

# UNIVERSITY OF ENGINEERING & TECHNOLOGY, LAHORE



## REQUEST FOR PROPOSALS

For

VDI Solution on turnkey basis.

**Last Date for Submission:**

**10 April 2023 at 10:00 AM**

**Bid Opening Date:**

**10 April 2023 at 10:30 AM**

# UNIVERSITY OF ENGINEERING & TECHNOLOGY, LAHORE

COMPUTER CELL, RESEARCH CENTER  
UNIVERSITY OF ENGINEERING AND TECHNOLOGY LAHORE.  
PHONE: (042) - 99029101

## **TENDER NOTICE**

Sealed Proposals, on “single stage, two-envelope” bidding procedure (Technical & Financial Proposals separately), are hereby invited for the supply of items (**FOR Basis**) listed in the table below for **UET Lahore** from the authorized dealers, manufacturers, or suppliers of well reputed firms on turnkey basis. Detailed specifications of the items and other terms and conditions are given in the tender document.

Sr. #	Description	Estimated/ PC-I Cost (Rs. In Million)
Development of Facility for Computer-Based Entry Test and Online Classes At UET, Lahore. (IT Equipment (Online Digital Labs Facilities))		
01	VDI Servers and VDI Thin Client	133.125
02	Infrastructure for Computer network and switching for VDIs	13.119
<b>Total (Rs. In million)</b>		<b>146.244/-</b>

The Tender document can be obtained on the same day of publishing of the advertisement on National News Papers, PPRA Punjab, UET Lahore websites and from the office of **Director Computer Cell, Research Center UET Lahore (Ph. No. 042-99029101)** during office hours (8:00 AM to 4:00 PM) on the production of Challan amounting Rs. 2,000 (non-refundable) be deposited in the University Main PLS Account 01287902801499 (written on the challan forms) maintained in HBL, UET Branch Lahore. Deposit at call as earnest money from the scheduled bank @ 2% of the estimated cost in the name of **Treasurer, UET Lahore** should be accompanied along with the bid. **The last date of submission of tender is April 10, 2023, at 10:00 AM. The Technical proposals/tenders will be opened on same day at 10:30 AM** in the Central Procurement Committee meeting in the Conference Room adjacent to The Vice Chancellor’s Office UET Lahore in presence of the bidders or their representatives (if any).

- No telephonic/telegraphic/faxed tender will be accepted.
- Only Registered (Income tax, general sales tax and professional tax) firms are eligible to participate.

**(Prof. Dr. Waqar Mahmood)**  
**Director Computer Cell**  
University of Engineering and Technology,

**REQUEST FOR PROPOSAL-2023**

**TENDER PRICE:**

**Rs. 2,000/-**

**Issue date:**

**13/ March / 2023**

**Last date of submission:**

**10 / April / 2023 till 10:00 AM**

**FOR OFFICE USE ONLY**

Serial No. _____
Sold to: - M/S _____
Date of Sale _____ Bank Challan No. _____ Date _____

COMPUTER CELL, RESEARCH CENTER  
UNIVERSITY OF ENGINEERING AND TECHNOLOGY LAHORE.  
PHONE: **(042) - 99029101**

## OVERVIEW

University of Engineering and Technology (UET), Lahore intends to purchase the specified “VDI Solution”. The **Firms/suppliers** will be responsible for delivery and installation of the equipment.

### 1. Proposal Instructions (for BOQs on FOR Basis)

- 1.1 Single stage/two envelope bidding procedure shall be applied in response to the RFP (Request for proposal). The envelopes shall be marked as “TECHNICAL PROPOSAL” and “FINANCIAL PROPOSAL” separately plus “legible documents”. The financial proposal of bids found technically nonresponsive shall be returned unopened to the respective bidder. Technically responsive bidders shall be informed, and their financial bids shall be opened in the next Central Procurement Committee (CPC) meeting after informing the technically responsive bidders.
- 1.2 Responding organizations shall deliver sealed proposal of the “FINANCIAL & TECHNICAL PROPOSALS” before or on **10 April, 2023, at 10:00 AM.**
- 1.3 Proposals will not be accepted after the due date & time; proposals shall be delivered to the address given below before time. The TECHNICAL PROPOSALS shall be opened on the same day **10 April, 2023, at 10:30 AM** in the presence of bidders or the representatives of the responding organizations.
- 1.4 Bidders are advised not to quote different options for each item (only one option is to be quoted).
- 1.5 Price should be mentioned on FOR basis and in Pak Rupee.
- 1.6 All BOQs submitted by the bidder must use the numbers and labels used in this Request for proposal.
- 1.7 The original Request for Proposal documents duly signed and officially sealed by the bidder must be submitted in whole with the proposals. Any conditional, ambiguous, incomplete, supplementary, or revised offer after the opening of tender shall not be entertained.
- 1.8 Any overwriting/crossing, etc. appearing in the offer may be properly signed by the person signing the tender. All pages of the tender must be properly signed & stamped. Offer with any overwriting/use of Blanco shall not be accepted in any circumstances.
- 1.9 Warranty for Active Equipment and VDI software license as approved by the manufacturers/suppliers, but not less than three-year replacement of Parts, Labor & Service on site must be covered for after sales and services (labor and parts) for a period of Three year from the date of delivery.

