

Guidelines

on

Key Service Level Indicators

for

SWAN Bandwidth Provider

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SWAN Program Office
Department of Information Technology
Government of India

Executive Summary

This document defines various Service Level Indicators for SWAN, which can be considered by the respective States for incorporation in the Service Level Agreement with Bandwidth Provider. This document does not detail the associated penalties for the Service Level Indicators and guidance for the same shall be provided separately.

The Table below summarizes the Performance Indicators for the services to be offered by the Bandwidth Provider. The detailed description of the performance indicators, SLA Terms and their definitions are discussed in the following sections.

SLA Parameter	SLA Target
Circuit Availability in SHQ - DHQ during Prime Business Hours (Prime Business Hours = 08:00 hrs to 20:00 hrs Mon. to Sat.)	99.5 %
Circuit Availability in DHQ - THQ/BHQ during Prime Business Hours	99%
Circuit Availability in SHQ - DHQ during Extended SLA Hours (Extended SLA Hours = 20:00 hrs to 08:00 hrs - Mon. to Sat. and 00:00 hrs to 23:59 hrs on Sunday)	95%
Circuit Availability in DHQ - THQ/BHQ during Extended SLA Hours	90%

Each of the indicators mentioned in the table above are detailed in the following section.

2.a. Circuit Availability

The critical consideration for the State government in defining the SLA for availability is the impact on overall cost of the solution. It should be noted that higher the SLA, the solution is essentially more expensive. While defining the SLA for availability, certain critical points need to be assessed by the State governments. In section 4 of this document, illustrative parameters to be evaluated for defining the network availability requirements have been indicated.

The SLA for availability shall be a minimum of 99%, which allows about seven hours of down time per month and maximum of 99.99 % which allows no down time in the network availability. For the circuits leased from the bandwidth provider, availability shall be measured on a calendar month basis. Circuit availability shall be measured distinctively in two segments i.e. SHQ -DHQ and DHQ-THQ/BHQ. The indicative parameters are as below:

S.No	Network Segment	Prime Business Hours (PBH)	Extended SLA Hours (ESH)
1	SHQ - DHQ	99.5 %	95 %
2	DHQ - THQ/BHQ	99%	90%

2.b. Committed Interface Rate (CIR)

The State Governments leasing the bandwidth for SWAN backbone from the Bandwidth Providers can have CIR as a SLA parameter, which defines the Committed Interface Rate for the connectivity offered by the Bandwidth Provider. This will be helpful in monitoring whether committed 2 Mbps or higher bandwidth is actually provided by the Service Provider. CIR shall be measured and monitored during the Peak Business Hours at regular intervals using Network Management System (NMS).

3. Service Management

SLA shall identify the contact nodal personnel for the Bandwidth Provider and their telephone/fax/email information for escalation of the network outage issues, which are in the purview of the Bandwidth Provider. Following defines the indicative Service Levels for Response and Resolution times to be adhered by the bandwidth provider in resolving the network outage issues.

S.No	Network Segment	Initial Response Time		Issue Resolution Time	
		PBH	ESH	PBH	ESH
1	SHQ - DHQ	15 Mins	30 Mins	1 Hr	2 Hr
2	DHQ - THQ	30 Mins	60 Mins	2 Hrs	4 Hrs

The escalation of network outage issues to the Bandwidth Provider and liasoning till issue resolution shall be the responsibility of the SWAN Operator and such escalations shall be performed only upon conclusion that the issue is related to the Bandwidth Provider and not with the equipment or any other materials/services deployed by the SWAN Operator. Please note that total response and resolution time is an aggregated outage time of two hours and fifteen minutes for SHQ-DHQ segment and four hours and thirty minutes for DHQ-THQ segment.

4. Parameters to be considered for evaluation of Network Availability Requirements

Following section details illustrative parameters for evaluation of network availability requirements for the State. Before the network availability and performance parameters are qualitatively defined in the SLA, a through consideration need to be given on the following points.

- i. **Current ICT Penetration in the State:** The usage of SWAN depends on the current usage of Information and Communication Technology (ICT) in the State government agencies and the future roadmap. The SLA framework can be based on sliding scale principle i.e. as the dependence on the SWAN increases the SLA requirements can be increased to meet the State's requirements.
- ii. **Application deployment model:** If the application architecture for most of the departments is based on a centralized architecture, it requires higher uptime in both SHQ-DHQ and DHQ-THQ/BHQ segments. If the applications are deployed in a decentralized mode, then higher network uptime is required in DHQ-THQ/BHQ segment than in SHQ-DHQ segment. Similarly, the placement of applications made available to the citizens through internet is another consideration while deciding on the network availability uptime requirements.
- iii. **Type of Transactions:** The applications designed based on batch transfers of data requires lesser network uptime than the online transaction based applications. Based on the type of the applications used by the State government departments, the flexibility can be incorporated into the SLA.
- iv. **Criticality of the Network Segment:** The SLA is also dependent on the criticality and utilization of the network segment. E.g. Outage in DHQ-THQ segment relatively has a lesser impact than outage in SHQ-DHQ segment.

Annexure 1: SWAN SLA Terms & Definitions

S.No	SLA Terms	Description
a	SWAN Backbone	'SWAN Backbone' refers to Internet Protocol (IP) based routing infrastructure consisting network of selected SWAN points of presence identified by the State at which, Vendor has installed network devices ("Selected POPs") for Wide Area Network within the State.
b	Uptime	'Uptime' refers to SWAN backbone availability across various segments i.e. between State Head Quarters to District Head Quarters and District Head Quarters to Taluk/Block Head Quarters. "%Uptime" means ratio of 'up time' (in minutes) in a month to Total time in the month (in minutes) multiplied by 100.
c	SHQ	SHQ refers to the PoP established at State Head Quarters (SHQ) where all the WAN circuits from District Head Quarters (DHQ)/Divisions are terminated.
d	DHQ	DHQ refers to the PoP established at District Head Quarters (DHQ) where all the WAN connections from Taluks/Blocks in the district and to the SHQ are terminated.
e	THQ/BHQ	THQ/BHQ refers to the PoP established at the Taluk or Block level and which also acts as an entry point for the Government agencies located in the Taluk/Block or village etc.
f	Prime Business Hours (PBH)	PBH refers to the prime network utilization period for SWAN, which shall be typically starting from 08:00 hrs till 20:00 hrs Monday to Saturday or any other period to be defined by the state.
g	Extended SLA Hours (ESH)	ESH refers to the lean network utilization period for SWAN, which shall be typically starting from 20:00 hrs till 08:00 hrs on Monday to Saturday and 00:00 hrs to 23:59 hrs on Sunday or any other period to be defined by the state.
h	Planned Network Outage	'Planned Network Outage' refers to unavailability of network services due to infrastructure maintenance activities such as configuration changes, up gradation or changes to any supporting infrastructure. Details related to such planned outage shall be agreed with the State

S.No	SLA Terms	Description
		government and shall be notified to the DHQ's, THQ/BHQ's and related Departments in advance (<i>at least five working days</i>).
i	Unplanned Network Outage	'Unplanned Network Outage' refers to an instance in which no traffic can pass in or out of the Selected POP through which Departments connects to the SWAN Backbone for more than 5 consecutive minutes.