

EI-D/Tech/51-16/13
ERNET India

Subject : Tender for empanelment of a vendor and rate contract for supply, installation, commissioning & integration of Campus Network and other IT Infrastructure.- regarding

Kindly refer to the subject tender document of even no dated 1.8.2013 and subsequent pre-bid meeting held on 14.8.2013. In response to the tender, the prospective bidders submitted their queries. These queries have been considered in ERNET India. The queries and ERNET response is attached please. The date of submission of bid has been extended to 18.9.2013.

All the prospective bidders may submit their bids in response to our above referred bid document and in conformity with ERNET response to the queries of bidders referred above by 18.9.2013 at 3.00 PM. Other terms and conditions remains unchanged.

Narendar
(Narendar Namrani)
Section Officer
4.9.2013

All the prospective bidders

Clarification/amendment Response to the Queries raised by the aspiring bidders against the tender no. EI-D/Tech/51-16/13

S.no.	Tender Section-Clause	Specification in the tender	Bidder's Query	Bidder's Recommendation	ERNET Response to Queries
	Annexure-II 7. Firewall				
1	point- 1	Firewall should appliance based 19" Rack Mountable	Clarification : Please clarify if the propriety ASIC based solution is acceptable to department OR Multi core CPU based open architecture solution is required?	Please advice if proprietary ASIC based architecture is accepted to you. The ASIC based Architecture are not able to reprogrammed to protect new threats such as worms and discovered vulnerabilities that change on a daily basis thus render them completely ineffective. Multi-Core open Processors are designed to be as flexible as possible, these chips can be reprogrammed on short notice and upgraded as necessary.	No change. The bidders can offer ASIC /Open standard based systems.
2	point-3	Firewall must provide state engine support more than 150 protocols including all common protocols of the TCP/IP stack	Clarification: Please clarify what is meant by state engine, is it stateful inspection of protocols has been asked?		The clause should be raed as "Firewall must provide stateful inspection support more than 150 protocols including all common protocols of the TCP/IP stack"
3	point-10	Firewall should support database related filtering and should have support for Oracle, MS-SQL, and Oracle SQL-Net.	Please remove this clause	database filtering is not the characteristics of firewall, please remove this clause	This clause is deleted
			Clarification: -Please clarify if Database filtering is required to be done by Firewall?		
4	point-11	Firewall should provide Web protections designed specifically for Web-based attacks and compliment the network and application level protections. Each protection can be enabled, disabled, or set in passive/monitor mode.	Please remove this clause	This is not the characteristics of firewall, please remove this clause. This should be the expected feature of IPS	This clause is deleted
5	point-13	Firewall appliance should support future extensibility with an option to expand with Copper or Fiber interface	Amendment request: " Point 13, Firewall appliance should support future extensibility with an option to expand with Copper and fiber interface to Minimum 10 x SFP+ port for future"	Request you to kindly specify the quantize the scalability required for interfaces.	No change. Point-12 should be read as "Firewall appliance must be supplied with at least 4 X 10/100/1000Mbps Ethernet ports on Copper and also support minimum 2 Gigabit ethernet ports on fiber optic."

				Would request you to clarify in the point 12 you have asked for 10G ports and in point 13 you have asked for scalability of Fiber in future would request please clarify whether you require 10G fiber and 1G fiber at same time.	
6	point-16	Firewall appliance should allow 1 Million Concurrent connections and expandable to 5 Million Concurrent Connections without additional cost in future	Amendment request: Firewall appliance should allow 1 Million Concurrent connections	Looking at the expected asked throughput of 1 Gbps only, I million concurrent connection as already on the higher side, scalability to 5 Million would not be of any use for this segment of firewall. So pleas remove the scalability.	This clause should be read as " Firewall appliance should allow 1 Million Concurrent connections. The same should be offer 50% scalability in the same chasis
			Firewall appliance should support Concurrent connections upto of 1 Lac Connections	Based on the router performance of 950 Kpps and the Firewall system performance asked (1 Gbps) and the number of connection per user. 1 Lac concurrent sessions are more than sufficient for the given requirement. Considering 10 Kbps per session(1Gb/10 Kb=100000)	
7	point-17	Firewall appliance should support 25,000 new connections/second	Amendment request: Firewall should support 50,000 new connection/ second	Firewall should support higher new connection per second rate, considering the asked concurrence of 1 million connection, new connection per second rate also has to be higher.	No change. Minimum requirement has been specified. The bidders may offer higher
				Would request you to please increase the 25000 new connections to 75000 new connections.	
8	point-18	It should support firewall throughput of minimum 1 Gbps	Amendment request: " Firewall should provide real world multiprotocol performance of 2 Gbps. Real world profile should include but not limited to HTTP, Bit Torrent, FTP , SMTP and IMAPv4	In large enterprise Internet Edge environments the majority of the traffic patterns seen are more than 95% TCP traffic. Pure UDP based performance nos. would not scale & provide the required throughput in real-world environment of TCP traffic. Hence strongly suggested to ask for real world throughput. further with respect to the kind and scale of asked interfaces 1 Gbps of through seems to be very less, request you to please ask the double of the mentioned throughput.	No change. Minimum throughput has been asked. The bidders may offer higher
				1 Gbps throuput is way too low when you have asked for 10G ports on the firewall. Would request you to please change the throuput to 10 Gbps at 1518 Byte packet	

9		additional request	Addition: Firewall should support virtual firewall capability with the support for minimum 100 Virtual firewalls	This functionality will enable Ernet to provide segmented & differential network access for each group in campus, which they are serving & offering internet services. This will help in separate firewall rules & policies for each Dept. Any change or impact in 1 virtual firewall will not impact the traffic passing through the other virtual firewalls.	As per tender
10		additional request		As the logs will be locally collected on the firewall appliance, the absence of local storage will have an issue in logs retention. As a result with 2GB average per day of logs, the 3 months logs would approximately be around 200GB. Hence a local storage on Firewall appliance is a definite need for any bidder to ensure a 3 months retention of the logs on firewall appliances, i.e. suggested 200GB per appliance.	Please add "The firewall should have min 200GB of local storage for storing logs"
11	Add				Add as "Firewall should be IPv4 and IPv6 enabled from day one"
	Annexure-II 8. IPS				
1	Point-1 Performance (a)	IPS should be appliance based with inspected Throughput should be minimum of 1 Gbps	Amendment Request: IPS should be appliance based with Real-World Average Throughput should be minimum of 2 Gbps. Real world profile should include but not limited to HTTP, Bit Torrent, and SMTP	Please mention the real world average through for iPS instead of only inspected throughput. As inspection throughput just signify the maximum throughput the IPS can achieve while providing protection by inspecting the test traffic. Whereas real world throughput specify the traffic mix realistic for today's networks.	This clause should be read as " IPS should be dedicated appliance based with inspected Throughput should be minimum of 1 Gbps. IPS should provide scalability of atleast 50% of the throughput asked for." The IPS throughput specified should not decrease in case of DDOS scenario.

			<p>We would request you to kindly mention the Scalability factor in the throughput which could be used for future requirements & will ensure better Return of Investment.</p> <p>The IPS throughput should be guaranteed even in case of Distributed Denial of Service attack scenario, there should be provision for extra resource allocation to cater the DDoS attacks packets per seconds requirements</p> <p>Please elaborate this clause that "IPS should be appliance based" it means NIPS device should be a dedicated appliance, not a part of UTM/Firewall functionality. Also third party testing agencies like NSS & Common Criteria certification should be mentioned. These evaluation agencies would ensures that the proposed NIPS is tested wrt the various Performance parameters and having secure/hardened operating system to ensure the safety of the device itself.</p>	<p>IPS should be appliance based with inspected throughput should be minimum of 1 Gbps and scalable to 2 Gbps.</p> <p>IPS legitimate traffic performance should not degrade, even in the event of DDoS attack scenario (upto 1 Million pps) from Day 1.</p> <p>IPS should be a dedicated appliance, not a part of UTM functionality. The proposed Attack Mitigation System (NIPS) should be NSS and minimum EAL 2+ certified</p>	
2	Point -1 Performance (b)	IPS should not offer Latency more than 200 microseconds (on packet sizes up to 1518 bytes)	Amendment request: IPS should not offer Latency more than 200 microseconds (for average packet size)	Average packet should be looked at for real world environment, 1518 byte packet size might not be any relevant for calculations	This clause to be read as "IPS should not offer Latency more than 200 microseconds without compromising the overall performance of different packet size"
3	Point -1 Performance (c)	IPS should support sessions with security state of upto 1,000,000	The Concurrent Connection supports should be increased keeping in mind the future requirements.	IPS should support sessions with security rate upto 2,000,000	No Change. Minimum requirement has been specified. The bidders may offer higher
			IPS should support sessions with security state of upto 100,000	Based on the router performance of 950 Kpps and the Firewall system performance asked (1 Gbps) and the number of connection per user. 1 Lac concurrent sessions are more than sufficient for the given requirement. Considering 10 Kbps per session(1Gb/10 Kb=100000)	
4	Point -1 Performance (d)	Minimum Connections Per Second Should be 100,000	Amendment request: Minimum Connections Per Second Should be 50,000	Connections per second number for IPS is extremely high, further you have asked only 25000 connections per second for firewall. So we recommend the both to be at 50,000.	This clause to be read as "Minimum Connections Per Second Should be 50,000"

