

## Invitation of Expression of Interest (EoI)

**eTender Notice No.: C-12012/15/2015-Tech./DC**

**Title: Strengthening of Network and IT Infrastructure.**

1. CPCB invites Expression of Interest (EoI) for strengthening of its Network and IT Infrastructure with 4 Racks to be built in 560 sq.ft. (approx.) area having a room size of 40 X 14 feet (Length X Width) with clear height of 8 feet (Total area includes NOC and Server Room), with a load capacity of 30KW + 30KW Redundancy configuration, at IT Division, CPCB, Delhi.

The interested bidding Organizations may go through this EOI Document and submit their suggestions alongwith required supporting documents/bids as per Eligibility Criteria.

### **2. Eligible Criteria**

The prospective bidders/firms should fulfil the following criteria:

- a. Must be in existence from last five years with development of Data Centres activity. Firm must be registered. **Document – 1**
- b. Reputed firms/bidders who have designed, commissioned mini Data Centre facility of 1000 Sq. ft. or more at one place, in last five years. **Document – 2**
- c. Firm should have AMC of minimum one data centre at present. **Document – 3**
- d. Firm should have a valid ISO 9001:2008 Certification. **Document – 4**
- e. Firm should have at least One “Certified Data Centre Professional (CDCP)” engaged in data centre development and maintenance activities. **Document – 5**
- f. The firm should also have executed: **Document – 6**
  - 1) at least **one project** of similar nature in last five years, worth **Rs. 01 Cr. (One Crore)**

OR
  - 2) at least **two projects of Rs. 80 Lakhs (Eighty Lakhs) each** of similar nature in last five years  

OR
  - 3) at least **three projects of Rs. 60 Lakhs (Sixty Lakhs) each** of similar nature in last five years
- g. The firm must have its office in Delhi or NCR region. **Document – 7**
- h. The firm should have authorization of Racks, Cooling Systems and DCIM (Data Centre Integration Management) for this tender. All the Racks, Cooling Systems and DCIM should be of a single OEM. **Document – 8**

### 3. Critical Date Sheet

<b>Starting Date of EoI</b>	05/09/2017
<b>Last Date for submission of EoI proposal along with required documents</b>	25/09/2017 upto 2:00pm
<b>Opening Date of EoI</b>	26/09/2017 at 3:00pm
<b>Venue</b>	Central Pollution Control Board East Arjun Nagar, Delhi- 110032.

### 4. Bid Submission

The bidders may please note that the bids are required to be submitted 'On-Line' only through: <https://eprocure.gov.in/eprocure/app>. The bidders are required to submit soft copies of their bids electronically. The bid in hard copy form will not be accepted. The bidders are advised to note and take care of formalities for registration and on-line submission of bids through <https://eprocure.gov.in/eprocure/app>

For any clarification related to EOI, contact the following before submission of EoI:

- 1) Sh. Archit Uprit, Scientist 'C', [archituprit.cpcb@nic.in](mailto:archituprit.cpcb@nic.in), Mob. 9958161440
- 2) Sh. V.N.Murthy, Sr. Tech., [vnmurthy.cpcb@nic.in](mailto:vnmurthy.cpcb@nic.in), Mob. 9868283503

Any queries relating to the process of online bid submission or queries relating to Central Public Procurement (CPP) Portal in general may be directed to the 24\*7 CPP Portal Helpdesk. The contact number for the helpdesk is 1800 233 7315.

Bidders/Contractors are advised to follow the instructions "Instructions To Bidder for Online Bid Submission" provided in the 'Annexure-A' for online submission of bids. The bidder must submit the "Tender Acceptance Letter" in the prescribed format provided in the 'Annexure-B'.

5. Not more than one tender shall be submitted by one contactor or contractors having business relationship. Under no circumstance will father and his son(s) or other close relations who have business relationship with one another (i.e when one or more partner(s)/director(s) are common) be allowed to tender for the same contract as separate competitors. A breach of this condition will render the tenders of both parties are liable to be rejected.
6. Bidder who has downloaded the tender from the CPCB website [www.cpcb.nic.in](http://www.cpcb.nic.in) or Central Public Procurement Portal website <https://eprocure.gov.in/eprocure/app> **shall not tamper/modify the tender form in any manner**. In case, if the same is found to be tempered/ modified in any manner, tender will be completely rejected and tenderer is liable to be banned from doing business with CPCB.
7. Intending bidders are **advised to visit** CPCB website [www.cpcb.nic.in](http://www.cpcb.nic.in) and **CPPP website** <https://eprocure.gov.in/eprocure/app> **regularly till closing date of submission** of bid for any corrigendum / addendum/ amendment.
8. Bids will be opened as per date/time as mentioned in the **Tender Critical Date Sheet**. After online opening of EoI-Bid, the results of their qualification as well as release of Request for Proposal (RFP) will be intimated latter.

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# **DERAILED PROJECT REPORT (DPR)**

**on**

## **Strengthening of Network and IT Infrastructure**

### **1. Introduction**

With the exponential increase in anthropogenic activities, a large number of pollutants are being discharged into environment in the form of Air Pollution or Water Pollution. It is necessary to have cost effective and accurate pollution monitoring systems with a mechanism for real time data acquisition, handling and dissemination of environmental parameters for successful pollution mitigation measures as well as safeguarding the public health. The data can also be used to meet various objectives of deriving Indices like Air Quality Index (AQI) or Decision Supporting Systems (DSS) for planning etc.

