

Addendum- I

RFP for Selection of Partner for work of

**“Implementation of State-of-the-Art ICT Infrastructure on turnkey basis at
University Campus in New Delhi”**



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In reference to Tender for **Implementation of State-of-the-Art ICT Infrastructure on turnkey basis at University Campus in New Delhi** against **Tender No. RCIL/EOI/RFP/CO/ITP/2022-23/ IT services to RCIL Customer/10 dated 20.12.2022**, all are advised to note following changes in the RFP Document:

SN	Pg. No.	RFP Clause No	RFP Clause	Revised Clause
1	78-135	Annexure D	Technical Specification	In addition to Technical Specifications detailed in Annexure-D of EOI, Technical Specifications of few items are not covered therefore, the same are now detailed in Annexure-E (Annexed as part of this Addendum-I). During the bid submission compliance of Annexure-E against each clause is mandatory to be provided by the bidder.
2	45	C.17 (Networking Devices for Campus and Buildings)	SITC of Web Proxy along with all accessories	SITC of WAF along with all accessories
3	46	E.1 (Non IT components for ICCC)	3x3 Video Wall Cubes LED 65 inch Backlit Display	2x3 Video Wall Cubes LED 65 inch Backlit Display
4	46	E.9 (Non-IT components for ICCC)	20 KVA UPS with Battery backup of 30 min	150 KVA UPS in parallel configuration with common Battery backup of 30 min
5	44	B.9 (IT infrastructure and associated items at LS, ES, Admin, Data Centre)	SITC of Server/Workstation for Access Control System along with all accessories	SITC of Server/Workstation for Backup Solution along with all accessories
6	14	14 (Delivery Period)	The complete infra solutions as per SOR A and SOR B are required to be delivered within period of 6 months from date of award of contract. The bidder shall provide 5 years warranty.	The complete infra solutions as per SOR are required to be delivered within period of 6 months from date of award of contract. The bidder shall provide 5 years warranty.
7	43	Annexure-6 (SOR Summary)	SOR Summary	In SOR Summary (Annexure-6) of EOI there was some typo error, In turn revised "SOR Summary" is detailed in Annexure-F (Annexed as part of this Addendum-I). (SOR Summary & SOR Item wise detail are required to be submitted on organization's letter head)

Note: (i) The EMD may be read as Rs. 6 Lakhs.

(ii) During the Bid Submission Compliance of all points of this addendum-I is mandatory to be provided by the bidder.

All other term & conditions of tender documents will remain same.

(Rajeev Kumar)

Dy. General Manager/ITP

Core Switch- Technical Compliance			
S.No	Parameter	Description	Compliance (Yes / No)
1	Type	Modular Switch with at least 4 Slots	
2	Ports	minimum 32 x 40/100G Ports	
		Minimum 30 x 10G/25G Ports	
3	Switching and Forwarding capacity	Aggregate capacity of 7.2Tbps or more and minimum 5Bpps Forwarding Rate	
4	Per slot bandwidth	Min 1.2Tbps	
		Should support Redundant CPU	
		Redundant Power Supplies from Day 1	
		Support 100G and 400G from Day 1	
		Support for Hot Swap of redundant components like Power Supply, and fan trays	
		Should support ESI-LAG/ MC-LAG/ vPC/ MLAG	
5	Memory and Storage	16 GB DRAM and 64GB Flash/ SSD	
6	Layer 2 features	Should support Industry Standard Port/Link Aggregation for All Ports.	
		Jumbo Frames support up to 9K Bytes	
		Should support port, subnet based 802.1Q VLANs. The switch should support minimum 4,000 vlans	
		The switch should support minimum 150,000 no. of MAC addresses.	
		The switch should support IEEE 802.1w RSTP and IEEE 802.1s MSTP	
7	Routing Protocols	Should have RIP, OSPF v1/v2, BGPv4, IS-IS, EVPN/ VxLAN from Day 1	
		Should support minimum 500,000 IPv4 routes	
8	Security features	Should Support MAC Address Filtering based on source and destination address	
		Should have support for RADIUS and TACACS+	
		Switch should support MACsec on QSFP28 and SFP+ports	
9	Traffic policing	Should support Ingress/Egress Queuing	
		Should be able to filter, mark and limit traffic flows	
		Should support policy based traffic classification based on Type of Service (ToS), IP Precedence mapping, Layer 2/3/4 defined traffic flows, MAC address, VLANs	
		Should Support IGMP v1, v2 and IGMP Snooping/ filtering	

