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## **NOTICE INVITING TENDER**

### **ESTABLISHING NETWORK OPERATION CENTRE AT NIXI FOR ITS 75 NETWORK ELEMENTS**

#### **CRUCIAL DATE SHEET**

STAGES OF TENDER	ESTABLISHING NETWORK OPERATION CENTRE AT NIXI FOR ITS 75 NETWORK ELEMENTS
Bid Submission Start Date	04-05-2023
Pre Bid Meeting at NIXI Headquarters	10-05-2023 (3:00 P.M)
Bid Clarification	12-05-2023
Bid Submission Last Date	18-05-2023 (3.00 P.M.)
Opening of Technical Bid and evaluation	18-05-2023 (3.30 P.M.)

#### **Notes:**

1. Any tender received by the Employer after the deadline prescribed in submissiondate will be returned unopened to the Tenderer.
2. The suggestions received will be referred to the committee and will be incorporated if found justified after the approval of the Competent Authority.

## **TENDER AT A GLANCE**

<b>TITLE OF THE TENDER</b>	<b>ESTABLISHING NETWORK OPERATION CENTRE AT NIXI FOR ITS 75 NETWORK ELEMENTS</b>
<b>NATURE OF TENDER</b>	<b>OPEN TENDER FOR PUBLIC</b>
<b>SCOPE OF TENDER</b>	<b>DOMESTIC</b>
<b>MODE OF BIDDING</b>	<b>TWO BID SYSTEM</b>
<b>TYPES OF BID</b>	1) TECHNICAL BID 2) FINANCIAL BID
<b>EVALUATION CRITERIA</b>	<b>THE LOWEST BIDDER WILL BE CONSIDERED</b>
<b>TENDER FEES</b>	<b>Rs 10,000/- + GST</b>
<b>EARNEST MONEY DEPOSIT</b>	<b>Rs. 2,50,000/-</b>
<b>SECURITY DEPOSIT /PERFORMANCE BANK GUARANTEE</b>	<b>10% of value of PO</b>
<b>FREIGHT &amp; HANDLING</b>	<b>TO BE BORN BY THE VENDOR</b>
<b>WORK STATIONS VIDEO WALL</b>	<b>6 Nos. at DELHI &amp; 2 Nos. at BENGALURU NOT LESS THAN 70 INCHES</b>
<b>VALIDITY OF TENDER</b>	<b>180 DAYS FROM DATE OF OPENING OF TECHNICAL BID</b>
<b>IMPORTANT LINKS</b>	<b>ELIGIBILITY CRITERIA (Section 1.2) SCOPE OF WORK (Section 4 and 5) INSTRUCTIONS TO THE BIDDER (Section 6) PAYMENT TERMS/MILESTONE (Section 8) PENALTY CLAUSE (Section 6.9)</b>
<b>DESCRIPTION</b>	<b>NIXI/MM/NEW IXPs/NOC/2023</b>

# **C O N T E N T S**

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## **1.0 SECTION 1**

### **1.1 NOTICE INVITING TENDER**

Tenders are invited for setting up NoC for Network elements connecting switches in various parts of country.

The present location of switches and proposed expansion locations are given in annex

The Main NoC center is proposed to be set up in Statesman building head office of NIXI, located in ninth floor of a multistoried building located on Barakhambha Road , New Delhi.

The DR center is proposed to be located in a Data Center location in Bengaluru.

Space required of setup of Main and DR NoC shall be provided by NIXI. Vendors are advised to visit the locations and suggest for civil modifications, if any, required for setting up of equipment room and NoC center.

The civil work, as suggested by vendors shall be got done by NIXI.

Electrical supply ,3 phase, shall be provided by NIXI along with a MCB box with MCBs of requisite ratings. Cabling of electrical wiring to various equipment shall be done by vendors as per data center standards.

Air conditioning, fire detection system, CCTV monitoring etc are already available as part of building maintenance of NIXI office set up. However if any additional infra requirement is needed inside the NoC room,the same will be advised by the vendors at the pre bid stage. NIXI may decide to get it done internally or may order separately to get it done by the vendor.

Earthing for equipment is already available. How ever if the earth resistance needs improvement, separate earthing arrangements shall be done by the vendor.

For DR location at BENGALURU, the scope of work of the vendor shall be same as for main location at DELHI.

## 1.2 Eligibility Conditions for Bidder

SR. NO	MINIMUM ELIGIBILITY CRITERIA	SUPPORTING DOCUMENT
1	Legal Entity: The Bidder Company shall be registered & incorporated in India under the Companies Act, 1956 or 2013 as the case may be. In case of partnership firm, the firm should be registered under LLP Act 2008.	copy of Certificate of incorporation
2	Turnover: The Bidder shall have an average annual turnover of Rs.50 Crores in the last three financial years i.e. (2019-20, 2020-21, and 2021-22)	Copy of Annual turnover certificate and audited Profit & Loss statement duly certified by the chartered accountants (CA)/company auditors.
3	<b>Experience:</b> The bidder should have successfully completed EMS/NMS Projects of Any State or Central Government/PSU Organization during the last 10 years having completion of at least one project costing not less than Rs.03 Crores, consisting of at least 1000 Node Licenses.	Copy of work orders along with the work completion/ installation report for the same should be provided by the bidder.
4	Bidder also needs to have at least Three (03) supplies of EMS/NMS solutions to any of the Central Govt/State Govt/ PSU/ TSP/ ISP/ Enterprises.	Copy of work orders for the same should be provided by the bidder.
5	The bidder should have experience in implementation and maintenance of minimum three Network Operations Centre (NOC) or Integrated Command & Control Centre consisting of Smart Rack Data Center, Videowall, IBMS, Network, Security, Civil, Interior & Electrical in last 10 years. The minimum value of each work contract / project should not be less than INR 10 Crores.	Copy of work orders along with the work completion / installation report for the same should be provided by the bidder.

6	Bidder shall not have been blacklisted by any State Govt./Govt. Of India/ Central PSU/Any country in the last 5 years preceding from the date of issue of DNIT	Self-certified letter of undertaking to this effect on company's letter head signed by company's authorized signatory is to be submitted.
7	The bidder's company/firm shall have a valid PAN from Income Tax Department.	Copy of certificates
8	The bidder's company/firm shall have a following valid certifications: CMMi Level 5, ISO 9001:2015, ISO 27001 :2013, ISO 22301:2019 & ISO 20000-1:2018	Copy of certificate
9	The bidder's company/firm shall have a valid GST Registration. In case of multiple GSTIN registration number(s), all the numbers shall be provided in a separate Annexure.	Copy of certificate
10	Bidder shall not have been blacklisted by GST authorities. In case the supplier gets black- listed during the tenure of the contract, then supplier must indemnify NIXI to ensure that no loss of Input Tax credit is borne by NIXI due to a default of a supplier.	Bidder should submit an undertaking to this effect.
11	Bidder Should Have one or more Video wall based NOC/ICCC built for Minimum value of Rs 5 Crore.	Proof of document to be submitted

Note: Please enclose the proof in support of the above, failing which the tender will not be considered and summarily rejected.

<b>OEM Criteria</b>	
1	This NMS shall be integrated with existing network elements and/or their Element Management Systems (EMSs) in existing network to achieve an objective of single NMS for countrywide network, as per the requirement specified in this tender on turn-key basis
2	The proposed NMS needs to cater for the complete FCAPS functionality as per technical specs mentioned in the RFP

3	The NMS shall also be integrated with any new EMS's or switches/routers or any new element procured during warranty period
4	NMS and all its application proposed to be implemented through this contract shall be dual – stack and should be able to configure or manage any IPv4 or IPV6 compliant nodes
5	IPAM solution should have complete IP discovery, IP management with historical tracking

## **2.0 SECTION 2 – BIDDING SYSTEM**

### **2.1 Purchase of Tender Document**

Tender document can be obtained by downloading it from the website [www.nixi.in](http://www.nixi.in).

The bidders downloading the tender document are required to submit the tender fee amount, Rs. 10,000/- (Rs. Ten thousand only) through DD/ Banker's cheque along with their tender bid failing which the tender bid shall be left archived, unopened/ rejected. The DD/ banker's cheque shall be drawn from any Nationalized/ Scheduled Bank in favor of NIXI, New Delhi

### **2.2 Availability of Tender Document**

The tender document shall be available for downloading from 20-04-2023

**Note:** The Tender document shall not be available for download on its submission/ closing date.

### **2.3 Eligibility Criteria: -**

1. As mentioned in section 1.

### **2.4 Bid Validity**

The bids should be valid for a **period of 180 days** from the date of submission of bid.

### **2.5 Scheduled completion time**

Scheduled completion time

Total period of 90 days from the date of Purchase Order.

- pl refer details in section 8

### **2.6 Bid Security/EMD**

**1.1** The bidder shall furnish the bid EMD in one of the following ways:-

- (a) Demand Draft/ Banker's cheque/ Bank Guarantee drawn in favour of NIXI, New Delhi for an **amount Rs. 2,50,000/- (Rs. Two Lakh fifty thousand only )**



- b) Bank Guarantee from a scheduled bank drawn in favour of NIXI, New Delhi

**Bid Validity ; EMD should be valid for 210 Days (i.e. one month above the offer validity period) from the bid submission date.**

## **2.7 Date & Time of Submission of Tender bids**

**Date & Time of Submission of Tender bids:** on or before 02-05-2023 (3:00 P.M)

Note : In case the date of submission (opening) of bid is declared to be a holiday, the date of submission (opening) of bid will get shifted automatically to next working day at the same scheduled time. Any change in bid opening date due to any other unavoidable reason will be intimated to all the bidders separately.

## **2.8 Opening of Tender Bids**

**Opening of Tender Bids(Technical):** At 3:30 P.M on 18-05-2023.

## **2.9 Place of opening of Tender bids**

**Place of opening of Tender bids:** NIXI Office.

3.0 In case of any query, you may contact **Shri Soumen Bhowmik – Assistant Manager (Technical)** on Phone Number **+91-11-48202000** or through his e-mail, [soumen@nixi.in](mailto:soumen@nixi.in) before the last date.

## **3.0 NIXI OVERVIEW**

This section contains the details about the role and responsibilities of NIXI. This information will be used full for bidders to understand the requirement of system to be developed.

### **3.1 About NIXI**

The National Internet Exchange of India (hereinafter referred to as 'NIXI' or 'Purchaser') is a Not-for-Profit Company registered under Section 25 of the Indian Companies Act, 1956 (now Section 8 under Companies Act, 2013) with the primary objective of facilitating improved Internet services in the country. The members of the Board comprise of distinguished academicians drawn from Ministry of Electronics and Information Technology (MeitY), Indian Institute of Technology, Internet Service Providers Association of India (ISPAI) and other peering Internet Service Providers (ISPs). Under NIXI, the .IN registry functions as an autonomous body with primary responsibility for maintenance of country code Top Level Domains ('ccTLDs')

The key objectives of NIXI include:

- Facilitate handing over of domestic Internet traffic between the peering ISP & CDN members to enable more efficient use of international bandwidth and save foreign exchange
- Improves the Quality of Services for the customers of member ISPs & CDNs, by being able to avoid multiple international hops and thus lowering delays
- To increase the popularity and viability of the .IN domain & .Bharat and increase the involvement of the registry in technical operations
- Create a large network of registrars and thereby create a greater revenue stream, and allow consumer choice, by establishing low membership fees and by providing guidelines and operating procedures that require only limited technical knowledge on the part of registrars
- Create a competitive registrar infrastructure which shall foster the survival of registrars who provide the highest level of customer service at the lowest cost
- To create an effective structure for the special and important projects such as launch of new gTLDs or launch of new domain options such as trade .IN or event .IN etc.

### **3.2 Key Functions of NIXI**

#### **3.2.1 Internet Exchange**

- NIXI is the neutral meeting point of the ISPs & CDNs in India. Its main purpose is to facilitate exchange of domestic Internet traffic between the peering ISP & CDN

members. This enables more efficient use of international bandwidth, saving foreign exchange. It also improves the Quality of Services for the customers of member ISPs & CDNs, by avoiding multiple international hops and thus reducing latency.

- Internet Nodes are functional at Tier-1 & Tier-2 cities i.e. Delhi (Noida), Mumbai, GPX Mumbai, Chennai, Kolkata, Hyderabad, Bengaluru etc.
- Internet nodes have ensured peering of ISPs and CDNs among themselves for routing domestic Internet traffic within India, resulting in better quality of service (reduced latency, reduced bandwidth charges for ISPs & CDNs) saving on international bandwidth

### **3.2.2 .IN Registry**

- Under NIXI, the .IN Registry functions as an autonomous body with primary responsibility for maintaining the .IN & .Bharat (IDN) Country code top level domain (ccTLD) and ensuring its operational stability, reliability, and security
- .IN Registry functions with primary responsibility for managing Country Code Top Level Domains (ccTLDs)
- It has helped in proliferation of web hosting and promotion of Internet usage in the country

### **3.2.3 National Internet Registry (NIR)**

- Coordinates Internet Protocol address space (IPv4, IPv6 & ASN allocations and other Internet resource management functions at a national level with in the country. Earlier NIR was recognized by APNIC (Asia Pacific Network Information Centre) which is a Regional Internet Registry
- Bharat IDN in Indian Languages
- भारत domain name in Devanagari script was successfully launched on 27<sup>th</sup> August 2014. The Devanagari script covers Hindi, Dogri, Bodo, Konkani, Maithili, Marathi, Nepali and Sindhi Language.

This will increase the penetration of the Internet through use of local languages and local content.

The availability of .Bharat IDN in Gujarati, Bengali, Manipuri in Bengali script, Punjabi, Tamil, Telugu & Urdu languages started from 3rd August, 2015.

Now all the remaining Indian languages i.e. Assamese, Kannada, Oriya, Malayalam, Santali, Sanskrit, Sindhi, Kashmiri is available for registration.

- Increase the penetration of Internet through use of local languages and local content

## **4.0 SECTION 4 SCOPE OF WORK**

Content in this section describes scope of work for which this tender has been invited.

- (A) The successful bidder selected through present bidding process will be responsible to design, supply, install, commission and maintain the NoC for NIXI. The successful bidder will also deploy requisite manpower as indicated in the bid document.
- (B) Post commissioning of the new system, the bidder will import all existing network elements from existing set up, to this NoC setup system. time lines of events are described in section 8 of the document.
- (C) After commissioning of the system and after complete migration of the network elements to new setup, the bidder will continue to maintain all operations and maintenance for a period of two year.
- (D) After a period of two-year, all the operational activities will be required to be transferred to NIXI, but all maintenance activities will continue with the bidder for a period of seven (7) years from the date of completion of migration of network . This will continue in form of warranty for a period of initial period of two year and thereafter in form of AMC support for next 5 (five ) years on payment of AMC charges by NIXI to bidder
- (E) The maintenance of the network and the system will remain with the bidder for a total period of 7 (seven) years including two-year of initial operation and maintenance. The time period for this handover activity after completion of two-year period will be decided mutually between NIXI and the bidder.

Details below describe the functional requirement of NIXI. The functionality indicated below are minimum required & may increase depending upon reports to be generated from the systems, increase in network elements.

### **4.1 SCOPE - GENERAL REQUIREMENT**

The Scope of work shall include but not limited to the following activities:

The vendor has to deploy specialized network team onsite to manage the network using the Network Management Tools. The onsite team has to manage the Network Operation Centre ensuring high uptime as per the SLA's defined in the RFP.

### **4.2 Design Consideration of IT Infrastructure:**

While designing the solution of IT infrastructure, bidder has to assess the current and future demand of project. Bidder has to consider major components such as servers, storage, backup solution, networking components, logical security components, NMS/EMS solution, Virtualization and software licenses as a part of the solution.

Setup of Modular Data Centre and NOC at NIXI DC and DR at Bengaluru

NIXI intends to Setup a Smart Row Solution for a period of 2 year warranty and 5 year AMC at DC and DR.

### **4.3 Civil Work Interior Work**

Following are the key design considerations for NIXI -NOC.

- Approx. 500/ 600 sq. ft. of total space has been allocated for NIXI-NOC Server farm
- Approx. 150/200 sq. ft. space has been allocated for housing UPS , Battery, servers and switches for NoC.
- Approx area of about 700/800 sq feet shall be made available in NIXI office for set up of Main NoC

Detail Layout will be chosen from best solution provided by the bidders and freeze during Implementation period. The bidder will make a survey of the site, at their own cost, before bid submission and the actual civil layout submitted by the bidder will be finalized in discussions with all the stakeholders.

The scope shall comprise the design, supply, construction and testing of the proposed NIXI-NOC including all enabling works. All Works shall be carried out as per the proposed design and specifications and in accordance with the requirements of all relevant Indian standard codes.

Bidder to propose their solution by assessing the project requirement and should supply adequate Non-IT & IT-Infrastructure (Server, Storage to implement NMS and other management solution).