CPCB's current Network Infrastructure/Server room was developed approx. 15 years back with the limited scope of requirement as the users were very limited and the Network Components, Servers and other infrastructure was designed accordingly.

Recently, CPCB directed Grossly Polluted Industries (GPI) to install on-line monitoring systems. Continuous Ambient Air Quality Monitoring Network has also increased significantly. Digitization, on-line data acquisition & analysis, e-communication in the routine office procedure for efficient discharging of duties etc. has revolutionarily changed the requirement of IT Network.

### **2. Present Status of IT Network & Infrastructure**

a. CISCO ROUTER-2900 Series	01 No.
b. Cyberoam-750iNG	01 No.
c. CISCO L3 Switches	02 Nos.
d. CISCO L2 Switches	14 Nos.
e. Various Rack Servers	25 Nos.
f. HP Blade Server	08 Nos.
g. Wireless Network Access Point	22 Nos.
h. UPS Power Supply (30KVA with redundancy)	02 Nos.
i. Air Conditioners (Normal window & split)	08 Nos.
j. Number of network users in CPCB	750 (approx.)

### **3. Objectives**

The main objective of this project is to develop future ready Data Centre (to cop up the future requirement of about 10 years) with the help of trending technologies, cost effective measures and less human intervention systems.

### **4. Proposed Project**

The following upgrades/changes are proposed to upscale the Server Room capacity for productivity enhancement and efficient operation of servers and also as an initiative of Digital India. The Proposal is categorized broadly into two parts as mentioned below and only Part-1 will be executing in this project:

### **Part-1: Passive Components**

The Passive Components include restructuring of the server rooms (spread over two rooms) with in-situ Cooling Server Racks with all the latest features including Electrical, safety, security monitoring, DCIM and aesthetics etc. For Continuous Running of all CPCB Network, CPCB Servers as well as Real Time Data Servers required uninterrupted power supply. So, it is required to develop strong redundant Power Distribution System with auto fail over.

### **Part-2: Active Components**

The Active Components include procurement/replacement of CPCB Network Components such as Layer-3 Network Switches, UTM (Unified Threat Management System), Router and Link Load Balancer, Laying of OFC (Optical Fiber Cable) till Layer 2 Floor Switches, Storage Area Network, implementing DHCP server, Active Directory in existing hardware. The process for Part-2 will be initiated after completion of Part-1.

Technical suggestions on the proposal (as mentioned in the Summary of Scope of work: Part-1 and Detailed Scope of work: Part-1 (Passive)) are invited from the firms for suitable inclusion in the RFP. All the firms intended in participating in next stage tendering are expected to give their views on the technical aspects of the proposal only.

## **5. Summary of Scope of work: Part-1**

Scope of this work will involve restructuring the Server Room and setting up the infrastructure for high efficiency, containing the following elements:

- i. Server & Network racks with cooling, Monitoring and remote management system.
- ii. Replacement of Network Racks of floors with Remarking and Redressing of Cables.
- iii. Replacing existing structure with fire retardant partitioning, fireproof glasses, fireproof doors etc. within the proposed area.
- iv. Safety & Security of the Server Room.
  - a. Fire Detection, Alarm & Suppression System
  - b. Access Control System
  - c. IP based high resolution video surveillance system
  - d. Rodent Replant System
  - e. Water Leak Detection System
- v. Redundant and Modular Power Distribution System.
- vi. NOC (Network Operation Center) to monitor BMS (Building Management System) and NMS (Network Management System).
- vii. Installation and configuration of Integrated Management Software for centralized monitoring & control of Safety, Security System and for Servers & Network Components.

The bidder has to make necessary arrangement so that the existing network may not down or very less down time. It is also required to make necessary arrangement to the existing structure wherever damaged with matching aesthetic.

## **6. Summary of Scope of work: Part-2**

Scope of this part will involve Strengthening of CPCB Network Components, Optimization of Bandwidth Utilization, Procurement of Hardware components and Software Applications as mentioned below:

- i. Procurement of CISCO Network Layer-3 Switches and Standby Router.
- ii. Procurement of Stand-By UTM Box for HA (High Availability) Mode.
- iii. Procurement of Link Load Balancer in HA (High Availability) Mode.
- iv. Laying of Optical Fibre Cable Up to Layer-2 Network Floor Switches.
- v. Procurement of Access Points and Access Controllers for Wi-Fi Network compatible with Existing Network.
- vi. Implementation of DHCP and Active Directory Server w.r.t. Network User Data Base Management & Control and IT/Cyber Security.
- vii. Procurement of unified Storage for data back-up.

## **7. Time Frame**

After completion of the process of EoI, RFP will be invited from the eligible firms for the work. The proposed project will be executed in a span of 03Months.