			Amendment request: Minimum Connections Per Second Should be revised to a lower value	Based on the IPS performance and interface asked, Connections per second number for IPS is extremely high.	
			Minimum Connections Per Second Should be 30,000	Based on the Intrusion Prevention system performance and interfaces asked in the IPS, 30K sessions per second are more than sufficient	
5	Point -2 Scalability (b)	Number of Ports should be 3 X 1Gigabit & 2 X 10Gigabit Ethernet ports.	Amendment Request: Number of ports should be 6-port 10/100/1000, 4-port 1 or 10 Gigabit Ethernet SFP+ ports.	Please note ports on IPS specify the segment which need to be monitored, so request you to consider the scalability for IPS ports.	This clause should be read as "Number of Ports should be minimum 4 X 1Gigabit Ethernet(copper) with the support of 2 more SFP based Gigabit ethernet ports.
			In NIPS, a segment is used for the protection which is combination of 2 ports (In & Out traffic) always. Hence the number of Gigabit ports has to be even i.e. 4 Gigabit ports/2 Segments from Day 1. Also as per the throughput clause (1 Gbps) & the ports requirements should be Gigabit ports & can have scalability factor for SFP based Gigabit ports. Hence we would request you to kindly delete the 10 G ports & clarify the number of ports requirement.	Number of ports should be 4 x 1 Gigabit from Day 1 & support for 2 x 1 Gigabit SFP ports.	
6	point-4(b)	IPS Categories should atleast contain: Worm , Phishing , Spyware , Virus , Suspicious , DDoS ,Trojan , Reconnaissance ,Bandwidth Hijacking, P2P,Walk-in Worm , Blended Threat ,VoIP , Backdoor , Zero Day Initiative	Amendment request: Point 4 b.) IPS signatures should atleast contain	Please mention signature instead of Category, as signatures should be constant across categories.	This clause should be read as "IPS categories/ signatures should atleast contain: Worm , Phishing , Spyware , Virus , Suspicious , DDoS ,Trojan , Reconnaissance ,Bandwidth Hijacking, P2P,Walk-in Worm , Blended Threat ,VoIP , Backdoor , Zero Day Initiative"
7	Point -5 Management (d)	IPS Management Interfaces should be 10/100/1000 Ethernet, 1 Serial Port, 1 Front Panel LCD	Amendment request: IPS management Interfaces should be 10/100/1000 Ethernet	Serial port and front panel LCD are product specific and are not critical features for IPS functionality, so request you to please remove the same.	This clause should be read as "IPS Management Interfaces should be 10/100/1000 Mbps Ethernet. However, 1 Serial Port, 1 Front Panel LCD are optional requirement."
				The Should be amended as Management interfaces should be provided for console access & LCD panel (Serial interface is not available in all OEMS)	
			IPS Management interfaces should be 10/100/1000 Ethernet. 1 Serial port/ console port	LCD panel is normally recommended on the switches for basic configuration and is OEM specific and it is not recommended on the security equipments. Request you to please relax this clause.	

8	Point -6	Attack filter delivery service	Clarification: Request you to please clarify the expected functionality	The term is specific to OEM, request you to please clarify the functionality	This clause is deleted
9	Point -6 (a)	Should be Real-Time Inoculation	Clarification: Request you to please clarify the expected functionality	The term is specific to OEM, request you to please clarify the functionality	This clause id deleted
10	Point -6 (b)	The IPS hardware architecture should be based on FPGA/ASIC switch architecture with parallel processing	Amendment Request: The IPS hardware architecture should be based on ASIC switch architecture with parallel processing	FPGA is OEM specific term and should be removed	No change. FPGA/ASIC has been mentioned in the clause. The bidders may propose any of these platforms.
11	Point -6 (e)	It should support Active/Passive, Active/Active, Symmetric and Asymmetric HA without any 3rd party load balancers	As per our understanding, When the NIPS is deployed in High Availability i.e. Active-Passive/Active-Active pair, the inspections throughput of the Individual IPS device performance should not degrade. i.e. if the IPS throughput when deployed in HA the performance should be equal (A/P) or double (A/A)of the individual NIPS sensor. Please confirm the same.	IPS appliance inspection throughput should not be affected, if deployed in High Availability.	No change. Minimum throughput requirement has been defined which should be available in any given setup/config
12	Point-6 (f)	While in HA, all the segments/ports should be available for inline protection and all synchronization should be done over the Out of the Band management port, not sacrificing the inline ports	Please remove this clause	As for HA functionality you have already asked for Enterprise security management which will take care of all synchronization requirement, so please remove this clause	No Change
13	Point No-6 (h)	The IPS system should have default/ out-of-the-box policies by which at least one-fourth of the total signatures are turned ON to block and no false positives	Amendment Request: The IPS system should allow signatures to be installed and removed as per the administrator defined environment. And should allow administrator to define actionable against the signatures	IPS should provide the full flexibility to adminstror to define security policies as per the environment	This clause stands deleted
14	Point No-6 (k)	It should be possible to define policies per time schedule, direction, VLAN ID, CIDR and segment/ port	Amendment Request: It should be possible to define policies per VLAN ID, CIDR and segment/ port	Please remove time schedule as it is not firewall, IPS is supposed to scan traffic all the time as per defined policies.	time schedule is desireable. Rest remain the same.
15	Add				Add as " IPS should be IPv4 and IPv6 enabled from day one"

16		additional request	<p>As per the industry best practices, it is recommended that the security products should be from different OEM than the network product OEM as this provides the best of both worlds. As per the industry best practices, it is recommended that the security products should be from different OEM than the network product OEM as this provides the best of both worlds. You are requested to kindly confirm the same.</p>		OEMs of Security products(Firewall & IPS) should be different from the Switch and Router OEM
----	--	--------------------	--	--	--

Clarification/amendment Response to the Queries raised by the aspiring bidders against the tender no. EI-D/Tech/51-16/13

S.no.	Tender Section- Clause	Specification in the tender	Bidder's Query	Bidder's Recommendation	ERNET response to Queries
	Annexure-II -A-1: Core Switch				
1	point-1	Should be a modular chassis based switch having minimum 9 slots with redundant CPU/Switch fabric and redundant power supply	Clarification: Please clarify if the minimum 9 slots are the I/O slots and redundant CPU slots are in addition to those.	Request you to please clearly define the number of I/O slots in core switch and CPU redundancy separately	This clause should be read as "Should be a modular chassis based switch having minimum 9 payload slots with redundant CPU/Switch fabric and redundant power supply"
				Every OEM has different port concentration on line cards , hence either scaling should be defined as port requirement rather than limiting slot restriction . Hence we request you to kindly remove slots criterion & ask for total port requirement on core switch (1G & 10G ports)	
2	point-2	Should have centralized/distributed switching architecture, each module should be provisioned with adequate hardware/software to support the same.	Should have distributed switching architecture, each module should be provisioned with adequate hardware/software to support the same.	Core Switch should have distributed Architecture to provide better performance with separate control and forwarding planes	No Change. The bidder may offer centralized/distributed switching architecture.
3	point-4	Dual redundant Switch Fabric/CPU should offer minimum 2 Tbps switch Fabric capacity per switch. There should not be any performance degradation in case of any switching/ routing engine failure.	Kindly modify this clause as "Dual redundant Switch Fabric/CPU should offer minimum Shall have up to 2.56 Tbps switching capacity and the chassis should support to upgrade upto 6 Tbps switching capacity in feature."	For better performance.	No Change. Minimum requirement has been asked. The bidder is free to offer higher.
4	point-7	Switch should support Netflow or J-flow or equivalent. If it is given as services on a module, at least two of those modules shall be quoted to ensure redundancy of the solution		Are there any specific Netflow/J-flow or equivalent performance parameters.	No change. The bidder is to propose the solution in accordance with the overall performance parameters
5	point-8	Minimum 720 Mpps forwarding rate should be supported.		Request clarification on this. Please specify specific minimum forwarding rates for IPv4 and IPv6.	Minimum specification has been mentioned here. The bidders may offer accordingly. No change
				To support 60 port (10G) , the PPS should be more than 1Mpps . We Request you to kindly review this specification as for non-blocking architecture.	

			Minimum 720 Mpps forwarding rate should be supported for both IPv4 & IPv6	IPv6 Routing protocols are already asked in the specifications for Core Switch . hence request you to kindly mention performance for IPv4 and IPv6 to avoid any performance degradation while enabling IPv6. Please clarify if the performance degradation is acceptable on migration to IPv6.	
6	point-28	Should support minimum 128K Ipv4 and 64K IPv6 multicast entries.	Kindly modify this clause as "Should support minimum 2K Ipv4 /IPv6 multicast entries."	Multicast routes are mainly needed for ip Surveillance network. Now as we know multicast is form of Broadcast, so one multicast entry means route for thousands of IP cameras. If the customer is not planning to builtup a IP Surveillance, then remove the requirement for Multicast Route entry. Moreove the IP Multicast route is distributed in multiple switches, not in one switch. Now if the customer wants to keep provision for future scalability, then change the state ment as: "Switch should support 2000 IPv4 and IPv6 multicast".	Minimum specification has been mentioned here. The bidders may offer accordingly. IP surveillance has also been asked in the tender. No change
			Should support minimum 128K IPV4 & IPv6 multicast enteries	IPv6 Routing protocols are already asked in the specifications for Core Switch . hence request you to kindly mention performance for IPv4 and IPv6 to avoid any performance degradation while enabling IPv6.	
7	point-29	Should support minimum 256K Ipv4 and 128K IPv6 Routes.	Kindly modify this clause as "Should support minimum 128K Ipv4 and 64K IPv6 Routes."	Technology differs from OEM to OEM. 128K Ipv4 and 64K IPv6 Routes does not degrade the performance of router.	Minimum specification has been mentioned here. The bidders may offer solution accordingly to meet the functionality. No change
			Should support minimum 256K IPV4 & IPv6 Routes	IPv6 Routing protocols are already asked in the specifications for Core Switch . hence request you to kindly mention performance for IPv4 and IPv6 to avoid any performance degradation while enabling IPv6.	
8	Point-30	Support VRF-Lite for L3 virtualization		VRF-Lite is vendor proprietry. We request you to kindly add equivalent along with VRF-lite.	This clause to be read as "Support VRF-Lite or equivalent for L3 virtualization
9	Point -45	Should have Advance security – DOS and NAT		Core Switch is generally does not get involved NAT & DOS realted features. These functions are either perform at Router & firewall devices . We request you to kindly remove this duplication in Network equipment.	This clause is deleted