- 1.10 A call at deposit equal to 2% (Rs. 2.92488 M) of estimated cost (Rs 146.244 M) should accompany the Tender as **Earnest Money** drawn in favor of **The Treasurer, UET, Lahore**. Tender shall not be considered without Earnest Money. Bank guarantee will not be accepted.
- 1.11 10% of the contract amount shall be deducted as security at the time of the bill process. The deducted amount as security will be returned after successful completion of Defect Liability / Warranty Period, after repairing the defects in the equipment / replacement found during the warranty period.
- 1.12 The Successful Bidder will deposit blank stamp papers of value of 0.25% of the total offer / contract amount, purchased in the name of **Treasurer University of Engineering & Technology (UET), Lahore**.
- 1.13 The quantity of an order may vary depending on the quoted price and the allocated funds.
- 1.14 The decision of the committee will be binding on all concerned and will in no case be challenged on any forum.
- 1.15 The **TECHNICAL COMMITTEE** reserves the right to modify the conditions / specifications of the Tender Document with written intimation to all the participants those who have purchased the Tender Documents.
- 1.16 The delivery period for imported items will be **24 – 30 weeks** from the date of issuance of purchase/supply order.
- 1.17 Delivery & Installation (wherever mentioned) be completed according to the agreed upon schedule of works and time.
- 1.18 In case the tenderer fails to execute the contract strictly in accordance with the terms and conditions laid down in the contract, the Security Deposit shall be forfeited.
- 1.19 The **TECHNICAL COMMITTEE** will get the equipments inspected at UET Lahore and will have the right to reject the equipment if not found according to the stated specifications.
- 1.20 UET Lahore reserves the right to claim compensation for the losses caused by the delay in the delivery of equipment by deducting 1% of the total amount payable to the supplier/contractor as penalty.
- 1.21 It is the sole responsibility of the vendor to comply with local, national, and international laws.
- 1.22 In case any supply / material is found not in conformity with the specifications provided in the tender, either on account of inferior quality, defective workmanship, faulty design, faulty packing or is short supplied, or wrongly supplied, the supplier shall replace the same free of charges.
- 1.23 All the proposals submitted will become the property of the University.

**Evaluation criteria are as follows.**

- 1- Financial Evaluation process may include, but not limited to the consideration of the following:
  - i. Quoted price.

<b>Evaluation Criteria</b>				
Category	Sr. No	Description	Requirement/Points	Evaluation / Evidence
Legal	1	Registration/Incorporation under the laws of Pakistan	Mandatory	Incorporation certificate
	2	Valid Income Tax Registration	Mandatory	NTN Certificate
	3	Valid Professional Tax Certificate	Mandatory	Professional Tax Certificate
	4	Valid General Sales Tax Registration certificate Active with FBR)	Mandatory	Provide Copy
	5	ISO Certificate 9000 or above of the company	Mandatory	Valid ISO Certificate
6	Submission of undertaking on legal, valid and attested stamp paper worth Rs. 100 to the effect that the firm is not Blacklisted and not involved in litigation with any of Provincial or Federal Government Department, Agency, Organization or autonomous body anywhere in Pakistan. In case involved in any litigation process, proof of dispute resolution is required.	Mandatory	Undertaking on Non-Judicial Stamp Paper	
Others	7	Manufacturer Authorization Letter (MAL) from OEM is a must.	Mandatory	Manufacturer Authorization Letter
	8	Bidder must quote for complete Tender, partial quote will not be entertained, equipment must be Brand new obtained through proper channel ( Complete solution should be one OEM and one brand)	Mandatory	Must attach brochures / Data Sheet

OEM	9	The OEM is in the leading position of 2022 wired and wireless Gartner Report.	Mandatory	Must Attach Reference Details
	10	All Equipment and licenses must need to be provided with three years support and subscription.	Mandatory	
	11	Factory Visit for VDI For Five Days for one Person.		
Bidder	12	HLD, LLD, project plan, scope of work, solution readiness, bid conciseness, and solution readiness.	Marks = 10	Must Attach Reference Details
	13	OEM should have 3 local references of VDI in education sector and minimum one should be in examination scenario in same size.	Max Marks = 10 03 or more = 10 02 = 5 01 = 2	Must Attach Reference Details
	14	Bidder Must have three (03) office in Major Cities of Pakistan	Max Marks = 10 03 or more = 10 02 = 5 01 = 2	Must Attach list of Offices with contact numbers
	15	Bidder Must have experience of 05 infrastructure / networking projects of quoted brands in last 03 Years.	Max Marks = 10 05 or more = 10 04 - 03 = 5 02 - 01 = 2	Must attach Purchase Orders / Signoff
	16	The bidder must have at least 03 ( three ) OEM certified resources (for infrastructure / networking)	Max Marks = 10 03 or more = 10 02 = 5 01 = 2	(Must attach certificates)
	17	Bidder Must have two (02) Project Manager (PMP Certified)	Max Marks = 10 02 or more = 10 01 = 5	( Must attach certificates)
	18	Bidder Human Resource Strength	Max Marks = 10 51-75 or more = 10 26-50 = 5 0-25 = 2	Must Attach List of Employees with Employee Name, Designation & ID