### **4.4 Design Consideration of Non-IT Infrastructure**

NIXI-NOC shall be built with Server Area, NOC, UPS and Battery Room, etc. At the time of interior design (civil) and construction face, best standards for building NOC shall be following work:

#### **4.4.1 Interior Work by NIXI**

- Civil & Interior Works Wall Partition, Doors, painting, Partition, False floor, Raised Floor, False ceiling, proofing, Insulation etc.
- Electrical System Work (Including electrical panel, Earthing, NOC internal electrical wiring, DB, Switchgears, Lighting & fixtures, etc for all NOC Areas, DC Areas, and UPS \* Electrical Room)
- Comfort Air Conditioning for the NOC, BMS and Electrical Room.
- Fire Detection System
- Water Leak Detection System
- Access Control System
- CCTV System
- Rodent Repellent System
- Fire extinguisher Solution
- Building Management Solution

#### **4.4.2 Provided by Bidder**

- Video Wall (3x2) Solution
- Structured cabling
- Smart Rack Solution
- UPS with VRLA battery for minimum 30 Min Backup on full load for the Video wall, NOC Operational Workstation

The bidder has to prepare a design diagram of the room where the Smart Row Solution will be installed and submit the same along with the bid. The design should be optimal and economical and accommodate as many as server racks/Network rack. However minimum 1 numbers of server rack (42 U) and 1 number of network racks need to be accommodated within the Solution besides other components required for Data Centre. such as Precision A/C, UPS System, Fire Management System, Humidity control system, Access Control system etc. The major components like UPS, Precision AC and Rack PDU should be from a single OEM for better management and maintenance.

- Basic Layout of the room and Server Farm enclosure
- UPS System details
- Cabling Layout for the room and Portable Server Farm Area
- Other drawings as required by the NIXI from time to time.

Bidders are advised to inspect the space proposed for Main NoC at s Delhi and DR Centre at Bengaluru. Accordingly, proposal shall be submitted by bidders for civil and interior modification to be done in the space provided by NIXI for setting up the NoC.

NIXI may decide to get it done from its own internal resources or from bidders. The decision of NIXI for all civil and interior work shall be final.

Accordingly, bidders are advised to submit civil and interior modification suggestions as part of bid document.

#### **4.5 Cabling Work**

The bidder has to do all the electrical wiring inside the room and Portable Server Farm using certified best materials available to ensure that no short circuit happens at any point of time. The bidder has to provide wiring from each rack to the power distribution points of UPS of 10KVA. Proper insulation should be made so that electrical signal should not interfere with others. The electrical wiring should be such that additional power point should be made available for each rack keeping in view the average load factor in the rack as 10KVA for Server Rack and 10KVA for Network Rack.

The electrical cabling Work shall include the following:

- Power cabling for Rack and Workstation
- UPS point wiring
- Power Cabling for Videowall.
- Online UPS
- Separate Earth Pits for the component (Server Firm, UPS, etc.)( **if required** )

The distribution of power from the UPS room to

- Final Distribution shall be through Power Distributions Units (PDU)/MCB Distribution Boxes.

#### **4.6 Specifications for Electrical Cabling**

Fire retardant cables of rated capacity exceeding the power requirement of fully blown configuration of the existing and proposed component to be used. For expansion needs suitable redundant power points to be provided at suitable locations. All materials used shall conform to IS standards as per industry practice.

##### **4.6.1 Bunching of Wires**

Wires carrying current shall be so bunched in the conduit that the outgoing and return wires are drawn into the same conduit. Wires originating from two different phases shall not be run in the same conduit.

##### **4.6.2 Drawing of Conductors**

The drawing Aluminum / Copper conductor wires shall be executed with due regards to the following precautions while drawing insulated wires in to conduits. Care shall be taken to avoid scratches and kinks, which cause breakages.

##### **4.6.3 Color Code of the Conductors**

Color code shall be maintained for the entire wiring installation, “

##### **4.6.4 Fixing of the Conduits**

Conduits junction boxes shall be kept in position and proper holdfasts shall be provided. Conduits shall be so arranged as to facilitate easy drawing of the wires through them. Adequate junction boxes of approved shape & size shall be provided. All conduits shall be installed so as to avoid stream and hot water pipes. After conduits, junction boxes, outlet boxes & switch boxes are installed in position their outlets shall be properly plugged so that water, mortar, insects or any other foreign matter does not enter into conduit system. Conduits shall be laid in a neat and organize manner as directed and approved by NIXI or person on their behalf. Conductors shall be planned so as not to conflict with any other service pipe lines / ducts.

##### **4.6.5 Switch**

Outlet Boxes and Junction Boxes – All boxes shall conform to all prevailing Indian Standards. The cover plates shall be of best quality Hylam sheets or ISI grade Urea Formaldehyde Thermosetting insulating material, which should be mechanically strong and fire retardant. Proper support shall be provided to the outer boxes to fix the cover plates of switches as required. Separate screwed earth terminals shall be provided inside the box for earthing purpose.

##### **4.6.6 Inspection Boxes**

Rust proof inspection boxes of required size having smooth external and internal Finish shall be provided to permit periodical inspection and to facilitate removal and replacement of wires when required.

#### 4.7 Tentative Bill of Materials for NIXI –NOC at DC & DR

SN	TYPE OF COMPONENT	MAIN DC	DR SITE	Unit	Total Qty
1	Electrical Cabling for Rack and Utilities	1	1	Lot	2
2	NMS as per Tender				
	Software (75 NE licenses)	1	1	Lot	2
	Server	1	1	Lot	2
3	Enterprise Reports (Log Analytics)				
	Software	1	1	Lot	2
	Server	1	1	Lot	2
4	HELPDESK (docket/TT)				
	Software	1	1	Lot	2
	Server	1	1	Lot	2
5	WORKSTATIONS	6	2	Nos	8
5	Workstation Printers	2	1	Nos	3
7	LARGE SCREEN VIDEO WALL DISPLAY (not less than 70")	1	1	Nos	2
8	STORAGE INFRASTRUCTURE and devices (Min 30TB) (in RAID05)	1	1	Nos	2
9	TAPE LIBRARY	1			1
10	SAN SWITCHES WITH HIGH AVAILABILITY (1+1)	1	1	Lot	2
11	L3 SWITCH	2	1	Lot	2
12	DISASTER RECOVERY SOLUTION	1	1	Lot	2
13	VIRTUALISATION FOR SERVER	1	1	Lot	2



14	UPS 10 KVA (N+N)	1	1	Lot	2
15	Smart Rack Solution	1	1	Lot	2
16	Structured Cabling	1	1	Lot	2
16	INSTALLATION& COMMISSIONING INCLUDING INTEGRATION WITH EXISTING EMSs/nodes	1	1	Lot	2
17	Operational and maintenance (two years)	1	1	Lot	2
18	DOCUMENTATION (in English)	2	1	Lot	3
19	Training (4man months)	1		Lot	1

## 4.8 MINIMUM TECHNICAL SPECIFICATIONS

### 4.8.1 Network Management System - Functional requirement

SN	NMS
I	The NMS shall provide a complete view of the health of the entire NIXIE network from NOC. The NMS shall be able to do complete FCAPS functionality.
II	The main objectives of NMS shall be:
1	Scalable and Modular unified NMS system to be implemented with a cross domain, cross technology and cross vendor flexibility.
2	Seamless Interconnection and / or switchover between the NOC and DR-NOC systems and the network elements across various geographies across the country.
3	Fully functional events and alarms management including correlation implementation for all type of events/alarms (cross domain, cross technology, cross vendor).
4	NMS should be able to display alarms on video wall with its categorization (critical, major, minor), its different color, its count. Provision should be done for the beep/sound in case of any urgent alarms.
5	Each node should be mapped on the NMS with its presentation icon and unique IP address. Map view shall provide network representation over Geo maps. Event information of Network Elements shall be available directly from map view for drill down, sorting, filtering and inventory layered view purposes. It shall show associated devices details,

	current alarms, device status, and drill down to micro level events, alerts, and dashboard directly from map view.
6	Alarm dashboard should provide complete details of the alarm with probable root cause. Also, user / client should be able to login to the corresponding network element (GUI or telnet) from the tool. Device view should display the OEM name, device name and number for easy recognition of the device and then its login. RBAC should be available in tool to create different kind of users with different privilege access to the tool.
7	The Alarm dashboard should also give link option to the KeDB(Known error Database) to see. This would facilitate the user to understand and rectify the fault.
8	It should be possible to do full system configurations remotely from NoC / DR-NoC client wither through GUI base system or secured telnet. NMS system should keep minimum last 2 configurations of each element stored in its database.
9	There should be provision to separately monitor some critical links / ports / nodes and should be monitored on separate window. NMS shall be scalable for a comprehensive, distributed networking solution and have flexibility to manage mission-critical systems and provide rapid problem solution.
10	Remote debug of the issue and its resolution, as possible.
11	It shall do a Proactive network and systems monitoring. With 24-hour-a-day, 7-day-a-week monitoring, one can identify and solve network resource problems before they occur, which results in reducing down time. Few examples are reducing optical power, SFP reaching EoL and hence degraded in performance, bit errors, threshold crossing alarms, high resource usage etc. Fault monitoring module shall have out-of-box capability to perform predictive analysis and generate events that represent predictions for systems that are in danger of an impending threshold violation, and which require attention.
12	Fault Monitoring module shall be able to filter out events from device / infrastructure marked under maintenance. It shall have a GUI to define maintenance schedule.
13	Fault monitoring is one of the most critical components of the requirements, it shall have inbuilt failover/redundancy mechanism right from the processing engine down to collection layer.
14	Complete inventory management not limited to product OEM name, model number, serial number, OS, software/firmware, total equipped ports and their current utilization, PO order details (invoice, date, vendor name etc.) and warranty/AMC details. NMS should send event/alarm prior to the expiry date of warranty / AMC of any product. Date/duration should be user configurable, and it should be possible to send reminder as well at user configurable duration.

15	It shall provide a flexible discovery engine with built in discovery capabilities. At the same time it shall also have the capability to integrate with a variety of technologies like Active Directory, RADIUS & TACACS. The proposed solution shall provide the flexibility such that depending on operational needs, user can schedule to perform a full discovery once every week, complete a discovery of a network once every day, and so on. The discovery schedule could be set up to repeat at certain intervals or to run once.
16	The polling time for inventory, fault & performance data should be configurable as per the requirement starting from 1 minute.
17	Performance Management (PM) system collecting relevant network key performance indicators (KPIs) not limited to 5minutes, 15minutes and 24hrs port utilization reports, with values of current, average and peak utilization during that duration, and its alarm if the utilization reaches above the user defined threshold. The same also needs to be reported at node level for its CPU processor load, memory load, OS crashing, memory files, database parameters and any other critical parameters like MAC and / or routes reaching to the limit. The reports should be customizable to include latency, threshold violations, packet errors, availability, bandwidth utilization, resource utilization, response time, Jitter, loss ratio, down time, failure frequency, mean time to repair, mean time between failures, error statistics and other. The user should be pick and drag any field to customize its report.
18	It shall be able to generate event-level, performance-level and service-level reports grouped by specific data fields such as time period, location, customer, service type, device type etc.
19	Reports should show the trend in port/node/link usage basis time, location, customer, service and device type etc.. This would help in planning and future purchases.
20	The proposed NMS shall be able to provide Log File Monitoring which enables administrator to watch system logs and text log files by specifying messages to watch for. When matching messages gets logged, the proposed tool shall notify administrators and enable to take action like sending an email. User should be able to run the same at “n” number of nodes.
21	Secured access to all network elements. The NMS should provide Authentication & Authorization profiles to access any network elements. The access and its rights of any user should be defined by NMS security management system. All components shall have fully authenticated operator access security system with log-ins supporting multiple operator levels and groups.
22	All operational logs done by NMS clients are to be kept with their name, IP address, terminal detail, along with date and time. this needs to be stored for one year in RAID05 configuration. Bidder to propose storage accordingly. If required, then logs can be copied on external HDD, proposed system needs to support the same.

23	NMS system should get operational logs from all network elements on daily basis and store in storage for future references. Bidder to propose the strategy for the same to get operational logs.
24	The system should have an integrated 11 process ITILv3 certified ITSM tool from the same OEM. It should be possible to use the service management features like Incident Logging, Viewing, Assignment, Escalation, Reporting, SLA Management etc. in the Service Manager tool GUI. The integration should be bi-directional in nature.
25	In case of critical alarm (any alarm criticality should be user configurable), it should automatically send Email and SMS to the pre-defined email and phone number of the OEM. The system should support automatic escalation to next level if the ticket is not closed as pre-defined SLA. Fault monitoring module shall be able to notify the responsible technician via e-mail and SMS. If required, it shall further escalate the event up the chain of responsibility based upon definable rules through a graphical user interface (GUI).
26	History of all alarms to be kept for one year period and it should be possible to mask or acknowledge the alarm, so that it didn't beep or keep showing on the current alarm list. There should be another view for the acknowledged or mask alarm. This is done so that client / operator didn't get disturb if the work has already started to rectify the alarm. Once the alarm is cleared, it should move to history logs. If the alarm comes again then it should be shown as normal other alarms in active window.
27	Path optimization for the congestion and failures. NMS should have end to end topology with multiple filter option and mouse over troubleshoot option
28	NMS client should be able to define BoD (bandwidth on demand) basis end user request. This is needed to increase BW availability on request. This would also means the routing of the content from spare capacity or ports. Basis the intelligence provided by the NMS, the client should be able to redefine "end to end" link from CDN to end user with increased and defined BW as to be provided.
29	NMS should have provision to keep 12 months data records.
30	Proposed Video wall with NMS should display all the alarms of all elements. Bidder to propose the best solution so that no critical alarm of any element is missed to display on the wall. It can have PIP (picture in picture) type solution where 2 displays are fixed with first display/screen showing the total count of critical alarms, major alarms, minor alarms & warning in the network, and second screen showing the KPI reports in graphical format (user defined like bar chart, or pie chart, or circles etc. The rest of the PIP screen shows different actual alarms of different elements basis the OEM. The display screens should be user configurable. The display size should not be less than 70" with display capabilities of 8K video. The client sitting at 15feet should also be able to properly see it from all sitting angles.

31	The proposed helpdesk tool should support Web based access. Bidder should also provide Mobile app for OS viz iOS, Android, so that they can work remotely on their mobile and / or using their laptop/desktop. Proposed solution shall provide mobile alarm/event viewer that enables the mobile and remote operations staff through enhanced event management content to mobile devices.
32	Helpdesk tool shall provide Mobile based Apps on Android and iOS to connect the field staff to central NMS, reducing load on the NOC and faster response time. The Ticketing module to automate the Ticket Management, Repair tasks and improve MTTR, real time location and live logging of the site condition across all network and technologies with the following features:
33	Scheduling & dispatch of Tickets/Jobs for field staff with site details. Onsite resolution details to be filled in app based forms with time stamping.
34	Pushing real time alerts, events and key parameters to the field staff on mobile based apps.
35	Opening & Closing of Faults Dockets (raised by ticketing system) as per jobs completed by the field staff.
36	Management Dashboards to generate high level reports based on the information collected from the field and high-level management reporting with respect to field staff.
37	Customizable dashboards for visualization of tickets for better operational picture.

#### 4.8.2 Non- IT Infrastructure Technical Specifications

All the specifications and requirement mentioned below are indicative and bidder may propose their own design and architect for the NIXI -NOC site at DC and DR.

#### 4.8.3 SMART RACK at DC & DR

Technical Specification for Integrated Smart Rack Data Center Infrastructure – 2 Racks	
<p>NIXI would like to install and deploy Modular infrastructure which shall be able to host critical IT technology hardware to run the application. It should be designed in a way that it offers scalability over a period. The design should consider redundancy, scalability, and maintainability. To meet above requirements, NIXI wishes to deploy Integrated Smart Rack Data Center Infrastructure/ Intelligent Racks which should deliver the following features and benefits. These specifications describe requirements for a fully integrated and intelligent Data centre. The system will be designed to provide precision cooling, Uninterruptible Power System (UPS), Remote Monitoring solution with Biometric Access control for Security and Novec 1230 Fire Suppression system for critical IT components inside the rack</p>	
S. No	Description of Requirements

<b>1</b>	<b>Scope of Work</b>
1.1	This specification covers intelligent integrated/inbuilt infrastructure, standalone system design, engineering, manufacture, assembly, testing at manufacturer's works, supply, delivery at site, unloading, handling, proper storage at site, erection, testing and commissioning at site of complete infrastructure for the proposed Data Centre to be installed at NIXI DC & DR, as detailed in the specification, complete with all accessories required for efficient and trouble-free operations
1.2	Modular and scalable design for power and cooling: The critical components used to design the system should be redundant and in the Events of failure the components can be maintained easily. All the components of the infrastructure should be such that it can be easily dismantled and relocated to different location.
<b>2</b>	<b>Requirements</b>
2.1	Intelligent Integrated Smart Rack DC Infrastructure with inbuilt Cooling, fire detection and suppression, monitoring, power management and protections.Two racks Shall cater IT load up to 20kVA.
2.2	Intelligent Integrated Smart Rack DC Infrastructure essentially should have redundant architecture of UPS, PDU, & HVAC etc..
2.3	The detail specifications of the intelligent integrated/inbuilt infrastructure, standalone system shall be in adherence to standard Data Centre guidelines thus shall be composed of multiple active power and cooling distribution paths, but only one path active. Shall have redundant components.
<b>3</b>	<b>The Intelligent integrated Smart Rack DC Infrastructure shall have following components:</b>
3.1	<b>In-Row closed loop Air-Conditioning</b>
3.1.1	Data centre server and network racks should be equipped with In-row Variable capacity / digital scroll cooling units to provide closed loop precision cooling system which should be able to cool the equipment's uniformly right from 1 <sup>st</sup> U to 42 <sup>nd</sup> U of Rack

