I/6799/2023

KERALA AGRICULTURAL UNIVERSITY
Directorate of Information Systems
KAU Main Campus, KAU P.O., Thrissur-680656
e-mail: dis@kau.in Phone: +91-487-2438182

KAUDIS/149/2023-DIS A1   Dated : 25/10/2023

TENDER NOTICE
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        Kerala Agricultural University invites sealed Tenders from Service provider/ firm/ Supplier/ Contractor for **"*VPN Switch and Router*"** in its Vellanikkara campus as per the schedule of requirements given in the BOQ (see Annexure 1), meeting the technical specifications(see Annexure 2), subject to the terms and conditions mentioned in see Annexure 3.

Important Information

Bid Inviting Authority	**Directorate of Information Systems**, Kerala Agricultural University
Contact Person	Director, Directorate of Information Systems, Academic Block 1, College of Agriculture, Vellanikkara. KAU– PO, Thrissur – 680656. Ph: 0487-2438183
Mode of Tender Submission	Direct/ By post**
Nonrefundable Tender document fee	Tender Fee: 0.2% of the cost of tender rounded to the nearest multiple of 100, subject to a minimum of Rs. 400/- and maximum Rs.1500/- + 18% GST
Earnest Money Deposit (EMD) payable *	1% of quoted amount (to be remitted as separate DD drawn in favor of Director, Directorate of Information Systems, payable at SBI, Vellanikkara)
GST Rate Applicable	As per GST rules
Last Date of Submitting the Tender Documents	3 PM on 07.11.2023
Opening of Tenders	12 PM on 08.11.2023

 * Exemption is allowed to MSME companies as per Govt. rules.
 **In the case of Courier, ensure the company has delivery at this office

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Annexure 1

SLNo	Item	Qty
1	VPN Switch	1 No.
2	VPN Router	30 Nos.

Annexure 2   **Specification**
1) VPN Switch

HARDWARE FEATURES	
Interface	• 2× 10GE SFP+ Ports (1 WAN, 1 WAN/LAN) • 1× 1GE SFP WAN/LAN Ports • 8× 1GE RJ45 WAN/LAN Ports • 1× RJ45 Console Ports • 2× USB Ports (Connecting 4G/3G Modem as WAN Backup)
Button	Reset Button
Power Supply	Redundant Dual Power Supplies (100–240 VAC, 50/60 Hz)
Flash	4MB SPI NOR + 256 MB NAND
DRAM	4 GB DDR4
LED	PWR, SYS, WAN, LAN, USB, FAN
Dimensions (W x D x H)	17.3 × 8.7 × 1.7 in (440 × 220 × 44 mm)
Max Power Consumption	• 26.36 W (with USB 3.0 connected) • 19.12 W (without USB 3.0 connected)

BASIC FUNCTIONS	
WAN Connection Type	• Static/Dynamic IP • PPPoE • PPTP • L2TP • 6to4 Tunnel • Pass-Through • Mobile Broadband: 4G/3G modem for backup via USB port
MAC Clone	Modify WAN/LAN MAC Address[4]
DHCP	• DHCP Server/Client • DHCP Address Reservation • Multi-net DHCP • Multi-IP Interfaces

BASIC FUNCTIONS	
IPv6	WAN Connection
VLAN	802.1Q VLAN
IPTV	IGMP v2/v3 Proxy

ADVANCED FUNCTIONS	
ACL	IP/Port/Protocol/Domain Name Filtering
Advanced Routing	• Static Routing • Policy Routing
Bandwidth Control	• IP/Port-based Bandwidth Control • Guarantee & Limited Bandwidth
Load Balance	• Intelligent Load Balance • Application Optimized Routing • Link Backup (Timing Failover) • Online Detection
NAT	• One-to-One NAT • Multi-Net NAT • Virtual Server • Port Triggering • NAT-DMZ • FTP/H.323/SIP/IPSec/PPTP ALG • UPnP
Security	• SPI Firewall • VPN Passthrough • FTP/H.323/PPTP/SIP/IPsec ALG • DoS Defence, Ping of Death • Local Management
Session Limit	IP-based Session Limit

VPN	
SSL VPN	• SSL VPN Server • SSL VPN Client • 500 OpenVPN Tunnels
IPsec VPN	• 300 IPSec VPN Tunnels • LAN-to-LAN, Client-to-LAN • Main, Aggressive Negotiation Mode • DES, 3DES, SHA1, SHA2, AES128, AES192, AES256 Encryption Algorithm • IKE v1/v2