19	Bidder must have experience of Supply/Installation/Implementation of IT Projects in 10 HEI (Higher Education Institutes) (attach POs/ Signoff).	Max Marks = 10 9 to 10 = 10 5 to 8 = 5 1 to 4 = 2	Must attach Purchase Orders / Signoff
20	Bidder & OEM should have local registered office and presence in Pakistan from last Ten (10) years with the relevant sales, pre-sales, and engineering staff and at least One warehouse by OEM in Lahore and possesses parts availability within the country and must be registered with SECP.	Max Marks = 10 10 or more = 10 09 to 07 = 5 03 to 06 = 2	Incorporation certificate, SECP Certificate & List of Employees
21	Annual Turnover of Rs. 500M in last 03 years is mandatory to participate in tender.	Max Marks = 10 03 Years = 10 02 Years = 5 01 Year = 2	(Attached Audited Financial Report for last 3 years)
<b>Minimum Score Required to Qualify: 70</b>			

## Covering Letter

To

Director Computer Cell  
UET Lahore

Sub: \_\_\_\_\_

Dear Sir,

- a) Having examined the evaluation document and Appendixes we, the undersigned, in Conformity with the said document, offer to provide the said items on terms of reference to be signed upon the award of Purchase Order/Contract.
- b) We undertake, if our proposal is accepted, to provide the items/services comprised in the contract within time frame specified, starting from the date of receipt of notification of award from the Purchaser.
- c) We agree to abide by this proposal for the period of \_\_\_\_ days (as per requirement of the Project) from the date of opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- d) We agree to execute a contract in the form to be communicated by the Director Computer Cell, UET Lahore incorporating all agreements with such alterations or additions thereto as may be necessary to adapt such agreement to the circumstances of the standard.
- e) Unless and until a formal agreement is prepared and executed this proposal together with your written acceptance thereof shall constitute a binding contract agreement.
- f) We understand that you are not bound to accept any proposal you may receive, not to give any reason for rejection of any proposal and that you will not defray any expenses incurred by us in evaluation.

Authorized Signatures with Official Seal: \_\_\_\_\_

**TECHNICAL PROPOSAL SUBMISSION FORM**

**Place:**  
**Date:**

**To, (Client name and address)**

Dear Sir,

We, the undersigned, offer to provide the **Procurement of Hardware / IT Equipment** in accordance with your Request for Proposal/Tender Document No. ----- due on ----- and our Proposal. We are hereby submitting our Proposal, which includes the Technical Proposal and the Financial Proposal sealed in two separate envelopes.

We undertake, if our Proposal is accepted, to provide supply of -----  
----- related to the assignment.

We also confirm that the Government of Pakistan / Punjab has not declared us, or any Sub-Contractors for any part of the Contract, ineligible on charges of engaging in corrupt, fraudulent, collusive or coercive practices. We, furthermore, pledge not to indulge in such practices in competing for or in executing the Contract, and we are aware of the relevant provisions of the Proposal Document.

We understand you are not bound to accept any Proposal you receive.

Yours sincerely,

Name:

Designation:

Firm Name and address:

**FINANCIAL PROPOSAL SUBMISSION FORM**

**Place:**  
**Date:**

**To, (Client name and address)**

Dear Sir,

We, the undersigned, offer to provide the (Name of Procurement) in accordance with your Request for Proposal/Tender Document No. ..... due on ..... and our Proposal. Our attached financial proposal is for the sum of **Rs. ----- (Rupees -----)**. This amount is inclusive of all taxes.

Our financial proposal shall be binding upon us up to expiration of the validity period of the proposal, i.e., before the date indicated in clause no. ----- of the Proposal Data Sheet.

We also declare that the Government of Pakistan / Punjab has not declared us or any Sub-Contractors for any part of the Contract, ineligible on charges of engaging in corrupt, fraudulent, collusive, or coercive practices. We, furthermore, pledge not to indulge in such practices in competing for or in executing the Contract, and are aware of the relevant provisions of the Proposal Document.

We understand you are not bound to accept any Proposal you receive.

Yours sincerely,

Name:

Designation:

Firm Name and address:

## INTEGRITY PACT

(To be submitted on Legal Stamp Paper)

### AFFIDAVIT

We (Name of the Firm/ Supplier) \_\_\_\_\_being the first duly sworn on oath submit, that Mr. /Ms. \_\_\_\_\_(if participating through agent / representative) is the agent / representative duly authorized by \_(Name of the Firm/Supplier)\_ hereinafter called the Supplier to submit the attached proposal to the \_(Name of the Purchaser)\_. Affiant further states that the said M/s (Firm/ Supplier Name) has not paid, given or donate or agreed to pay, given or donate to any line officer or employee of the \_(Name of the Purchaser)\_ any money or thing of value, either directly or indirectly, for special consideration in the letting of the contract, or for giving undue advantage to any of the Firm/ Supplier in the evaluation Process and in the evaluation and selection of the Firm/ Supplier for contract or Participating in further Procurement Procedures or for refraining from properly and thoroughly maintaining projects implementations, reporting violation of the contract specification or other forms of non-compliance. [The Firm/ Supplier] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with the Purchaser and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty / support. [The Firm/ Supplier] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty / support. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to the Purchaser under any law, contract or other instrument, be voidable at the option of the Purchaser. Notwithstanding any rights and remedies exercised by the Purchaser in this regard, [the Firm/ Supplier] agrees to indemnify the Purchaser for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to the Purchaser in an amount equivalent to ten time the sum of any commission, gratification, bribe, finder's fee or kickback given by [the Firm/ Supplier] as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from the Purchaser.