			Kindly Remove	DoS and NAT is the feature of dedicated Firewall which is already asked in the RFP. Request you to kindly remove thus enabling all major OEM to participate	
10	point- 54	For smooth, seamless and easy manageability, operation, interoperability and maintenance, the bidder should offer/quote all the switches(Core Switches, Zonal Switches & Access Switches) of the same make (OEM) and must be managed by the same NMS offered/quoted.	Amendment Request: For the smooth, seamless and easy manageability, operation, interoperability and maintenance, the bidder should offer/ quote all the switches and Routers (Core Switches, Zonal Switches & Access Switches, Router1, Router2) of the same make (OEM) and must be managed by same NMS offered/quoted.	For the smooth, seamless and easy manageability, operation, interoperability and maintenance the switches and Routers has to be from same OEM.	This clause to be read as "For smooth, seamless and easy manageability, operation, interoperability and maintenance, the bidder should offer/quote all the switches(Core Switches, Zonal Switches & Access Switches) and routers of the same make (OEM) and must be managed by the same NMS offered/quoted.
			The tender calls for the switches to be from the same OEM. It is recommended that both the router and switches should be from the same OEM. Kindly confirm the same.		
11		Additional Request	Addition Request: Layer-3 classification and marking access control entries (Aces) : 64K shared for QOS / Security, uRPF check (IPv4/IPv6) and Distributed policers	As there are no performance parameters are defined for the QOS, request you to define minimum access control entries and policers to ensure the high quality traffic prioritization and management.	As per tender
12		Additional Request	Switch should support minimum of 500K Netflow or equivalent entries	Please define the minimum required Netflow entries	As per tender
	Annexure-I -A-1:Core 2 Switch				
1	point -1(ii)		Addition request: (Please add following line item in BoQ) 10Gigabit Ethernet Copper port - Qty 10	10 G Copper ports are missing for Core2 Switch. Please note as you have asked for both 10Gigaethernet copper and 10 Gigaethernet Fiber ports in Core 1 switch, please ask the same for Core 2 switch as well. In most of the campus solutions core switch are in HA, so to create true high availability all type of ports should be distributed across both the switches.	As per tender
2	1 (i)			Request you to please mention the interface requirements as per the standard form factor available with all the OEM. Also the interface requirement mentioned is not symmetrical as 10/100/1000 is mentioned as module and rest as interfaces.	As per tender
3	1 (ii)			Request you to please mention the interface requirements as per the standard form factor available with all the OEM. Also the interface requirement mentioned is not symmetrical as 10/100/1000 is mentioned as module and rest as interfaces.	As per tender

	Annexure-II -A-2: Zonal Switch				
1	Point- 2	Switch should be modular and flexible enough for deploying atleast 40 ports which can be used for 10G/1G Ethernet as per the requirement.		10G/1G are referred as auto adaptable port , pls explain ? Also share type of interface (Optical or electrical)	No Change. Please refer Annexure-I-A-2 and other specifications
2	Point - 5	Switch should offer minimum 800-Gbps switching capacity.		With 800 Gbps switching capacity , We request you to also ask for redundant switching & routing controller	Please add in this clause as " Switch should have redundancy at the CPU/controller/ supervisor engine level along side redundancy at power supply and fan level as well. Further, 1G and 10G interfaces on fiber should be distributed across min 2 modules "
3	Point- 7	Switch should support 245 Mpps of forwarding rate	Switch should support 600 Mpps of wire rate performance for IPv4 and Ipv6	For Wire rate performance min packet per second should be 600 Mpps. On the basis of standard Calculation:1 Gbps of FD throughput is equal to 1.488 Mpps there fore for 800 Gbps performance should be atleast $800/2*1.488=595$ Mpps	Minimum specification has been specified. The bidders may offer same or higher.
4	Point - 11	Should support minimum 8 hardware queues per port for classification and scheduling of network traffic on a packet-by-packet basis and minimum of 64 CPU queues		64 CPU queues is specific to OEM model , We request to generlize this clause & should ask for CPU queues support .	This cluase should be read as "Should support minimum 8 hardware queues per port for classification"
			Should support minimum 8 hardware queues per port for classification	" scheduling of network traffic on a packet by packet basis and minimum of 64 CPU queues " asked clause Is specific to single OEM. Kindly change to allow other OEMs to participate	
5	Point - 18	Should have IEEE compliance for 802.1Q VLAN, 801.2p, 802.1d STP, 802.3ad, 802.1w RSTP, 802.1s MSTP, RPVST+,802.3ad LACP, IEEE 802.1ab, Link Layer Discovery Protocol.	Kindly Modify this clause as "Should have compliance for 802.1Q VLAN, 802.1p, 802.1d STP, 802.3ad, 802.1w RSTP, 802.1s MSTP, PVRST+ or equivalent, 802.3ad LACP, IEEE 802.1ab Link Layer Discovery Protocol	Technology differs from OEM to OEM. Per-VLAN Spanning Tree Plus (PVST+) is the equivalent of PVRST+. Kindly modify this clause so that max. OEM can participate.	This clause should read as "Should have compliance for 802.1Q VLAN, 802.1p, 802.1d STP, 802.3ad, 802.1w RSTP, 802.1s MSTP, PVRST+ or equivalent, 802.3ad LACP, IEEE 802.1ab Link Layer Discovery Protocol"
				RPVST+ is OEM specific features, pls remove	
6	point-19	Should have min 50K unicast and 32K multicast MAC entries	Should have 24 K MAC entries in hardware	50K MAC enteries are very high for a fixed configuration switch can be achieved in a chassis based switch. Kindly relax 24 K MAC enteries to allow other OEMs to participate.	The desired functionality should be provided. Alternate equivalent solution with no compromise on functionality are acceptable.
7	Point- 26	Should support VRF-Lite and Multicast VRF-Lite	Kindy modify this statement as Shouls support VRF.	The VRF-Lite specific terminology of a particular OEM.	This is important feature for achieving L3 virtualization. This clause to be read as "Should support VRF-Lite/equivalent and Multicast VRF-Lite/equivalent

				VRF lite is OEM specific , pls incorporate equivalent clause.	
8	point-27	Should have IPv4 and IPv6 support in hardware, providing wire-rate forwarding for IPv6 networks. Should support minimum 256K IPv4 and 128K IPv6 entries.	Should have IPv4 and IPv6 support in hardware, providing wire-rate forwarding for IPv6 networks. Should support minimum 1 K IPv4 and 1 K IPv6 entries	Asked route values is as per router or Core Switch performance and are not available in Layer 3 Switch in any OEM. Request you to please clarify if this much of routes are required on zonal Switches.	The desired functionality should be provided. Alternate equivalent solution with no compromise on functionality are acceptable.
9	Point -4	Performance and capabilities:			
10		Additional Request	Addition Request: Two zonal switches should support virtualization by working as single virtual switches providing system bandwidth capacity to 1.6 Tbps and to eliminate the dependence on First Hop Redundancy Protocols (FHRP) and Spanning Tree Protocol.	This would make distribution layer spanning tree free and would provide double the throughput	No Change. As per tender
11		Additional Request	Addition Request: Virtual switching system created with two zonal switches should provide maximum resiliency with Nonstop Forwarding, Stateful Switchover, and In-Service Software Upgrade (ISSU) support	These are extremely crucial features from High availability and non-stop operations prospective	Add as "ISSU feature should be supported."
12	Point -28	QoS Features:			
13		Additional Request	Addition Request:64K Security and QoS Hardware Entries	Kindly specify the number of expected security and QoS entries in the switch.	As per tender
	Annexure-I-A-2: Zonal Switch		Amendment Request: Please ask minimum 10 x 10G Ports per Zonal switch	Please you have aske dfor 40 port zonal switch, so pleas eask minimum 10 x 10G ports per switch.	Please refer Annexure-I-A-2
	Annexure-II -A-3: Access Switch				
1	Point-2	Switch should have 24 X 10/100/1000Base-T auto-sensing ports complying to IEEE 802.3, IEEE 802.3u and 802.3ab standard, supporting half duplex mode, full duplex mode and auto negotiation on each port with 4X1G / 2 x 10G uplinks with SFP+ support	Amendment request: Point 2, Switch should have 24 Nos. 10Base-T/100Base-Tx/1000Base-T auto-sensing ports complying to IEEE 802.3, IEEE 802.3u and 802.3ab standard, supporting half duplex mode, full duplex mode and auto negotiation on each port with 2 x 10G uplinks with SFP+ support	As all LAN architecture is based on 10 G backbone and further the performance number asked in the switch are for 10G based uplink, so request you to mandatory ask for 2 X 10G SFP+ port. SFP+ ports can also accommodate SFP transceivers incase 1G uplink is required.	This clause to be read as "Switch should have 24 X 10/100/1000Base-T auto-sensing ports complying to IEEE 802.3, IEEE 802.3u and 802.3ab standard, supporting half duplex mode, full duplex mode and auto negotiation on each port with 2 x SFP+ uplink ports" Accordingly read item 3 (Access Switch) at Annexure-I-A as (i) 24 port PoE 10/100/1000 Mbps (Ethernet-RJ45) switch with 2 x SFP+uplinking Ports. and (ii) 24 port 10/100/1000 Mbps (Ethernet-RJ45) switch with 2 x SFP+ uplinking Ports