10	Network monitoring /management	Should Support SNMP, RMON/RMON-II, SSH, telnet, web management through network management software (NMS/ EMS)	
		Should support port mirroring feature for monitoring network traffic.	
		The switch should support role based access control to limit access to switch operations.	
Distribution Switch- Technical Compliance			
S. No.	Detailed Technical Specifications	Compliance (Yes / No)	Remarks
A. Solution Requirement			
1	The Switch should support non-blocking Layer 2 switching and Layer 3 routing		
2	There switch should not have any single point of failure like power supplies and fans etc. should have 1:1/N+1 inbuilt level of redundancy		
B. Hardware and Interface Requirement			
1	The switch should have 48 x 1/10/25G and 6 x 40/100G Uplink Ports		
2	There switch should not have any single point of failure like power supplies and fans etc. should have 1:1/N+1 inbuilt level of redundancy		
3	Switch should have minimum 8GB DRAM and 8GB internal Flash/Storage		
4	Switch should support for different logical interface types like loopback, VLAN, SVI/RVI, Port Channel, multi chassis port channel/LAG , EVPN LAG .etc.		
5	The switch should support minimum 200,000 IPv4 unicast routes and 100,000 IPv6 unicast routes entries in the routing table including 48,000 multicast routes		
6	The switch should support hardware based load sharing at wire speed using LACP and multi chassis ether channel/LAG		
7	Switch should support minimum 3.2Tbps of switching capacity		
C. Layer2 Features			
1	Spanning Tree Protocol (IEEE 8021.D, 802.1W, 802.1S)		
2	Switch should support minimum 200,000 no. of MAC addresses		
3	Switch should support minimum 8 Nos. of link or more per Port channel (using LACP) and support 48 number of ports per Link Aggregation Group. The Switch should support 32 way ECMP		
4	Support for broadcast, multicast and unknown unicast storm control to prevent degradation of switch performance from storm due to network attacks and vulnerabilities		
D. Layer3 Features			

1	Switch should support static and dynamic routing like Static, OSPF and BGP		
2	Should support BGP, MBGP, IS-IS for IPv4 and IPv6		
3	Switch should support multicast traffic reachability using PIM-SM and SSM		
E. Availability			
1	Switch should provide gateway level of redundancy in IPv4 and IPv6 using HSRP/ VRRP		
2	Switch should support for BFD For Fast Failure Detection		
F. Quality of Service			
1	Switch system should support 802.1P classification and marking of packet CoS, DSCP etc.		
2	Switch should support Flow control of Ethernet ports to control traffic rates during congestion by allowing congested nodes to pause link operation at the other end for receiving traffic as per IEEE 802.3x		
G. Security			
1	Switch should support for deploying different security for each logical and physical interface using Port Based access control lists of Layer-2 to Layer-4 in IP V4 and IP V6 and logging for fault finding and audit trail		
2	Switch should support for external database for AAA using TACACS+ / Radius		
3	Switch should support for Role Based access control (RBAC) for restricting host level network access as per policy defined		
H. Manageability			
1	Switch should support for embedded RMON/RMON-II for central NMS management and monitoring		
2	Switch should provide remote login for administration Telnet, SSHv2		
3	Switch should support for management and monitoring status using different type of Industry standard NMS using SNMP V2 and V3		
4	Switch should support for basic administrative tools like Ping and traceroute		
5	Switch should support central time server synchronization using Network Time Protocol NTP V4		
Access Switch (24 Port POE)- Technical Compliance			
S. No.	Specifications	Compliance	Remarks
1	Minimum 24 x 10/100/1000 PoE+ and 4 x 10G ports (with required transceiver modules) with PoE budget of minimum 720W		
2	1 U Rack mountable and should provide stacking of minimum 8 switches with 200Gbps of dedicated stacking/ equivalent bandwidth (All the stacking accessories should be included from day 1).		

