

Expression of Interest for DATA CENTRE of IIIT-Delhi
Campus Okhla Ph-III, New Delhi



Indraprastha Institute of Information Technology (IIIT Delhi)

(An Institution with State University Status, created by Govt. of Delhi)

Indraprastha Institute of Information Technology (IIIT) Delhi

Okhla Phase –III

Near Govindpuri Metro Station

011-26907400

www.iiitd.ac.in

1. Project overview

- i. IIITD is planning to set up a Data centre at their existing campus at New Delhi. To accomplish this IIITD floating Expression of Interest. The shortlisted bidders will be call for presentation and detailed discussion and thereafter RFP will be prepared and floated among the shortlisted bidders.
- ii. IIITD has existing server room of around 200 Sq.ft. space with 5 Server racks and 2 Network racks which are installed in a Server room.
- iii. IIITD is planning to build a new Data centre with around 800 sq.ft. With all the infrastructure and required to migrate the existing servers and network equipment with the racks with minimum down time.
- iv. It is proposed to build the new data centre for 20-24 racks.
- v. Indicatively average rack power density for 16/18 racks would be 6 KVA per rack for the normal server and for 4/6 HPC server racks 12 KVA may be considered for the overall design.
- vi. The bidder has to undertake Design, construction of the Data centre as per standard Data centre design practices. Technical requirements has been specified in the concerned section of this document for the guidelines, however it is the responsibility of the bidder to provide the solution as per the standard datacentre guidelines. Bidder has to do the detailed site survey and propose the solution understanding the complexity of the Data centre build.
- vii. The bidder must also provide the required infrastructure with redundancy of critical components like UPS with Battery, Precision-AC etc.
- viii. Since the DC needs to be built in the existing building, care must be taken that the existing superstructure of building and the operation is not damaged/ disturbed while new DC is constructed.
- ix. The selected bidders should conduct a site survey and submit the preliminary plans, and other illustrations as required for the design of DC. The structural plans, data centre diagram and layout plan, electrical and civil design plan should be submitted to IIITD.
- x. The bidder must possess the requisite experience, strength and capabilities in building data centre infrastructure and providing the services necessary to meet the requirements, as described in the bid document. The bidder must also possess the technical know-how and the financial capability that would be required to

successfully build the Data Centre. The bids must be complete in all respects and should cover the entire scope of work as stipulated in the bid document. The bidder shall furnish a brief write-up, backed with adequate data, explaining his available capacity and experience (both technical and commercial) for the supply and installation.

2. Submission of expression of interest

1. Interested bidders are requested to submit an expression of interest document with design and budgetary price latest by **3:30 pm on April 9, 2020** at the **A-107 Old Academic Building IIT Delhi Okhla Phase-III near Govind Puri Metro station New Delhi-110020**, in a sealed envelope. Bidders can come at 3:30 pm on last day of submission for attendance.
2. They will also be required to make a detailed presentation to a technical committee
3. Tentatively in the Third week of April 2020. The exact date of the presentation will be intimated later.
4. The EOI document and the presentation should provide the broad design approach and mention all standards that will be adhered to.
5. Strict confidentiality of the submitted documents will be guaranteed.
6. IITD reserves the rights of the title and use over the concept and layout/designs of the data centre provided by the bidders.
7. For any query mail at abhinay@iiitd.ac.in, adarsh@iiitd.ac.in, bhawani@iiitd.ac.in

3. Eligibility/Qualification criteria

S. No.	Basic Requirement	Specific Requirements	Documents Required	Compliance (Yes/No)
1	Bidder Entity	Joint ventures or Consortiums are NOT allowed to bid or meet the eligibility criterion. Bidder should bid on their own strength and meet all eligibility criteria.	The bidder is required to furnish a self-declaration on letter head.	
2	Legal Entity	The bidder should be a company registered under Indian Companies Act,	a) Certificates of incorporation	

		1956 or a partnership firm registered under Partnership Act or a proprietorship firm.	b) Registration Certificates	
3	Turn Over	The Bidder should have aggregate average annual turnover of Rs. 5Cr. in last three financial years or annual turnover of Rs. 5.00 Cr. in any one of last three financial years* .	Certificate from the Chartered Accountant based on Extracts from the audited Balance sheet and Copy of Profit & Loss Account.	
4	ISO certificate	ISO 9001-2012 or better	Copy of certificate to be submitted	
5	Bidder's Supply /Works Experience	The bidder must have successfully executed establishment of three Tier-3 Data Centre with at least one TIER III certified DC in India. The single similar order value should 1.2 Cr each Or Two similar works of Rs 0.9 Crs each Or Three similar works of Rs 0.24 Crs each in any one of last five financial years ending Feb2020 *	The bidder is required to furnish the details of the supply order (PO) and implementation (Implementation Certificate).	
6	Experience of Datacenter Business	Bidder should be in the business of DEVELOPMENT OF datacenter for last 5 years	Documentary proof including work orders from clients	
7	Tax registration	The Bidder should have a registered number of a. GST Registration b. Income Tax / Pan Number	Copies of relevant(s) Certificates of registration.	
8	Non Blacklisting	The bidder should not have been blacklisted in the past by any Govt. Agency. An undertaking to the effect that "the bidder should not have been banned/blacklisted by any	The bidder is required to furnish a self-declaration on stamp paper.	