VPN	
	• MD5, SHA1 Authentication Algorithm • NAT Traversal (NAT-T) • Dead Peer Detection (DPD) • Perfect Forward Secrecy (PFS)
PPTP VPN	• PPTP VPN Server • PPTP VPN Client (32) • 300 Tunnels (Shared with L2TP) • PPTP with MPPE Encryption
L2TP VPN	• L2TP VPN Server • L2TP VPN Client (32) • 300 Tunnels (Shared with PPTP) • L2TP over IPSec
OpenVPN	• OpenVPN Server • OpenVPN Client (10) • 110 OpenVPN Tunnels

SECURITY	
Filtering	• WEB Group Filtering • URL Filtering • Web Security*5
ARP Inspection	• Sending GARP Packets • ARP Scanning • IP-MAC Binding
Attack Defense	• TCP/UDP/ICMP Flood Defense • Block TCP Scan (Stealth FIN/Xmas/Null) • Block Ping from WAN
Access Control	Source/Destination IP Based Access Control

AUTHENTICATION	
Web Authentication	• No Authentication • Simple Password • Hotspot（Local User / Voucher / SMS / Radius） • External Radius Sever • External Portal Sever • Facebook Check-In • Instagram Follow

MANAGEMENT	
App	Yes. Cloud-Based Controller/ or Software Controller.
Centralized Management	Hardware Controller Hardware Controller Software Controller Cloud-Based Controller
Cloud Access	Yes. Cloud-Based Controller, or Software Controller.
Service	Dynamic DNS (Dyndns, No-IP, Peanuthull, Comexe)
Maintenance	• Web Management Interface • Remote Management • Export & Import Configuration • SNMP v1/v2c/v3 • Diagnostics (Ping & Traceroute) • NTP Synchronize • Syslog Support
Zero-Touch Provisioning	Yes. Requiring the use of Cloud-Based Controller.
Management Features	• Automatic Device Discovery • Intelligent Network Monitoring • Abnormal Event Warnings • Unified Configuration • Reboot Schedule • Captive Portal Configuration

OTHERS	
Certification	CE, FCC, RoHS
Package Contents	Multi-WAN Security Gateway ER8411 • Power Cord • Rack-Mount Kit • Quick Installation Guide
System Requirements	Microsoft Windows 98SE, NT, 2000, XP, Vista™ or Windows

OTHERS	
	7/8/8.1/10/11, MAC OS, NetWare, UNIX or Linux
Environment	• Operating Temperature: 0–40 ℃ (32–104 ℉); • Storage Temperature: -40–70 ℃ (-40–158 ℉) • Operating Humidity: 10–90% RH non-condensing • Storage Humidity: 5–90% RH non-condensing

2) VPN Router

HARDWARE FEATURES	
Standards and Protocols	• IEEE 802.3, 802.3u, 802.3ab, IEEE 802.3x, IEEE 802.1q • TCP/IP, DHCP, ICMP, NAT, PPPoE, NTP, HTTP, HTTPS, DNS, IPSec, PPTP, L2TP, OpenVPN, SNMP
Interface	• 1 Fixed Gigabit WAN Port • 2 Fixed Gigabit LAN Ports • 2 Changeable Gigabit WAN/LAN Ports • 1 USB 2.0 Port (Connecting 4G/3G Modem as WAN Backup‡)
Network Media	• 10BASE-T: UTP category 3, 4, 5 cable (Max 100m) EIA/TIA-568 100Ω STP (Max 100m) • 100BASE-TX: UTP category 5, 5e cable (Max 100m) EIA/TIA-568 100Ω STP (Max 100m) • 1000BASE-T: UTP category 5, 5e, 6 cable (Max 100m)
Fan Quantity	Fanless
Button	Reset Button
Power Supply	External 12V/1A DC Adapter
PoE Budget	-
Flash	128 MB NAND
DRAM	256 MB DDR
LED	PWR, SYS, WAN (Link/Act), LAN (Link/

HARDWARE FEATURES	
	Act), USB
Dimensions (W x D x H)	6.2 × 4.0 × 1.0 in (158 × 101 × 25mm)
Protection	4 kV surge protection
Enclosure	Steel
Mounting	Desktop/Wall-mount
Max Power Consumption	7.94 W