## **8. Detailed Scope of Work: Part-1 (Passive Components)**

This RFP is based on the requirement of CPCB to meet the high availability and maintain uptime of the IT services to keep its operations safe, secure and operational. Scope of this work will also involve designing the Data Centre considering N+1 redundancy, remote manageability, scalability and setting up the infrastructure for high efficiency containing the following elements:

1. Server & Network Racks with Cooling, Monitoring and Remote Management System.
2. Aesthetic work as per the requirement
3. Safety & Security of Data Center
  - 3.1 Fire alarm System & Fire Suppression System
  - 3.2 Access Control system
  - 3.3 Video surveillance system
  - 3.4 Rodent Replant System
  - 3.5 Water leak detection system
4. Power Distribution System from UPS DB to Racks for IT Equipment
5. Power Supply for cooling system from mains.
6. Installation and configuration of Integrated Management Software for centralized monitoring and control of Safety and Security System.

**Requirement:**

Sl. No.	Items	Qty.
1	<b>Data Centre Set Up – IT Security Solution</b> <b>For security and functionality of IT Equipment.</b>	<b>1 Set</b>

**A. Deliverables by the Vendor.****Server and Network Racks with Cooling & Monitoring System**

Sl. No.	Description of Items	Qty.
1)	Server and Network Racks, 600Wx2000Hx1200D, Front Glass Door with door stiffeners, Rear Sheet Steel Door with door stiffeners, Top cover plain, Bottom cover with cut-out of 400Wx150D with wire brush insert at back side for cable entry, 2 pairs of 42 U 19" L Type Angles Front & Rear on 6nos of punched sections with "U" Marking Stickers. IP Based Automatic Rear door opening system	4 Nos
2)	<b>Smart PDUs for Server / Network Racks.</b> IP Based Smart Vertical PDU, 32A, Single Phase, Digital Ammeter, C13X16, C19X4, 32A MCB & NEMA Socket as Input.	12 Nos
3)	<b>In-Rack Cooling units DX based for Server and Network Racks.</b> 12KW, 300x2000x1200 (WHD), Condenser-12KW.	3 Nos
4)	<b>Monitoring &amp; Remote Management</b> System for Server & Network Racks.	1No
5)	Power Distribution for Server Room & NOC Room, Electrical cabling, Power Sockets, Plugs, Earthing etc.	1 Set
6)	<b>Safety &amp; Security Systems:</b>	
6.i	Early Fire Detection System with extinguishing system.	1 No
6.ii	Access Control System	3 Nos
6.iii	Video Surveillance System	3 Nos
6.iv	Rodent Repellent System	1 No
6.v	Water Leakage Detection System	1 No
7)	Integrated Management software	1 No
8)	Seating, Consoles & Display.	1 Set
9)	Other Requirement : Aesthetic and Documentation	1 Job



### **Detailed Technical Specifications:**

This section will provide the minimum requirement/ technical specification of the item that is desired under the proposal. While it is mandatory for the bidder to meet these minimum requirements, if the bidder feels that a particular requirement would need a higher category of equipment, the same should be provisioned in his/ her bid. The bidder should however provide basis for arriving at the solution being proposed as part of the bid. Such estimations or technical specifications should be stated as part of the Compliance Matrix with Statement of Deviations. The bidder should design the solution to provide scalability to CPCB. All items should be of standard and reputed brands. All IT equipment should be IPv6 compliant.

- 1. Server Racks Specifications:** Racks will be used to house all the servers/network/storage devices. Rack is designed as per safety standards to withstand the modern IT infra requirement. Both front & rear door should be designed to give active high performance liquid cooling system with handle lock system.

**Each Rack should include:** Frame of sturdy frame section construction, consisting of 16 x folded rolled hollow frame section punched in 25mm DIN pitch pattern, PU Gasket Side panel, 1.5 mm with PU Gasket, Full Height 19", Angle, Top and Bottom Covers, Two Smart Vertical PDUs.

#### **Rack Specifications:**

<b>Sl. No</b>	<b>Parameter</b>	<b>Specification</b>	<b>Qty.</b>
1	Make	APC/RITTAL/EMERSON	4 No
2	Rack Height	42U	
3	Rack Width	19"	
4	Max Height	2000mm	
5	Max Width	800mm	
6	Max Depth	1200mm	
7	Color	Black / Standard Color	
8	Front Door	Glass with unique lock	
9	Rear Door	Steel	
10	Load bearing capacity	1400 kg	
11	Standard Warranty	1 year repair or replace	

- Covered top and bottom
- Rear space saving split door with 3-point secure locking
- Lockable & remove able side panels
- Front door with toughened glass
- Stationary shelf-1 No/Rack
- Sliding Shelf – 2No/Rack
- Provision of fan mounting in top which does not occupy usable "U" space
- 24 Port patch panel
- Surface finish: Nano ceramic coated, electro-dip coated primed to 20 microns and powder coated with texture polyester RAL 9005/7035 to 80 to 120 microns
- Optimized for high capacity cable management system
- Cable access openings with pre-installed brushes.
- Complaint to all security & stability standards and provided integrated electrical grounding

### **IP Based Automatic Rear door opening system**

All 04 racks of data centre should be fitted with automatic rear door opening system; the door should open automatically in case of failure of the cooling system, high temperature and fire.

Two Network Racks existing with CPCB can be used to housing Network components such as Routers, L3 Switches, Cyberoams, MUX Units, Link load balancers etc. Two smart PDUs in each Rack is required to be installed.