3.1.2	<p>Precision Air Conditioner should have following Features:</p> <ul style="list-style-type: none"> <li>• The compressor should achieve the capacity modulation by adjusting the vertical/Horizontal positioning of the orbital scroll with respect to the fixed scroll inside the compressor. By varying the time of “loaded state” and “unloaded state” of the scroll element, the required capacity should be obtained.</li> <li>• Inbuilt Heater and Humidifier</li> <li>• Outdoor Unit with fan speed controller</li> <li>• Microprocessor Controller should have capacity to log status report of the latest 400 event-messages of the unit.</li> </ul>
3.2	<b>UPS System</b>
3.2.1	<p>UPS should be of 20 kVA in N+ N topology, rack mountable with unity pf and efficiency up to 96.2%</p> <p>Other features of UPS system are as follows:</p> <ul style="list-style-type: none"> <li>• True On-line UPS with Widest input range</li> <li>• Double conversion and IGBT technology: Full IGBT Rectifier /Battery Charger and IGBT based Inverter</li> <li>• Facility for remote monitoring N+N redundancy should be provided.</li> </ul>
3.3	<b>Power Distribution</b>
3.3.1	Rack PDU (Vertical) - with 24 sockets (18 IEC C13 & 6 IEC C19) with 32A, MCB, RAL 9005 (each rack is having two PDU's).
3.4	<b>Main Electrical Panel and Cabling</b>
3.4.1	DB panel should be mounted on to utility rack with all internal cabling integrated into the same. Essential MCB/MCCB should be provided with electrical system. All the PDUs inside all racks should be connected by the UPS. DB panel mounted on Utility rack shall be covered with Novec 1230 Gas based fire suppression system.
3.5	<b>Fire Detection and Suppression</b>
3.5.1	Fire detection and suppression system: Fire detection and suppression system should be mounted in panel adjacent to Smart Racks to avoid consumption of any usable U space an In-rack built-in feature of solution. It should have Fire alarm and fire suppression unit and the fire suppression agent should be NOVEC 1230 Gas as per NFPA 2001 guidelines.
3.6	<b>Environmental Controls</b>

3.6.1	Each set of intelligent rack should include basic environmental controls: <ul style="list-style-type: none"> <li>•Smoke Detector</li> <li>•Water Leak Detection system</li> <li>• Temperature and Humidity Sensors for measuring Temperature at both front &amp; rear of the rack , while the Middle should have Humidity measurement sensor.</li> <li>•Door Sensor</li> <li>• Alarm beacon</li> </ul>
3.7	<b>U Space</b>
3.7.1	Intelligent racks should have Min 76 U usable space for IT equipment's and network equipment & with rack mounted UPS & external battery bank.
3.7.2	<b>Racks</b>
	42 U racks of dimension 600 mm x 1000 mm, 02 numbers with integrated hot & cold aisle containment of minimum 400 mm each. Both Hot & Cold aisle containment should be part of the rack frame.
3.8	Blanking Panels: 70 %
3.9	<b>Monitoring</b>
3.9.1	The Integrated Smart Rack Solution should have IP based monitoring facility of all the passive parameters inside racks.
3.9.2	Capable for Email Alerts
3.9.3	Monitoring unit should occupy maximum 1 U space of rack height & should support dual power input.
3.1	<b>Other features:</b>
3.10.1	The Intelligent integrated infrastructure would provide much functionality and some of the key functionalities are – Both Cold aisle & hot aisle containment, , remote Management.
3.10.2	Rack based Biometric access control system provided should be controlled by common access control panel with control for both front as well as rear doors. IP based Access control with user exclusive authentication
3.10.3	Critical Component's for Integrated Smart Rack DC solution i.e., Rack, rack PDU, Cooling, UPS and monitoring system along temperature & humidity sensors, should be from same & single OEM for Seamless Integration & better Service Supports



3.10.4	Electrical Distribution board within Utility Cabinet to have fire detection & Novec Based Fire Suppression system
3.10.5	Status based LED Lights within Smart Racks
3.10.6	9inch touch screen HMI – Graphical User Interface display should be mounted on the Integrated smart rack solution for local monitoring.
3.10.7	Single Source Electrical Panel with Energy Meter compatible to HMI for Power Usage Monitoring.

Detailed Specification of Components	
3.11	<b>Uninterrupted Power Supply (UPS) System</b>
3.11.1	<b>General Description:</b>
	Supply, install, test and commissioning of true online, double conversion, high efficiency, and high-power factor Uninterruptible Power Systems (UPS) rated at 2 x 20 KVA with battery backup support for combined 10 minutes on full load. UPS shall be rack mounted ( $\leq 3U$ ) & The backup batteries should be supplied with the necessary arrangements to mount inside the cabinet.
3.11.2	Configuration: 2 x 20kVA (N+N Redundancy)
3.11.3	<b>Scope</b>
a.	The scope shall include design, supply, installation, testing and commissioning of the complete UPS system and related accessories including:
	· All Server racks will get power feed from two independent 20 KVA UPS systems to ensure redundancy.
	· All systems should be tested in factory as per the manufactures recommended procedure for all operating parameters and the test results should be provided during the installation.
	· Delivery at site, unloading, handling, installation of complete system including interconnection from the UPS system to batteries and to input / output panels switches. All interconnections shall be done using multi-strand Flexible Copper conductor cables of appropriate sizes.
	· Scope includes battery bank connections and providing safety barriers for all bus bars and cable connection leads on battery racks.

	<ul style="list-style-type: none"> <li>· Energizing of UPS and Battery bank commissioning.</li> </ul>
	<ul style="list-style-type: none"> <li>· UPS control parameters setting and complete testing of system on load.</li> </ul>
	<ul style="list-style-type: none"> <li>· Service backup by engineer till system is fully operational and subsequently training is to be provided to the concerned persons.</li> </ul>
	<ul style="list-style-type: none"> <li>· Any upgrade of the system hardware and associated other software during the warranty period should be supplied at free of charge.</li> </ul>
	<ul style="list-style-type: none"> <li>· Acceptance tests will be carried out after installation and the systems will be taken over only after successful completion of the acceptance tests.</li> </ul>
	<ul style="list-style-type: none"> <li>· Operation and service manuals of the systems containing technical / Electronic drawings / circuit diagrams complete in all respects should be supplied.</li> </ul>
b.	<b>Specification / features of the UPS system is as follows:</b>
	<ul style="list-style-type: none"> <li>· Widest input range.</li> </ul>
	<ul style="list-style-type: none"> <li>· Double conversion and IGBT technology.</li> </ul>
	<ul style="list-style-type: none"> <li>· Full IGBT Rectifier / Battery charger</li> </ul>
	<ul style="list-style-type: none"> <li>· IGBT based Inverter</li> </ul>
	<ul style="list-style-type: none"> <li>· Batteries to support combined 10minutes full load backup.</li> </ul>
	<ul style="list-style-type: none"> <li>· Power distribution panels</li> </ul>
	<ul style="list-style-type: none"> <li>· Facility for remote viewing</li> </ul>
	Easy to expand in a cost effective way
6.	<b>UPS other technical specification</b>
1	<b>General</b>
-	UPS type- ON-LINE
-	Model Name- Bidder to Specify
-	Rating (VA/W)- 20,000 VA / 20,000 W
-	Make- Bidder to Specify-

-	Technology- IGBT with PWM Switching
-	Crest Factor- 3:1
-	Double Conversion efficiency- 96.2%
-	Eco mode efficiency- 99 %
2	<b>Input</b>
-	Rated voltage - 380Vac/400Vac/415Vac
-	Voltage range (V)- 305-477
-	Rated frequency - 50Hz/60Hz
-	Frequency range - 40Hz ~ 70Hz
-	Power factor - $\geq 0.99$ , at full load; $\geq 0.98$ , at half load
3	<b>Output</b>
-	Rated power- 20kW
-	Voltage - 220Vac/230Vac/240Vac (single phase output), 380Vac/400Vac/415Vac (three phase output)
-	Frequency synchronization range - Rated frequency $\pm 3$ Hz. Configurable range: $\pm 0.5$ Hz ~ $\pm 5$ Hz
-	Frequency track rate -0.5Hz/s. Configurable range: 0.2/0.5/1Hz/s (single UPS), 0.2Hz/s (parallel system)
-	Rated power factor -1
-	Crest factor -3:1
-	Voltage harmonic distortion- < 2% (linear load); < 5% (non-linear load)
-	Dynamic response recovery time -40ms
-	Overload capacity - At 25°C: 105% ~ 125%, 5min; 125% ~ 150%, 1min; 150%, 200ms
-	Bypass voltage - Upper limit: +10%, +15% or +20%; default: +20% Lower limit: -10%, -20%, -30% or -40%; default: -40%

4	<b>Battery Parameters</b>
-	Type- Sealed, lead-acid, maintenance-free battery
-	No. of cells- 24 ~ 40, 32 by default
-	Rated voltage - 288Vdc ~ 480Vdc
-	Charge current- $\leq 13A$
5	<b>Transfer time</b>
-	Mains $\leftrightarrow$ Battery -0ms
-	Inverter $\leftrightarrow$ Bypass - Synchronous transfer: $\leq 0ms$ Asynchronous transfer (default): $\leq 20ms$
6	<b>Noise - &lt; 58dB</b>
7	<b>Display-</b>
	Panel display mode - Colorful LCD (Graphical gravity sense display)
8	<b>Conformity &amp; Standards</b>
-	Safety- IEC/EN62040-1-1
-	Electromagnetic Compatibility- Conduction emission: IEC/EN62040-2 , Harmonic current : IEC/EN61000-3-12
-	Surge Protection- IEC/EN-61000-4-5, endurance level 4 (4kV) (live line to earth), level 3 (2kV) (during live lines); ANSI C62.41, 6kV/20hms
9	<b>Protection level - IP20</b>
10	<b>Certification - RoHS certified, Energy Star Certified</b>
11	<b>Communication and Management</b>
	Interface Type- USB/Intelligent Slot ( Dry Contact Card/SIC Card/Modbus Card/RS485 Card)
	SNMP card- Integrated in UPS
3.12	<b>In row Precision Air Conditioning System in N+N redundancy</b>

3.12.1	<b>Configuration</b>
-	Supply, installation, testing and commissioning of DX Type Air-conditioning units designed specifically for high sensible heat ratio with variable capacity cooling technique to match the low latent loads of systems to be installed in the integrated cabinet for effective and uniform distribution of cooling.
	It shall be specifically designed for service from the front and rear of the unit. The unit shall be capable to be mounted between the racks or at the end of row. The unit shall modulate cooling capacity and airflow based on requirements.
3.12.2	<b>Direct Expansion</b>
a.	<b>Cooling Circuits</b>
	<ul style="list-style-type: none"> <li>One refrigeration circuit, incorporating a high efficiency, fully hermetic variable capacity compressor with crankcase heater, safety valve, filter drier, moisture indicating sight glass, liquid line solenoid valve and an externally equalized expansion valve.</li> </ul>
	<ul style="list-style-type: none"> <li>The compressor should be supplied along with an external solenoid valve. When the solenoid valve in its normally closed position, the compressor should operate at full capacity &amp; when the solenoid valve gets energized, the two scroll elements should move apart axially. During the unloaded state, the compressor motor should continue to run, but since the scrolls will be separated, there will be no compression. A capacity modulation cycle should consist of a loading and unloading state. By varying the time of "loaded state" and "unloaded state", an average capacity should be obtained.</li> </ul>
	<ul style="list-style-type: none"> <li>The unit shall be provided with additional protection against high ambient temperature. When the temperature goes over the design conditions, the unit remains in operation with partial load (20% decrease against required). If such protection is not sufficient High-Pressure switch shall generate an high pressure alarm and the unit shuts down - manual reset shall be required.</li> </ul>
	<ul style="list-style-type: none"> <li>The inclined evaporator coil is manufactured from copper tubes, mechanically bonded to hydrophilic painted aluminium fins, with a stainless-steel condensate drain pan. The large face area/low velocity coil allows precise control of temperature and humidity during cooling and dehumidification, and is designed to optimize fluid velocity and minimize pressure drop.</li> </ul>
	<ul style="list-style-type: none"> <li>The moisture indicating sight glass, liquid line solenoid valve and expansion valve for each circuit are mounted in a service compartment, isolated from the air stream, to allow checking and adjustment while the unit is in operation.</li> </ul>
b.	<b>Fan Section</b>

	<ul style="list-style-type: none"> <li>Units should be offered with two plug EC Direct Drive Fan, High efficiency, EC motor with integrated electronics, Maintenance free design and construction. The fan section shall be designed for higher air flow. The fan shall be protected from over temperature of motor, electronics, locked rotor protection, short circuit of motor output. Fans are IP54, Protection class F.</li> </ul>
c.	<b>Cabinet and Frame</b>
	<ul style="list-style-type: none"> <li>The unit shall be powder painted panels with ½" (or 10mm) insulation. A hinged control access panel opens to a second front panel which is a protection enclosure for high voltage components. The frame is painted with a powder coat finish to protect against corrosion. The unit is totally front and rear accessible including any component removal.</li> </ul>
d.	<b>Air Filtration</b>
	<ul style="list-style-type: none"> <li>The filter cells are made of two deep pleated 4" filters rated MERV8 following ASHRAE 52.2 (45% by ASHRAE 52.1) or G4 following EN779, located within the cabinet, and accessible from the rear of the unit. Frame of the filter shall be made of GI/Aluminium.</li> </ul>
	<ul style="list-style-type: none"> <li>Clogged filter alarm should be available as standard. It sends a visual alarm to display.</li> </ul>
e.	<b>Microprocessor Controller</b>
	<ul style="list-style-type: none"> <li>Air conditioning models should be controlled by microprocessor-based controller. It can be programmed to control the function of every device within the unit via I/O.</li> </ul>
	<ul style="list-style-type: none"> <li>The controller should allow setting and monitoring of the following space parameters:</li> </ul>
	<ul style="list-style-type: none"> <li>o Air inlet Temperature</li> </ul>
	<ul style="list-style-type: none"> <li>o Air supply Temperature</li> </ul>
	<ul style="list-style-type: none"> <li>o Return Temperature set-point</li> </ul>
	<ul style="list-style-type: none"> <li>o Supply Temperature set-point</li> </ul>
	<ul style="list-style-type: none"> <li>o Return Temperature band</li> </ul>
	<ul style="list-style-type: none"> <li>o Supply Temperature band</li> </ul>
	<ul style="list-style-type: none"> <li>o Humidity (inlet)</li> </ul>
	<ul style="list-style-type: none"> <li>o Humidity set-point</li> </ul>

	o Humidity band
	o Rack Min, Max and Average temperature
	· The example of available warnings / alarms:
	o High supply temperature
	o Low supply temperature
	o High return humidity
	o Low return humidity
	o Loss of airflow
	o Compressor Low Pressure
	o Compressor High Pressure
	o Electrical heater high temperature (When applicable)
	o Clogged filter
	o Customer input (No 4 inputs)
	o LP transducer fail
	o Call service (customer input)
	o High temperature (customer input)
	o Unit hours exceeded
	o Compressor hours exceed
	o Humidifier hours exceed
	o Supply sensor failure
	o Network failure
	o Humidifier problem
	o Digital scroll high temperature
	o Smoke detected

	o Fire alarm
	o Rack sensor failure
	· Following features should be incorporated in the controller:
	o Status Report of the latest 400 event-messages of the unit.
	o Input for remote on-off and volt-free contacts for simple remote monitoring of low and high priority alarms: high/low temperature, high/low refrigerant pressure, fan/control failure, compressor/control failure and others should be available
	o LAN management: functions provided as standard include stand-by (in case of failure of the unit in operation, the second one starts automatically), and automatic rotation.
	o Automatic restart is provided after a power failure.
g.	<b>Monitoring</b>
	· There should be SNMP and HTTP/Web-management capability for enhanced communications and control. The cards make use of an Ethernet network (10/100Mbit) to monitor and control a wide range of operating parameters, alarms and notifications via a standard web browser (Internet Explorer).
	· The unit shall also include input volt-free contacts for simple remote monitoring of low and high priority alarms: high/low temperature, high/low refrigerant pressure, fan/control failure, compressor/control failure and others should be available.
h.	<b>Condenser</b>
	· The condenser should be with fan speed controller designed & set for usages of R410A refrigerant. Condenser should work 0 deg C to 45 deg C ambient temperature. The condenser frame shall be made up of a sturdy GI/MS structure. The motorized fan shall be IP54, protection class F.
i.	<b>Humidifier</b>
	· The unit is fitted with an canister type steam humidifier suitable for use with water of varying degrees of hardness, provided that the water is not treated or demineralized (Conductivity range 125-500mS/cm). The humidifier is complete with a water inlet valve, water outlet valve and a maximum water level sensor, disposable cylinder, steam distributor and electronic controls. Humidifier control is of the ON-OFF type, can be also disabled by remote contact. Humidifier should be removable from the rear of the cabinet.