3	The Switch should have minimum 4GB DRAM and 8GB internal Flash/ SSD		
4	128Gbps or higher Backplane capacity and minimum 95 Mpps of forwarding rate (excluding the stacking bandwidth and forwarding)		
5	Should support Non-blocking hardware architecture		
6	Support for at least 4000 VLANs & 32k MAC address		
7	It should support IGMP snooping v1,v2 & v3		
8	It should have static IP routing from Day 1 and should be upgradable to support OSPF, PIM, VxLAN and BGP		
9	The switch should support minimum 32k IPv4/ 16K IPv6 and 8k Multicast Routes		
10	Switch should support 8 hardware queues per port		
11	Dynamic Host Configuration Protocol (DHCP) snooping		
12	Switch should support LLDP capabilities		
13	Should support IP Source Guard, DAI and IPv6 Security feature like IPv6 RA Guard and IPv6 Neighbor Discovery Inspection		
14	Should support Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3).		
15	Switch needs to have console port for administration & management		
16	Management using CLI, GUI using Web interface should be supported		
17	FTP/TFTP for upgrading the operating System		
18	Switch should support IEEE 802.1ae MACsec (AES-256) on uplink ports		
19	Switch should support internal redundant power supply and Hotswappable fans		

Access Switch (24 Port Non POE)- Technical Compliance

S. No.	Specifications	Compliance	Remarks
1	Minimum 24 x 10/100/1000 and 4 x 10G ports (with required transceiver modules)		
2	1 U Rack mountable and should provide stacking of minimum 8 switches with 200Gbps of dedicated stacking/ equivalent bandwidth (All the stacking accessories should be included from day 1).		
3	The Switch should have minimum 4GB DRAM and 8GB internal Flash/ SSD		
4	128Gbps or higher Backplane capacity and minimum 95 Mpps of forwarding rate (excluding the stacking bandwidth and forwarding)		
5	Should support Non-blocking hardware architecture		
6	Support for at least 4000 VLANs & 32k MAC address		
7	It should support IGMP snooping v1,v2 & v3		
8	It should have static IP routing from Day 1 and should be upgradable to support OSPF, PIM, VxLAN and BGP		

9	The switch should support minimum 32k IPv4/ 16K IPv6 and 8k Multicast Routes		
10	Switch should support 8 hardware queues per port		
11	Dynamic Host Configuration Protocol (DHCP) snooping		
12	Switch should support LLDP capabilities		
13	Should support IP Source Guard, DAI and IPv6 Security feature like IPv6 RA Guard and IPv6 Neighbor Discovery Inspection		
14	Should support Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3).		
15	Switch needs to have console port for administration & management		
16	Management using CLI, GUI using Web interface should be supported		
17	FTP/TFTP for upgrading the operating System		
18	Switch should support IEEE 802.1ae MACsec (AES-256) on uplink ports		
19	Switch should support internal redundant power supply and Hotswappable fans		
Access Switch (48 Port Non POE)- Technical Compliance			
S. No.	Specifications	Compliance	Remarks
1	Minimum 48 x 10/100/1000 and 4 x 10G ports (with required transceiver modules)		
2	1 U Rack mountable and should provide stacking of minimum 8 switches with 200 Gbps of dedicated stacking/ equivalent bandwidth (All the stacking accessories should be included from day 1).		
3	The Switch should have minimum 4GB DRAM and 8GB internal Flash/ SSD		
4	176Gbps or higher Backplane capacity and minimum 130Mpps of forwarding rate (excluding the stacking bandwidth and forwarding)		
5	Should support Non-blocking hardware architecture		
6	Support for at least 4000 VLANs & 32k MAC address		
7	It should support IGMP snooping v1,v2 & v3		
8	It should have static IP routing from Day 1 and should be upgradable to support OSPF, PIM, VxLAN and BGP		
9	The switch should support minimum 32k IPv4/ 16K IPv6 and 8k Multicast Routes		
10	Switch should support 8 hardware queues per port		
11	Dynamic Host Configuration Protocol (DHCP) snooping		
12	Switch should support LLDP capabilities		
13	Should support IP Source Guard, DAI and IPv6 Security feature like IPv6 RA Guard and IPv6 Neighbor Discovery Inspection		