### **2. Smart PDUs for Server / Network Racks:**

IP Based Smart Vertical PDUs of 32Amps capacity with Single Phase. It should have Digital Ammeter, 32A MCB, 16Nos of C13 & 04Nos of C19 Sockets, and NEMA Socket as Input. The total quantity required is 12Nos. 08Nos for Server Racks and 04Nos for Network Racks.

### **3. DX Based In-Rack Cooling units with Liquid Cooling Package (LCP)**

The Data centre should be equipped with high performance DX Gas Based In-Rack Cooling System where Hot and Cold aisle is maintained within the rack. It has heat exchanger to remove high levels of waste heat from server enclosures and to provide uniform, effective, affordable cooling for Servers and similar IT equipment (switches etc.) installed in server enclosures. Each DX Gas cooling system should be a closed unit consisting of a cooling system and cool either one or two server enclosures.

The design of the unit should be optimised for use in data centres.

The integrated DX Gas Based heat exchanger should guaranty a cooling output of up to 12KW, combined with standard server enclosure dimensions, the lowest possible weight and comprehensive possibilities for monitoring.

The air/Gas Based heat exchanger is mounted on the side of the rack.

LCP Rack DX Gas Based should offer enclosure-based cooling separate from the room air and is thus also able to reduce the noise level.

The unit should capable of providing cooling for either one or two server racks.

The hot server air is drawn off to the rear of the server rack. After cooling, it is expelled left and right in front of the 482.6 mm (19") level over the whole enclosure height and is thus made available to the IT equipment once more.

The use of an integrated EC fan module (cooling output 12KW) achieves maximum efficiency and minimises the electrical energy consumption.

The unit is prepared for the incorporation of EC fan modules. A full fan configuration can thus also be realised to achieve redundancy or to minimise power consumption.

The standard integrated software/controller concept provides for automatic control of the specified server air intake temperature. The fan speed and cooling Gas Based flow rate are both infinitely variable, for precise matching to the power losses of the components installed in the IT rack.

The optimum operating point is thus achieved with minimum energy consumption and correspondingly reduced operating costs.

An intelligent sensor network monitors the air and Gas Based temperatures, as well as the Gas Based flow rate and leakage management.

The incorporation of three temperature sensors for the hot and cold air provides for redundancy. An integrated fail-safe mode, furthermore, ensures reliable cooling, even in case of failure of the electronics.

The monitoring and alarm management for all physical parameters is realised via SNMP and Ethernet. A BACnet link is possible as an option.

New control algorithms permit energy-efficient operation and take into account the demands of facility management.

<b>Parameters</b>	<b>Required Performance</b>	<b>Complied Yes/ No with Data Sheet cross reference Page No.</b>
Air throughput of fans	4800 m3/h	
<b>Cooling output</b>	<b>12 kW</b>	
Duty cycle %	100%	
<b>Cooling medium</b>	R410a	
Fan	EC	
Compressor	Speed Regulated	
Any other		

#### **4. Monitoring & Remote Management System for Server & Network Racks**

We require network management solution for the Data Centre and basic requirement is

1. Fault Management
2. Server Management
3. Network Monitoring
4. Switch Monitoring

Devices would be 200 (Routers, Link Load Balancers, Wireless Access Controller, switches, servers etc.)

#### **Detailed requirement with following specification:**

- Auto Device Discovery
- CISCO IP SLA monitoring
- Reports and graphs for
  - Interface availability statistics
  - Interface traffic and utilization statistics
  - Interface response time
  - Interface error and discards
- WAN monitoring with CISCO IP SLA
- VoIP QoS monitoring
- Network configuration management
- Traffic and utilization monitoring
- Wireless access point, availability and uptime monitoring

- Server Management
  - Monitor CPU, memory, disk utilization
  - Services such as HTTP, SMTP, IMAP, FTP, DNS, LDAP, HTTPS etc.
  - Windows services monitoring
  - Identify servers running on low disk space
  - Active process and installed software details
  - URL & Event log monitoring
- Switch monitoring
  - Live view of discovered switches and ports
  - Port manageability
  - Detect and prevent broadcast storms in LAN
- Fault management
  - Intelligent alarm correlation and color coded alarms
  - Email notifications
  - Support SNMP traps
  - Auto execute self-healing scripts/ programs when a fault occurs
  - Auto escalate critical unresolved alarms

Monitoring should be an intelligent monitoring system with an Ethernet 10BaseT network connection. The priorities of the various functions are monitoring, controlling and documenting physical parameters inside the Server and Network Racks.

These functions should be managed and controlled via different protocols.

The basis of the CMC should be the processing unit (PU unit). Several input/output units (I/O unit) should be connected to one processing unit via a patch cable. This/these function module(s) should connect to the sensors via a standard plug connector. The sensors should be coded so that the function blocks recognise automatically which sensors are connected.