\_\_\_\_\_  
Authorized Signature & Stamp

Subscribed and sworn to me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

\_\_\_\_\_  
Notary Public

### Financial Capacity of the Firm/Supplier

Additionally, the following financial data form shall be filled out for the Purchaser. The Purchaser reserves the right to request additional information about the financial capacity of the Firm/Supplier. A Firm/Supplier that fails to demonstrate through its financial records that it has the financial capacity to perform the required Supply/Services may be disqualified.

Financial Information	Historical information for the previous Three years (Most recent to oldest in (PAK Rupees))			
	Year 1	Year 2	Year 3	Total
<b>Information from Balance Sheet:</b>				
(1) Total Assets (TA)				
(2) Current Assets (CA)				
(3) Total Liabilities (TL)				
(4) Current Liabilities (CL)				
<b>Information from Income Statement:</b>				
(5) Total Revenue (TR)				
(6) Working Capital				
(7) Profits before Taxes (PBT)				
Net Worth (equity) (1)-(3)				

Provide information on current or past litigation or arbitration over the last Three (3) years as shown in the form below.

Litigation or arbitration in the last Three (3) years: No: \_\_\_\_\_ Yes: \_\_\_\_\_ (See below)

Litigation and Arbitration during Last Three (3) Years

Year

Matter in Dispute

Value of Award Against  
Contract in PAK Rupees

\_\_\_\_\_

Authorized Signatures with Official Seal

## **UNDERTAKING**

It is certified that the information furnished here in and as per the document submitted is true and correct and nothing has been concealed or tampered with. We have gone through all the conditions of evaluation and is liable to any punitive action for furnishing false information / documents.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

Signature

(Company Seal)

\_\_\_\_\_  
In the capacity of

Duly authorized to sign proposals for and on behalf of:

## 2. Required Information

Bidders are required to include the following documents/information in their technical proposals:

- i. The Name and Address
- ii. Profile of company (Including Financial Profile)
- iii. List of Pervious/Current customer of related equipments, with contact person and telephone/fax#
- iv. Detailed product information/brochures
- v. Detailed product warranty/guarantee information
- vi. Attested copy of National Tax Registration Certificate
- vii. Attested copy of Sales Tax Registration Certificate
- viii. Copy of the valid professional tax certificate
- ix. Detailed backup support plan
- x. Bank letter of financial standing duly signed by the relevant officer of the bank clearly mentioning name and designation.
- xi. An Affidavit on Rs.100/- Stamp paper that currently they are not blacklisted or debarred by any Government/Semi Government department to participate in bidding and to supply equipment. Failure to submit such an affidavit may lead to disqualification.
- xii. Any additional information the bidder may like to furnish e.g. repair/maintenance workshop owned by supplier and other concerned facility

In addition to the above, the proposal must include the following in the order given below:

- i. Detailed equipment specifications, proposed quantities duly filled on the BOQ attached with this document.
- ii. Detailed information which includes the delivery of equipment mentioned in the RFP in accordance with clause **1.16** of the tender.
- iii. Terms and Conditions
- iv. Validity period of the quoted price, i.e. 60 days
- v. Educational discounts if available/applied to the quoted price.

## 3. Terms and Conditions (FOR Basis)

- 3.1 All prices should be in PAK Rupees inclusive of all applied Govt. taxes.
- 3.2 All prices should be valid for at least 60 days. Withdrawal or any modification of the original offer within the validity period shall entitle the University to forfeit the earnest money in favour of the University and/or putting a ban/blacklisting on the future inquires or taking any other suitable action against the bidder.

- 3.3 Delivery of the items shall be free of charge at UET Main during office hours with a copy of delivery challan.
- 3.4 The items being ordered should be brand new and according to the order specifications of the current production and covered under normal warranty/guarantee etc. as mentioned in the proposal. Brochures mentioned and product details must be attached.
- 3.5 All equipment should have a lifetime license, UET will not pay any license fees after installation for all equipment, components, and software, where mentioned.
- 3.6 The bidder is fully responsible for design, assembly, installation, networking, and testing of the hardware.

Any query regarding this proposal should be directed to the contact no's. Listed below.

**COMPUTER CELL, RESEARCH CENTER  
UNIVERSITY OF ENGINEERING AND TECHNOLOGY LAHORE.**

- **042-99029101, 99250226**

# SUPPLIERS DATA FORM

1. Name of company \_\_\_\_\_

Address (Local Office) \_\_\_\_\_

\_\_\_\_\_ Telephone \_\_\_\_\_

Head Office \_\_\_\_\_

2. Number of years in relevant business (in Pakistan) \_\_\_\_\_

3. Major clients: (May attach a separate sheet, if necessary) \_\_\_\_\_

4. Is repair facility available at local office, YES  NO

If yes, please provide the level of repair, maintenance and back-up facilities available at local office:

\_\_\_\_\_

(Attach separate sheet, if necessary)

5. Biodata of the technical staff available in the local office to provide after-sale service: (Attach details on separate sheet) if necessary

6. Contact person for after-sale and service.

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Phone No: \_\_\_\_\_ Mobile \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

**Bid Form**

Date: \_\_\_\_\_

Tender Ref: \_\_\_\_\_

To: *[name and address of Purchaser]*

Gentlemen and/or Ladies:

Having examined the bidding documents including Addenda Nos. *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver *[description of goods and services]* in conformity with the said bidding documents for the sum of *[total bid amount in words and figures]* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we hereby agree that our Bid Security as being provided herewith this "Bid Form" will remain with the Purchaser according to Clause 1.18 of Instructions to Bidders.