PERFORMANCE	
Concurrent Session	150,000
New Sessions / Second	2,600
NAT (Static IP)	• Upload: 945.77 Mbps • Download: 945.56 Mbps • Bi-Directional: 1808.29 Mbps
NAT(DHCP)	• Upload: 945.93 Mbps • Download: 945.43 Mbps • Bi-Directional: 1808.11 Mbps
NAT(PPPoE)	• Upload: 940.44Mbps • Download: 940.52 Mbps • Bi-Directional: 1804.27 Mbps
NAT (L2TP)	• Upload: 845.64 Mbps • Download: 802.65 Mbps • Bi-Directional: 931.96 Mbps
NAT (PPTP)	• Upload: 771.66 Mbps • Download: 874.81 Mbps • Bi-Directional: 999.54 Mbps
64 Byte Packet Forwarding Rate	• Upload/Download: 1,402,238 pps • Bi-Directional: 1,681,548 pps
IPsec VPN	• ESP-MD5-AES256: 171.26 Mbps

PERFORMANCE	
Throughput	• ESP-SHA1-AES256: 224.86 Mbps • ESP-SHA2-AES256: 248.04 Mbps
OpenVPN	• 21.70 Mbps
L2TP VPN Throughput	• Unencrypted: 864.65 Mbps • Encrypted: 47.11 Mbps
PPTP VPN Throughput	• Unencrypted: 703.20 Mbps • Encrypted: 76.65 Mbps
SSL VPN Throughput	-
66 Byte Packet forwarding rate	• Upload/Download: 954.50 Mbps • Bi-Directional: 1130.00 Mbps
1,518 Byte Packet forwarding rate	• Upload/Download: 997.50 Mbps • Bi-Directional: 1965.00 Mbps

BASIC FUNCTIONS	
WAN Connection Type	• Static/Dynamic IP • PPPoE • PPTP • L2TP • Mobile Broadband: 4G/3G modem for backup via USB port‡
MAC Clone	Modify WAN/LAN MAC Address†
DHCP	• DHCP Server/Client • DHCP Address Reservation • Multi-net DHCP • Multi-IP Interfaces
IPv6	StaticIP / SLAAC / DHCPv6 / PPPoE / 6to4Tunnel / PassThrough
VLAN	802.1Q VLAN
IPTV	IGMP v2/v3 Proxy, Custom Mode, Bridge Mode

ADVANCED FUNCTIONS	
ACL	IP/Port/Protocol/Domain Name Filtering
Advanced Routing	• Static Routing • Policy Routing
Bandwidth Control	IP-based Bandwidth Control
Load Balance	• Intelligent Load Balance • Application Optimized Routing • Link Backup (Timing, Failover) • Online Detection
NAT	• One-to-One NAT§ • Multi-Net NAT • Virtual Server • Port Triggering • NAT-DMZ • FTP/H.323/SIP/IPSec/PPTP ALG, UPnP
Security	• SPI Firewall • VPN Passthrough • FTP/H.323/PPTP/SIP/IPsec ALG • DoS Defence, Ping of Death • Local Management
Session Limit	IP-based Session Limit

VPN	
IPsec VPN	• 20 IPsec VPN Tunnels • LAN-to-LAN, Client-to-LAN • Main, Aggressive Negotiation Mode • DES, 3DES, AES128, AES192, AES256 Encryption Algorithm • IKEv1/v2 • MD5, SHA1 Authentication Algorithm • NAT Traversal (NAT-T) • Dead Peer Detection (DPD) • Perfect Forward Secrecy (PFS)

VPN	
PPTP VPN	• PPTP VPN Server • 10 PPTP VPN Clients • 16 Tunnels • PPTP with MPPE Encryption
L2TP VPN	• L2TP VPN Server • 10 L2TP VPN Clients • 16 Tunnels • L2TP over IPSec
OpenVPN	• OpenVPN Server • 10 OpenVPN Clients • 16 OpenVPN Tunnels

SECURITY	
Filtering	• WEB Group Filtering[§] • URL Filtering • Web Security
ARP Inspection	• Sending GARP Packets[§] • ARP Scanning • IP-MAC Binding
Attack Defense	• TCP/UDP/ICMP Flood Defense • Block TCP Scan (Stealth FIN/Xmas/Null) • Block Ping from WAN
Access Control	Source/Destination IP Based Access Control