3.13	<b>Racks &amp; Accessories</b>
a.	Rack Containment Frame should be of 42 U, 19" mounting type with standard Rack + Cold & Hot Aisle Containment. Both Cold aisle & hot aisle containment, of minimum 400 mm each, should be part of the rack frame.
b.	Rack frame is, scalable and modular with safe load carrying capacity of 1000 Kg
c.	Color shade of Rack is RAL 7021/RAL 9005
d.	Base plinth with 100 mm height
e.	Cable entry provision from top & bottom both side of rack
f.	Cut outs with rubber/brush grommet on top and bottom cover of rack for cable entry
g.	Vertical Cable manager on both LHS & RHS on rear side
h.	Each rack shall have front glass door for complete 42U height visibility & rear steel split door integrated with common Biometric access control panel.
i.	Thermally insulated cold aisle chamber
j.	Blanking panels to prevent air mixing
k.	Fixed Shelf to be provided
l.	Plastic Cable duct on vertical LH & RH section of racks for cable routing
m.	Front Rack doors to be provided with Biometric Access Control with 02 nos. of Electromagnetic lock per door
n.	Gas spring to be provided on front doors of racks
o.	Status based LED light to be provided on each rack
p.	Each rack enclosure should be physically separated through caged partition at cold & hot aisle to avoid unauthorized access from one rack to another.
3.14	<b>Safety and Security Systems</b>
3.14.1	<b>Biometric Based Access Control</b>
	The IP based Access Control System shall be used to serve the objective of allowing access to authorized personnel only. The system deployed will be based on Biometric

	Technology. The front rack doors will be provided with magnetic locks and will operate on fail-safe principle through one common Biometric access control system.
	The system would be designed and implemented to provide following functionality:
	· Configurable system for user defined access
	· Built-in Real Time Clock (RTC), calendar; complete Database stored locally and shall be capable of operating offline on standalone mode
	· Record, report and archive each and every activity (permission granted and / or rejected) with log formats
	· Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion, loss of access control, etc.
	· At the biometric reader, user presents the finger to the biometric reader which is unique to each employee. The pattern is read and compared with stored data to grant / deny access.
3.14.2	<b>Fire Alarm and Fire Suppression System</b>
	The integrated infrastructure solution should be designed as a complete stand-alone unit with security, fire detection and fire suppression systems. Each of the systems is inter-operable and inter-connected.
	Environmentally friendly NOVEC 1230 agent is used to ensure that no harm to human beings and environment is caused.
	Following systems should be installed.
	· NOVEC 1230 Clean Agent for fire suppression system
	· Fire detection and alarm systems, with detectors and panel
	· Protected area: The entire enclosed volume of the Intelligent Rack containment including electrical panel mounted in utility cabinet should be protected with fire detection and fire suppression system.
	· The NOVEC 1230 system is designed and installed as per NFPA 2001-2012 Edition. SMPV, Petroleum and Safety Explosives Organization (PESO) approved cylinder filled with NOVEC 1230 is installed in specially designed Modular rack.
3.16	<b>HMI – Smart Racks Interface mounted on Integrated Smart Rack Infrastructure for Local level monitoring</b>

3.16.1	Smart Racks should have functionality to graphically monitor the passive infrastructure ----
	1) 9-inch wide touch screen HMI display with a very user-friendly interface
	2) It should be menu driven system, Thermal management, Power supply environmental quantities, alarms, logs, and provided a total of menu items, breakdown of the sub-menu item the next menu level,
	3) First authorization on LCD, is only authorized once, authorized system will automatically skip the authorization page while booting
	4) System Configuration page includes integrated cabinet configuration
	5) Home page presents system function information (Such as Date & Time ex.), system performance parameters and critical system parameters
3.16.2	<b>System performance parameters:</b>
	a) Enclosures: thermal path average temperature
	b) Air conditioning: return air temperature, supply air temperature
	c) All the components (Intelligent PDUs ext.) shall be graphically represented on HMI.
	d) Real time PUE monitoring.
3.18	<b>Maintenance and Support</b>
3.18.1	<b>After Sale Service</b>
	· Service shall be guaranteed by supplier during defect liability period/Warranty Period.
	· Bidders shall have backline support agreement with the product OEM to offer 24 x 7 services through their authorized service engineer for warranty period.
	· Product OEM shall provide warranty from the date of taking over of the equipment after the acceptance tests.
	· Basic training and operational training to be provided after the successful installation of DC
	· Quarterly PM to be carried out during the warranty period

#### **4.8.4 PVC Conduit**

- No conduit less than 20mm external diameter shall be used. Conduit runs shall be so arranged that the cables connected to separate main circuits shall be enclosed in separate conduits, and that all lead and return wire of each circuit shall be run to the same circuit.
- All conduits shall be smooth in bore, true in size and all ends where conduits are cut shall be carefully made true and all sharp edges trimmed.
- All joints between lengths of conduit or between conduit and fittings boxes shall be pushed firmly together and glued properly.
- Cables shall not be drawn into conduits until the conduit system is erected, firmly fixed and cleaned out. Not more than two right angle bends or the equivalent shall be permitted between draw and junction boxes. Bending radius shall comply with I.E.E regulations for PVC pipes.

#### **4.8.5 Wiring**

- PVC insulated copper conductor cable shall be used for sub circuit run from the distribution boards to the points and shall be pulled into conduits. They shall be stranded copper conductors with thermoplastic insulation. Color code for wiring shall be followed.
- Looping system of wiring shall be used, wires shall not be jointed. No reduction of strands is permitted at terminations. No wire smaller than 3.029 sq.mm shall be used.
- Wherever wiring is run through trucking or raceways, the wires emerging from individual distributions shall be bunched together with cable straps at required regular intervals. Identification ferrules indicating the circuit and D.B. number shall be used for sub main, sub circuit wiring the ferrules shall be provided at both end of each sub main and sub-circuit.

#### **4.8.6 Cable Work**

- Cable ducts should be of such dimension that the cables laid in it do not touch one another. If found necessary the cable shall be fixed with clamps on the walls of the duct. Cables shall be laid on the walls/on the trays as required using suitable clamping/ fixing arrangement as required. Cables shall be neatly arranged on the trays in such manner that a crisis crossing is avoided and final take off to switch gear is easily facilitated.
- All cables will be identified close to their termination point by cable number as per circuit schedule. Cable numbers will be punched on 2mm thick aluminum strips and securely fastened to the. In case of control cables all covers shall be identified by their wire numbers by means of PVC ferrules. For trip circuit identification additional red ferrules are to be used only in the switch gear / control panels, cables shall be supported so as to prevent appreciable sagging. In general distance between supports shall not be greater than 600mm for horizontal run and 750mm for vertical run.
- Necessary earthing arrangement shall be made alongside the rising mains enclosure by means of a GI strip of adequate size bolted to each section and shall be earthed at both ends. The rising mains enclosure shall be bolted type.

- The space between data and power cabling should be as per standards and there should not be any crisscross wiring of the two, in order to avoid any interference, or corruption of data.

#### 4.8.7 Uninterrupted Power Supply (UPS) SYSTEM

Technical Specifications of 10 KVA		
Capacity (KVA)		10(N+N) with 30 Min Backup
INPUT		
Nominal Voltage		220V / 230V / 240V AC (L+N+PE)
Operating Voltage Range		100V~300V AC Load Dependent
Operating Frequency Range		50 / 60 Hz ± 10% (Auto Sensing)
Power Factor		≥0.99
	Voltage	± 20% (Configurable)
Bypass	Frequency	± 10% (Configurable)
ECO Range		Same as the Bypass, can be configured
Generator Input		Compatible
OUTPUT		
Rated Voltage		220V / 230V / 240V AC L+N+PE (Configurable)
Power Factor		0.8 (Standard) 0.9 (Optional)
Voltage Regulation		±1%
Frequency		Auto Sensing 50 / 60 Hz ± 1~10% Sync Mode (Configurable), 50/60 Hz ± 0.1 Hz Battery Mode
Crest Factor		03:01
Overload		≤ 125% for 10 Min, ≤ 150% for 30 Sec, ≥ 150% for 200ms

Harmonic Distortion (THDv)	≤2% with Linear Load, ≤5% with Non Linear Load
Efficiency	Up to 94% Dual Conversion Mode, 99% ECO Mode
BATTERY	
Battery Voltage	192V DC / 216V & 240V DC (Configurable)
Typical Recharge Time	6~8 Hours to 90% of full Capacity
Charge Current	10A
SYSTEM FEATURES	
IP Protection	IP 20
Transfer Time	Zero
EPO / ECO / CVCF	Shutdown UPS Immediately / ECO and CVCF Mode can be Configurable
Alarm / Protection	Short Circuit, Input Under/Over Voltage, Over Temperature, Over Current, Over Load, DC BUS Under / Over Voltage and Battery low
LED Display	Line Mode, Backup Mode, ECO Mode, Bypass Mode, Battery Low, Battery Bad, Overload & UPS Fault
LCD Display	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage, Temperature & Remaining Battery Backup Time, Load VA/W, Load and Battery Barograph
ENVIRONMENTAL	
Temperature	Operating: 0~45°C, Storage: -10°C ~ 55°C
Humidity / Altitude	0~95% RH Non-condensing / <1500 M
Noise	Low Audible Noise Level
PHYSICAL	
Dimension WxDxH (mm)	220x481x438
Net Weight (Kg)	20

STANDARDS	
Quality	ISO 9000, ISO 14001, OHSAS 18001, ISO 27001, BIS, RoHS
Safety	IEC/EN62040-1
EMC / Performance	IEC/EN62040-2; IEC/EN62040-3, Complying to CE
COMMUNICATION INTERFACE	
Standard	RS-232
Optional	SNMP / ModBus / Dry Contact / USB / RS-485
Monitoring Software	NetAgent Utility v5.8 / View Power / UPSilon 2000 / Muser 4000

#### **4.8.8 Comfort Air Conditioning for NOC Area, Electrical Room & and DC/BMS Room**

##### **To be provided by NIXI**

- Capacity – As per the Requirement to keep the temperature 18-25 Degree Centigrade

#### **4.8.9 Server**

S.No.	Rack Server Minimum Technical Specifications
1	Offered rack server solution shall be of enterprise level class build.
2	Redundant Power Supplies, all power supplies shall support Active/ Standby mode.
3	Minimum latest generation Dual Intel socket each with 2.1GHz, 32 cores or higher for Physical Servers.
4	6 x PCI-Express 3.0 slots
5	Minimum 3x 600GB 10k SAS HDD.
6	Minimum 256GB RAM DDR4 2666MHz ECC or higher with memory sparing/ mirroring (for virtualized server), 320GB RAM DDR4 2666MHz or higher (for physical server).
7	Redundant & hot-plug Fans.
8	The server should provide 2x 16Gbps FC dual ports for Fiber channel connectivity.
9	The server should provide 2x 10G Copper & 4x 10Gbps SFP+SR Ethernet ports for LAN connectivity.
10	Hardware RAID Controller with 2GB or more cache supporting RAID 0,1, 5,6.

11	OEM Systems Management Software to be included, shall support service alerting, reporting and remote management with dedicated Gigabit management port, Server shall support configuring and booting securely with industry standard Unified Extensible Firmware. The management software should be from the same OEM.
12	Power-on password, Serial interface control, Administrator's password, UEFI SSL encryption
13	Should support latest Operating System available from Windows, RHEL Linux/Oracle Linux etc.
14	All required cables and connectors to be included for all populated ports and interfaces
15	Server OEM shall be in the leader's quadrant for any of last two published reports as per Gartner's MQ on Modular Servers

#### 4.8.10 Server Virtualization Functional Capabilities

	Server Virtualization Functional Capabilities
<b>A</b>	<b>Hypervisor</b>
1	The solutions should support Operating system based virtualization, Hardware based virtualization, etc. Implement advanced functions that can automate administration tasks enabling better uptime and availability. Provision of virtualization infrastructure operations and management tools
2	The Solution shall be able to run various operating systems like windows client, windows server, linux (RedHat, Suze Linux etc), solarisx86 and any other open source OS
3	The Solution shall have the capability for creating Virtual Machines templates to provision virtual servers
4	The Solution shall continuously monitor utilization across Virtual Machines and shall intelligently allocate available resources among the Virtual Machines. Hardware independence functionality to be maintained while creating virtual servers
5	The Virtualized Machines shall be able to boot from iSCSI, FCoE and fiber channel SAN
6	The Virtualized Infrastructure shall be able to consume Storage across various protocols like DAS, NAS , SAN etc.
7	The Solution shall allow for taking snapshots of the Virtual Machines to be able to revert back to an older state, if required
8	The Solution shall be able to dynamically allocate and balance computing capacity across collections of hardware resources of one physical box aggregated into one unified
9	The Solution shall cater for the fact that if one server fails all the resources running on that server shall be able to migrate to another set of virtual servers as available



10	The Solution shall provide support for cluster services between Virtual Machines
11	The Solution shall provide automated patch management capabilities such that it shall be able to update patches on its own hypervisor and update guest & host operating system
12	The Solution shall provide the monitoring capabilities for storage, processor, network, memory etc. so as to ensure that the most important Virtual Machines get adequate
13	The Solution shall support Live Migration of Virtual Machine from one host (Physical Server) to another and same has been done cluster wise
15	The Solution shall provide security on the hypervisor, as well as guest VMs. It shall provide the ability to apply security to virtual machines and security policies that can follow the
16	The Solution shall provide policy-based configuration management to ensure compliance across all aspects of the datacenter infrastructure, including virtual and physical
17	The solution should be able to mitigate all hardware incompatibility issues by providing mature VM platform. Exceptions may be handled separately
18	Should support universal template of VMs
19	The above requirements are the minimum required features, Bidder is free to provide the better provisioning and solution to enhance the cloud functionalities as per requirement.

#### 4.8.11 48 Ports Layer-3 switch

48 Ports Layer-3 switch	
Sr. No	Specifications
1	<b>Architecture</b>
	Shall be 19" Rack Mountable
	Switch shall have 48 nos. of 10/100/1000 Base-T ports and fixed 4 nos.1G/10G/25G SFP28 uplink ports scalable up to 50G or 40G.
	Switch shall support 1000 Base-T, 1G SX, 1G LX, 10G Base-T, 10G SR, 10G LR, 25G SR transceiver and 10G, 25G DAC cable for stacking
	The switch should have 1 dual-personality (RJ-45 or USB micro-B) serial console port
	8GB SDRAM, 16 GB of Flash Memory and 8 MB Packet buffer size
	The switch should be based on programmable ASICs purpose-built to allow for a tighter integration of switch hardware and software to optimize performance and capacity
	Shall have 496 Gbps of switching capacity.
	Shall have up to 360 million pps switching throughput
	The Switch should support 32000 MAC address
	Switch shall support stacking within the rack and across the floor with minimum support 10 Switches along with up to 200Gbps of Stacking Backplane (Bi-Directional)
2	<b>Features</b>
	The switch should support HTTP redirect function
	Integrated Network Visibility and Analytical Capability
3	<b>Quality of Service (QoS)</b>
	The switch should support Traffic prioritization (IEEE 802.1p) to allows real-time traffic
	The switch should support Layer 4 prioritization to enable prioritization based on TCP/UDP
	The switch should support Class of Service (CoS) to sets the IEEE 802.1p priority tag based on
5	<b>IPv6 Feature</b>
	The switch should support IPV6 host to enable switches to be managed in an IPv6 network
	The switch should support Dual stack (IPV4 and IPV6) to transition from IPv4 to IPv6,
	The switch should support MLD snooping to forward IPv6 multicast traffic to the appropriate
	The switch should support ACL with 5000 access control entries (Ingress) and QoS for IPv6
6	<b>Security</b>
	The switch should support RA guard, DHCPv6 protection, dynamic IPv6 lockdown, and ND
	The switch should support Energy-efficient Ethernet (EEE) to reduce power consumption in
	The switch should support IEEE 802.1X, Web-based, MAC-based authentication
	The switch should support Concurrent IEEE 802.1X, Web, and MAC authentication schemes
	The switch should provide IP Layer 3 filtering based on source/destination IP address/subnet
	The switch should support RADIUS/TACACS+
	Switch should have integrated trusted platform module (TPM) or equivalent for platform
	The switch should support Port security, Secure Sockets Layer (SSL), SSHv2
	The switch should support Identity-driven ACL
7	<b>Convergence</b>
	The switch should support IP multicast routing and PIM Sparse and Dense modes to route IP

	The switch should support IP multicast snooping and data-driven IGMP
	The switch should support LLDP-MED (Media Endpoint Discovery)
	The switch should support IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
	The switch should support Local MAC Authentication
8	<b>Resiliency and high availability</b>
	Hot Swappable redundant Power Supply and should have minimum 2 hot swappable fan tray
	The Switch should creates one virtual resilient switch from four switches and attached the network devices using standard LACP for automatic load balancing and high availability to simplify network operation by reduce the need for complex protocols like Spanning Tree Protocol (STP), Equal-Cost Multipath (ECMP), and VRRP
	The switch should support IEEE 802.1s Multiple Spanning Tree
	The switch should support IEEE 802.3ad link-aggregation-control protocol (LACP) and port trunking
	The switch should provide easy-to-configure link redundancy of active and standby links
9	<b>Management</b>
	Configuration of Switch should have a validation and config check capability. In case of any error been identified, the configuration has to be roled back to the previous successful configuration
	The switch should be manageable from cloud NMS or On-premises NMS solution offered
	Custom built script should be accepted after the validations of the same to meet their specific use cases by the OEM
	The switch should support synchronization of state database of current traffic flow and configuration on both the control plane to bring better HA for all the traffic.
	The switch should support SNMPv1, v2, and v3
	The switch should support Zero-Touch Provisioning (ZTP)
	The switch should support cloud based management platform offers simple, secure, and cost effective way to manage switches
10	<b>Layer 2 switching</b>
	The switch should support IEEE 802.1Q (4094 VLAN IDs) and 2K VLANs simultaneously
	The switch should support Jumbo packet support
	The switch should support IEEE 802.1v protocol VLANs
	The switch should support Rapid Per-VLAN Spanning Tree (RPVST+)
	The switch should support GVRP or MVRP or equivalent
	The switch should support encapsulation (tunneling) protocol for overlay network that enables a more scalable virtual network deployment
11	<b>Layer 3 services</b>
	The switch should support DHCP server
12	<b>Layer 3 routing</b>
	The switch should support minimum 61000 IPv4 and IPv6 unicast route and 8000 IPv4 and IPv6 multicast Routing entries
	The Switch should support VXLAN, EVPN
	The switch should support OSPFv2, OSPFv3 and BGP4 protocols for routing between access
	The switch should support Policy-based routing
12	<b>Environmental Features</b>

	Operating temperature: 0° to 45°C, Operating humidity: 15% to 95% non-condensing
	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 or equivalent Indian
	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class
1.5	Warranty and Support
	Switch/SwitchOS should be EAL/NDPP certified
	The switch shall be offered with minimum five years hardware warranty with NBD Shipment
	Software upgrades/updates shall be included as part of the warranty

#### 4.8.12 Disaster Recovery Management (DRM) Software Compliance

DRM Software Compliance	
S. No.	Minimum Specifications
1	The proposed solution must offer a management Console to manage & monitoring DR solution parameters like RPO, RTO, replication status. Abilities to push agents on productions and DR locations Target Servers to start replications. DR solution should provide DR without requiring any cache storage device or midway storage.
2	The proposed DR solution must provide Ability to have RPO of near zero or maximum 5 Minutes and RTO of 30 Minutes. This is basic parameter for DRM tool to overcome any disaster situation with minimum data loss.
3	The proposed DR solution must support all known Windows Servers starting from Win 2008 onward, and Linux OS of RHEL, CentOS, Oracle Linux, Ubuntu with on Physical and Virtual environment .
4	The proposed DR solution must support any virtualised environments like –HyperV, Esxi, KVM, Nutanix etc. as well as Physical environment and Public Clouds like Azure , Google AWS etc. Ransomwares protection by keeping 4 Snapshots of the replicated servers Target DR site every 24 hrs.
5	The proposed solution should be capable of executing DR drill and recovery workflows in simulation mode, without affecting production applications.
6	The proposed solution should do Real-Time Byte-Level continuous Replication of delta changed data with minimal performance or bandwidth impact. The DR solution should be capable of replicating data back to the Datacentre for Failover of Application after the DR or DR drill. All data replications between DC and DR must be under AES 256-bit encryption protocol

<b>7</b>	The proposed solution should be able to manage hosts by either deploying agents or without deploying any agent and should seamlessly integrate with existing environment
<b>8</b>	The proposed solution should have ability to build the applications and Database automatically to the DR site without involvement of application or DBA team.
<b>9</b>	The DR Monitoring and Management software must be running successfully in at least one government state Data Centre and 3 large organizations.