		Govt. Department, Central Govt. Unit/PSU/Financial Institutions/court during preceding three financial years ending March 2019”, is to be submitted.		
9	Support Center/Office in Delhi/NCR	Bidder must have a full-fledged service and support center at Delhi / NCR. The Bidder must submit details of their office and also the responsible officer. There must be an independent technical person to support installation and post maintenance.	The bidder is required to furnish a self-declaration on letter head.	
10	Datacenter Operations Experience	The bidder should have an experience in providing onsite support for DC operations and DC management services.	Documentary proof including work orders and certificate from clients	
11	General Conditions	a) The bidder shall provide a list of the OEMs / main technology partners whose equipment / solutions are being offered.		
12	Technical staff	The bidder must have on its roll adequate number of technically qualified professionals in systems integration, product installation, commissioning and related services out of which 2 should have certified as Data centre professional (CDCP) ,2 CDCS,2 Electrical consultants for designing the Electrical system,2 Mechanical consultants for designing the HVAC and other systems.		

4. Evaluation Criteria

- 1) Pre-qualification as per above (Accept/Reject)
- 2) Requirement understanding (Accept/Reject)
- 3) Compliance to industry standards for Tier 3 data centres - UPTIME, ASHRAE etc. (Accept/reject)
- 4) Efficiency of design approach in terms of space, power and cooling. Solution innovation towards achieving high efficiency of operations. PUE/DCIE. Value addition. (40marks)
- 5) Organization experience and commitment to data centre practice. Past record in data centre construction and maintenance. In-house resources with relevant experience for data centre projects. (30 marks)
- 6) Rigour in design concepts and analysis. (20 marks)
- 7) Project execution methodology proposed. (10 marks)

As a part of the expression of interest the bidder should submit

- Basis of design and analysis of cooling solution at full load conditions including full details of assumptions made and the specific tools/software/references/standards used for the same.
- The PUE calculations should be carried out as a part of the design
- The environmental conditions for estimating the annualised average PUE should be taken for Delhi
- Projected average annual PUE based on hourly analysis for Delhi.
- PUE data of any operating modern data centre in India for 1 year (during last 3years).
- Tentative makes/models (1 or more) of equipment such as DG, UPS, chillers, cooling tower, PAC, racks etc.

Bidders can submit more than one design options if they so wish.

The shortlisted bidders will be called for presentation and detailed discussion

5. Technical Specification for Data Centre

Broad functional requirements and design Parameters

1. The Data centre shall be designed based on industry standards. All individual components used in the construction shall conform to data centre best practices and industry standards.
2. The bidder shall be responsible for managing the entire project from commencement to final handing over of the facility to IIITD
3. The Bidder is required to provide detailed architectural diagrams and other illustrations like conceptual architectural plan, electrical layouts, false ceiling layouts; etc., for the envisaged DC.
4. The Data centre complete in all aspects to be handed over with all systems tested and accepted to IIITD.
5. Construction to be undertaken based on mutually agreed upon layout.

6. On completion of the project a training shall be imparted to the IITD officials on the various installed components
7. The equipment/ systems supplied shall be covered under minimum warranty for 5 years from the date of commissioning for 24 x 7 support.

6. Scope of work of the bidder

The Data Centre (DC) has to comply with Data centre standards and design and the Bidder has to:

1. Detailed design and site preparation of the data centre involving civil, electrical and mechanical work including dismantling, false ceiling, raised flooring, moisture sealing, fortification of windows and all other necessary components.
2. Supply, installation and commissioning of basic infrastructure, UPS, air conditioning, fire prevention and detection systems, lighting, access control and surveillance systems, rodent control system, BMS and data centre integrated management system (DCIM).
3. Onsite maintenance of the data centres for at least 5 years.
4. Undertake Civil works for the DC, erection of partitions including glass partition where ever required, false flooring, false ceiling, ramp etc.
5. Demolition of the existing partitions/structure in the identified DC premises.
6. Carry out electrical power distribution works for supplying power to the Data centre.
7. Supply & installation and integration of Precision cooling requirement of the DC.
8. Provide Access Control security.
9. Design and implement intelligent fire detection system and complement the same by a high sensitivity smoke detection system.
10. Provide clean agent based fire suppression system (NOVEC) .
11. Water leak detection system for the server room area.
12. VESDA
13. Rodent repellent system.
14. Data Centre Monitoring System with Surveillance system
15. Obtaining statutory approvals if any.
16. Migrate the optical fibre terminations from the present server room to the new data centre location.
17. CAT6 cable extension from the existing server room to the new location as required
18. Vendor to post a data centre service personnel for a period of 3 months from the date of total commissioning.