AUTHENTICATION	
Web Authentication	No Authentication Simple Password* Hotspot （Local User / Voucher* / SMS* / Radius* ） External Radius Sever External Portal Sever* • Facebook*

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MANAGEMENT	
App	Yes Cloud-Based Controller, / Software Controller.
Centralize d Managem ent	Hardware Controller Software Controller Cloud-Based Controller
Cloud Access	Yes. Cloud-Based Controller, or Software Controller.
Service	Dynamic DNS (Dyndns, No-IP, Peanuthull, Comexe)
Maintenan ce	• Web Management Interface • Remote Management • Export & Import Configuration • SNMP v1/v2c/v3 • Diagnostics (Ping & Traceroute) • NTP Synchronize • Syslog Support
Zero-Touch Provisionin g	Yes. Requiring the use of Cloud-Based Controller.
Managem ent Features	• Automatic Device Discovery • Intelligent Network Monitoring • Abnormal Event Warnings • Unified Configuration • Reboot Schedule • Captive Portal Configuration

OTHERS	
Certificat ion	CE, FCC, RoHS
Package Contents	• Gigabti VPN Router ER605 • Power Adapter • RJ45 Ethernet Cable • Quick Installation Guide
System Require ments	Microsoft Windows 98SE, NT, 2000, XP, Vista™ or Windows 7/8/8.1/10/11, MAC OS, NetWare, UNIX or Linux
Environ ment	• Operating Temperature: 0–40 ℃ (32–104 ℉); • Storage Temperature: -40–70 ℃ (-40–158 ℉) • Operating Humidity: 10–90% RH non-condensing • Storage Humidity: 5–90% RH non-

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OTHERS	
	condensing

Annexure 3

Terms and conditions:

1.   The Tenders superscribed "**VPN Switch and Routers**" should be addressed to the Director of Information Systems, Academic Block 1, College of Agriculture, Vellanikkara. The last date for the receipt of filled in Tenders is 3 pm on   07.11.2023   and the same will be opened at 12 pm on 08.11.2023 in the presence of tenderers or their authorized representatives who may be present at that time. The cost of tenders has to be remitted in the by means of DD or cheque drawn in the name of Director of Information Systems, Kerala Agricultural University.

2.   Tender should be submitted in the prescribed form which can be downloaded from the website www.kau.in/tenders. The cost of the tender forms will not be refunded under any circumstances.

3.   Each tender should be accompanied by an Earnest Money Deposit of 1% of the total quoted amount in the form of demand draft drawn in favour of Director of Information Systems, Kerala Agricultural University payable at SBI, Vellanikkara branch. The tender should be accompanied by an agreement in Kerala Stamp Paper worth Rs.200/- (Rupees Two Hundred only) and format can be downloaded from the above website. Withdrawal of tenders after its acceptance or failure to supply the items or supplies not in accordance with the specification will entail cancellation of the tender. The successful tenderer should supply the item to Directorate of Information Systems, Vellanikkara within ten days from the date of the receipt of supply order. The Director of Information Systems reserves the right to remove the defaulted name from the list of suppliers permanently or for a specific period.

4.   The successful tenderer should execute an agreement in Kerala Stamp Paper worth Rs.200/- (Rupees Two Hundred only) and furnish a security deposit of 5% of the cost of the entire quantity of items quoted in the form of term deposit/ bank guarantee/ demand draft drawn in favour of Director of Information Systems, Vellanikkara. The format for the agreement can be downloaded from the KAU website.

5.   The cost of the items should be quoted inclusive of all taxes, loading and Unloading, freight and other applicable charges.

6.   The rate shall be valid for a period of one year from the date of acceptance of tender.

7.   The Director of Information Systems, KAU reserves the right to accept or reject any or all of the offers without assigning any reason.

8.   If any Hartal/ Strike/ any unexpected holidays/ Covid restrictions occur on the date of opening of tender, the tender will be opened at the same time on the next working day.

9.   All the rules and regulations applicable to Government Tenders will be applicable to this tender also.

10.   Data Sheet of the above items should be enclosed along with tender documents the specifications. The parameters Should be highlighted in data sheet

11   Copies of Registration certificate of firm, GST Registration Certificate, PAN and Other relevant documents justifying any claims related to the tender bids.

12.   The Firm should have at least one registered office in Kerala.

Director of Information Systems

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To

    a. Notice Board
    b. KAU website (web team to upload)
    c. Systems Manager, DIS