#### 4.8.13 Storage

S no	Parameter	Functionality
1	Operating System & Clustering Support	The storage array should support industry-leading Operating System platforms including: Windows 2016 / 2019, VMware and Linux. Offered Storage Shall support all above operating systems in Clustering.
2	Capacity & Scalability	The Storage Array shall be offered with 30 TB Usable Capacity using 10K RPM SAS Drives. For effective power saving, Storage subsystem shall be supplied with 2.5" Small form factor SFF drives however storage subsystem shall also support LFF drives with the addition of required disk enclosures. Storage shall be scalable to minimum of 240 number of SAS SFF drives.
3	Front-end Ports & Back-end Ports	1. Offered Storage system shall be supplied with 4 * 16 Gbps FC ports per controller

		2. Offered storage system shall support 12G SAS Back-end connectivity.
4	Architecture	The storage array should support dual, redundant, hot-pluggable, active-active array controllers for high performance and reliability
5	No Single point of Failure	Offered Storage Array shall be configurable in a No Single Point of configuration including Array Controller card, Cache memory, FAN, Power supply etc.
6	Disk Drive Support	<p>1. Storage system shall support Enterprise SAS spinning drives, SSD and near line SAS / 7.2K RPM drives.</p> <p>2. Offered storage array shall also have support for FIPS 140-2 validating self-encrypted drives.</p>
7	Cache	<p>1. Offered Storage Array shall be given with Minimum of 12GB cache per controller in a single unit.</p> <p>2. Offered Storage shall also have optional support for Flash cache using SSD / Flash drives. Offered storage shall support at-least 8TB Flash Cache.</p> <p>3. Offered Flash cache shall be tuned for random read operations and shall remain activated even at less than 70% of random average read workload.</p>
8	Raid Support	<p>1. Offered Storage Subsystem shall support Raid 1, 10, 5 and Raid 6</p> <p>2. All Raid Sets shall support thin provisioning. Vendor shall offer the license of thin provisioning for complete supported capacity of the array.</p> <p>3. Thin provisioning shall be supported with offered Flash Cache.</p> <p>4. Raid processing shall be offloaded to a dedicated ASIC instead of CPU. In case vendor is not supporting it then vendor shall ensure that additional 12GB cache per controller is configured to offset the raid processing workload.</p>
9	Point in time and clone copy	<p>1. Offered Storage array shall be configured with array based Snapshot and clone functionality and shall be configured for minimum of 512 snapshot licenses.</p> <p>2. Offered Storage array shall support at-least 512 point in time copies (Snapshots) and 128 volume / Clone copies</p>

10	Replication	<p>1. Offered storage subsystem shall support storage-based replication to DR location. License for maximum supported capacity of the array shall be offered.</p> <p>2. Offered storage subsystem shall support replication to multiple storage array of the same family in fan-out mode. At least 1:4 mode shall be supported.</p>
11	Virtualization and Thin provisioning	<p>1. Offered storage shall be offered and configured with virtualization capability so that a given volume can be striped across all spindles of given drive type within a given disk pool. Disk pool shall support all listed raid sets of Raid 1, Raid 10, Raid 5 and Raid 6.</p> <p>2. Offered Storage shall be offered and configured with Thin Provisioning capability.</p>
12	Data Tiering	Offered Storage shall also be configured for Sub-Lun Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc. License shall be configured for maximum supported capacity of the array.
13	Global and dedicated Hot Spare	<p>1. Offered Storage Array shall support Global hot Spare for offered Disk drives.</p> <p>2. At least 2 Global hot spare drive shall be configured for every 30 drives.</p> <p>3. Offered storage array shall have the support for distributed hot spare</p>
14	Logical Volume & Performance	<p>1. Storage Subsystem shall support minimum of 512 Logical Units. Storage Array shall also support creation of more than 120TB volume at controller level.</p> <p>2. Offered Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.</p>
15	Load Balancing & Muti-path	1. Multi-path and load balancing software shall be provided, if vendor does not support MPIO functionality of Operating system.
16	Performance	Offered storage shall have listed benchmark for performance of more than 250,000 in Raid 5 using appropriate drives at 8k block size. Vendor shall provide documentary proof for it.

17	Array Integration	Offered storage array shall have plug-in for VMware VCenter, Microsoft System centre as well as vStorage APIs (VAAI) for array integration.
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#### 4.8.14 SAN Switch

Sr. No	Specifications
1	Minimum Dual SAN switches shall be configured where each SAN switch shall be configured with minimum of 12 Ports scalable to 24 ports.
2	Required scalability shall not be achieved by cascading the number of switches and shall be offered within the common chassis only
3	Should deliver 32 Gbit/Sec Non-blocking architecture with 1:1 performance for up to 24 ports in a energy-efficient fashion
4	Should protect existing device investments with auto-sensing 8, 16, and 32 Gbit/sec capabilities.
5	The switch shall support different port types such as F_Port, E_Port, M_Port, D_Port.
6	The switch should be rack mountable
7	Offered SAN Switch shall support less than 900 nanosecond for port to port latency with no contention.
8	Offered switch shall support at-least 2000 dynamically allocated frame buffers.
9	The switch shall provide Aggregate bandwidth of 768 Gbit/sec end to end.
10	Switch shall have support for web based management and should also support CLI.
11	The switch should have USB port for firmware download, support save, and configuration upload/download.
12	Offered SAN switches shall be highly efficient in power consumption. Bidder shall ensure that each offered SAN switch shall consume less than 80 Watt of power.



13	Switch shall support POST and online/offline diagnostics, including RAStace logging, environmental monitoring, non-disruptive daemon restart, FCping and Pathinfo (FC traceroute), port mirroring (SPAN port).
14	Offered SAN switch shall support services such as Quality of Service (QoS) to help optimize application performance in consolidated, virtual environments. It should be possible to define high, medium and low priority QOS zones to expedite high-priority traffic
15	The switch shall be able to support ISL trunk up to 256 Gbit/sec between a pair of switches for optimal bandwidth utilization and load balancing.
16	SAN switch shall support to restrict data flow from less critical hosts at pre-set bandwidths.
17	It should be possible to isolate the high bandwidth data flows traffic to specific ISLs by using simple zoning
18	The Switch should be configured with the Zoning and shall support ISL Trunking features when cascading more than 2 numbers of SAN switches into a single fabric.
19	Offered SAN switches shall support to measure the top bandwidth-consuming traffic in real time for a specific port or a fabric which should detail the physical or virtual device.

## Tape Library

SN	Parameter	Functionality
1	Capacity	Offered Tape Library shall support Native data capacity of 3.3PB (uncompressed) using LTO-8 Technology. Shall be offered with Minimum of two LTO-8 FC tape drive. Drive shall support encryption Shall be offered with 40 Cartridge slots and shall be scalable to 270 slots. Offered with 10 No. data cartridges & 5 Nos of Cleaning cartridges from Day One
2	Tape Drive Architecture	1. Offered LTO-8 drive in the Library shall conform to the Data rate matching technique for higher reliability. 2. Tape Drive Architecture in the Library shall conform to the INCITS/T10 SCSI-3 standard or newer standards.
3	Scalability	Tape Library shall be scalable to minimum of 21 number of LTO-8 drives

4	Speed	Offered LTO-8 drive shall support 300MB/sec in Native mode.
5	Connectivity	Offered Tape Library shall provide native FC connectivity to SAN switches.
6	Partitioning	Offered tape library shall have flexibility to configure each offered drive into a separate partition. Offered tape library shall have support for 21 partition when fully populated.
7	Encryption device	Offered Library shall be provided with a hardware device like USB key, separate appliance etc. to keep all the encrypted keys in a redundant fashion.
8	Management	Tape Library shall provide web based remote management.

#### 4.8.15 Videowall

Functional & Technical Requirements for Video Wall		
Sr.N O	Parameters	Minimum Technical Requirements
1	Configuration	Video Wall cubes of 70"( $\pm 5\%$ ) diagonal in a 3(C) x 2(R) configuration complete with base stand with Unique cooling system ensures longer LED lifetime
2	Cube & Controller	Cube & controller, Software should be from the Same OEM
3	Native Resolution	Full HD (1920x 1080) DLP Single chip/DLP LED Technology
4	Technology	LED Lit DLP Rear Projection Technology without any colour wheel
5	Light Source	LED light source with a minimum life time of 1, 00,000 hrs. In Normal Mode & Eco Mode ; Individual cube should be equipped with multiple LED banks and each LED bank should have an array of diodes. Single or multiple diode failure should not impact image display on the screen
6	Display Technology	DLP Rear Projection with single DMD Chip Along with Color Gamut of REC 709 Only

7	Brightness on Screen	Minimum 500 cd/m2 and should be adjustable for lower or even higher brightness requirements. This should be supported by datasheet
8	Brightness Uniformity	>95%
9	Color	Should provide auto color adjustment function and should be sensor based, automatic calibration system which works with an advanced color sensor. The sensor continuously measures the primary levels of the entire wall and adjusts white point and color when needed.
10		Color and brightness sensor should be in-built inside the projector only Placing sensors outside the projector and projector body is not acceptable
11	Screen	180° viewing angle
12	Dynamic Contrast	1200000:1 or more
13		System must be modular in installation; Dark box type stacking model is not acceptable
14	Heat dissipation in Full Bright	Less than 510 BTU / h .This should be supported by datasheet
15	Control	IP Based control; old IR based control should not be acceptable
16	Remote	IP based control should also be provided for quick access; old IR based control should not be acceptable
17	Screen to Screen Gap	Less than 0.5 mm Gap between 2 screens
19	Terminal in each Cube	2x Input (DP1.2) 2x Input (HDMI2.0) 2x LAN 2x USB 1x Output (DP1.2)
20	Power Consumption in Full Bright	Power Consumption for each VDU/Rear Projection Modules should be less than 150 Watts .This should be supported by datasheet

21	Power Supply	100 – 240 VAC, 50-60Hz; Power supply :Remote Rack Mountable Redundant Hot swappable power supply to be provided in N+1 Redundancy for 24x7 Fail safe operations .
22	Power consumption	80W (eco) 120W (typ.) 150W (max)
23	Heat dissipation	250 BTU/h (eco) 350 BTU/h (typ.) 510 BTU/h (max)
24	Cooling Inside Cube	Any advanced cooling mechanism
25	Light Source	Individual cube should be equipped with multiple LED diodes. Lifetime of Light source in Eco Mode: 1,00,000 Hrs. Lifetime of Light source in Normal Mode: 1,00,000 Hrs Light source should redundant for each of LED Banks
26	Maintenance Access	Cube should be accessible from the rear side for maintenance only
27	Cube control & Monitoring	Video wall should be equipped with a cube control & monitoring system. It should provide options to view control layouts on remote devices such as tab, laptop, etc through web browsers
28		Should be able to control & monitor individual cube, multiple cubes and multiple video walls
29		Should provide a virtual remote GUI over the IP to control the video wall
30		Status log file should be downloadable as per user convenience
31		System should be AI (Artificial Intelligence) with Advance Pro-active real-time Monitoring and Diagnosis of hardware over cloud for predictive failure to have maximum uptime

32	Sharing & Collaboration	It should be possible to share the layouts over LAN/WAN Network with Display in Meeting room or on Remote Workstations connected on LAN/WAN Network
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#### 4.8.16 Functional & Technical Requirements for Video Wall Controller

S.No	Technical Parameters	Description
1	Display controller	Controller to be able to control mentioned video wall and should be based on the latest architecture.
2	OS	Windows 10, 64-bit
3	Processor	Xeon with 2 GHz or higher end processor
4	Cores	Octa core
5	RAM	Minimum 32 GB expandable to 64 GB
6	Chassis Type	19" Rack mount industrial chassis
7	Network	2 x 1Gb/s LAN
8	DVI/HDMI Inputs	12
9	Resolution Support for Outputs	Each o/p should have 4K support
10	Hard disk	R.A.I.D-1 redundant setup with 2x 1000GB
11	Tampering Alarm	Controller cover opening alarm
12	Control	The system should have the capabilities of interacting (Monitoring & Control) with various applications on different network through the single Operator Workstation. It shall be possible to launch layouts, change layouts in real time using Tablet

13	Keyboard & Mouse Extension	Keyboard and Mouse along with mechanism to extend them to 20mtrs. Operator desk from display controller to be provided
14	24 x 7 operation	The controller shall be designed for 24 x 7 operation
15	Redundancy	Redundant controller should be provided
16	Others	The Video Wall and the Controller should be of the same make to ensure better performance and compatibility
17	OEM Certification	All features and functionality should be certified by the OEM.
18		The Display Modules, Display Controller & Software should be from a single OEM.
19	Operating System	Windows 10 64-bit IoT Enterprise
20	Tampering Alarm	Controller cover opening alarm
21	Output	DP/DVI/HDMI
22	Input	H.264, MPEG2/4, MxPEG, MJPEG, V2D, H.263
23	Dimensions	19" Rack mount
24	Operating Conditions	100-240V ,10-5A , 50/60Hz, Redundant Power supply
25	Operating Temperature	0° to 40°C   32° to 104°F
26	Humidity	Max. 80% Rh(non-condensing) @ 40°C
27	Noise Level	Max. 50dbA (measured at 1m/3.28ft distance at 22°C/72°F)
28	Regulation Compliance	UL, CB, BIS,FCC,CE ,IEC 60950, IEC 62368 .This should be furnished along with bid documents
29	Wireless	The operator should be also possible to show Laptop Or Android/iOS phone over the video wall without disturbing the existing network over wireless

30	Software	The software should be able to preconfigure various display layouts and access them at any time with a simple mouse click or schedule/timer based.
31	Modules	The Display Modules, Display Controller & Software should be from a single OEM

#### 4.8.17 Printer

S No	All in one printer (Color) for Development& Scanners / multifunction device	
1	Functions	Print, Scan, Copy, Fax
2	Print speed	24 ppm black, 20 ppm color
3	black/color (up to)	
4	Paper sizes supported (inches)	Letter, legal, government legal, executive, statement, envelope, card, 3x5, 4x6, 5x7, 8x10
5	Auto document feeder	50-sheet, 2-sided
6	Auto duplex printing	Yes
7	Wireless networking	802.11b/g/n
8	Display (inches)	4.3 color touchscreen
9	Recommended monthly volume (printed pages)	250 to 2000
10	Dimensions (inches)	19.7 x 17.7 x 13.4
11	Paper tray capacity (input output)	250 sheets, 150 sheets
12	Connectivity Technology	Wi-Fi; USB; Ethernet
13	Operating System	Windows, Mac, Linux
14	Print Media Type	Envelopes, Paper (plain)
15	Printer Output	Color
16	Printer Technology	Inkjet

17	Additional Features	Auto-Document Feeder
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#### 4.8.18 Workstation

S.No.	Technical Specifications	
1	Processor	Core i7 3.00 GHZ 11th Generation or Better
Storage & Graphics		
2	RAM	16 GB DDR4 or better
3	RAM Speed	3200MHz or better
4	Total Number of DIMM Slot Available	2 or more
5	RAM Expandability up to	32GB or more
6	Total Number of internal Bays available	2 or more
7	Capacity of SSD	1 TB or more
Ports & Connectivity		
8	Audio	Integrated audio controller with internal stereo speaker of at least 2X2W , Audio in, Audio out, Microphone in,
9	Wireless Connectivity	802.11ac Wi-fi or better
10	Ethernet Ports	1 or more-10/100/1000 on board Integrated Gigabit Port
11	Bluetooth connectivity	5.0 or better
12	Number of USB Version -USB 2.0/USB 3.0/USB 3.1 & USB 3.2	2 (At least 1 USB must be USB 3.2 Gen 2 Type C or better)
Display Unit		
13	Monitor Size	19" Inches FHD or Better
14	Mouse Connectivity	USB wired or wireless Optical Mouse
15	Keyboard Connectivity	USB Wired or wireless Keyboard



System & Application Software		
16	Operating System (Factory Pre-Loaded)	64-bit Windows 10 Professional or latest
17	OS certification	Windows

#### 4.9 Manpower Requirements (24 X 7, 365 Days)

Sr. No	Manpower Designation	No. of resource	Shift details
1	NMS Specialist	5	<ul style="list-style-type: none"> <li>· Resource available during the time specified.</li> <li>· All days of week with shift rotation with the existing NMS Specialist,</li> <li>· Time: General Shift 2 Numbers and Second / Third shift 1 number and whenever required during emergency downtime.</li> </ul>
<b>TOTAL</b>			

*Note:*

- The above table is indicative only. The bidder can propose a shift arrangement as per his own convenience and optimal utilization of resources.
- In any case of emergency or urgent leave, an equivalent replacement should be present with prior approval from department SPOC / Nodal officer.
- During any critical incident, manpower should be available even beyond the specified working hours.
- (The Manpower to be deployed on-site should be under the payroll of the bidder. However, bidder needs to have similar resources as given in the RFP on their payroll. Interview would be conducted for the payroll resources.