**Technical specifications:**

<b>Temperature Range</b>	0 <sup>0</sup> C to 55 <sup>0</sup> C
<b>Operating humidity range</b>	5% to 95% relative humidity, non-condensing
<b>Sensor/CAN-Bus connection units</b>	4 or more
<b>Interfaces</b>	Network Interface :( RJ 45): Ethernet to IEEE 802.3 via 10/100 BaseT with PoE. Mini USB for system setting. Serial interface: 1 x for connecting Display unit or GSM Unit or ISDN UNIT. User Interface: Integral WEB Server. Control room connection: Integral OPC Server. User administration: LDAP
<b>Protocols</b>	Ethernet :TCP/IPv4, TCP/IPv6, SNMPv3, Telnet , SSH, FTP, SFTP, HTTP, HTTPS , NTP, DHCP , DNS Server, SMTP, XML, Syslog, LDAP
<b>Redundant power supply</b>	Input 24V DC -1 X for connecting unit power pack. Power over Ethernet 1 x
<b>Time Function</b>	Real-Time Clock, Energy-Buffered (24h) without battery/ accumulator with NTP
<b>Main sensors</b>	NTC Temperature Sensor for Access Control Infrared Technology Sensors.

## **5. Power Distribution for Server & Communication Room, Electrical Points, cabling etc.**

### **Power Distribution:**

The Server Room will be provisioned with UPS Power Distribution System along with MCBs. From the UPS distribution board, electrical cable will be drawn for distribution to the racks. The wiring will be carried out by the vendor by using fire retardant appropriate rating electrical cable, channels etc. For the cooling system, raw power is available at LT Panel (little far from the server room). The vendor is required to install distribution panel and need to connect from the LT Panel, which is used to connect the cooling system.

### **Technical specifications:**

- Complete Single Line Diagram should be made and certified by the user before starting the work.
- The wiring will be carried out by the vendor by using fire retardant appropriate rating electrical cable.
- All power rating should be designed in consideration with all the devices involve inside server room.
- Complete distribution should not have any single point of failure.
- Complete distribution panel should be non-compartmentalized type, modular, totally shrouded.
- Bus bars should be of Electrolytic Grade Copper as per EN 13601
- Bus bar support and cover systems are fire retardant as per UL 94 V0.

### **Power Socket & Plug**

Power Socket & Plug for Racks: Single Phase, indoor type IP 65 (latched), 35A, 3pin 2-pole + earth, Single phase 220volts, inter-locked Socket & Plug outlet similar to Lapp EPIC-Industrial connectors.

## **6. Safety & Security Systems:**

### **6.i Early Fire Detection and Extinguishing Systems:**

Delivery of an active extinguishing system that detects and extinguishes fires in closed server and network cabinets.

High-performance fan must extract air samples for smoke analysis into the system's measuring chamber. The integrated extinguishing system must trigger if the concentration of smoke exceeds the limits. The extinguishing process must not be electrically conducting and must be fast and residue-free.

NOVEC 1230 must be employed as the extinguishing gas.

The installation frame for the active extinguishing system must be designed as a 19" component group carrier. The system's installation depth must be specified such that it may be fitted into all 19" switch, server and network cabinets that possess an inside depth of > 1000 mm.

The installation and removal of the pre-assembled equipment must be carried out without interruption to the protected system's operations.

### **Technical features:**

The following features must be provided:

Housing dimensions : width : 483 mm - 19" front plate (remaining width 445 mm)  
: height : 1 RU (44.45 mm),  
: depth : maximum 853 mm

Weight : incl. extinguishing agent and propellant cartridge  $\leq$  26 kg

Rated voltage : 100/240V AC, 50/60 Hz

Emergency power supply : must be guaranteed for at least four hours

Ambient temperature : must be specified for +10°C to +35°C (operations)

: must be specified for -10°C to +60°C (storage)

Humidity : up to 95%, non-condensing

Protection type : at least IP 20

Connections : 1 potential-free change-over contact "advance alarm"

: 1 potential-free change-over contact "fire"

: 1 potential-free change-over contact "extinguish"

: 1 potential-free change-over contact "multiple malfunction"

: 24 V -3/+5 V rated voltage / 0.5A, ohm resistive load

Displays : 1 LCD with clear-text display for status reports

: 4 LEDs for "operation", "alarm", "multiple malfunction" and

: "mains/charger malfunction"

Sensors : ST visual smoke alarm, approx. 2.0 – 3.9 %/m

(Diffused light sensors) : HS visual smoke alarm, approx. 0.25 – 0.5 %/m

Air-flow monitor : approx. +/-10% flow rate

Protection volume : max. 3.0 m<sup>3</sup> (at air-change rate max. 10% / 20 min)

External devices : connection for manual trigger

: connector for door contact

: connector for external signal equipment

Permits : CE conformity for the extinguisher unit

: in accordance with EC Directive 97/23/EC

Extinguisher container : must be integrated into one RU housing

: Volume when empty: at least 2.2 l

: Contents: at least two litres (=3.2 kg) Novec™ 1230

Extinguisher discharge through pressure charge produced by propellant gas cartridge.  
Integrated electrical trigger unit and integrated extinguisher-loss / filling-level monitoring  
(displays > 15% loss)

Connect rechargeable batteries, create electrical connections, insert active extinguishing system, create basic settings, carry out response test.

### **Accessory – intake pipe system**

The intake pipe system is part of the fire-detection system. The pipe must be installed in an air-flow-facilitating manner in the flow of cooling air, air samples are taken in above the intake openings and analysed in the measuring chamber.