			Switch should support 24 X 10/100/1000 base-T auto-sensing ports complying to IEEE 802.3, IEEE 802.3u and 802.3ab standard, supporting half duplex mode, full duplex mode and auto negotiation on ewach port with 2 X1 G/ 2 XS 10 G uplinks with SFP support	Please clarify if the uplink ports mentioned are with option for 1Gig or 10 Gig or both the interfaces should be supported from day-1. Also 2 ports on each switch are sufficient for uplink to the core layer within each stack of switch. Request you to please modify to 2 X1 G/ 2 XS 10 G uplinks with SFP support	
2	Point -3	Switch should support stacking with dedicated stacking ports whenever required in future	Addition Request: Should support stacking using dedicated stacking ports whenever required in future with minimum stack bandwidth of 80 Gbps	Kindly specify the minimum stack bandwidth per switch, in order to have the true stacking it is recommended to have minimum stack bandwidth of 80 Gbps	No change. Stacking bandwidth should be min 44Gbps with dedicated stacking port.
			Switch should support stacking	Kindly modify the clause as different OEMs provides different stacking architecture . Either on dedicated stacking ports or using uplink ports. Kindly modify for reputed OEMs to participate	
3	Point-11	Should support for minimum 16k MAC addresses	Amendment request: " Point 11 Support for minimum 8k MAC addresses'	Please reduce the required Mac address entries on access switches. So request you to please amend this to 8K MAC entries per switch.	The desired functionality should be provided. Alternate equivalent solution with no compromise on functionality are acceptable.
4	Point -18	Security Features			
5		Additional Request	Addition Request: "The switch should support MacSec IEEE 802.1 AE"	802.1AE is the IEEE MAC Security standard (also known as MACsec) which defines connectionless data confidentiality and integrity for media access independent protocols. It is standardized by the IEEE 802.1 working group. The 802.1AE standard specifies the implementation of a MAC Security Entities (SecY) that can be thought of as part of the stations attached to the same LAN, providing secure MAC service to the client.	Add as "Mac-Sec should be provided to ensure MAC level security within the campus network to avoid any unauthorised access from within the campus premise"
6	Point no 21	Switch should support RADIUS and TACACS+ for access restriction and authentication.		TACACS+ is OEM specific , pls amend this clause as "support RADIUS/TACACS+"	This clasue to be read as "Switch should support RADIUS/ TACACS+ for access restriction and authentication."
7	point-23	Should support DHCP snooping, DHCP option 82, Dynamic ARP Inspection(DAI).	Kindly Modify this clause as "Should support DHCP snooping, DHCP option 82, Dynamic ARP Inspection (DAI)/Dynamic ARP Protection.	Technology/Terminology differs from OEM to OEM. Please modify so that max. OEM can participate.(st)	This clause to be read as "Should support DHCP snooping, DHCP option 82, Dynamic ARP Inspection(DAI)/Dynamic ARP protection"
8	Point - 25	Switch should have a console port with RS-232 Interface for configuration and diagnostic purposes.	Kindly modify this statement as "Switch should have a console port with RS-232/RJ-45 Interface for configuration and diagonostic purpose.	RS-232 is a standard where as RJ-45 is interface.	This clause to be read as "Switch should have a console port with RS-232 or RJ-45 Interface for configuration and diagnostic purposes."

				New Switches are coming with RJ-45 console ports , We request you to kindly amend this clause as "Switch should have a console port for configuration and diagnostic purposes"	
			Switch should have a console port with RS-232 or RJ-45 interface for configuration and diagnostic purposes	Kindly modify the clause as different OEMs provides different console connectivity.	
9	Point- 29	Support for Unidirectional Link Detection Protocol (UDLD) to detect unidirectional links caused by incorrect fiber-optic wiring or port faults and disable on fiber-optic interfaces	Kindly modify this statement as "Support for Unidirectional Link Detection Protocol (UDLD)/DLDP or equivalent to detect Unidirectional links caused by incorrect fiber optic wiring or port faults and disable on fiber optic interface.	UDLD is a proprietary protocol of a specif OEM. We can achive this feature by DLDP.(st)	The bidder may propose equivalent standards without compromising the overall functionality. This clause to be read as "Support for Unidirectional Link Detection Protocol (UDLD) or equivalent standard to detect unidirectional links caused by incorrect fiber-optic wiring or port faults and disable on fiber-optic interfaces"
			UDLD is OEM specific , We request you to kindly incorporate "equivalent"		
	Annexure-II -A-4: NMS				
1	Point- 44	The NMS should support an Unattended install		We request you to kindly remove this clause , as NMS installation require Skilled man power	No Change. The installation is referered to unattended installation of network devices. NMS should be SNMP v3 based and be able to monitor SNMP device
2	Point -45	The NMS should support to be installed as a virtual appliance		Should be allowed for normal Window /Linux based server.	Windows and Linux have already been permitted. Refer point 47 below
3	Point- 46	The NMS should support VMware ESX server			
4	Point - 47	The NMS should support installation on Windows Server Standard/Enterprise Edition		OEM have Application Software , which can be installed on any Windows & Unix platform (OS) , so kindly keep OS flexibility in your requirment. Unix is more robust platform for NMS application	The clause to be read as "The NMS should support installation on Windows/Linux Server Standard/Enterprise Edition on any device/virtual platform
			The NMS should support installation on dedicated appliance or on virtual machine	Every OEM has diff architecture to install its NMS/ EMS. Request you to please relax the same to be installed either on device/ virtual machine	
5	Point no 48	The NMS should support High Availability		pls explain more in detail (Geographical redundancy is required or not ?)	The requirement is for campus environment. Pl quote accordingly. No change
6	NMS	Additional Request:Clarificatoin	Clarification: Please clarify for how many device management licenses to be provisioned from Day 1 with NMS.(also ib)		Please refer Annexure-I-A-4(Bill of Material.

7	Additional Request for WLAN	Addition Request: Network and Wireless can be provided through one umbrella management suite Clarification: Can a single NMS be used for LAN/WLAN(ib)	At present the NMS functionality is only asked for Routing and switching equipment, please include the WLAN management also under the management functionality of NMS	Add as "The bidder should also offer solution for management of Wireless LAN devices & components asked in the tender. Please add line item in Annexure-I-A-5(WLAN) as (iv) Wireless LAN Management solution for 100 APs'
8	Additional Request for WLAN	Addition Request: Must show location information of clients, infrastructure Access Points, Rogue Access Points, and RF tags in a map format.		Add as "For wireless LAN management, the wireless LAN Management solution should provide the following functionality - Must show location information of clients, infrastructure Access Points, Rogue Access Points, and RF tags in a map format. Wireless LAN Planning and Design · Network Monitoring and Troubleshooting · Indoor location monitoring capability · Centralized Software updates · Network mapping with floor plans for easier automated site survey
9	Additional Request for WLAN	Addition Request: Must support following features · Wireless LAN Planning and Design · Network Monitoring and Troubleshooting · Indoor location monitoring capability · Wireless IPS management · Centralized Software updates · Network mapping with floor plans for easier automated site survey		Pls refer other clauses
10		NMS specifications are for the network elements. There is a substantial component of WLAN as well. Kindly confirm if an integrated management platform is required for the management of network and WLAN		
11	Additional Request for WLAN	Addition Request: Shall provide comprehensive life cycle management of all the wireless devices on the network.		The solution should provide operational, configuration and troubleshooting functionality
12	Additional Request for WLAN	Addition Request: Security: · Must provide ability to locate and contain Rogue Access Points from the management application · Shall support automated alarms enable rapid responses to mitigate risks		Please refer other clauses

	Annexure-I -A-4: NMS				
1		additional request	Addition Request: (Please add following line items in BoQ) NMS for 100 APs Additional License for 50 Aps		Please refer above clauses
	Annexure-II -A-5(i): WLANC				
1	Point- 11	Should support at least 500 APs per Controller and should have a scalability to handle up to 1000 access point		To support 1000 APs can two AC be provided against this to meet this requirement	The scalability asked may be achieved through 1 or 2 Wireless controllers. 2 Wireless controllers have been asked for.
			Should support atleast 500 Aps per controller and should have scalability to handle upto 1000 APs by clustering	Kindly Clarify if the mentioned scalability can be achieved using clustering of WLC.	
2	Point-24	Must support client roaming across controllers separated by a layer 3 routed boundary.		This is between same AC or different AC. As per our understading it shall be on the same AC	The clause is self explanatory.
3	Point -29	Should provide a snapshot of air quality in terms of the performance and impact of interference on the wireless network identifying the problem areas.		This will get covered in Radio Calibration and in Spectrum Analysis of Non-Wi-Fi interference sources. So request to remove this point.	This feature is important from deployment perspective of Wireless network. The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
4	Point 30	Should provide an Air Quality rating on a per- radio basis to help gauge the impact of interference on the network		This will get covered in Radio Calibration and in Spectrum Analysis of Non-Wi-Fi interference sources. So request to remove this point.	This feature is important from deployment perspective of Wireless network. The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
5	Point 33	Should have Voice Call Admission		QoS can applied when receiving voice data so this can be achived through QoS capabilities. So requets to remove this point.	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
6	Additioanl request		Addition Request: WLC should support L2 and L3 roaming of IPv6 clients and should support First hop security features in IPv6 network like "Router Advertisement guard", "DHCPv6 guard" and "IPv6 source guard"	Please list the mandatory IPV6 features required for WLC.	NO Change. As per tender
	Annexure-II -A-5(ii): WAP				
1	Point - 4	Must have an industrial design for durability, with steel cases, industrial grade antenna connectors, without visible vents, and with metal locking points.	Amendment Request: Must have an industrial desgin for durability, industrial grade antenna connectors, without visible vents and with metal locking points	For AP's placed in indoor environment steel cases are not required and for outdoor anyways you have asked for environmental pretections.	This clause to be read as "Must have an industrial design for durability, with industrial grade antenna connectors, without visible vents, and with metal locking points.