7. Migration activities

The response by bidder should necessarily have compliance to the following networking services:

1. Bidder should be able to migrate the critical services on the network with a minimal downtime as specified by IITD. Any downtime if required during

the movement of servers / communication equipment to the new location will have to be approved by IITD.

2. Bidder will be responsible to ensure that all LAN connections for the Servers are made available at the new location.
3. Bidder to ensure that all Service Provider/WAN links to be extended to the new setup during the downtime window.

8. Civil Works

Data Centre would be constructed in half partition first. After completion of the construction of the half partition and migration of the servers and services other half will be constructed.

8.1. Dismantling:

8.1.1 Dismantling the existing ceiling wooden panelling and walls in the proposed data centre area as per approved plans without structural damage to beams columns and services etc.

8.1.2 The demolition work should be done with utmost care while removing the existing brick wall, false ceiling and other supports fixed onto the wall. The existing partition brick wall shall be gently removed without disturbing the existing infrastructure and structure.

8.2. Flooring:

Suitable raised false flooring and false ceiling as per prevailing standards should be provided at the data centres as per site requirements.

8.3 Debris Cleaning:

The material shall be packed in gunny sacks/plastic bags and dumped in the area instructed by customer after taking prior permission from the project in charge on a daily/weekly basis, this material shall be packed in gunny/plastic bags and has to be cleared from the site within 24 hours to SDMC designated dumping area outside the campus in covered trucks. The entire responsibility of dumping and its disposal costs shall be responsibility of the vendor.

Civil Works to be carried out as per Standard BIS/ CPWD specifications

9. Electrical work

9.1 Power supply to the data centre

- 9.1.1 To achieve high power availability a 1 + 1 solution with two independent power paths should be designed. All equipment such as cables, LT breakers etc. should also be in a 1 + 1 configuration. Each path should be able to carry the full data centre load independently.

9.1.2 There should be an independent feeder for the server room. The power source for AC and other equipment should be separated from that of the server room.

9.2 Circuit breakers

There should be provision for adequate circuit breakers for handling in-rush and surge current to the equipment in addition to normal operating current. Each equipment should be provided a separate circuit with a circuit breaker which should be properly labelled in a single line diagram (SLD).

9.3 Power connectors

Power connectors for the server room should conform to prevailing standards. The placement of the power connectors should be properly planned both for redundancy and proximity.

9.4 Emergency power cut-off switch

There should be a cut-off switch to disconnect power from all computing equipment in the data centre. There should be a proper reset mechanism and safety mechanism against accidental operation. It should be located in the path between the MCB and the UPS

9.5 Automatic transfer switch

A high availability redundant automatic transfer switch should be provided to switch from primary AC source to the redundant source. It should provide redundant power supply to all equipment.

9.6 UPS and battery

For the data centre IT and communication load a redundant modular UPS system in N + N configuration should be provided. These should provide 3 phase/neutral power supply to the server racks through a 5 wire system. These should be rack mounted and hot swappable systems in small size modules which can be switched on/off as per IT rack load demand. The UPS should provide backup for at least 10 minutes within which the DG system should automatically be switched on.

Redundant power to every rack should be provided from at least two separate UPSs

The UPS output should be connected to the floor mounted PDUs through external isolation transformers

UPS load should also consider connection of fire and security system, emergency lights

The UPS systems should have adequate spike/surge suppression capabilities and should be provided with by-pass switches to isolate the UPS for repair.

9.7 Earthing

Provision for proper earthing of all equipment related to the data centre should be provided as per IEEE guidelines.

9.8 Electrostatic discharge (ESD) control

The data centre should be provided with equipment and methods for proper electrostatic discharge control

9.9 Site tests

Proper site tests as per standards should be conducted as a part of successful commissioning.

10. HVAC

1. The HVAC systems for both the data centres should have N+1 redundancy
2. The inlet air temperature to the servers should be maintained at 21 ± 2 °C and humidity as per ASHRAE guidelines.
3. The preferred cooling system in the server rack area should be designed using a combination of PAC, in-row cooling, rear door heat exchangers (RDHX), or other efficient systems along with an appropriate layout design and hot/cold aisle containment if necessary. If bidder have other cooling solution they can provide as alternative option.
4. The cooling systems should perform efficiently at variable load conditions. The overall cooling solution should be designed to achieve a low PUE.
5. There should be redundant paths for all critical components and there should not be any single point of failure.

In addition, the air conditioning system should provision for

- Air filtration as per standards.
- Heating (if necessary) and humidifiers to maintain correct operating environment throughout the data centre.

11. Other Requirements for Data Centre

1. Real-time monitoring of temperature and relative humidity at various locations in the data centre and alert after certain thresholds
2. Alarm indicators for component failures.
3. There should be facilities for periodic reports (including uptime reports) of all aspects of the data centre.
4. Passive cabling for all racks within the data centre.
5. Fire detection and suppression system.
6. Environmental monitoring and water leak detection system.
7. Rodent repellent system.
8. Video surveillance system.
9. Access control system.
10. Voltage spike arrestor