14	Should support Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3).		
15	Switch needs to have console port for administration & management		
16	Management using CLI, GUI using Web interface should be supported		
17	FTP/TFTP for upgrading the operating System		
18	Switch should support IEEE 802.1ae MACsec (AES-128/256) on uplink ports		
19	Switch should support internal redundant power supply and Hotswappable fans		
Access Switch (48 Port POE)- Technical Compliance			
S. No.	Specifications	Compliance	Remarks
1	Minimum 48 x 10/100/1000 and 4 x 10G ports (with required transceiver modules) with PoE budget of minimum 1440W		
2	1 U Rack mountable and should provide stacking of minimum 8 switches with 200 Gbps of dedicated stacking/ equivalent bandwidth (All the stacking accessories should be included from day 1).		
3	The Switch should have minimum 4GB DRAM and 8GB internal Flash/ SSD		
4	176Gbps or higher Backplane capacity and minimum 130Mpps of forwarding rate (excluding the stacking bandwidth and forwarding)		
5	Should support Non-blocking hardware architecture		
6	Support for at least 4000 VLANs & 32k MAC address		
7	It should support IGMP snooping v1,v2 & v3		
8	It should have static IP routing from Day 1 and should be upgradable to support OSPF, PIM, VxLAN and BGP		
9	The switch should support minimum 32k IPv4/ 16K IPv6 and 8k Multicast Routes		
10	Switch should support 8 hardware queues per port		
11	Dynamic Host Configuration Protocol (DHCP) snooping		
12	Switch should support LLDP capabilities		
13	Should support IP Source Guard, DAI and IPv6 Security feature like IPv6 RA Guard and IPv6 Neighbor Discovery Inspection		
14	Should support Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3).		
15	Switch needs to have console port for administration & management		
16	Management using CLI, GUI using Web interface should be supported		
17	FTP/TFTP for upgrading the operating System		
18	Switch should support IEEE 802.1ae MACsec (AES-128/256) on uplink ports		

19	Switch should support internal redundant power supply and Hotswappable fans		
Access Switch (16 Port Non-POE)- Technical Compliance			
S. No.	Specifications	Compliance	Remarks
1	Minimum 16 x 10/100/1000 and 2 x 1/10G ports (with required transceiver modules)		
2	Switch should provide stacking of minimum 8 switches (All the stacking accessories should be included from day 1).		
3	36Gbps or higher Backplane capacity and minimum 26 Mpps of forwarding rate (excluding the stacking bandwidth and forwarding)		
4	Should support Non-blocking hardware architecture		
5	Support for at least 1000 VLANs & 16k MAC address		
6	It should support IGMP snooping v1,v2 & v3		
7	Switch should support 8 hardware queues per port		
8	Dynamic Host Configuration Protocol (DHCP) snooping		
9	Switch should support LLDP capabilities		
10	Should support IP Source Guard, DAI and IPv6 Security feature like IPv6 RA Guard and IPv6 Neighbor Discovery Inspection		
11	Should support Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3).		
12	Switch needs to have console port for administration & management		
13	Management using CLI, GUI using Web interface should be supported		
14	FTP/TFTP for upgrading the operating System		
15	Switch should support internal redundant power supply and Hotswappable fans		
Access Switch (16 Port POE)- Technical Compliance			
S. No.	Specifications	Compliance	Remarks
1	Minimum 16 x 10/100/1000 PoE+ and 2 x 1/10G ports (with required transceiver modules)		
2	Switch should have a minimum power budget of 240W		
3	Switch should provide stacking of minimum 8 switches (All the stacking accessories should be included from day 1).		
4	36Gbps or higher Backplane capacity and minimum 26 Mpps of forwarding rate (excluding the stacking bandwidth and forwarding)		
5	Should support Non-blocking hardware architecture		
6	Support for at least 1000 VLANs & 16k MAC address		
7	It should support IGMP snooping v1,v2 & v3		