The intake pipe must be attached to the cabinet frame with pipe clips, pipe connectors, brackets and T-pieces must be designed as push fit connections and it must be possible to disconnect them without tools.

**Technical data:**

Intake pipe system	: 1 intake pipe with intake openings : (2120 mm – to be shortened as required) : 1 intake pipe (1100 mm – ditto)
Material / colour	: polyamide / black
Ambient temperature [°C]	: -25...+75
Outer/inner diameter [mm]	: 22/18
Weight [kg/m]	: 0.130

**6.ii Access Control System:**

Complete solution for restricting the movement inside the server room premises for authorized persons only. The access control system based on the finger printing based biometric system for providing physical security. Records are maintained in biometric system and report file can be generated from system based on date, time and authorized id.

**Hardware Specifications:****A) Intelligent Field Panel (IFP)****The panels should be with UL 294, FCC and CE regulations:**

IFP Architecture:

IFP shall utilize a fully distributed intelligence controller architecture whereby access decisions are made locally at the controller.

IFP shall utilize flash firmware for easy upgrades.

IFP shall support two access points.

IFP should be capable of expanding the functionality of the two access points to two access points IN/OUT, making the IFP a 4 reader controller.

IFP shall support local means of control through system and panel links as well as reader and reader/keypad input.

IFP shall support field interface to access control readers of various types.

IFP shall support field interface to eight variously configured alarm inputs.

IFP shall control four relay and four voltage outputs.

The Server software package (host computer) shall download panel specific data, including up to 3,000 cardholders & expandable up to 8000, to the IFP on the network. This data shall be stored within each panel and contain all pertinent information relating to the panel's functionality.

Host computer shall communicate global links and anti-pass back messages between panels.

Should communication with the Server software package (host computer) be lost, up to 1500 time-stamped events shall be stored in panel's buffer, until communication is restored. Upon restoration of communications all event data shall be automatically uploaded to the host computer including the actual time of occurrence.

This functionality shall enable any off-line controller to maintain full access control processing capability. A card user shall not be aware of the off line condition.

A system that does not buffer event information when communications are lost will not be acceptable.

Controller will have 8 Input & 8 Output.

**B) Biometric Reader with Keypad & Card**

Templates	:	9,500
Integrated Proximity Reader	:	125KHz Multi-technology
PC to Reader / Panel to Reader	:	Ethernet (CAT5) / Wiegand (6 Cond. Shielded 18 AWG)
Dimensions / Weight	:	5.7” (145 mm) Wide X 4.92” (125 mm) High X 1.3” (33 mm) Deep / 12 oz. (340 g.)
Operating temperature / Humidity	:	32° F to +131° F (0° C to +55° C) / 0 - 95% RH
Power Requirements	:	DC 9~24V, 1A
Sensor (Resolution)/ Template size	:	Optical (500 DPI) / 352 bytes
Authentication time Speed	:	≤ 4 sec
False Rejection/ Acceptance Rate	:	0.01% / 0.001%
Features	:	LCD Display: 128 X 64 pixels; 2 LEDs; 10 number keys; 6 function keys; 1 bell button

- Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion and loss of access control etc.
- Inbuilt card reader
- Day, Date, Time and duration based access rights for user
- Adequate number of smart cards should be provided
- Interface with EM locks to manage the access to Server room

**6.iii Video Surveillance System:**

The bidder should propose a solution for IP enabled Closed Circuit Television System (CCTV) which will provide on-line display of video images on monitor. Cameras should be used to view specific areas of interest and create a record for post event analysis.

The system must be supplied with suitable number of cameras and Management Software to cover the server room. The system should have the facility of remote viewing over IP network and recording for at least 1 week.

**Detailed specifications:**

The system should be fitted with Hemispheric IP indoor camera for ceiling mounting, surveillance system for monitoring of activity outside the IT Server room. The system must be supplied with 3nos of Hemispheric.

Hemispheric Camera	IP indoor camera for ceiling mounting (one on the front side & another on the rear side). The system should have Image sensor: 1/2.5” or better CMOS, 5 megapixel or better, color (day). <ul style="list-style-type: none"> <li>• Internal DVR: 4-GB Micro SD</li> <li>• Integrated microphone</li> <li>• Temperature sensor, illumination sensor, movement sensor, Activity Sensor, Analytics</li> <li>• 0.5-m Ethernet patch cable</li> <li>• Interfaces: Ethernet 10/100 (RJ45), remote viewing over IP network and recording.</li> </ul>	3Nos
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#### **6.iv Rodent Repellent System:**

A Rodent Repellent System solution with compact, safe, environmentally friendly and non-irritating pest repelled Very High Frequency Oscillator (VHFO) units are to be installed in Server room. The entry of Rodents and other unwanted pests should be controlled using non-chemical, non-toxic devices. Ultrasonic Frequency sound wave based replant system has been proposed at Server room. The device installed should emit intensive ultrasound that is audible and painful to rodents, but is inaudible and harmless to humans. The rodent repellents will be provided in the false flooring and ceiling to repel the pests without killing them. The installed units must withstand high temperatures in false ceilings and low temperatures in cold storages and air locks.