2	Point -5	Must include dual band antennas to support both the 2.4GHz and 5GHz operations simultaneously from single antenna.		As dual band AP is asked and it'll separate antennas for 2.4 and 5GHz so request to change this to support from separate antennas as this will give better coverage	This clause to be read as "WAP should support dual band operations of 2.4GHz and 5Ghz."
3	Point-8	Must support 4x4 multiple-input multiple-output (MIMO) with three spatial streams		Can 3x3 MIMO be provided with three spatial streams	This clause to be read as "Must support 4x4 or 3x3 multiple-input multiple-output (MIMO) with three spatial streams without compromising the desired performance requirements."
			Must support 3x3 Multiple input multiple output (MIMO) with three spatial streams	The mentioned performance of the Access Point can be achieved by using 3x3 Multiple input multiple output so kindly modify the same.	
4	Point- 12	Must support upto 23dbm of transmit power in both 2.4Ghz and 5Ghz radios. (limited as per Govt. of India regulation for such WAP)		Can this be changed to minimum 20dbm transmit power as the govt regulation is on trasmit power in terms of mW and it'll not have much impact on services	Appropriate solution as per Govt of India regulation should be proposed without compromising the functionality
5	Point- 17	Must incorporate radio resource management for power, channel, coverage hole detection and performance optimization		This feature is function of AC. So we request to remove from AP	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
6	point-34	Must be plenum-rated (UL2043).	Kindly remove this point	Plenum rating is required for the outdoor external antenna boxes and not on the indoor APs. Request you to please remove enabling all OEM to participate	This clause is deleted for indoor WAP and added for outdoor WAP.
7	point-37	Must support telnet and/or SSH login to WAPs directly for troubleshooting flexibility.	Kindly remove this point	AP's are managed with the help of controller which is already asked in the RFP, so kindly remove direct management of AP's	It should be possible to access the individual WAP thru any mechanism such as Telnet/SSH/Web browser/equivalent, etc.
8	point-39		Must support Power over Ethernet / Power injectors / Local Power	kindly modify for leading oem's to participate. As even local power can be provided using injector	This clause to be raed as "Must support Power over Ethernet and local power through power adapter. Should be provided with power adapter.
9	Point43	Must support QoS and Call Admission Control capabilities.		QoS can applied when receiving voice data so this can be achived through QoS capabilities. So requets to remove this point.	This clause is deleted.
10	Additional request		Addition request: 6. Access point should be modular and support expandable modules to support 802.11ac for 802.11ac deployment in future	IEEE 802.11ac is a wireless computer networking standard in the 802.11 family , developed in the IEEE , providing high-throughput wireless local area networks (WLANs) on the 5 GHz band	The Access Point should be scalable/upgradable to provide 802.11ac standard in the future considering the future roadmap for better technology and higher bandwidth requirements
	Annexure-II -A-5(iii): WAP-outdoor				
1	point-8	Must support 4x4 multiple-input multiple-output (MIMO) with three spatial streams	Must support 3x3 Multiple input multiple output (MIMO) with two spatial streams	The mentioned performance of the Access Point can be achieved by using 3x3 Multiple input multiple output and 2 Spatial streams. so kindly modify the same.	This clause to be read as "Must support 4x4 or 3x3 multiple-input multiple-output (MIMO) with two/three spatial streams without compromising the desired performance requirements."

2	point-10	Must support data rates upto 450Mbps on 5Ghz radio and 216Mbps on 2.4Ghz radio.	Must support data rates upto 300 Mbps on 5 Ghz Radio and 216 Mbps on 2.4 Ghz radio	Request you to please change the performance to 300 Mbps for external AP's thus allowing all major OEMS to participate	Clause to be read as "Must support data rates upto 300Mbps on 5Ghz radio and 216Mbps on 2.4Ghz radio.
	Annexure-II -A-6(i): Router1				
1	point-3	Router should support on-board hardware encryption acceleration for IPsec & SSL VPNs	Router should support on-board hardware encryption acceleration for Ipsec VPNs	SSL VPN is used to [provide services to the mobile users coming from public internet cloud and accessing the critical office application. As a practice SSL VPN shojld be a separate box thus not exposing the critical network and security components to the internet. Also this feature is not available in router with leading OEMs.	This clause to be read as " Router should provide onboard hardware/external device for IPsec and SSL VPNs for min 100 users from day one"
2	point-4	Router should have atleast three 10/100/1000 Routed ports	Router should have atleast Four 10/100/1000 Routed ports	Kindly ask Min 4 Gigabit interfaces to provide 2 ports for WAN and 2 ports for LAN.	This clause to be read as "Router should have atleast four 10/100/1000 routed ports"
3	Point- 5	Router should have atleast 3 slots for additional interface modules & 2 service module slots	Kindly modify this statement as"Router should have atleast 5 LAN/WAN slots for additional interface modules."	Terminology differs from OEM to OEM.	This clause should be read as "The router should have atleast 5 expansion slots for I/O modules"
			We request you to kindly explain usage of Service module ? Is it to be used for DSP cards ?		
			Router should have atleast 5 slots for additional interface modules	service Module is specific to some OEM. Min 5 slots should be asked in the router based on the performance asked.	
4	point-6	Router should have support for WAN interface like, High-speed serial, Sync/Async Interface, ISDN, 3G Interfaces, 8 port Gigabit PoE Ethernet switch modules, Giga ethernet routed ports and G.703 interface.	Kindly remove 8 port Gigabit PoE Ethernet switch modules,.	The PoE is end user connectivity option not directly from router. Kindly remove remove this so that max. OEM can participate.	ISDN is important for backup and is a required feature. The bidder may offer the same through internal/external device to meet the desired functionality. Support for 8 port Gigabit PoE ethernet switch module is desirable
			Router should have support for WAN Interfaces like. High-Speed Se-ial,SyncIAsync Interface, 3G interfaces. a-port Gigabit POE Ethernet S*itch Modules, Giga Ethernet Routed ports & G.703 interfaces	ISDN is the older technology for backup and is not supported by many service providers. Now 3G is being used for the same. Please amend ISDN/3G for backup.	
5	Point 7	Should have support for in-built redundant power supply		We request you to kindly allow RPS based power supply redundancy	The clause is self explanatory. No Change
6	point no-8	Router performance should atleast 950Kpps on 64-Byte packet	Amendment request:" Point 8 Router performance should atleast 1500Kpps on 64-Byte packet"	Please note 950 kpps of performance is low considering the expected performance for Router 1, so request you to please increase the minimum performance to 1500 Kpps.	The clause to be read as "router performance should be atleast 1400Kpps on 64 byte packet"

7	point-11	Router should support following routing protocols & features: RIP, OSPF, BGP,ISIS, Policy based routing, should support un-equal cost load-balancing & un-equal cost load-sharing mechanism, should support functionality to route packets based on Delay, loss, reachability, throughput, jitter & Mean opinion score, Bi-directional forwarding detection support, MPLS	Router should support following routing protocols & features: RIP, OSPF. BGP,ISIS. Policy based routing, should support un-equal cost loadbalancing & un-equal cost load-sharing mechanism, should support functionality to route packets based on Delay, loss. reachability, throughput, jitter, Bi-directional forwarding detection support, MPLS	Mean opinion score is specific to one OEM. Kindly remove the clause.	Mean Opinion Score is deleted from this clause. Rest remain the same.
8	point-19	Should support following VPN protocol: L2TP, L2TPv3, IPsec VPN, SSL VPN, should support the functionality of forming dynamic tunneless, VPN Using GDOI protocol, should support IKEv2, should support IPv6 for IPsec and IKEv2, should support 3DES, AES, MD5, SHA-1 algorithms, support GRE protocol.	Kindly remove IKEv2.	Technology differs form OEM to OEM, Kindly remove so that max. OEM can participate.	L2TP and L2TPv3 stand deleted. Rest no change. Also for SSL please refer other clauses above.
			Should support following VPN Protocols & Features : IPsec VPN, should support the functionality of forming dynamic tunneless VPN using GDOI Protocol. should support IKEv2, should support IPv6 for IPsec & Ikev2, Should support 3Des, AES, MD5, SHA-1 algorithms, support GRE protocol	SSL VPN is used to [provide services to the mobile users coming from public internet cloud and accessing the critical office application. As a practice SSL VPN should be a separate box thus not exposing the critical network and security components to the internet. L2TP and L2TPv3 are legacy protocols and are not supported by many OEMs.	
9	point-21	Should support the following QoS features: Should support the functionality of recognizing network based applications passing through router & provide statistics of traffic usage, QoS for VPN, Flow based WRED, Class based policing & shaping, DSCP based marking & classification, IPv6 Packet classification & Marking, IPv6 Policing & Shaping, IPv6 Queuing, RSVP, Should support Hierarchical Queuing Framework , QoS policy propagation via BGP, Should support percentage based policing & shaping,	Should support the following QoS features: Should support the functionality of recognizing network based applications passing through router & provide statistics of traffic usage, QoS for VPN. Flow based WRED,Class based policing & shaping, DSCP based marking & classification. IPv6 Packet classification & Marking, IPv6 Policing &Shaping, IPv6 Queuing, RSVP, Should support Hierarchical Queuing Framework, OoS policy propagation via BGP. Should support percentage based policing & shaping,	Hierarchical Qos is the feature of carrier grade router. Which is required in ISP's backbone for segregating different customers Qos(j)	Hierarchical QoS may be treated as desirable. Rest remain the same.