8	Switch should support 8 hardware queues per port		
9	Dynamic Host Configuration Protocol (DHCP) snooping		
10	Switch should support LLDP capabilities		
11	Should support IP Source Guard, DAI and IPv6 Security feature like IPv6 RA Guard and IPv6 Neighbor Discovery Inspection		
12	Should support Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3).		
13	Switch needs to have console port for administration & management		
14	Management using CLI, GUI using Web interface should be supported		
15	FTP/TFTP for upgrading the operating System		
16	Switch should support internal redundant power supply and Hotswappable fans		
08 Port Industrial Grade Switches- Technical Compliance			
S. No.	Specifications	Compliance	Remarks
1	Minimum 8 x 10/100/1000 and 2 x 1G ports (with required transceiver modules)		
2	Forwarding Rate- Wire speed for all the ports		
3	Should support PoE+ as per IEEE 802.3at or 802.3bt with PoE budget of 240w		
4	Switch should support minimum 4 priority queues		
5	Should support following layer 2 features STP, RSTP, MSTP, IGMP query solicitation IGMP snooping (IGMPv1, v2 and v3) IGMP snooping fast-leave IGMP/MLD multicast forwarding (IGMP/MLD proxy) MLD snooping (MLDv1 and v2)		
6	Switch should support minimum 1K IGMP groups		
7	Switch should support 8K MAC Table size		
8	Should support ACLs, DHCP snooping, IP source guard and Dynamic ARP Inspection (DAI),		
9	Should support MAC address filtering and MAC address lock-down, IEEE 802.1x, DHCPv4 snooping, RSPAN/Port Mirroring		
10	MAC and 802.1 X based Login must be available		
11	Switch should support following management features: - CLI, GUI, SNMPv1, v2c and v3, RMON MIB		
12	Switch should support -20C to 60C operating temperature, Humidity: 5% to 95% non-condensing IP30 Rating		
Router- Technical Compliance			
S. No.	Specifications	Compliance	
1	The Router should be fixed / chassis based and 19" rack mountable		
2	The Router should have minimum 16GB RAM		

3	The Router should have Redundant Power Supply and redundant fans		
4	The Router should support minimum 8 x 1/10G Gig fiber interfaces , minimum 2 x 40 Interfaces from Day 1. Router should be capable of supporting additional 6 X 1/10G interface for future scalability .		
5	The Router should support the following:		
	OSPF, BGP, IS-IS, IP Multicast, PIM, IGMP, MLDv2, MPLS, L2VPN, L3VPN, Segment Routing, BGP-LS/LU, VPLS, RSVP, BFD for IPv4 and IPv6.		
6	The Router should have 128k IPv4, 64K IPv6, 8K Multicast routes, 200k MAC and 1000 L2 VPN, 5 label stack depth		
7	The Router should have Protection against Broadcast, Multicast and Unicast Storm.		
8	The Router should support the following features: 802.1Q, LFA, VLAN Stacking (Q-in-Q), Y.1731, 802.1ag, ERPS-G.8032, FRR, LACP, EVPN, HQoS etc.		
9	SSH, NETCONF, Telemetry, and Role based privileges for the system access.		
10	Operating Temperature 0 to + 40 degrees, Relative Humidity: 10% to 85% non-condensing.		

Indoor Access Point- Technical Compliance			
S.No	Description	Compliance	Remarks
1	The Access Point should support 802.11ax wifi-6/6E standard		
2	The solution must support 2.4GHz, 5GHz ,6GHz bands.		
3	The solution Should have Bluetooth 5.1 support		
4	The solution Should have minimum 1x 100M/1000M/2.5G Multigigabit Ethernet (RJ-45), USB Port.		
5	The solution Should support MU-MIMO technology		
6	The Minimum Peak combined datarate should be 7Gbps.		
7	The solution Should have option to create multiple SSIDs.		
8	The solution should have Mechanism for physical device locking using padlock / Kensington lock or equivalent		
9	The solution Should have mounting option of ceiling/wall/T-Rail.		
10	Access point should support below minimum Wireless Monitoring Capabilities		
	a) Rogue Scan detection for Ap		
	b) WIPS / WIDS support		
11	Access point Operating Temperature should be: 0° to 50°C		