The pest Repellent System should consist of one master console & suitable number of satellites/transducers. The successful bidder shall make detailed working drawings and coordinate with user and other agencies at site.

#### **Specification:**

- Microcontroller based console embedded with power electronic circuits to generate a pattern of ultrasound waves at 800mW power per transducer
- Alpha numeric LCD and smart keypad
- Configurable start frequency, end frequency, sweep time, wave pattern
- Should cover the complete DC area

#### **6.v Water Leak Detection System**

Bidder should propose a water leak detection solution which should be used in the sub floors of the area to be protected. It should have tape/Cable sensors, detection module and control panel as its major components. The leak sensor should able to detect electrically conductive fluids such as freshwater, salt water, glycol solutions etc. and should be fitted underneath water pipelines. It should be capable of

- Detection of leaks in the sub floor
- Detection of leaks from air conditioners or support piping

#### **System Specification:**

- Supply Voltage: 230V 50Hz/60Hz
- LED Indications: Power, Alarm, Fault & Isolate
- Event recording facility: > 100
- Standard metal enclosure, wall mounting holes
- 80-character alphanumeric LCD
- Soft touch membrane keypad
- Configurable site name/location
- Dedicated outputs for all zones, hooter & Fire
- Configurable sensitivity adjustment
- Date and Time display
- Password protected event log clear facility
- Configurable baud rate selection
- Support network connectivity for SNMP monitoring
- Should cover the complete DC area

## **7. Integrated Management software:**

Integrated management software for monitoring and, where required, controlling the physical infrastructure of the data centre in the fields of cooling, power supply and distribution, as well as security.

The following functions and features must include:

- All infrastructure sensor values, bus bar value and cooling values must be readable by SNMP
- Recording of warnings and alarms by SNMP traps
- Storage of all the data in a SQL database (MSSQL or Oracle)
- Quick and easy project planning of the data centre by means of location trees, views, charts and diagrams
- Lines, pie and Gantt charts/diagrams
- Graphics for standard devices must be already stored
- Integration of existing data centre floor plans (jpg format)
- Provision of standard charts
- Calculation engine to calculate values within the software (e.g. PUE)
- Dashboard functions
- Monitoring the status of all the components via a graphical view
- Simple creation of charts and graphs based on all the available data
- Simple creation of automated processes (“what should be done if...”)
- Controlling the infrastructure by writing values via SNMP
- Connection to higher-level management systems using Management Pack (SCOM) or SNMP
- Easy configuration of the software, in the ideal case with delivery as an appliance (software or hardware). Software appliance as a VM for VMware.
- Client/server architecture, clients must be able to run on Windows XP, Vista or Windows7
- Report function
- User management with roles/rights. Accurately determining “who may do what”, right down to a single sensor
- Scalability from the single-rack data centre through to large-scale data centres
- Modular licensing, simple subsequent re-licensing for expanding data centre

## 8. Seating Consoles & Display:

- Bidder should also have to create cubicles/ workstation (2 nos.) in the Network Group Work area and Network Operating Centre
- LCD Screens: 48 inch of 2 LED Screens should also be provisioned in each NOC room of reputed brand.

## 9. Other Requirements:

- **Aesthetics:**

The bidder also has to carryout changes/ demolition of required area as per required changes of site. All existing widows should be replaced with the airtight windows with fire rated glass. Approx. size 7X3 Feet (4 NO.)

All the partition would be of Fire rated Glass and brick work covered with fire rated gypsum.

### **Fire Rated Glass:**

Fire rated glass has been provisioned to give a visibility to the NOC staff into the server farm area (wherever required). The technical specifications are given below.

- Fully glazed fire rated non-load bearing partition system for 120 minutes (E 120) fire rating. The glass should be SGG Pyro swiss Extra 6mm clear 120minute fire rated (E-120) Non Wired Toughened glass having a light transmission of 89% and sound reduction of 32db and compliant to class 1C1 category of Impact Resistance as per EN 12600.
- The glass should be held in its place with the help of minimum 1.25mm GI beading which can be clamped or bolted to the fro file by 4 x 35mm steel screws at every 250m c/c and an intumescent type of the cross section of 5 x 20mm as per the test evidence. The glass panes are to be supported on non-combustible 5mm Calcium Silicate setting blocks. The maximum glazing size cannot be more than 1200 x 3000mm.

### **Fire Rated Gypsum Partition:**

Gypsum partitions are required to divide the DC complex into different zones, as per the layout design, to server specific functions. Fire rated partitions are to be made slab to slab so as to provide an isolated, fire retardant area able to withstand fire and to prevent spread of fire to other areas.

The technical specifications are given below.

- The Gypsum board partition shall be provided to ensure their alignment by the method laid down by manufacturers, i.e. by fixing G.I. L & C section on the floor and ceiling and fixing gyp board onto them and fastening them to the walls/columns with the help of screws by the standard prescribed method, complete with sections from India.
- Gypsum finishing with tape and gypsum compound as specified by manufacturers. In double sided partition the above specification is valid with use of glass wool as insulation fill in between the gypsum boards for making the partition fire proof, acoustic and provides better degree of insulation.