#### 4.9.1 Qualification

Sr. No	Manpower Designation	Desirable Qualification and Experience	Roles & Responsibilities
1	NMS Specialist	<ul style="list-style-type: none"><li>· B.E / B Tech / MCA / M-Tech / MSCIT</li><li>· OEM (product quoted) Technical certification with prior experience of IT Infrastructure / Network Monitoring, enterprise level NMS and Helpdesk Management tools.</li><li>· At least 5+ years of relevant experience in managing all aspects of IT/Network infrastructure and monitoring of the services in a large scale of network.</li></ul>	<ul style="list-style-type: none"><li>i. Overall System management at the Proposed Project Locations</li><li>ii. Configuration and Administration of Servers and other hardware at the Proposed Project Locations.</li><li>iii. Plan and liaise with vendors on maintenance work.</li><li>iv. System issue troubleshooting</li></ul>

#### 4.10 Service Level Agreement:

The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service NIXI shall regularly review the performance of the services being provided by the Bidder and the effectiveness of this SLA. For purposes of this Service Level Agreement, the definitions and terms as specified in the contract along with the following terms shall have the meanings set forth below:

- "Uptime" shall mean the time period for which the specified services / components with specified technical and service standards are available to NIXI or relevant user / beneficiary. Uptime, in percentage, of Services can be calculated as: **$$\text{Uptime} = \{1 - [(\text{Downtime}) / (\text{Total Time} - \text{Scheduled Maintenance Time})]\} * 100$$**
- "Downtime" shall mean the time period for which the specified services /components with specified technical and service standards are not available to NIXI or relevant user / beneficiary and excludes the scheduled outages planned in advance for the NOC and the link failures that are NIXI responsibility.
- "Incident" refers to any event / abnormalities in the functioning of the NOC Equipment / specified services that may lead to disruption in normal operations of the NOC services.
- "Helpdesk Support" shall mean the 24x7 on premise support centre which shall handle Fault reporting, Trouble Ticketing and related enquiries during this contract
- "Resolution Time" shall mean the time taken in resolving (diagnosing, troubleshooting and fixing) an incident after it has been reported at the helpdesk. The resolution time shall vary based on the severity of the incident reported at the help desk. The severity would be as follows:
- Critical: Incidents whose resolution shall require additional investment in components or time or shall involve coordination with OEMs. These incidents shall impact the overall functioning of the NOC.
- Medium: Incidents, whose resolution shall require replacement of hardware or software parts, requiring significant interruption in working of that individual component.
- Low: Incidents whose resolution shall require changes in configuration of hardware or software, which will not significantly interrupt working of that component. For example, installation of printer on a client etc.

#### Category of SLAs:

This SLA document provides for minimum level of services required as per contractual obligations based on performance indicators and measurements thereof. The Bidder shall ensure provisioning of all required services while monitoring the performance of the same to effectively comply with the performance levels. The services provided by the Bidder shall be reviewed by the NIXI that shall:

- Regularly check performance of the Bidder against this SLA.
- Discuss escalated problems, new issues and matters still outstanding for resolution.
- Review of statistics related to rectification of outstanding faults and agreed changes.
- Obtain suggestions for changes to improve the service levels.

#### 4.10.1 Implementation Service Levels:

The following measurements and targets shall be used to track and report the implementation performance on a regular basis. The targets shown in the following table are applicable for the duration of the contract. All the targets for the completion of the implementation activity are calculated on a weekly basis. Please note that the Bidder should provide comprehensive, end-to-end service to implement the NOC

Infrastructure, including replacement of the equipment in case of physical Damage. No reason shall be entertained (unless those mentioned in Force Majeure) in case of unavailability of any service given in the scope of work in this RFP and the appropriate penalty shall be levied.

Measurement	Target	Severity	Penalty
Final Acceptance Testing	120 days from the date of signing the SLA	Critical	A Penalty as 0.1% per week for the first two weeks, 0.25% per week for subsequent week. Subject maximum of 10%. Penalty computed on CAPEX value of contract.

#### 4.10.2 Operations and Maintenance Service Levels:

S NO	Measurement	Target	Severity	Penalty
1	Application Availability Services	>= 98%	Critical	No Penalty
		>98 %		0.25% of the Quarterly Support Billing for every 12 hours of down time at a stretch or in-parts up to total down time of 72 hours. Subject maximum of 10%. Penalty computed on QGR value of O&M. This down time shall be calculated over and above the total hours of downtime permissible.
		>=99%	Medium	No Penalty

	NMS Reporting Availability	<99 %		0.25% of the Quarterly Support Billing for every 12 hours of down time at a stretch or in-parts up to total down time of 72 hours. Subject maximum of 10%. Penalty computed on QGR value of O&M. This down time shall be calculated over and above the total hours of downtime permissible.
3	Scheduled downtime for Preventive maintenance Medium No Penalty Notification of >= 7 days Per Week in advance <ul style="list-style-type: none"> <li>➤ 1am to 5pm on Sunday</li> <li>➤ Any further requirement for scheduled downtime as per approval from NIXI</li> </ul>	Notification of >= 7 days in advance	Medium	No Penalty
		Notification of less than 7 days		0.5% of the QUARTERLY SUPPORT BILLING per incident

## **5.0**

### **SECTION 5 INSTRUCTIONS TO BIDDERS**

#### **5.1 General**

1. The goods required to be supplied, bidding procedure and terms and conditions of the contract are prescribed in the bid document. For all such details which are not covered in the bid document, the bidder may carefully see the guidelines contained in the General Financial Rules, 2017 for the same at Annexure III.
2. The bidder is expected to read carefully all the instructions for terms and conditions of the document and clarifications / amendments if any issued by NIXI. The bidder is also advised to furnish all the information required as per bid document. Failure to furnish all the required information or incomplete document may lead to rejection of bids.
3. Bids complete in all respect is to be submitted in the manner described below Single Stage Bidding & Two Envelope System on or before 02-05-2023 (3.00 P.M.) in NIXI office to, MM NIXI , 9 TH FLOOR B-WING, STATESMAN HOUSE, 148 BARAKHAMBA ROAD, NEW DELHI -110001
4. Bids will be opened same day at 3.30 hrs in presence of bidders.

#### **5.2 Documents to be submitted along with the bid**

The bidder is advised to carefully ensure that the following documents are submitted as a part of the bid.

1. Documents establishing eligibility of the bidder as prescribed in the eligibility clause of the bid document.
2. Bid security in the form of Earnest Money as prescribed in the bid document.
3. Clause by clause compliance of terms and conditions of the bid document by signing on all pages of the bid document under heading "READ, UNDERSTOOD AND COMPLIED". The compliance certificate will be signed by authorized signatory submitting the bid on every page of the bid document.
4. The price bid format quoting price as defined in the bid document without any over-writing and erasures
5. Certificates and undertakings as prescribed in this section and elsewhere in the tender document

**Eligibility criteria is Defined in Section 1 of DNIT, following is illustrative list of documents to be submitted.**

##### **a. Financial eligibility documents**

Audited financial statements for the last three financial years (FY 2019-20, 2020-21, and 2021-22)  
Certificate from the Statutory Auditor on turnover details for the last three (3) financial years (FY 2019-20, 2020-21 and 2021-22).

Certificate from the Statutory Auditor on positive net-worth for the last three (3) financial years (FY 2019-20, 2020-21 and 2021-22). Consolidated financial statements of the Parent/ Holding Entity & all its subsidiaries for the last three (3) financial years (FY 2019-20, 2020-21 and 2021-22).

**a. Technical / experience**

Work order OR Contract clearly highlighting the scope of work, Bill of Material and value of the contract/ order AND Completion Certificate issued & signed by the competent authority of the client entity on the entity's letterhead

### **5.3 Submission of Eligibility documents**

The bidder shall furnish along with the bid documents the following necessary documents /certificates establishing bidder eligibility as per eligibility clause prescribed in the bid document.

1. Turnover certificate to establish financial eligibility of the bidder either in form of audited report of the company or a certificate from CA on his letter heads.
2. Experience certificate issued by organizations / companies for earlier work done, on the letterhead of the issuing officer / issuing company indicating volume / quantum of work and financial value of the purchase orders successfully completed. Self-certified copies of work orders/ purchase orders shall also be enclosed.

### **5.4 Technical eligibility and experience**

In order to enable the purchaser to assess production capacity and capability of the bidders, the bidder shall provide documentary evidence regarding his experience of similar items to any organization, indicating quantity supplied and value as prescribed in the eligibility clause of tender documents.

1. A signed undertaking from Authorized Signatory of the bidder to certify that all components/ parts/ assembly/ software used in the Desktops and Servers like Hard disk, Monitors, Memory etc. shall be original, new components/ parts/ assembly/ software and that no refurbished/ duplicate/ second hand components/ parts/ assembly/ software are being used or shall be used.
2. For supply of any software i.e. operating system or any applications software the bidder should submit a Certificate Of Authenticity (COA), signed by Authorized Signatory stating that all Software supplied are authentic and legal copy is/ are being supplied.
3. Documentary evidence/ Declaration to the effect that the type of software to be utilized in the system/ equipment i.e. Packaged/ Canned OR Customized shall be furnished by the bidder. In case of Packaged/ Canned, the portion of value which represents consideration paid or payable for transfer of right to use such goods subject to provisions laid down in Central Govt. Taxation notification/ GST Notifications

## **5.5 Technical Documents and literature of the products**

The bidder shall also submit as a part of its bid document literature, booklet, manufacturer's manual establishing conformity of its bid of all goods and services which he proposes to supply under the contract.

- a. The bidder shall also supply a detailed description of goods, which he proposes to supply along with essential parameters relating to technical and performance characteristics.
- b. Bidder will submit a clause by clause compliance on the purchaser's technical specifications as described in TECHNICAL SPECIFICATION section of this bid/ tender document.
- c. Deviations if any, with respect to clause 2 above, will be submitted by bidder, under a separate letter under heading "TECHNICAL DEVIATIONS" along with bid, to enable the purchaser to take an informed decision.

## **5.6 Power of Attorney**

Power of Attorney in the name of the person signing the bid document and authorization for executing the POA in the name of authorized person by a Resolution of the company as prescribed under the law

1. The power of Attorney should be submitted and executed on the non-judicial stamp paper of appropriate value as prevailing in the concerned states(s) and the same be attested by a Notary public or registered before Sub-registrar of the state(s) concerned.
2. The power of Attorney be executed by a person who has been authorized by the Board of Directors of the bidder in this regard, on behalf of the Company/ institution/ Body corporate.
3. In case of the bidder being a firm, the said Power of Attorney should be executed by all the partner(s) in favor of the said Attorney.
4. Attestation of the specimen signatures of authorized signatory by the Company's/ firm's bankers shall be furnished. Name, designation, Phone number, mobile number, email address and postal address of the authorized signatory shall be provided.

## **5.7 Certificates and Undertakings**

1. Undertaking duly signed by front bidder and its technology/ consortium Partner(s) stating that all of them shall be liable for due performance of the contract jointly and severally.
2. Certificate of Incorporation.
3. Article or Memorandum of Association or partnership deed or proprietorship deed as the case may be.  
List of all Directors including their name(s), Director Identification, Number(s) (DIN) and address (es) along with contact telephone numbers of office and residence.
4. Registration certificate from State Director of Industries or from Secretariat for Industrial



Assistance (SIA), Ministry of Industries, Government of India.

5. Approval from Reserve Bank of India/ SIA in case of foreign collaboration.

### 5.8 Near relative certificate

The bidder should give a certificate that none of his/ her near relative, as defined below, is working in the NIXI. In case of proprietorship firm certificate will be given by the proprietor. For partnership firm certificate will be given by all the partners and in case of limited company by all the Directors of the company excluding Government of India/ Financial institution nominees and independent non-Official part time Directors appointed by Govt. of India or the Governor of the state and full time Directors of PSUs both state and central. Due to any breach of these conditions by the company or firm or any other person the tender will be cancelled and Bid Security will be forfeited at any stage whenever it is noticed and NIXI will not pay any damage to the company or firm or the concerned person.

1. In case if any near relative is working in NIXI full details e.g. Name, designation mobile no, email id and nature of relation will be furnished.
2. The Company or firm or the person will also be debarred for further participation in the NIXI Tenders.
3. The near relatives for this purpose are defined as:-
  - a. Members of a Hindu undivided family.
  - b. They are husband and wife.
  - c. The one is related to the other in the manner as father, mother, son(s) & Son's wife (daughter in law), Daughter(s) and daughter's husband (son in law), brother(s) and brother's wife, sister(s) and sister's husband (brother in law).

### 5.9 Filling of Price Bid by the bidders

- 1 The bidder shall give total composite price inclusive of levies and taxes including packing, forwarding freight and insurance etc. **but excluding the GST.** The basic unit price of components of the schedule of supply item will be filled up individually and will be totaled in the bottom. Wherever, more than 1 number of item is to be supplied (if prescribed in the bid document / price bid format) the bidder will populate the total cost of the item by multiplying the unit price and the quantity. Discount if any offered by bidder should be specifically indicated in the price schedule. The bidder may offer discount on unit price or may offer discount on total bid value.
- 2 ***As the rate of GST is dynamic and being reviewed and revised periodically*** and may change between the bid submission date and the actual supply date, the bidders are advised to indicate HSN code of all the items being supplied and current GST applicable at the time of bid submission. However, if the GST rates applicable is changed at the time of supply, the payment by NIXI will be affected at the rates applicable on the date of receipt of equipment by NIXI.
- 3 ***Items qualifying for input tax credit, which can be availed by NIXI, shall be mentioned separately indicating breakup of the unit cost, other processing charges and amount qualifying for input tax credit.***

## **5.10 Amendment to Tender Document,**

### **(a) Pre bid clarification**

- 1 Subsequent to publication of bid document in newspapers and NIXI portal, if any prospective bidder requires any clarification to any clause of the bid document, he shall notify the purchaser **within 7 days of publication of NIT**, by e-mail to the address given in bid document as contact e-mail of the purchaser.
- 2 NIXI will compile all the queries received from the bidders and will reply at the earliest. The reply of the queries will be sent to all the bidders who have raised the queries by e-mail without disclosing the source of query and will also be uploaded on the website of NIXI. The clarifications issued by NIXI in response to queries raised by respective bidders shall form integral part of bid document and
- 3 Even the NIXI for any reason can amend the bid document at its own initiative and will inform the details to the prospective bidders as well and will upload the changes on the NIXI portal.
- 4 After the action on pre bid queries and amendment to bid document as described in paras above is completed, all the amendments will be notified in the manner described above and bid submission date will be notified by NIXI. The bid submission date may remain as originally published in NIT or may be extended depending upon nature and volume of amendments.

### **(b) Post Bid Clarifications (After opening of bids )**

1. Even after the submission of the bid documents, NIXI may require some additional information to ensure technical compliance of the goods to be supplied from the bidder and he shall not refuse to share details until and unless they are confidential in nature. The purpose of asking additional information by NIXI will be intended to but not limited to ensure technical compliance of the equipment proposed to be procured under the current tender and / or documents relating to eligibility criteria and /or technical solution being offered.
2. Since NIXI does not have its own testing facility to test all functional features of the equipment proposed to be procured (no test bed set up facility exists ), it may also ask the bidder to supply factory test report (**FTR**) of the similar products supplied by the bidder against some earlier orders to any other agencies or purchaser in India.

### **5.11 Submission of bid security / Earnest money.**

Until and unless a bidder is exempted from submission of bid security, every bidder shall submit as a part of its bid a bid security in form of Earnest Money Deposit of the amount of **Rs 10,00,000 (Rs Ten Lakh only)**.

### **5.12 Issue of EMD Certificate**

The earnest Money instrument will be issued by a nationalized / scheduled bank indicating its full postal address, contact telephone number, e-mail id of issuing branch.

### **5.13 Period of validity of bids and validity of Earnest Money:**

- (a) Bid shall be valid for a period of **180 days** from the date of submission of bids.
- (b) EMD shall be valid for period of **210 days** from the date of submission of bids.