10	point-23	Router should support following security feature: Router should support stateful zone based firewall, should support IPS functionality with support for automatic signature update, should support Inline IPS functionality, should support IPv6 stateful firewall should support inbuilt certificate server for digital certificates, should support firewall rules based on user identify, should support control plane policing to prevent dos attacks on the router, should support VRF aware firewall and transparent firewall functionality.	Kindly modify this statement as "Router should support stateful firewall."	These all the features are for IPS and IPS degrade the performance of the router. Kindly modify the clause so that max. OEM can participate.	This clause is deleted
11			Router should support following security features: Router should support stateful zone based firewall, Should support IPS functionality with support for automatic signature updates, Should support inline IPS functionality with 600 Mbps, Should support IPv6 Stateful firewall, Should support in-built certificate server for digital certificates, should support firewall rules based on user identity, should support control plane policing to prevent dos attacks on the router, Should support VRF aware firewall & transparent firewall functionality	IPS should perform on the bandwidth terminated on router. As Router is asked with 950 Kpps performance, our understanding is that accordingly IPS performance should be as per standard formula 1 Kpps of Full duplex is equal to 1 Mpps of performances so for 950 Kpps = $950/2 * 1.488 = 600$ Mbps of IPS performance)	
12	point-25	Router should support embedded Packet Capture to capture packet data flowing through, to and from the device to an internal buffer.	Kindly remove this line.	So that max. OEM can participate.	This clause to be read as "Router should support Packet Capture to capture packet data flowing through, to and from the device to an internal buffer."
13	point-26	Router should support the ability to monitor events and take informational corrective action when the monitored events occur or when the threshold is reached.	Kindly modify this clause as "Router should support the ability to monitor events and when the monitored events occur or when the threshold is reached.	The router can not take the corrective action itself. Kindly remove this feature.	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
14	Point no 27	Should support Netflowv9 to provide data to enable network and security monitoring, network planning, traffic analysis, and IP accounting.	Kindly modify this clause as "Should support Netflow/sFlow/Jflow to provide data to enable network and security monitoring, network planning, traffic analysis and IP accounting."	We can achieve this feature by sflow. Kindly modify.	This clause to be read as "Should support Netflow/sFlow/jFlow or equivalent to provide data to enable network and security monitoring, network planning, traffic analysis, and IP accounting."
				We request you to kindly amend it as Netflow equivalent (Netflow is OEM specific)	

			Should support Netflow9 or J flow or equivalent to provide data to enable network and security monitoring, network planning, traffic analysis, and IP accounting.	Netflow is specific to single OEM. Kindly allow Netflow or equivalent	
15	point -31	Industry Standards & Certifications			
16	point- 32	The Router & the operating system should be atleast EAL3 or more certified under the Common Criteria Evaluation Program	Kindly modify this statement as "Router should support stateful firewall."The Router and the operating system should be atleast EAL2 or more certified under common criteria evaluation program.	Higher EAL label doesn't ensure better security label it is only ensure better documentation process.	No change
				We request you to kindly keep EAL - 3 certification as optional	
17	Additional request		Kindly clarify if Firewall, IPSEC and MPLS are required from day-1	These services are license based services and may not be part of the proposed BOM. Pleas clarify	IPSec, SSL and MPLS features are required from day one. Firewall and IPS have been deleted
	Annexure-II -A-6(ii): Router2				
1	point-2	The router should be based on multi-Core processors & have a multi-gigabit Fabric for efficient module to module communication	Kindly modify this clause as "Router should have modular architecture.	Multicore processore required only in the high end router. Kindly modify this clause.	This clause to be read as "The router should be based on multi-Core processors/equivalent & have a multi-gigabit Fabric for efficient module to module communication"
2	point-3	Router should support on-board hardware encryption acceleration for IPsec & SSL VPNs	Router should support on-board hardware encryption acceleration for Ipsec VPNs	SSL VPN is used to [provide services to the mobile users coming from public internet cloud and accessing the critical office application. As a practice SSL VPN shojld be a separate box thus not exposing the critical network and security components to the internet. Also this feature is not available in router with leading OEMs.	The clause to be read as "Router should support internal/external device for IPsec & SSL with min 50 simulatanoeous tunnels on SSL and IPsec from day one"
3	point-4	Router should have atleast two 10/100/1000 Routed ports	Router should have atleast Four 10/100/1000 Routed ports	Kindly ask Min 4 Gigabit interfaces to provide 2 ports for WAN and 2 ports for LAN.	No Change
4	point-6	Router should have support for WAN Interfaces like, High-Speed Serial, Sync/Async Interface, ISDN, 3G interfaces, Giga Ethernet Routed ports & G.703 interfaces	Router should have support for WAN Interfaces like, High-Speed Serial, Sync/Async Interface, 3G interfaces, Giga Ethernet Routed ports & G.703 interfaces	ISDN is the older technology for backup and is not supported by many service providers. Now 3G is being used for the same. Please amend ISDN/3G for backup.	ISDN is important for backup and is a required feature. The bidder may offer the same through internal/external device to meet the desired functionality.

5	point-10	Router should support following routing protocols & features: RIP, OSPF, BGP,ISIS, Policy based routing, should support un-equal cost load-balancing & un-equal cost load-sharing mechanism, should support functionality to route packets based on Delay, loss, reachability, throughput, jitter & Mean opinion score, Bi-directional forwarding detection support, MPLS	Router should support following routing protocols & features: RIP, OSPF, BGP,ISIS, Policy based routing, should support un-equal cost loadbalancing & un-equal cost load-sharing mechanism, should support functionality to route packets based on Delay, loss, reachability, throughput, jitter, Bi-directional forwarding detection support, MPLS	Mean opinion score is specific to one OEM. Kindly remove the clause.	Mean Opinion Score is deleted from this clause. Rest remains the same
6	point-16	Should support following VPN Protocols & Features : L2tp, L2tpV3, IPsec VPN	Kindly Remove	L2TP and L2TPv3 are legacy protocols and are not supported by many OEMs	L2TP and L2TPv3 may be considered as optional. Rest remain the same
7	point-18	Should support the following QoS features: Should support the functionality of recognizing network based applications passing through router & provide statistics of traffic usage, Class-Based Weighted Fair Queuing (CBWFQ), Weighted Random Early Detection (WRED), Hierarchical QoS, Policy-Based Routing (PBR), Performance Routing (PfR), and Network-Based Advanced Routing (NBAR)	Kindly Modify this clause as "Should support the functionality of recognizing network based application passing through router and provide statistics of traffic usage, class based weighted-fair queuing (CBWFQ)/WFQ, Weighted Random Early Detection (WRED), Hierarchical QoS, Policy Based Routing.	Terminology differs from OEM to OEM. Kindly modify so that max. OEM can participate.	Hierarchical QoS, PfR, NBAR feature may be treated as desirable. Rest remain the same.
			Should support the following QoS features: Should support the functionality of recognizing network based applications passing through router & provide statistics of traffic usage, QoS for VPN. Flow based WRED,Class based policing & shaping, DSCP based marking & classification. IPv6 Packet classification & Marking, IPv6 Policing &Shaping, IPv6 Queuing, RSVP, Should support Hierarchical Queuing Framework, OoS policy propagation via BGP. Should support percentage based policing & shaping,	Hierarchical QoS is the feature of carrier grade router. Which is required in ISP's backbone for segregating different customers QoS	

8	point-20	Router should support following security features: Router should support stateful zone based firewall, Should support IPS functionality with support for automatic signature updates,	Router should support following security features: Router should support stateful zone based firewall, Should support IPS functionality with support for automatic signature updates, Should support inline IPS functionality with 600 Mbps, Should support IPv6 Stateful firewall, Should support in-built certificate server for digital certificates, should support firewall rules based on user identity, should support control plane policing to prevent dos attacks on the router, Should support VRF aware firewall & transparent firewall functionality	IPS should perform on the bandwidth terminated on router. As Router is asked with 950 Kpps performance, our understanding is that accordingly IPS performance should be as per standard formula 1 Kpps of Full duplex is equal to 1 Mpps of performances so for 275 Kpps = 275/2* 1.488 =200 Mbps of IPS performance	This clause is deleted.
9	point-23	Router should support the ability to monitor events and take informational corrective action when the monitored events occur or when the threshold is reached.	Kindly modify this clause as "Router should support the ability to monitor events and when the monitored events occur or when the threshold is reached.	The router can not take the corrective action itself. Kindly remove this feature.	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
10	Point no 24	Should support Netflow v9 to provide data to enable network and security monitoring, network planning, traffic analysis, and IP accounting.	Kindly modify this clause as "Should support Netflow/sFlow/Jflow to provide data to enable network and security monitoring, network planning, traffic analysis and IP accounting."	We can achieve this future by sflow. Kindly modify.	This clause to be read as "Should support Netflow/sFlow/jFlow or equivalent to provide data to enable network and security monitoring, network planning, traffic analysis, and IP accounting."
				We request you to kindly amend it as Netflow equivalent (Netflow is OEM specific)	
			Should support Netflowv9 or J flow or equivalent to provide data to enable network and security monitoring, network planning, traffic analysis, and IP accounting.	Netflow is specific to single OEM. Kindly allow Netflow or equivalent	
11	Point no 27	Industry Standards & Certifications			
12	Point no 28	The Router & the operating system should be atleast EAL3 or more certified under the Common Criteria Evaluation Program	Kindly modify this statement as " Router should support stateful firewall."The Router and the operating system should be atleast EAL2 or more certified under common criteria evaluation program.	Higher EAL label doesn't ensure better security label it is only ensure better documentation process.	No Change
				We request you to kindly keep EAL - 3 certification as optional	
11	Additional request		Kindly clarify if Firewall, IPSEC and MPLS are required from day-1	These services are license based services and may not be part of the proposed BOM. Please clarify	IPSec, SSL & MPLS are required from day one.
	Annexure-II 9(i & ii). Server				