**Fire Rated Door: Qty. 03 Approx. Size 3 \*7 Feet**

Fire rated doors are provisioned for server farm area to provide a completely sealed fire retardant space. It will prevent fire from other areas to travel to server farm area and vice versa. The technical specifications are given below:

- Providing & Fixing of thick steel fire rated door of 120minutes fire rating fabricated.
- 1mm thick galvanized sheet with infill of fire rated proprietary insulation filler both faces of sheet with lock seam joints at stile edges and internal reinforcement at top, bottom and stile edges for fire rating.
- The door frames are manufactured from thick galvanized steel sheet pressed form to double rebate profile of size 100 x 50 mm (nominal). The door frames and door shutters are primed with etch primer. The shutter would be mounted with SS Ball Bearing Hinges of size 125mm x 75 x 3.0 mm of appropriate openings for view panel glass, if required.

**Furniture and fixtures:**

Room and Monitoring Room Console System:

The following specifications detail the minimum requirements of the Console System. This allows for a point-by-point technical response stating compliance, taking exception or providing requested information. Bids submitted without this stands cancel.

- The Console System shall be designed specifically for 7x24 mission critical environments such as System Control centres, Network Operation Centres, etc. Standard office grade, post and panel furniture will not be acceptable.
- Console System must be of modular design, facilitating future equipment retrofits and full reconfigurations without requiring any major modification to the structure or exterior elements.

**Cabling and Cable-Trays:**

- From each network rack in the server room using Cat 6A & Multi Mode Fibre
- Along with LAN cabling, the bidder should also design and lay cable- trays for Storage System up to the racks in the Data Centre.
- Bidder should ensure that all the cable raceways are adequately grounded and fully concealed with covers. The cables should be appropriately marked and labelled.
- The Data Centre should come equipped with separate ducts for power supply distribution and NOC cable. The duct should be designed in such a way that it is possible to do the retro fitment in future. The ducts should be positioned in accordance with the racks for structured and snarl free wiring. The size of the power cable duct and NOC cable duct should be such that it must be possible to accommodate Wiring needs for Servers.

**Documentation:**

The Bidder needs to Supply, Install, Test & Commission all the products specified in above Data Centre specification & also provide complete single manual to run all the processes on satisfactory level. The Bidder needs to provide training to all the designated staff of user and provide sufficient amount of manuals.

**Pls. Note:** All solutions offered should be IPv6 compliant.

**Instructions for Online Bid Submission**

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal. More information useful for submitting online bids on the CPP Portal may be obtained at: <https://eprocure.gov.in/eprocure/app>.

**REGISTRATION**

- i. Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link “**Online bidder Enrollment**” on the CPP Portal which is free of charge.
- ii. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- iii. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- iv. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
- v. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC’s to others which may lead to misuse.
- vi. Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

**SEARCHING FOR TENDER DOCUMENTS**

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective ‘My Tenders’ folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

## **PREPARATION OF BIDS**

- 1) Bidder should take into account any corrigendum published for the tender document before submitting their bids.
- 2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/ schedule and generally, they can be in PDF formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use “My Space” or ‘Other Important Documents’ area available to them to upload such documents. These documents may be directly submitted from the “My Space” area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

## **SUBMISSION OF BIDS**

- 1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) Bidder has to select the payment option as “offline” to pay the tender fee / EMD as applicable and enter details of the instrument.
- 4) Bidder should prepare the EMD as per the instructions specified in the tender document. The original should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission or as specified in the tender documents. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- 5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.

- 6) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
  - i. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further, this key is subjected to asymmetric encryption using buyers/bid openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.
  - ii. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
  - iii. Upon the successful and timely submission of bids (ie after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
  - iv. The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

**TENDER ACCEPTANCE LETTER**  
(To be given on Company Letter Head)

Date:

To,

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sub: Acceptance of Terms & Conditions of Tender.

Tender Reference No: \_\_\_\_\_

Name of Tender/ Work: \_\_\_\_\_

Dear Sir,

1. I/We have downloaded/ obtained the tender document(s) for the above mentioned 'Tender/ Work' from the web site(s) namely: \_\_\_\_\_ as per your advertisement, given in the above-mentioned website(s).
2. I/We hereby certify that I/we have read the entire terms and conditions of the tender documents from Page No. \_\_\_\_\_ to \_\_\_\_\_ (including all documents like annexure(s), schedule(s), etc.), which form part of the contract agreement and I/we shall abide hereby by the terms/ conditions/ clauses contained therein.
3. The corrigendum(s) issued from time to time by your department/ organisation too have also been taken into consideration, while submitting this acceptance letter.
4. I/We hereby unconditionally accept the tender conditions of above mentioned tender document(s)/ corrigendum(s) in its totality/ entirety.
5. I/We do hereby declare that our Firm has not been blacklisted/ debarred by any Govt. Department/ Public sector undertaking.
6. I/We certify that all information furnished by the our Firm is true & correct and in the event that the information is found to be incorrect/untrue or found violated, then your department/ organization shall without giving any notice or reason therefore or summarily reject the bid or terminate the contract, without prejudice to any other rights or remedy including the forfeiture of the full said earnest money deposit absolutely.

Yours faithfully,

(Signature of the Bidder, with Official Seal)