### **5.14 Extension of period of validity of bids and validity of EMD**

In exceptional circumstances, the purchaser may request the consent of the bidder for an extension to the period of bid validity. The request and the response thereto shall be made in writing. The bid security provided under clause 12 shall also be suitably extended. The bidder may refuse the request without forfeiting its bid security. A bidder accepting the request and granting extension will not be permitted to modify its bid.

### **5.15 Sealing and marking of the bids :**

The bid should be submitted as per tender information given in para 6.1 above

1. In Single stage bidding & two envelopes system, the bidder shall submit his bid in two envelopes;
  - (i) The First envelope will be named as Techno-commercial bid. This envelope will contain documents of bidder's satisfying the eligibility / Technical & commercial conditions.
  - (ii) The cover of first envelope shall contain the 'Original Copy' of the Techno- commercial bid, duly marked ' TECHNO-COMMERCIAL BID '.
  - (iii) The cover of second envelope shall contain the 'Original Copy' of the financial bid, duly marked ' FINANCIAL BID

Both the envelopes should be sealed separately and further kept in a single main envelope under the seal of the bidder

2. If both the envelopes are not sealed and marked as required at para (i) and (ii) above, the bid

shall be rejected.

3. The envelopes shall be addressed to the purchaser inviting the tender. The envelope shall bear the name of the tender, the tender number and the words 'DO NOT OPEN BEFORE' (due date & time).
4. The inner and outer envelopes shall indicate the name and complete postal address of the bidder to enable the purchaser to return the bid unopened in case it is declared to be received '**late**'.
5. Tender should be deposited in the tender box provided by tendering authority or sent by registered post or delivered in person on above mentioned address (address is given in para 6.1 above). The responsibility for ensuring that the tenders are delivered in time would vest with the bidder.
6. Bids delivered in person on the day of tender opening shall be delivered upto specified time & date as stated in clause 6.1 above.
7. The purchaser shall not be responsible if the bids are delivered elsewhere.
8. Venue of Tender Opening:

**Tenders will be opened in the committee hall in front of reception area of NIXI**

#### **OFFICE**

#### **5.16 Submission of bids.**

1. Bids must be submitted by the bidders on or before the specified date & time indicated in para 6.1 above
2. The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bid Documents in accordance with **clause- 11 (a)** in which case all rights and obligations of the purchaser and bidders previously subject to the deadline will thereafter be subjected to the extended deadline.
3. The bidder shall submit its bid offer against a set of bid documents purchased by him for all or some of the systems/ equipment as per requirement of the Bid Documents. He may include alternate offer, if permissible as per the bid. However, not more than one independent and complete offer shall be permitted from the bidder.

#### **6.16 Late Bids**

No bid shall be accepted after the specified deadline for submission of bids prescribed by the purchaser.

#### **5.17 Bid Opening**

1. The purchaser shall open bids in the presence of the authorized representatives of bidders

- physically present, who chose to attend, at time & date specified on due date.
2. The bidder's representatives, who are present, shall sign in an attendance register. Authority letter to this effect shall be submitted by the authorized representatives of bidders before they are allowed to participate in bid opening.
  3. A maximum of two representatives of any bidder shall be authorized and permitted to attend the bid opening.

#### **5.18 Action by Tender Opening Committee (TOC) on bid opening date:**

The TOC will open the box in front of bidders or their authorized representatives and will claim all the envelopes from the tender box. Following activities will be performed in front of bidders or their authorized representatives

Name of envelopes to be opened & information to be read out by Bid Opening Committee

- (i) In Single stage bidding & two envelopes system; the bids will be opened in 2 stages i.e. the techno-commercial bid shall be opened on the date of tender opening given in NIT. The financial bid will not be opened on the date of opening of techno commercial bids in this case & sealed financial bids will be handed over to **MM NIXI. for retention.**

Thereafter the CET will evaluate Techno-commercial bids & the report of CET will be approved by competent authority.

The financial bids of only those bidders who are approved to be techno-commercially compliant by the competent authority, will be opened by TOC in front of techno commercially eligible bidders/ authorized representatives by sending them a suitable notice in advance.

- (ii) The following information should be read out at the time of Techno-commercial bid opening:
  - 
  - a) Name of the Bidder
  - b) Name of the item
  - c) EMD amount & validity and acceptability
  - d) Information in respect of eligibility of the bidder.
  - e) Details of bid modification/ withdrawal, if applicable.
- (iii) The date fixed for opening of bids, if subsequently declared as holiday, the revised date of schedule will be notified. However, in absence of such notification, the bids will be opened on next working day, time and venue remaining unaltered.

### **5.19 Acceptance or Rejection of bid (s) without assigning any reason :**

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of contract without assigning any reason whatsoever and without thereby incurring any liability to the affected bidder or bidders on the grounds of purchaser's action.

### **5.20 Contacting the purchaser / canvassing**

No bidder shall try to influence the Purchaser on any matter relating to its bid, from the time of the bid opening till the time the contract is awarded.

Any effort by a bidder to modify its bid or influence the purchaser in the purchaser's bid evaluation, bid comparison or contract award decision shall result in the rejection of the bid.

### **5.21 Placement of order**

1. The Purchaser shall consider placement of orders for commercial supplies only on those eligible bidders whose offers have been found technically, commercially and financially acceptable. The Purchaser reserves the right to counter offer price(s) against price(s) quoted by any bidder.
2. The purchaser reserves the right for the placement of order of entire tendered quantity on the bidder with the lowest evaluated price.

### **5.22 Submission of PBG**

The successful bidder will be asked for submission of Performance Bank Guarantee (PBG) of an amount which will be **Three percent of the order value. ( 3 percent)**

PBG amount of the tender will be decided after discovery of prices

Validity of the PBG instrument shall be till completion of warranty period.

For AMC Period separate PBG will be required to be submitted by bidder. The value of AMC PBG shall be equal to ten percent of total AMC cost for Five years of AMC.

### **5.23 Issue of PO (Purchase Order)**

Once the successful bidder has submitted performance bank guarantee (PBG), the PO shall be issued to the bidder indicating the names of items and quantity to be supplied along with consignee details where the material are to be delivered. The consignee details will invariably include name, complete postal address along with Pin code and Mob Number of the contact person.

### **5.24 Lead time for supplies - pl refer section8**

Successful bidders shall be allowed lead time of 15 days to commence the supply of goods specified in the Purchase Order. from the date of issue of Purchase Order. Bidders may be allowed to prepone supply of goods after seeking written permission from NIXI.

### **5.25 Total time to complete supplies. – pl refer section8**

Successful bidders will have to complete supply of goods, goods and services as specified in the Purchase order.

**Bidders are advised to refer to SECTION 8, Special conditions of contract for project timelines and progress mechanism.**

## **6.0 SECTION 6**

### **COMMERCIAL CONDITIONS OF THE CONTRACT**

#### **6.1 Performance Bank Guarantee (PBG )**

The Performance Bank Guarantee (PBG) when submitted by the bidder, will be subject to verification from the issuing bank/ branch. Generally, the verification of PBG will be done by NIXI before issuance of Purchase Order. However due to any reason if verification is not done before issuance of P.O. it will be done as early as possible. No payment to bidder will be released without verification of PBG.

- 1 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the supplier's failure to complete its obligations under the contract.
3. The performance security Bond shall be in the form of Bank Guarantee issued by a Nationalized / Scheduled Bank.
4. The performance security Bond will be discharged by the Purchaser after completion of the supplier's performance obligations including any warranty obligations under the contract.
5. Value and validity of PBG - please refer Section 6

#### **6.2 Extension of Delivery Period**

Extension of delivery period may be considered by purchaser on the merit of case on case to case basis. This extension of delivery period may be considered with delay penalty or without delay penalty at the sole discretion of purchaser

Supplier cannot claim delivery extension without delay penalty.

#### **6.3 Price Variation / Tax Variation due to delay by vendor**

Purchase orders will be issued to vendors indicating unit prices of the items including all items e.g. packaging, forwarding, freight insurance etc but excluding duties and taxes, quoted in the bid.

Duties and taxes will be included in the P.O. at rates quoted in the bid or rates applicable on date of issue of P.O., **whichever is lower.**

**For changes in taxes/ duties during the scheduled delivery period, the unit price shall be regulated as under:**

1. Prices will be fixed at the time of issue of purchase order as per taxes and statutory duties applicable at that time

2. In case of reduction of taxes and other statutory duties during the scheduled delivery period, purchaser shall take the benefit of decrease in these taxes/ duties for the supplies made from the date of enactment of revised duties/taxes.

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In case of increase in duties/taxes during the scheduled delivery period, the purchaser shall revise the prices as per new duties/ taxes for the supplies, to be made during the remaining delivery period as per terms and conditions of the purchase order.

In case supplier requests for extension of delivery period and the supplies are made during extended delivery period, the duties and taxes will be treated as described below in para (5)

Any increase in duties and taxes will be borne by supplier on the part of supplies made during extended delivery period. For this purpose the unit prices will be reduced to the extent the duties and taxes are increased keeping the net cost to NIXI same as during scheduled delivery period. However, if the duties and taxes are reduced the supplier will be paid the duties and taxes at reduced actual rates.

#### **6.4 Inspection :**

Except for equipment which are covered under manufacture warranty, all other items supplied will be subject to inspection by purchaser either at the supplier premises or at consignee location.

1. The Purchaser or its representative shall have the right to inspect and test the goods as per prescribed test schedules for their conformity to the specifications. Where the Purchaser decides to conduct such tests on the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance like Testing instruments and other test gadgets including access to drawings and production data shall be furnished to the inspectors at no charge to the purchaser.

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2. Notwithstanding the pre-supply tests and inspections prescribed in clause above, the equipment and accessories on receipt in the Purchaser's premises will also be tested during and after installation before "take over" and if any equipment or part thereof is found defective, the same shall be replaced free of all cost to the purchaser .

#### **6.5 Training**

1. The bidder shall provide training for installation and maintenance staff of the purchaser free of cost where required.

2. The bidder shall provide all training material and documents.



## **6.6 Spares**

Supplier shall make supplies of all free spares as quoted by him in the bid document.

## **6.7 Warranty**

1. The supplier shall warrant that the stores to be supplied shall be new and free from all defects and faults in materials used, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for materials of the type ordered and shall perform in full conformity with the specifications and drawings. The supplier shall be responsible for any defect that may develop under the conditions provided by the contract and under proper use, arising from faulty material, design or workmanship such as corrosion of the equipment, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in circuit design and/ or otherwise and shall remedy such defects at its own cost when called upon to do so by the Purchaser who shall state in writing in what respect the stores are faulty. This warranty shall survive inspection or payment for/ and acceptance of goods, but shall expire (except in respect of complaints notified prior to such date) **minimum twelve months** after the stores have been taken over or warranty period in excess of 12 months if warranted by manufacturer.

2. In case the supplier makes supplies of any third-party item, he will be liable to ensure that warranty of all third-party items are made available to purchaser. In the event the supplier fails to cover warranty obligations for third party items, he will have to replace the defective third-party items free of cost to purchaser at site including freight, insurance and any other charges.

Same provisions will be applicable for manufacturer warranty extended for his own supplies during the warranty period.

## **6.8 Payment milestones - pl refer section 8**

## **6.9 Delay Penalty**

Delay penalty will be imposed as below

a. No penalty till payment of second milestone.

b. For payment milestones, adherence to PERT chart (pl refer SECTION 8) shall be the benchmark. Delay penalty @0.5 percent (point 5 percent) per week shall be levied for delays beyond accepted time lines as mutually agreed before issue of P.O. The progress timelines for this milestone shall be included as part of P.O.

2. Delivery of the Goods and performance of the services shall be made by the Supplier in accordance with the time schedule specified by the purchaser in its purchase order. In case the supply is not completed in the stipulated delivery period, as indicated in the Purchase Order, purchaser reserves the right to short-close/ cancel this purchase order and/ or recover liquidated damage charges. The cancellation/ short-closing of the order shall be at the risk and responsibility of the supplier and purchaser reserves the right to purchase balance unsupplied item at the risk and cost of the defaulting vendors.

3. Delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to any or all of the following sanctions:

- a. forfeiture of its performance security,
- b. imposition of liquidated damages, and/ or
- c. Short closure of the contract in part or full and/ or termination of the contract for default.

4. If at any time during the performance of the contract, the supplier encounters condition impeding timely delivery of the goods and performance of service, the supplier shall:

Promptly notify to the Purchaser in writing the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at its discretion extend the period for performance of the contract

If the vendor fails to deliver the full ordered quantity even during extended delivery period then the PO shall be short-closed and the Performance Bank Guarantee shall be forfeited.

Maximum amount of delay penalty to be decided on tender-to-tender basis, **but will be capped to maximum 12 p.c. of the P.0.value**

In exceptional cases, on request of vendor, where purchaser is satisfied that delay was beyond control of vendor / supplier, penalty waiver in part or in full can be considered without any prejudice. Decision of purchaser will be binding and final.

## **SECTION 7 DISPUTES AND RESOLUTION**

### **7.1 FORCE MAJURE**

If, at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract is prevented or delayed by reasons of any war or hostility, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts or act of God (hereinafter referred to as events) provided notice of happenings of any such eventuality is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against other in respect of such non-performance or delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such an event come to an end or cease to exist, and the decision of the Purchaser as to whether the deliveries have been so resumed or not shall be final and conclusive. Further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reasons of any such event for a period exceeding 60 days, either party may, at its option, terminate the contract.

### **7.2 DISPUTES AND ARBITRATION**

In the event of any question, dispute or difference arising under this agreement or in connection there-with (except as to the matters, the decision to which is specifically provided under this agreement), the same shall be referred to the sole arbitration of the CEO, NIXI or in case his designation is changed or his office is abolished, then in such cases to the sole arbitration of the officer for the time being entrusted (whether in addition to his own duties or otherwise) with the functions of the CEO, NIXI or by whatever designation such an officer may be called (hereinafter referred to as the said officer), and if the CEO, NIXI or the said officer is unable or unwilling to act as such, then to the sole arbitration of some other person appointed by the CEO, NIXI or the said officer. The agreement to appoint an arbitrator will be in accordance with the Arbitration and Conciliation Act 1996 as amended from time to time. There will be no objection to any such appointment on the ground that the arbitrator is a Government Servant or that he has to deal with the matter to which the agreement relates or that in the course of his duties as a Government Servant he has expressed his views on all or any of the matters in dispute. The award of the arbitrator shall be final and binding on both the parties to the agreement. In the event of such an arbitrator to whom the matter is originally referred, being transferred or vacating his office or being unable to act for any reason whatsoever, the CEO, NIXI or the said officer shall appoint another person to act as an arbitrator in accordance with terms of the agreement and the person so appointed shall be entitled to proceed from the stage at which it was left out by his predecessors.

### **7.5 COURT JURISDICTION**

1. Any dispute arising out of the tender/ bid document/ evaluation of bids/ issue of APO/PO shall be subject to the jurisdiction of the competent court at the place from where the NIT/ tender has been issued.

2. Where a contractor has not agreed to arbitration, the dispute/ claims arising out of the Contract/ PO entered with him shall be subject to the jurisdiction of the competent Court at the place from where Contract/ PO has been issued.

“This Contract/ PO is subject to jurisdiction of Court at DELHI only”.

## SECTION 8 SPECIAL CONDITIONS OF CONTRACT

**Bidders are advised to read carefully all clauses of special conditions of contract carefully and take all precautions to fill the bid accordingly.**

1. The tender is or supply, installation, testing and commissioning of network set up to run and manage the NoC for NIXI.
2. The bidder will design the network to meet all the requirements as described in the section under heading Scope of Work and functional requirement.
3. The bidder will supply all the requisite hardware element required for the system.
4. The bidder will submit details of all network element required for set up indicating make, model, technical specifications and count of the network element in a tabular form and will submit it along with the technical bid. The details submitted in the technical bid will not have pricing. i.e bidder will submit un-priced bill of material (unpriced BoM) along with technical bid.
5. As per requirement of the design of the network, the bidder will also submit all the services to be hired from third party for installing network element and interconnecting them and also communicating to the internet media.
6. In case separate bandwidth is required to connect the network elements it will also be advised by the bidder. Bidder will also identify and propose the name of the agency from whom the proposed bandwidth may be hired.
7. Bidder will be responsible to set up NOC and SOC and Customer support system as described in Scope of Work. Location of NOC, SOC and Customer Service Centre will be proposed by NIXI as indicated in this document. The manpower to manage NOC, SOC and Customer Support Centre will be arranged by bidder.
8. In case the administrative office set up of NIXI, which is at present located on Ninth floor of Statesman building, New Delhi is shifted to some other location due to administrative reasons the NoC set up may be required to be installed in new location ( if not commissioned ) or may be required to be shifted.
9. Bidder will also mention software required to be procured for the system indicating separately names of standard operating software and other operating systems along with names of sources and specifications.
10. The evaluation of the bids will be done as prescribed under Section -9 of this document under heading Evaluation of Bids and to qualify the technical bidding price.
11. The various activities required to be performed by the successful bidder after issue of PO are reproduced below for ready reference.
  - a. Supply of hardware
  - b. Testing and validation
  - c. Integration of minimum 10 switches (Phase 1)
  - d. Integration of all switches and network elements (Phase 2)
12. The warranty will be for one year, which will start after completion of integration of minimum 10 switches.
13. Payment mile stone

14. Payment milestones shall be linked with deliverables from vendor. It is proposed as below
  - a. after successful completion of supplies = 40 percent of P O cost
  - b. after testing and validation and integration of min 10 switches = 15 percent of PO cost
  - c. integration of all switches and network element = 25 percent of PO cost
  - d. after one year of completion of warranty = 20 percent of PO cost
15. Roll out Plan during this period of 3 months will be proposed by bidder in form of a PERT Chart indicating activities and time lines for completion of activities. This Roll out Plan will be submitted by the bidder along with the technical bid. This Roll Pout Plan will be subject to technical discussion and mutual acceptance, including changes required if any, between the bidder and NIXI.
16. The progress of the Roll Out Plan submitted by the bidder and accepted by NIXI, will be monitored on fortnightly basis by conducting a joint meeting between successful bidder and NIXI.