We also agree to abide by this Bid for a period of *[number]* days from the date fixed for Bid opening under Clause 4.2 of the Instructions to Bidders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

[Signature]      [In the capacity of]

Duly authorized to sign Bid for and on behalf of

## Contract Form

THIS AGREEMENT made the [ ]<sup>th</sup> day of [ ] 2023 between **Computer Cell, Research Center UET Lahore Pakistan** (here in after called “the Purchaser”) of the one part and [ ] (hereinafter called “the Supplier”) of the other part:

WHEREAS the Purchaser invited bids for the above said Goods has accepted a bid by the Supplier for the supply of those Goods and services in the sum of **Rupees [ ]** (hereinafter called “the Contract Price”).

### NOW THIS AGREEMENT WITNESSES AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
  - (a) The Bid Form and the Price Schedule submitted by the Bidder.
  - (b) The Schedule of Requirements.
  - (c) The Technical Specification with Drawings (if any).
  - (d) The General Conditions of Contract.
  - (e) The Special Conditions of Contract.
  - (f) The Purchaser’s Notification of Award; and
  - (g) Bid Security (provided with the Bid Form)
3. In consideration of the payments to be made by the Purchaser to the Supplier as here in after mentioned, the Supplier hereby covenants with the Purchaser to provide the Goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the Contract.

IN WITNESS: whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, to whom delivered            the            (for the Purchaser)

Signed, sealed, delivered by            the            (for the Supplier)

**Technical Specifications (Supply, Installation, Integration and Commissioning turnkey basis (Firm/Company required to bid for whole tender).**

The minimum requirements of VDI Solution are given below. The quoted systems and all other specifications should be equal or higher.

<b>ACTIVE EQUIPMENT</b>	
<b>Desktop Cloud Software:</b>	<b>Qty.</b>
<b>Overall Requirements:</b>	
To ensure continuous investment and advancement in the cloud computing field, vendors must be members of international mainstream cloud computing standards organizations (such as OpenStack) and provide proofs.	
Provides virtualization software and desktop cloud software with independent intellectual property rights.	
In order to ensure the diversity and flexibility of hardware selection, the combination of software and hardware is required to be diverse. Vendors can provide integrated software and hardware delivery solutions or only software solutions to be compatible with hardware servers of different brands and performance in the future.	
The running interface of the virtual desktop is transmitted to the client in the form of screen change data. When no other device is connected, only the screen change instruction and the client input instruction are transmitted on the network. In this way, the data is not stored locally.	
There must be three local references of the OEM proposed solution in education sector and one reference should be in exam center.	
<b>User Experience:</b>	
Smooth operation and no frame freezing.	
To ensure the same startup experience as PC, the desktop startup and shutdown processes are visualized. Users can view the VM startup and shutdown processes completely. (Provide screenshots for proof)	
To ensure the same login experience as a PC, users can directly log in to and use virtual desktops after powering on TCs. (Provide configuration screenshots for proof.)	
To minimize the impact of the network on user experience, the desktop cloud must be able to be used smoothly when the bandwidth is low.	
When an existing PC is used as the access terminal, the start menu and local resources of the local PC are shielded. (Provide screenshots for proof)	
<b>Management Capability:</b>	
To quickly deploy the office environment, the solution provides the quick virtual desktop provisioning function. VMs can be created and provisioned in one operation without administrator intervention.	
Supports remote session management. Administrators can remotely disconnect and log out user sessions. The administrator can send messages to users in batches.	
Supports set virtual desktops to the maintenance mode to prevent users from logging in to the system by mistake during system upgrade.	
Supports remote assistance. Administrators can initiate assistance requests. Users	

can view and operate virtual desktops after obtaining their consent.	
Supports automatic upgrade of the virtual desktop agent. You can configure the administrator forcible update, administrator notification update, and user self-service update.	
Supports status monitoring and alarm reporting, health check, and one-click log collection for all desktop cloud infrastructure components.	
Supports customize the CPU, memory, disk, and network thresholds of clusters, hosts, and VMs. Alarms are classified into warning, minor, major, and critical alarms based on the severity. Email subscription is supported.	
The desktop cloud management system supports local accounts and AD domain accounts. Users can log in to the system only from a specified IP address segment and time segment. Password complexity and conditional lockout policies can be configured.	
The desktop cloud management system allows administrators to view, filter, and export operation logs. Logs cannot be modified or deleted but can be traced.	
CPU/memory specifications can be added online in batches. The settings take effect after VM restart. Virtual NICs can be added or deleted online, and disks can be expanded online. The functions take effect immediately.	
<b>Security:</b>	
To ensure data security, the desktop cloud system and data must be stored in the data center and cannot be stored on terminals.	
Supports security policies, such as forcible password change upon first login, periodic password change, graphic verification code, and two-factor authentication, to ensure user identity security.	
Allows users to log in only from specified terminals or time by IP address (segment), MAC address (group), and time range. Certificate authentication is supported. A BYOD device without a certificate cannot be logged in to.	
Supports binding between users and MAC addresses. Users can log in only from terminals with specified MAC addresses. PCs, TCs, and mobile terminals are supported. Supports manual entry, batch import, and automatic binding upon the first login (users can be maintained and excluded).	
Supports the watermark function. Administrators can configure the color, font size, number of entries, tilt, and customized display content.	
Supports automatic desktop reconnection upon intermittent network disconnection. When the network is unstable, the desktop can be automatically reconnected without re-entering the password. The number of reconnection times and interval are configurable.	
Supports common deletion and secure deletion of virtual desktops. Secure deletion erases physical disks by writing zero data to prevent user data from being stolen or maliciously used.	
Supports transfer of files, folders, and clipboards between terminals and virtual desktops. Supports read-only (only access), write-only (only access), and read-write (bidirectional) modes.	
<b>Reliability:</b>	
HA is supported. When a server is faulty, VMs can be automatically migrated.	
Supports cluster load balancing scheduling policies. Scheduling tasks can be triggered based on the CPU and memory usage. VMs are dynamically selected during startup and automatically migrated to low-load hosts during running, implementing automatic load balancing.	