1	point-3	Standard Memory : 16 GB Standard Memory with the support of standard feature like ECC, Spareblank	Amendment Request: Point 3 Standard Memory : 16 GB Standard Memory with the support of standard feature like ECC, Spareblank/ mirroring	Sparing provides less redundancy than mirroring, so please allow mirroring as well, With Mirroring system reliability is optimized by using half the system memory as backup.	Clause to be read as " Standard Memory : 16 GB Standard Memory with the support of standard feature like ECC, Spareblank/mirroring"
2	Point-5 Internal Hard Disk Drive	5 X 500 GB 7K RPM HDD		500 GB is SATA Harddisk Drive with 7200 RPM Speed, We recommend to use 600 GB SAS HDD with 10K or 15K RPM for better performance	The clause stands amended as " 5 x 500GB or higher 10K or better RPM HDD Drives.
3	Point-6 Hard Disk Controller	RAID Controller with 256 MB battery backed write cache (RAID 0/1/5/6)		Please specify the Required RAID . Now a days RAID Controllers are coming with 512 MB cache, we request you to consider the same instead of 256 MB	No change. Minimum configuration has been mentioned. The bidder may offer same or higher
4	point-7	Internal Drive Bays: 8 Small form factor (SFF) hot plug drive bays to support Serial-attached SCSI (SAS) and serial ATA (SATA) Drives	Amendment Request: Point 7 Internal Drive Bays: Minimum 16 Small form factor (SFF) hot plug drive bays to support Serial-attached SCSI (SAS) and serial ATA (SATA) Drives	looking at the configuration of server asked for it is recommended to have scalability provided for at least 16 HDD bays.	No Change. Minimum configuration has been specified. The bidder may offer same or higher.
5	point-8	Optical Drive: IDE DVD ROM/CDRW Combo	Amendment Request: Point 8 Optical Drive: IDE DVD ROM/CDRW Combo/ Virtual media support for remote CD and DVD drives	Same can be provided through the Virtual media so please allow the same.	This clause should be read as "IDE DVD ROM/CDRW Combo/Virtual Media"
6	point-10	Chipset Intel Chipset with snoop filter	Please remove this clause	SNOOP filter were supported on older generation Chipset so please remove the same. With QPI, you don't need the same.	This clause should be read as "latest Intel Chipset with latest features"
7	Point- 13 (External I/O Ports)	Serial -1,VGA - 2; (1 front, 1 Back);Network RJ-45 -2; Remote management port - 1; USB Port - Ports - 5: (2 Front; 4 rear; 1 Internal)	Amendment Request: Point 13 External I/O Ports Serial -1, VGA -2 (1 Front, 1 Back); Network RJ-45 - 2, Remote Management port -1, USB Port - Ports -5; (2 Front, 2 Rear, 1 Internal)	There seems to be typographical error, as you have asked for total 5 USB ports, so it should be (2 Front, 2 Rear, 1 Internal) not (2 Front, 4 Rear, 1 Internal)	This clause should be read as "Serial - 1,VGA - 2; (1 front, 1 Back);Network RJ-45 -2; Remote management port - 1; USB Port - Ports - 5: (2 Front; 2 rear; 1 Internal)
				In Servers, various peripherals are not connected directly and instead shared on the LAN. Hence 4 rear USB ports on Servers are not required. We Request you to kindly change the rear ports as 2 nos	
8	Point- 20 OS	Should be supplied with latest Windows Server /Enterprise Linux server.		Please specify the required OS - Windows or Linux ?	Please refer Serial No. 9 of A at Annexure-1 of the BoM for the same.
				Which OS cost need to be factored in commercial. Linux or Windows.	
	Annexure-1 -A-AE &Comp				
1	point 9(i)	Latest Servers with Windows server 2008 or latest		Request you to please change this clause as MS latest OS is Windows Server 2012. Also let us know what edition we need to quote here. (Standard, Datacenter).	The bidders are free to quote the latest versions with Enterprise Edition

2	point 9(ii)	Latest Servers with Enterprise Linux Server		Request you to please Confirm Linux OEM & Subscription period. Also let us know what Subscription edition we need to quote here. (Standard, Premium).	The clause is self explanatory. Refer warranty clause for subscription duration.
3	point-9(iv)	Hardware & software for Backup		Do we need to quote Master Backup Server also. If yes, Please share server specification along with OS.	No
	Annexure-II 9(iii). Storage				
1	Point- 2 (c)	Proposed system should have minimum 8 or more backend lanes each at 6Gbps for backend device connectivity.	Proposed System should have 16 or more backend lanes each at 6 Gbps for backed device connectivity	Front end port bandwidth is 88Gbps (8x8 Gbps FC, 4x1Gbps iSCSI, 2x10 Gbps), so backend bandwidth has to be 96 Gbps (16x6 Gbps) not 48 Gbps (8x6 Gbps)	No change. Minimum configuration has been specified. The bidder is free to offer same or higher.
2	Point-2 (d)	It should support Data in Place upgrade to higher model in the same family.		Acquisition cost of any IT equipment is cheaper than the upgrade of any old equipment. Hence it is not recommended to have this feature which will restrict the participation of many OEM's and would affect the overall commercials. Hence it is requested to delete the clause	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
3	Point-3 (a)	The storage arrays shall minimum support native 8Gbps FC, 1Gbps iSCSI, 10Gbps iSCSI & FCOE Protocols. Both FC and iSCSI ports shall have the capability of host connectivity and array based remote replication.	The storage array shall minimum support native 8Gbps FC, 1Gbps iSCSI, 10 Gbps iSCSI & FCoE Protocols. Both FC and iSCSI Shall have the capability of host connectivity and FC/iSCSI have the capability of array based remote replication	For replication use or FC or iSCSI should be allowed instead of both port as only one type of array based replication would be used and every oem will have different approach	Clause to be read as "The storage array shall minimum support native 8Gbps FC, 1Gbps iSCSI, 10 Gbps iSCSI & FCoE Protocols. Both FC and iSCSI Shall have the capability of host connectivity and FC/iSCSI have the capability of array based remote replication"
4	Point-6 (a)	The solution must support 2nd generation SAS 6Gb/s drives, proposed system must be able to support all on-line data storage tiers in order to maximize both system performance and capacity scalability. Proposed system should support 10K RPM SAS, 15K RPM SAS as well as 7.2K RPM higher density NL-SAS drives and SSD 100/200GB drives in the same array.		Online Tiering affects the performance of Production environment and hence not recommended in the enterprise storages. Hence it is requested to delete the clause	As per tender
5	point-7	Currently the system should be configured with 100TB raw space.		Please specify the drive type required for capacity	This clause should be read as "Currently the system should be configured with 100TB raw space. 5% capacity on SSD, 60% capacity on 15K RPM SAS Drives, 35% capacity on 7200 RPM NL-SAS Drives."

6	Point -9 (a)	Proposed system should provide flexibility of extending system cache up to 500 GB using either SSDs / DRAM in order to absorb spikes in both read and write workloads.		This should be deleted as having SSD as system cache will not benefit in practical scenrio and make the tender as OEM specific	No Change. This clause is self explanatory.
7	Point -10 (a)	Proposed system should deliver optimal performance at a lower cost by dynamically moving "hot" data to higher performing drives and "cold" data to more cost-effective higher density drives.		Online Tiering affects the performance of Production environment and hence not recommended in the enterprise storages. Hence it is requested to delete the clause	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
8	Point- 10 (b)	Tiering should happen at the sub-LUN level, providing more granular movement of data within the LUN by automatically moving data.		Online Tiering affects the performance of Production environment and hence not recommended in the enterprise storages. Hence it is requested to delete the clause	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
9	Point-10 (c)	Tiering should happen between all 3 tiers i.e. Flash, SAS and NL-SAS drives.	Tiering should happened between SSD and HDD of all Types.	Tiering between SAS and NL-SAS does not improve the performance as both are mechanical disk and has performance bottleneck, So combing HDD with SSD is of real benefit.	This clause to be read as "Tiering should happen between Flash and HDD(SAS and NL-SAS drives)."
10	Point-10 (d)	Tiering policy should be managed by the same storage management interface.		Online Tiering affects the performance of Production environment and hence not recommended in the enterprise storages. Hence it is requested to delete the clause	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
11	Point-11 (b)	Currently the system must be supplied with 16GB DRAM cache memory across controllers	Currently system must be supplied with 16 GB Cache memory across the controllers for Block I/O scalable upto 64 GB and 128 GB for File I/O.	File I/O cache should also be separately mention and scalability should also be mentioned	This clause should be read as "Currently the system must be supplied with 16GB DRAM or more cache memory across controllers"
12	Point-14 (a)	Must support online expansion of RAID Group. Must be able to add additional disks on the fly to expand the RAID group capacity.	Must support online expansion of Storage Pool. Must be able to add additional disks on fly to expand the Storage Pool Capacity	In virtulaised storage RAID group combines pool (storage pool). Exapnsion of capacity is made available at storage pool level to take advnatage of native storage virtualization	This clause to be read as "Must support online expansion of RAID Group. Must be able to add additional disks on the fly to expand the RAID group/ Storage pool capacity."
13	Point-15 (a)	Must be able to migrate data from one RAID type or set of drives to another without impacting applications within the same system enabling users to seamless relocate active data from one RAID group to another and or across storage tiers, resulting in the highest cost efficiency and application performance.		Migrating the RAID and tierieng in online application will definitely impact the performance. Technically some resources will definitely be used to do this job. In this scenario, keeping the preference of Application performance, Hence it is requested to delete this clause	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.

