description
Critical	An outage is considered critical in case of loss of connectivity.
Non-critical	An outage is considered non-critical in case of a (higher) risk of loss of connectivity and/or reduced network performance.

In any case in which an outage is reported to the helpdesk, the helpdesk will issue a ticket and refer to the NOC for further handling.

In addition, the NOC will actively monitor the OE-facilities and will immediately issue a ticket in case an outage is detected. Every ticket includes timestamps that indicate when the outage was first reported, if and when significant progress has been booked and at what time the outage was resolved.

2.2.3 Response time outages

In the table below the response time in case of an outage is given.

Maximum response time	Critical	Non-critical
Timeframe in which a notification will be sent to the reporter of an outage, measured from the moment that the ticket was made.	30 minutes	60 minutes in business hours
Frequency of updates that will be sent to the reporter of the outage until the ticket can be closed.	Any time that new, relevant information regarding the outage becomes available.	

2.2.4 Repair time outages

Maximum repair time	Critical	Non-critical
70% of all tickets:	60 minutes	4 hours in business hours
95% of all tickets:	120 minutes	6 hours in business hours
99.9% of all tickets:	180 minutes	1 day in business hours

Not included in these percentages is the time during which the OE administrator is waiting for information or actions from the reporting organization.

If an outage requires on-site support, then the maximum repair time increases with a maximum of 240 minutes for all repair-times included in the table to facilitate the appropriate RMA procedures and coordination of on-site technicians.

In case of an Act of God (e.g. fire destroys the OE-facilities completely) the repair time guidelines given above cannot be assured. In a case like this, the OE administrator will make every effort to reduce the repair time as much as possible.

2.3 Performance measurements

2.3.1 Service description

An OE has performance measurement capabilities for troubleshooting performance issues on end-to-end circuits. The NOC pro-actively monitors circuits and is able to provide support regarding network performance if required by one or more customers.

2.3.2 Service Indicators

'Lightpaths' – services with dedicated bandwidth assigned – can be provisioned through an Individual OEs infrastructure at various network layers and utilizing an array of networking technologies (Ethernet, OTN, DWDM, et cetera) that range widely in the amount of status information that is presented to the network administrator. Minimally, enough data should be collected to determine a particular circuit's state (up or down) and its logical and physical connectivity through a OE's infrastructure. To the degree possible, the available error counters and alarms should also be captured to establish the health of a circuit.

2.4 Configuration changes

All configuration changes on one or more physical ports, e.g. to setup or teardown a service, must be requested at: admin@netherlight.net.

2.4.1 Service description additional port

In case a new port on the OE facilities is requested by a connecting party that has already signed a contract with the OE administrator this physical port will be provided within **10** working days. This under the condition that no additional hardware and/or capacity is required to deliver the port.

2.4.2 Service description additional circuit

When two connecting parties have a mutual agreement on a shared service/circuit/interconnect the OE administrator will implement this within **5** working days. This under the condition that no additional hardware and/or capacity is required to build the circuit.

This service is applicable both for building a new circuit as well as for the decommissioning of an existing circuit.

2.4.3 Service indicators

The OE administrator will inform the requesting party about the status of the port and/or circuit upon delivery of the requested change.

3 Status SLS, monitoring and escalations

3.1 Change procedure SLS

The SLS is a living document in which recent insights will be included on a regular basis. The most recent version of the SLS, including a change history, is available at: <https://www.surf.nl/netherlight-sls>

Changes will be included by means of a transparent process:

- Changes in the SLS can be incorporated two times a year maximum;
- Proposed changes will be communicated timely and in a transparent way to all connected parties. This way objections and suggestions from connected parties can be taken in consideration.

3.2 Escalations

The OE administrator will report service-levels that were not reached pro-actively to the relevant connected parties. These reports will include an adequate explanation for the delayed response.

In any case in which a connected party believes that a service-level as included in the SLS is not reached the connected organization should report this to the OE administrator. Upon receipt of such notice the OE administrator will investigate and will inform the connected party of its findings within **10** working days.

Annex I Availability Measures

Non-availability may result from a variety of causes that may not all be under the direct influence and/or control of the OE administrator. In this Annex some of these potential causes are highlighted, including the measures taken by the OE administrator.

Equipment and power facilities

The technical maintenance of the equipment used is subcontracted. The operator is responsible for the repair and maintenance the OE's networking equipment.

The OE equipment is connected to both an A- and a B-feed to power facilities. The B-feed consists of an emergency power supply facility that guarantees at least 8 of emergency power supply.

OE maintenance-window

The maintenance-window is scheduled every Tuesday from 5.00 – 7.00 CET/CEST. Any activities that could potentially lead to service disruption and that do not extend the timeframe of the maintenance-window will be performed during this window. When necessary a different timeslot can be chosen in consultation with the parties involved.

In situations in which more time is required than available within the maintenance window the OE administrator will try to schedule an additional window in close collaboration with all connected parties.

Any potential service disruption will be published by means of a service-ticket at least 5 Working days before the actual activities are planned.

Non-availability that results from maintenance that is performed during a maintenance-window and that was published by means of a ticket at least 5 Working days in advance is not included as downtime in the availability-statistics.

Cooperation connected organization

In case non-availability is caused or negatively influenced by performance (or lack of performance) of the connected party than the resulting non-availability will not be included as downtime in the availability statistics.

Annex II Glossary of terms

Term	Definition
Availability	Percentage of the total time of which the OE facilities have been available.
Repair time outage	Time elapsing between the issuing of a ticket and the moment on which the outage was resolved.
Office hours	Work days from 9.00 AM up to 17.00 PM, local time.
Maintenance-window	Period in which planned (preventive) maintenance can be performed on systems and applications. This maintenance may lead to service degradation or even loss of connectivity.
NOC	The NOC is responsible for the operational management of the OE facilities.
Response time	Time elapsing between the issuing of a ticket and notification by e-mail towards the reporter of an outage
SLS	Service Level Specification. A document that specifies the service delivery as adequate as possible.
Outage	Situation in which degradation of service or loss of connectivity occurs.
Work days	Calendar days, excluding Saturdays, Sundays and Official Holidays. ¹

¹ An overview of Dutch national holidays can be found on: <http://www.officeholidays.com/countries/netherlands>

Annex III Summary of changes to SLS

Changes to 2.0 (april 2016) included in version 3.0 (august 2016)

- Contact information, Network Operations Center (NOC) have changed
- The reference to GLIF has been removed from the service description. SURFnet collaborates with international educational and research networks for establishing international light paths. Participating networks transport each other's light paths on a reciprocal basis, often through open exchanges. This is not only done through GLIF.