Supports live migration of virtual desktops between different hosts and storage LUNs without interrupting services.	
High-availability health monitoring and automatic failover capabilities are provided between infrastructure components without external components or manual assistance. After a user obtains a VDI desktop connection, the failure of a single component does not affect the user's use.	
The mutual exclusion function of management VMs can be configured to ensure that components that provide the same functions run on different physical hosts, ensuring high availability of the platform.	
Management data (such as databases, logs, and certificate files) can be automatically backed up. Management data can also be backed up to a third-party FTP server. Scheduled backup and immediate backup are supported.	
<b>Scalability:</b>	
To support capacity expansion, the number of online desktops that can be managed by a single desktop cloud management system is greater than or equal to 5000.	
<b>VM Specification Requirements:</b>	
A maximum of 500 VMs can be provisioned. Each VM provides 2 vCPUs, 4 GB memory, and at least 50 GB storage capacity to support smooth running of Windows 10 & 50GB volume disk.	500 VDI Clients
VMs are required for application deployment. The specifications are as follows: 16 vCPU, 32 GB memory, and at least 280 GB storage capacity.	03 VMs
<b>Warranty:</b>	
OEM warranty need to be added for 3 years 9*5*NBD.	
<b>Hyper-converged Appliance:</b>	<b>Qty.</b>
<b>Qualification:</b>	
The bidding product has been launched for more than three years and has independent intellectual property rights. The hardware and software of the hyper-converged system are not OEM products. (Provide hardware BMC and storage software certificates and patents.)	
The bidding product vendor must be a Gartner Magic Quadrant brand for hyper-convergence and provide Gartner reports.	
<b>Management Capability:</b>	
Monitors and manages computing, storage, switches, and virtualization platforms on the same management interface.	
Centralized management solutions can be deployed by schools, or local sites can be deployed based on network conditions. The access center can be managed in a unified manner.	
Management nodes work in active/standby mode to ensure platform availability. If a single management node is faulty, services are not affected.	
Supports one-click capacity expansion of storage, computing, and network resources on the GUI. The OS and virtualization platform software installation and initial configuration are automatically completed for added nodes.	
Backup software is provided. Users can easily access the backup system through a browser at no extra charge. Supports agentless VM backup and permanent incremental backup. The backup system ensures that each backup contains a complete VM image, which is a full virtual backup. You do not need to merge	

backup data when restoring and deleting backup data	
<b>Distributed Storage Capability:</b>	
Distributed storage software is built on standard x86 hardware. Non-open-source software is developed. For example, open-source Lustre, GlusterFS, and Ceph software cannot be used. The decentralized architecture and data redundancy technology at the software layer achieve high scalability and high availability.	
Multi-copy or EC data redundancy mode is supported to meet high reliability requirements.	
A single storage cluster can be expanded to 256 or more nodes.	
A single storage cluster supports a maximum of 64 storage resource pools, and a single storage resource pool supports a maximum of 512 disks.	
A single system supports at least 1000000 storage volumes, and the maximum capacity of a single volume is greater than or equal to 256 TB.	
<b>Warranty:</b>	
OEM warranty need to be added for 3 years 9*5*NBD	
<b>Terminal:</b>	<b>Qty</b>
<b>Overall Requirements:</b>	
Provides 500 terminals. To ensure consistency and convenience of maintenance, terminals must be of the same brand as desktop cloud software, virtualization software, servers, storage devices, and switches.	
Pass the CCC, CE, ROHS, and RFID certifications.	
<b>Hardware:</b>	
Vendors provide terminals with multiple architectures, including ARM and x86.	
<b>Software:</b>	
ARM-based terminals support the embedded operating system Android or Linux. Terminals using the x86 architecture support Linux or Windows.	
To manage terminals in batches, a terminal management system must be provided. The management system can remotely perform centralized maintenance, configuration, deployment management, security management, asset management, and performance monitoring on terminals. You can restore, upgrade, and install patches on terminals in batches.	
To prevent terminals from being damaged due to sudden power failure in the office area, the terminal management system provides power management functions such as periodically shutting down terminals. (Provide screenshots to prove it.)	
A self-service connection and maintenance tool is provided to facilitate troubleshooting and automatic rectification of terminal exceptions. The detection objects include but are not limited to the network adapter status, desktop agent, IP address, system clock, desktop protocol service status, and VM registration status. In addition, the one-click repair function is provided. (Provide screenshots for proof)	
The client integrated in the terminal needs to provide a network status indicator so that users can learn the network status in a timely manner when the network is abnormal. When user experience is not smooth, users can determine whether the	