12	The access point must support WPA2/WPA3 enterprise authentication and AES encryption.		
13	The solution Should support Power over Ethernet		
14	The solution should be able to integrate with various authentication mechnaism including radius servers etc.		
Outdoor Access Point- Technical Compliance			
S.No	Description	Compliance	
1	The Access Point should support 802.11ax wifi-6 standard		
2	The solution should support minimum dual band.		
3	The solution should have minimum 1x 100/1000/2500 BASE-T, 1x Gigabit Ethernet SFP		
4	The solution should have wave 2 or higher standards.		
5	The Minimum Peak combined datarate should be more tha 5 Gbps.		
6	The solution Should have minimum 2 number of wifi radios		
7	The solution Should have option to create multiple SSIDs.		
8	The solution should have Mechanism for physical device locking using padlock / Kensington lock or equivalent		
9	The solution Should have mounting option of ceiling/wall/T-Rail.		
10	Access point should support below minimum Wireless Monitoring Capabilities		
	a) Rogue Scan Detection		
	b) WIPS / WIDS support		
11	Access point Operating Temperature should (-40 - +60°C)		

UPS 150 KVA- Technical Compliance				
S.No	Parameter	Specification	Compliance	Remarks
1.	Capacity	150 KVA (In Parallel with common battery backup)		
2.	Technology	IGBT (Rectifier & Inverter both); ECO Mode required Inbuilt Input Isolation Transformer		
3.	Wave form & Freq converter	Pure Sine wave & shall have frequency converter mode		
4.	Display	LCD		
5.	Input power factor correction	0.99 at 100% Linear load		

6.	Input configuration	3Ph, L-N+PE, +/- 10% on full load		
7.		UPS Shall have inbuilt Input Isolation Transformer		
8.	Frequency (Input)	45 to 55 Hz frequency (or 54 to 66 Hz for 60Hz Output)		
9.	Frequency (output)	50Hz or (selectable to 60Hz)		
10.	Output Voltage	220/230/240Vac shall be available with +/-1% regulation		
11.	Output Voltage Distortion	<= 3% max full linear load		
12.	Output Power factor	0.9		
13.	Crest factor	3 or better		
14.	AC-AC Efficiency	Online Mode: Greater than or equal to 88% @ Full Rated Load & Battery Fully charged		
15.	Transfer time Main-Battery	0		
16.	Transfer time Inverter-Bypass	4 msec		
17.	Output Connection	Hardwired Terminal Block required		
18.	Monitoring software for UPS	Shall be provided for monitoring of UPS from remote along with SNMP Card, this project being of high security & safety the SNMP card.		
19.	Communication	SNMP		
20.	Port	RS 232		
21.	Battery Type	12V SMF.		
22.	Battery backup	30 min battery backup at 80% Load		
23.	Charger	Shall be minimum 10% of the offered Battery AH		
24.	Battery Flexibility	Battery Flexibility required		
25.	Environmental Parameter			
A	Operating temperature range	0-40 deg C		
B	Other	Indication required -> Over Temperature, Load on Battery, Battery low, Mains ON		
C	Humidity	5% to 95% no-condensing		

Annexure-F (Annexed to Addendum-I No RCIL/EOI/RFP/CO/ITP/2022-23/ IT services to RCIL Customer/10 Dated: 23.12.2022)

Financial Bid

E-EOI/RFP No. :- RCIL/EOI/RFP/CO/ITP/2022-23/ IT services to RCIL Customer/10

Name of Work:- RFP for Selection of Partner for work of “Implementation of State-of-the-Art ICT Infrastructure on turnkey basis at University Campus in New Delhi”

all below boxes in SKY BLUE needs to be mandatorily filled

Name of Company/Firm				
Sl. No.	Item Category	Total Amount	GST	Total Amount including GST
A	Camera			0.00
B	IT infrastructure and associated items at LS, ES, Admin, Data Centre			0.00
C	Networking Devices for Campus and Buildings			0.00
D	Applications, Licenses and Solution Proposed at Data Centre			0.00
E	Non IT components for ICC			0.00
F	Passive Material at Back Bone Connectivity			0.00
	Total Capex			0.00
	Total Opex (for deployment of O&M Manpower at customer location for the period of 4 years from date of issue of FAC)			0.00
	Sub Total SOR (Capex+ Opex)			0.00