## **SECTION 9 EVALUATION CRITERIA**

Only those bidders who qualify all Pre-qualification/ Eligibility Criteria requirements shall be qualified for technical bid evaluation.

### **Evaluation of Financial Bids and vendor selection**

The modalities to identify the vendors, the foremost criteria will be the best rates offered by them and nevertheless the lead time taken between initiating the order and commissioning of device. The bidder has to focus on the capacity to provide the devices and forecasting the availability of stocks in hand.

It is excepted that NIXI will project the demand on different scales, which will definitely attract price-discrimination by the bidders. It is, therefore, decided that the vendors shall give the net price after the due consideration of purchases in bulk.

If the prices quoted by the vendors appear to be high, the NIXI can negotiate the prices to bring down the prices to the reasonable level.

The order will be placed to the vendor who has quoted the best price and taking least time for supply and commissioning of the device. In case, the vendor fails to make available.

The right quality and Right quantity at the right place in right time, then the NIXI has every right to pass on the order to some other vendor with a penalty on the original vendor (including blacklisting). It is, therefore, expected from the vendors that before making the commitments, they have to ensure the timely and speedy deliveries.

## SECTION 10 ANNEXURES

### 10.1 EMD Format (ANNXURE I)

#### **BID SECURITY DECLARATION**

Date:

Tender No.

To (insert complete name and address of the purchaser)

I/We, the undersigned, declare that: I/We understand that, according to your conditions, a Bid Securing Declaration must support bids.

I/We accept that /We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

- a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
- b) Having been notified of the acceptance of our Bid by the purchaser during the period of bid validity
  - (i) Fail or reuse to execute the contract, if required, or
  - (ii) Fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/we understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of

- (i) The receipt of your notification of the name of the successful Bidder; or
- (ii) thirty days after the expiration of the validity of my/our Bid.

Signed:

Name: Capacity:

On behalf of (insert complete name of Bidder)

Dated on----- day of-----

(insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)



## Form 2 Commercial Bid Format (ANNEXURE II)

We have submitted details of network elements, along with their technical specifications in form of unpriced bill of material (unpriced BoM) in the solution document submitted as part of technical bid. We reconfirm that items covered in unpriced BoM are necessary and sufficient for installation, commissioning and operation of .IN Registry system to meet all aspects of scope of work mentioned in Section 4 and Section 5 of the tender document.(Please see Section 8 for submission of unpriced BOM)

We are now submitting cost of individual items of BoM. We undertake that the cost quoted by us are less than or equal to cost quoted by us to other purchaser where the contract has been awarded to us or where we are in process of bidding for similar type of supplies.

Price bid table for supply items to be created as mentioned in section 6,7 and 8 of this document.

***Items qualifying for input tax credit, which can be availed by NIXI, shall be mentioned separately indicating breakup of the unit cost, other processing charges and amount qualifying for input tax credit.***

Separate price to be quoted for AMC charges for 5 years, separately for each year.

## **Highlights of General Financial Rules, 2017**

### **INTRODUCTION**

General Financial Rules (GFRs) are a compilation of rules and orders of Government of India to be followed by all while dealing with matters involving public finances including procurement. These rules and orders are treated as executive instructions to be observed by all Departments and Organizations under the Government and specified Bodies except otherwise provided for in these Rules.

Adequate provisions have been made in General Financial Rules (GFR) for adhering to certain terms and conditions including the relaxations and exemptions extended to various categories with regard to "Procurement of Goods and Services", (Chapter 6), which can be accessed for details. These conditions have been strictly complied with by NIXI by their document. Some of the highlights of GFR are as under:

### **A) IMPORTANT GUIDELINES**

#### **Rule 143 DEFINITION OF GOODS:**

Besides other material, the definition of 'Goods' includes work and services incidental or consequential to the supply of such goods, such as transportation, insurance, installation, commissioning, training and maintenance.

#### **Rule 144 Fundamental Principles:**

Fundamental principles of public buying (for all procurements including procurement of works). Every authority delegated with the financial powers of procuring goods in public interest shall have the responsibility and accountability to bring efficiency, economy, and transparency in matters relating to public procurement and for fair and equitable treatment of suppliers and promotion of competition in public procurement. The procedure to be followed in making public procurement must conform to the following yardsticks: -

- (i) The description of the subject matter of procurement to the extent practicable should –
  - a) be objective, functional, generic and measurable and specify technical, qualitative and performance characteristics.
  - b) not indicate a requirement for a particular trade mark, trade name or brand.
- (ii) the specifications in terms of quality, type etc., as also quantity of goods to be procured, should be clearly spelt out keeping in view the specific needs of the procuring organizations. The specifications so worked out should meet the basic needs of the organization without including superfluous and non-essential features, which may result in unwarranted expenditure.
- (iii) Where applicable, the technical specifications shall, to the extent practicable, be based on the national technical regulations or recognized national standards or building codes, wherever such standards exist, and in their absence, be based on the relevant international standards. In case of Government of India funded projects abroad, the technical specifications may be framed based on requirements and standards of the host beneficiary Government, where such standards exist. Provided that a procuring entity may, for reasons to be recorded in writing, adopt any other technical specification.

- (iv) Care should also be taken to avoid purchasing quantities in excess of requirement to avoid inventory carrying costs.
- (v) offers should be invited following a fair, transparent and reasonable procedure.
- (vi) the procuring authority should be satisfied that the selected offer adequately meets the requirement in all respects.
- (vii) the procuring authority should satisfy itself that the price of the selected offer is reasonable and consistent with the quality required.
- (viii) at each stage of procurement, the concerned procuring authority must place on record, in precise terms, the considerations which weighed with it while taking the procurement decision.
- (ix) a complete schedule of procurement cycle from date of issuing the tender to date of issuing the contract should be published when the tender is issued.
- (x) All Ministries/Departments shall prepare Annual Procurement Plan before the commencement of the year and the same should also be placed on their website.

**Rule 145 Authorities competent to purchase goods:**

An authority which is competent to incur expenditure may sanction the purchase of goods required for use in public service in accordance with provisions in the Delegation of Financial Powers Rules, following the general procedure.

**Rule 149 for purchases, if any, outside GeM, relevant GFR Rules shall apply.**

- (i) The monetary ceiling is applicable only for purchases made through GeM. For purchases, if any, outside GeM, relevant GFR Rules shall apply.
- (ii) The Ministries/Departments shall work out their procurement requirements of Goods and Services on either “OPEX” model or “CAPEX” model as per their requirement/ suitability at the time of preparation of Budget Estimates (BE) and shall project their Annual Procurement Plan of goods and services on GeM portal within 30 days of Budget approval.
- (iii) A demand for goods shall not be divided into small quantities to make piecemeal purchases to avoid procurement through L-1 Buying / bidding / reverse auction on GeM or the necessity of obtaining the sanction of higher authorities required with reference to the estimated value of the total demand.

**Rule 151 Debarment from bidding:**

- (i) A bidder shall be debarred if he has been convicted of an offence.
- (ii) The bidder shall not be debarred unless such bidder has been given a reasonable opportunity to represent against such debarment.

**Rule 153 Reserved items and other Purchase/Price Preference Policy:**

The Central Government may, by notification, provide for mandatory procurement of any goods or services from any category of bidders, or provide for preference to bidders on the grounds of promotion of locally manufactured goods or locally provided services.

**Rule 158 Purchase of goods by obtaining bids:**

Except in cases covered under Rule 154, 155, and 156(1), Ministries or Departments shall procure goods under the powers referred to in Rule 147 above by following the standard method of obtaining bids in :

- (i) Advertised Tender Enquiry

- (ii) Limited Tender Enquiry
- (iii) Two-Stage Bidding
- (iv) Single Tender Enquiry
- (v) Electronic Reverse Auctions

**Rule 163 Two bid system (simultaneous receipt of separate technical and financial bids) :**

For purchasing high value plant, machinery etc. of a complex and technical nature, bids may be obtained in two parts as under :

- (i) Technical bid consisting of all technical details along with commercial terms and conditions; and
- (ii) Financial bid indicating item-wise price for the items mentioned in the technical bid.

The technical bid and the financial bid should be sealed by the bidder in separate covers duly super-scribed and both these sealed covers are to be put in a bigger cover which should also be sealed and duly super-scribed. The technical bids are to be opened by the purchasing Ministry or Department at the first instance and evaluated by a competent committee or authority. At the second stage financial bids of only these technically acceptable offers should be opened after intimating them the date and time of opening the financial bid for further evaluation and ranking before awarding the contract.

**Rule 165: LATE BIDS:**

In the case of advertised tender enquiry (open tender) or limited tender enquiry, late bids (i.e. bids received after the date and time for receipt of bids) should not be considered.

**Rule 169 Maintenance Contract:**

Depending on the cost and nature of the goods to be purchased, it may also be necessary to enter into maintenance contract(s) of suitable period either with the supplier of the goods or with any other competent firm, not necessarily the supplier of the subject goods. Such maintenance contracts are especially needed for sophisticated and costly equipment and machinery. It may, however, be kept in mind that the equipment or machinery is maintained free of charge by the supplier during its warranty period or such other extended periods as the contract terms may provide and the paid maintenance should commence only thereafter.

**Rule 170 BID SECURITY:**

- (i) To safeguard against a bidder's withdrawing or altering its bid during the bid validity period in the case of advertised or limited tender enquiry, Bid Security (also known as Earnest Money) is to be obtained from the bidders except Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organisation or the concerned Ministry or Department. The bidders should be asked to furnish bid security along with their bids. Amount of bid security should ordinarily range between two percent to five percent of the estimated value of the goods to be procured. The amount of bid security should be determined accordingly by the Ministry or Department and indicated in the bidding documents. The bid security may be accepted in the form of Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks or payment online in an acceptable form, safeguarding the purchaser's interest in all respects. The bid security is normally to remain valid for a period of forty-five days beyond the final bid validity period.
- (ii) Bid securities of the unsuccessful bidders should be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract.

- (iii) In place of a Bid security, the Ministries/ Departments may require Bidders to sign a Bid securing declaration accepting that if they withdraw or modify their Bids during the period of validity, or if they are awarded the contract and they fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document, they will be suspended for the period of time specified in the request for bids document from being eligible to submit Bids for contracts with the entity that invited the Bids.

#### **Rule 171: PERFORMANCE SECURITY**

- (i) To ensure due performance of the contract, Performance Security is to be obtained from the successful bidder awarded the contract. Unlike contracts of Works and Plants, in case of contracts for goods, the need for the Performance Security depends on the market conditions and commercial practice for the particular kind of goods. Performance Security should be for an amount of five to ten per cent. of the value of the contract as specified in the bid documents. Performance Security may be furnished in the form of an Account Payee Demand Draft, Fixed Deposit Receipt from a Commercial bank, Bank Guarantee from a Commercial bank or online payment in an acceptable form safeguarding the purchaser's interest in all respects.
- (ii) Performance Security should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. (iii) Bid security should be refunded to the successful bidder on receipt of Performance Security.

#### **Rule 172 ADVANCE PAYMENT TO SUPPLIER:**

Ordinarily, payments for services rendered or supplies made should be released only after the services have been rendered or supplies made.

#### **Rule 173 Transparency, competition, fairness and elimination of arbitrariness in the procurement process:**

All government purchases should be made in a transparent, competitive and fair manner, to secure best value for money. This will also enable the prospective bidders to formulate and send their competitive bids with confidence. Some of the measures for ensuring the above are as follows:-

(i) the text of the bidding document should be self-contained and comprehensive without any ambiguities. All essential information, which a bidder needs for sending responsive bid, should be clearly spelt out in the bidding document in simple language. The condition of prior turnover and prior experience may be relaxed for Startups (as defined by Department of Industrial Policy and Promotion) subject to meeting of quality & technical specifications and making suitable provisions in the bidding document. The bidding document should contain, inter alia.

(a) Description and Specifications of goods including the nature, quantity, time and place or places of delivery.

(b) the criteria for eligibility and qualifications to be met by the bidders such as minimum level of experience, past performance, technical capability, manufacturing facilities and financial position etc or limitation for participation of the bidders, if any.

(c) eligibility criteria for goods indicating any legal restrictions or conditions about the origin of goods etc which may required to be met by the successful bidder.

(d) the procedure as well as date, time and place for sending the bids.

(e) date, time and place of opening of the bid.

- (e) Criteria for evaluation of bids
- (f) special terms affecting performance, if any.
- (g) Essential terms of the procurement contract
- (h) Bidding Documents should include a clause that “if a firm quotes NIL charges / consideration, the bid shall be treated as unresponsive and will not be considered”

## **B. STANDARD TERMS AND CONDITIONS AS PER GFR**

1. Contents of bidding document- All terms, conditions, stipulations and information to be incorporated in the bidding document are shown in the appropriate chapters.
2. The text of the bidding document is self-contained and comprehensive without any ambiguities. All essential information, which a bidder needs for sending responsive bid, are clearly spelt out in the bidding document in simple language.
3. The bidding document contained the criteria for eligibility and qualifications to be met out by the bidders such as minimum level of experience, past performance, Technical capability, manufacturing facilities and financial position etc.
4. The bidding document contained the procedure as well as date, time and place for sending the bids; date, time and place of opening the bids.
5. Suitable provision for settlement of disputes, if any, emanating from the resultant contract, are kept in the bidding document.
6. The bidding document indicate clearly that the resultant contract will be interpreted under Indian Laws.
7. The specifications of the required goods are clearly stated to the best possible without any ambiguity so that the prospective bidders can send meaningful bids. In order to attract sufficient number of bidders, the specifications should be broad based to the extent feasible. Efforts should be made to use standard specifications which are widely known to the industry.
8. Bidders are not be permitted to alter or modify their bids after expiry of the deadline for receipt of bids.
10. The provision for claiming liquidated damages in case of delay in supplies and performance are also be made in the tender document.
11. The terms of delivery indicating the delivery point from where the purchaser is to receive/collect the goods has been specified and it can have direct bearing on the quoted prices.
12. The clause of insurance of goods against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery is the responsibility of the vendor.

### **C. RELAXATION AND EXEMPTIONS**

The Government of India has announced 'startup India' initiative for creating a conducive environment for Startups in India. Relaxation of Norms for Startups Medium Enterprises in Public Procurement Regarding Prior Experience-Prior Turnover criteria has been relaxed from tendering point of view.

In this regard, it is again clarified that normally for all public procurement, the Central Ministries/ Departments have to ensure that criteria of prior turnover and prior experience for all Startups is relaxed subject to their meeting of quality and technical specifications. The following exemptions under GFRs maybe useful to be used for procuring innovative products created by startups:

**Rule 173** (i) of the GFRs exempts the startup from Prior Experience and Prior Turnover requirements for DPIIT Recognized Startups subject to meeting of quality & technical specifications and making suitable provisions in the bidding document.

**[Please note that: 1. as per the Public Procurement Policy (PPP) for MSME the relaxation and exemptions are given to MSEs in respect of tender fees, EMD.**

**2. The relaxations and exemptions are also extended to women entrepreneur and SC/ST entrepreneur as per the directives issued by the Government from time to time.]**

### **D. MISCELLANEOUS POINTS**

These are certain important issues, which are not addressed in the GFR but are very relevant to rules and implementing them in letter and spirit:

#### **TIME ALLOTTED FOR SUBMISSION OF TENDER**

Sufficient time normally 3 weeks should be allowed for submission of bids. However, in the case of emergent requirements, the Competent Authority may reduce the time for submission of tender.

#### **PRE-BID MEETING**

In Open/Advertised tender which relate to a turnkey contract or contract of special nature to purchase of sophisticated and costly equipment a suitable provision is to be kept in the tender enquiry document for Pre-bid conference for clarifying issues and clearing doubts, if any, about the specification and other allied technical details of plant, equipment and machinery projected in the tender document. The date, time and place of the Pre-bid conference should be indicated in the tender enquiry document for information of interested tenderers. This date should be sufficiently ahead of tender opening date.

#### **CONSTITUTION OF COMMITTEE**

The Tender Committee (TEC/FEC) must include at least three members. However, it is mandatory to include at least one member from Finance and Accounts Division in FEC, which will open and evaluate the Financial Bids on the basis of the Comparative Statement.

### **PLACEMENT OF SUPPLY ORDER**

After obtaining necessary approval/financial sanction of the competent authority (as per delegation of powers document) supply order should be placed with the recommended firm giving reference Number and date of their quotation. It should be clearly mentioned in the supply order that the items should be supplied strictly on the terms and conditions of the tender/limited tender. Some standard terms and conditions for limited/open tender are already summarised in the foregoing paragraphs.

### **VERIFICATION OF PBG**

Bank guarantees submitted by the tenderers/suppliers as EMD/performance security need to be verified from the issuing bank before acceptance.

### **LIQUIDATING DAMAGES**

There should be suitable provision in the terms and conditions of the tender for claiming liquidated damages of appropriate amount from the supplier to take care of delays in supplies and performance, for which the supplier is responsible. Depending upon the nature and make of the goods to be ordered and the urgency of requirement, specific percentage normally 0.5% per week of the delivered price of the delayed goods/services is to be incorporated in the contract terms.