network is normal based on indicators. (Provide screenshots to prove it.)	
<b>Network Switches:</b>	
<b>24 Port Core Switches</b>	
24 x 10 Gig SFP+, 6 x 40/100 Gig QSFP28	
Dual pluggable power modules, 1+1 power backup	
Forwarding Performance 450Mpps or higher	
Switching capacity: 1.5 Tbps or higher	
The switch should support Jumbo frames up to 8Kbytes.	
Must include redundant power supplies.	
Must support 4GB RAM or higher.	
<b>Layer 2 Features</b>	
The equipment must support up to 200K MAC address tables.	
Must support Mac-based, Port-based, protocol-based, and IP subnet-based VLAN assignment	
Should support Ethernet Ring Protection Switching	
Switch must support the IEEE 802.1ad (Q-in-Q) standard, voice VLAN or equivalent, Port aggregation, STP, RSTP, MSTP.	
<b>Layer 3 Features</b>	
The equipment shall support static route, RIPv1/v2, OSPF, IS-IS, BGP, RIPng, ISISv6, OSPFv3, BGPv4+, GR for OSPF/IS-IS/BGP, IP FRR, IPv4/IPv6 dual stack, VRRP.	
Should support up to 120K routing entries.	
<b>Multicast</b>	
The equipment shall support IGMP proxy, IGMP snooping, MLD snooping v1/v2, PIM DM, PIM SM, PIM SSM, IGMPv1/v2/v3	
<b>QoS</b>	
Ingress and egress traffic shaping and VLAN based traffic limit.	
Queuing algorithms, such as SP, WRR, DRR, SP + WRR, and SP + DRR.	
Flow mirroring.	
<b>Security</b>	
The equipment must support bidirectional ACL, port-based ACL, VLAN-based ACL, CPU defense, DAI (Dynamic ARP Inspection), DHCP Snooping, Denial of Service (DoS) attacks, SYN Flood attacks, Port-based network access control according to IEEE 802.1x standard	
<b>Network O&amp;M</b>	

02

The equipment must support SNMPv1/v2c/v3, Telnet, RMON, SSHv2, CLI, web management, automatic configuration, and batch remote upgrade.	
<b>48 Port Access Switches:</b>	
48 x 10/100/1000Base-T ports, 4 x 10 GE SFP+ ports, 2 x 12GE stack ports	
1+1 power supply backup	
Forwarding performance: 150 Mpps	
Switching capacity*: 200Gbps or more	
Must support RAM 2GB or more	
Co-Care_36Month(s)	
<b>Layer 2 Features</b>	
The equipment must support up to 32K MAC address tables	
Should support Ethernet Ring Protection Switching	
Support Mac-based, Port-based, protocol-based, and IP subnet-based VLAN assignment, up to 4K active VLAN, Guest VLAN or equivalent, voice VLAN or equivalent	
<b>Layer 3 Features</b>	12
The equipment must include Static route, RIP, RIPng, and OSPF features and provide at least 2K FIBv4 entries.	
<b>Multicast</b>	
The equipment must support IGMP snooping v1/v2/v3, MLD snooping v1/v2, multicast VLAN replication	
<b>QoS</b>	
The equipment must support ingress and egress traffic shaping and VLAN based traffic limit, flow mirroring	
<b>Security</b>	
The equipment must support bidirectional ACL, port-based ACL, VLAN-based ACL, automatic isolation of attack sources, CPU defense, DAI (Dynamic ARP Inspection), DHCP Snooping, IP Source Guard, port-based network access control according to IEEE 802.1x standard	
<b>Network O&amp;M</b>	
The equipment must support SNMPv1/v2c/v3, Telnet, RMON, SSHv2, CLI, web management and automatic configuration	

<b>SFP Modules:</b>	<b>Qty.</b>
---------------------	-------------

10G Single Mode SFP+ modules (1.4 KM Range)	<b>15 Pair</b>
10G Single Mode SFP+ modules (10 KM Range)	<b>5 Pair</b>

<b>PASSIVE EQUIPMENT</b>		
<b>ITEM</b>	<b>SPECIFICATION:</b>	<b>Qty.</b>
<b>UTP Cable</b>	Cat 6 UTP 4 pair cable, Conductor: Solid Bare Copper AWG 23, 305 Meter Box	<b>68 Roll</b>
<b>Patch Panel</b>	24 Port Patch Panel with Top Label Holder including 24 Cat-6 Toolless I/O With Shuttered Fully Loaded,	<b>24 nos</b>
<b>Cable Manager</b>	Front Cable Manager Horizontal, IU, PVC	<b>30 nos</b>
<b>UTP Patch Cable (cord)</b>	Patch Cord, UTP Cat-6 Patch Cord, RJ45 to RJ45, 3- Meter, PVC	<b>500 nos</b>
	Patch Cord, UTP Cat-6 Patch Cord, RJ45 to RJ45, 1- Meter, PVC	<b>500 nos</b>
<b>Face Plates</b>	Face Plate without Shuttered & with Top Label Holder	<b>500 nos</b>
<b>RJ 45 I/O Module</b>	UTP Cat-6 RJ-45 Toolless I/O With Shuttered White	<b>500 nos</b>
<b>Back Box</b>	Back Box for Face Plate	<b>500 nos</b>
<b>RJ 45</b>	Connector Box	<b>1 nos</b>
<b>Data Rack/Cabinets</b>	42U standard Rack for Switches with front & back 70% vented perforated lockable doors - Load capacity 1200 Kg, 16-18SWG, One fixed tray, 4 fans mounted on TOP, Black powder quoted, with 8 ports PDU (Quantity = 4) and PDU should be verified by ROHS & CE.	<b>02 nos</b>
	24U Floor Standing Rack for Switches, 4 fans mounted on top, 16-18SWG, Load capacity 850 Kg Black powder quoted and perforated door with 8 ports PDU and PDU should be verified by ROHS & CE.	<b>01 nos</b>
	Data Cabinet - 9U Double Section for Switches with Lockable tempered glass door, max 30 KG static loading capacity, 2 Fans, 16-18SWG with 8 Ports PDU and PDU should be verified by ROHS & CE	<b>12 nos</b>
<b>Optical Fiber Cable</b>	12-Core Single mode Fiber Optic Cable Outdoor Direct Burial (In Meters)	<b>2100</b>
	4-Core Single mode Fiber Optic Cable (In Meters)	<b>1000</b>
	Soft and Hard Digging and Refilling (in meters)	<b>1900</b>
<b>ODF &amp; Splicing</b>	12 Port Wall Mount/Rack Mount Optical Fiber ODF with Adopters & Splicing Tray	<b>06 nos</b>
	4 Port Wall Mount/Rack Mount Optical Fiber ODF with Adopters & Splicing Tray	<b>12 nos</b>
	Fiber Splicing with OTDR Testing	<b>As per</b>

		<b>requirement</b>
	Single Mode fiber patch cord SC-LC (3Meter Duplex)	<b>25 nos</b>
<b>Joint Box</b>	ODF Joint box for Fiber Cable 12Core.	<b>10 nos</b>
<b>Cable Ties</b>	Cable Ties 10 Inch	<b>200 nos</b>
	Cable Ties 12 Inch	<b>200 nos</b>
<b>Pipes</b>	PVC Flexible Pipe, 1-inch (10 feet Length)	<b>7000</b>
	PVC Flexible Pipe, 2 inch (10 feet Length)	<b>600</b>
	Pipe HDPE For Fiber 1" (in meters)	<b>1900</b>
<b>Duct</b>	PVC Duct 16x38 (in feet)	<b>400</b>
<b>Steel Cable</b>	Steel Cable Tray 3"x12" with Cover all Accessories and Complete Fitting Material (in feet)	<b>250</b>
<b>Installation</b>	Cable Laying, Ducting, Fixing of Cable Tray, and Complete Installation	<b>500 points</b>
	Installation of CCTV Cameras	<b>15 points</b>
	Termination/Tagging/ Hanging of Material Face Plate End and Patch Panel End Data, Telephone, CCTV and TV Points	<b>500 points</b>
<b>Fluke Testing</b>	Fluke Testing with DTX-1800	<b>500 points</b>
<b>CCTV Camera(s)</b>	<p>2MP IP Camera, CMOS image sensor, high image definition</p> <ul style="list-style-type: none"> <li>▪ Outputs max. 2MP (1920 × 1080p) @25/30 fps</li> <li>▪ High compression rate, ultra-low bit rate</li> <li>▪ Built-in IR LED, max. IR distance: 80 m</li> <li>▪ ROI, SMART H.264/H.265, flexible coding, applicable to various bandwidth and storage environments</li> <li>▪ Abnormality detection: Motion detection, video tampering, network disconnection, IP conflict</li> <li>▪ 12V DC/PoE power support</li> <li>▪ IP67 protection</li> </ul>	<b>15</b>
<b>NVR</b>	32 Channel with 2 HDDs x 3 TB HDDs	<b>01</b>
<b>PoE Switches</b>	4 Ports PoE Switch 10/100 Mbps	<b>10</b>
<b>UPS</b>		
<b>ITEM</b>	<b>SPECIFICATIONS:</b>	<b>Qty.</b>
<b>UPS 10KVA</b>	Switching Time: 0 ns	<b>02</b>
	Topology: Online double conversion VFI/DSP with input PFC and automatic bypass	
	Load Capacity (VA): 10000 VA	
	Load Capacity (Watt): 9000 W	
	Waveform: Sine Wave	
	Input: L-N: 175-280V ± 5 AC, 40Hz~70Hz	
	AC Output Voltage Regulation must be less than ±3%	
	Output frequency must be in 50±0.5%Hz (battery mode).	
Output frequency tracking speed : 0.5-1zHz/S		

	Output power factor must be more than 0.9	
	Overload Protection: Yes	
	Communication: Modbus built-in (JBUS)/SNMP	
	Output Voltage: L-N 220 V AC, 230 V AC, 240 V AC	
	Battery backup: Separate rack mounted battery pack for 10min backup at full load	
	Warranty: 1 Years	