14	point-16a	Must support array-based hardware LUN masking for highest security. It should not be host-based or switch-based. Storage must support LUN masking or Selective storage visibility for different hosts or clusters. Array vendor should provide for licenses to support the maximum number of LUNS possible on the array	Must support array-based hardware LUN masking for highest security. It should not be host-based or switch-based. Storage must support LUN masking or Selective storage visibility for different hosts or clusters. Array vendor should provide for licenses to support the maximum number of hosts supported on the array	LUN masking is with relation to the host connected to the storage. Therefore the license limit should be with respect to the host.	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
15	Point- 17 (b)	It must be able to centrally manage the vendor's complete range of arrays over the network. It must support web-based management. It must support event auditing for security. The date, time, and nature of the action must also be logged.	It must be able to centrally Managed the complete range of arrays from all OEM over the network. It must support web based management. It must support event auditing for security. The date, time and nature of action must be logged.	Pls do not get locked to one vendor and allow for storage management tool for all storage from all OEM.	This clause to be read as "It must be able to centrally manage the complete range of arrays over the network. It must support web-based management. It must support event auditing for security. The date, time, and nature of the action must also be logged."
16	Point-17 (d)	Must be able to discover and monitor virtual machines so that entire environment can be mapped from virtual machines to physical to supporting storage.		Kindly elaborate this point. Whether this means VAAI support is required or it means something else Kindly explain the requirement in specific	This clause is deleted
17	point-19a	The array should support controller based functionality for pointer based snap copies as well as full physical copies. Pointer based snap copies should require minimal space for creation of snapshot. The snapshot must be a readable/writable that can be mounted by a separate host for back up and /or testing.	The array should support controller based functionality for pointer based snap copies as well as full physical copies. Pointer based snap copies should require minimal space for creation of snapshot. The snapshot must be a readable/writable that can be mounted by a separate host for back up and /or testing. The software for array based copies as well as restoration from copies should be licensed for the maximum capacity of the entire array.	Different array vendors license snapshot/ volume copy license in different ways. We recommend a full array license so that later on license costs for additional capacity are avoided.	No change
18	Point no 20 (a)	The deduplication process should run constantly in the background and should throttle itself automatically to avoid impact on production performance.	The proposed storage should support compression/De-duplication or similar feature to reduce the storage capacity required to storage the data. The data must be de-duplicated/ compressed before getting stored in disks in real time	Rather than focusing on one or other technical feature, benefit of feature should be written to make all technology comply and use of real time feature will truly help in managing storage capacity saving and performance.	The deduplication/Compression process should run constantly in the background and should throttle itself automatically to avoid impact on production performance.
				Continuous de-duplication and compression action on the data would impact the online performance and hence should be avoided.	

19	Point 20 (b)	Data compression should work as a background task, there should be minimal system performance overhead.	The proposed storage should support compression/De-duplication or similar feature to reduce the storage capacity required to storage the data. The data must be de-duplicated/ compressed before getting stored in disks in real time	Rather than focusing on one or other technical feature, benefit of feature should be written to make all technology comply and use of real time feature will truly help in managing storage capacity saving and performance.	
				Continuous de-duplication and compression action on the data would impact the online performance and hence should be avoided.	
20	Point- 22 (a)	Must provide flexible multi-protocol locking. Proposed system should provide flexible, robust, and independent native locking paradigms for handling NFS and CIFS requests. The system should permit security policies to be established on a per file system basis for use of both NFS and CIFS file and security attributes independently.		Multiprotocol locking is an OEM specific feature and would restrict the participation of larger perspective bidders. We kindly request you to change the clause as below: The system should permit security policies to be established on a per file system basis for use of both NFS and CIFS file and security attributes independently.	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
21	Point 23 (a)	The IP ports on the NAS to have the capability to support VLAN, Link aggregation, Ethernet Trunking for higher availability and performance		VLAN and ethernet trunking is a feature of IP Switches and not of NAS and hence should not be a part of Storage features. We request you to kindly change the clause as below: The IP ports on the NAS to have the capability to support Link aggregation for higher availability and performance	No change. The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
22	point-24a	Storage array should support hardware based long distance data replication at the array controller level in both Sync and Async mode.	Must have built-in support for Concurrent Local and Remote (CLR) Replication. Storage array should support hardware based long distance data replication at the array controller level in both Sync and Async mode.	Best practice for remote replication is to create a local copy of data and then use this volume to replicate data to the far site. This is needed so that primary volume iops are not impacted during replication. For this reason, concurrent local (for replication volume creation) and remote replication should be supported on the storage array.	No change
23	point-25	SAN Switch: The system should be supplied with 2 Nos of 24 port SAN switch for connectivity	Amendment request: The system should be supplied with 2 Nos of 24 port SAN switch for connectivity with each switch scalable to 40 port with support of 16 Gbps FC per port.	16 Gbps is the latest standard available for FC port, request you to please include and same for future scalability. Also the total number of ports per switch should be scalable to 40	This clause to be read as "SAN Switch: The system should be supplied with 2 Nos of 8 Gbps x 24 port SAN switch for connectivity"

24		Additional request	Addition Request : SAN switch should support minimum 8 x 10-Gbps FCoE ports	Fibre Channel over Ethernet (FCoE) is an INCITS T11 industry standard that allows Fibre Channel to be carried over Ethernet links. It drastically reduces the number of I/O adapters, cables, and switches in the data center, while providing a wire-once, agile infrastructure. Based on lossless, reliable 10 Gigabit Ethernet, FCoE networks combine LAN and multiple storage protocols on a single converged network. This will help department in Consolidating, Scaling and saving operational cost with respect to real state space , power and cooling	as per tender
25	Point- 26	The Storage & SAN switch should support IPv4 and IPv6 from day One		IPV4 & IPV6 on SAN Switch can not be supported as SAN Switch works on WWN address and not on IPV technology. We Request you to kindly delete this clause	The clause to be read as "The Storage should be IPv4 and IPv6 enabled from day One"
	Annexure-II 9(iv). H & S for backup				
1	point-6	Backup software should ensure that the backup data can be read by basic windows OS without using any backup software	Request you to please delete this clause	This is a propretary feature and is not offered by major backup software vendors which are listed in Gartner's magic quadrant. Also, it is vulnerable architecture for data security.	This clause is deleted
			please delete	This is a propretary feature and is not offered by major backup software vendors which are listed in Gartner's magic quadrant. Also, it is vulnerable architecture for data security.	
2	point-13	The backup software must have integrated advanced backup technologies like deduplication and archiving. The same can be added in future by just enabling the license for the same.	The backup software must have support for advanced backup technologies like deduplication and archiving	As the target backup media asked is tape library, which is sequential read/write media and advanced backup technologies like deduplication are based on block based random read/write, both technologies are not interoperable with each other.	This clause should be read as " The backup software must have support for advanced backup technologies like deduplication and archiving"
			The backup software must have suport for advanced backup technologies like deduplication and archiving. The same can be added in future by just enabling the license for the same.	Request that the requirement of integrated functionality in the backup software be removed. The same functionality can also be provided by an add on software.	

3	Hardware & Software for backup			<p>What will be Operating System of Backup Server (Windows/Linux/Unix)? Request you to please let know for how many server, backup Solution need to factored? Request you to please let know for OS of all server which need to be backed up. How many server will act for database and what Database will be used on same server. Backup Architecture : LAN Based or LAN free backup or NDMP? Do bidder required to factor Hot Online data backup agent for backup of databases servers? Total data size which needs to be backed?</p>	<p>OS for backup software may be Windows or Linux. Point 9(iv) in Annexure 1-A-9(iv) to be read as "Hardware and Software for backup for upto 5 servers". The backup would be as per site needs decided by the end-user.</p>
4	Tape library			<p>How many drives are required in Tape Library? What will be scalability of Tape Library in terms of numbers of drives? LTO-6 is latest generation of Tape drive. Request you to please ask for latest generation Tape Drive.</p>	<p>Please refer the specifications for the same. Slots are specified and the same needs to be fulfilled. Bidders are free to provide higher capacity library.</p>

Clarification/amendment Response to the Queries raised by the aspiring bidders against the tender no. EI-D/Tech/51-16/13

S.no.	Tendor Section Clause	Specification in the Tendor	Bidder's Query	Bidder's Recommendation	ERNET response to queries
	General Conditions				
1	Eligibility Criteria 5(a) xiii	<p>The bidder should give unconditional compliance & undertaking in respect of the following clause for all equipment / service / software which would be procured & installed by ERNET specifically in its own ERNET network only: "All the equipment & devices should be properly configured. There should not be any deliberate vulnerability left in the equipment. In case, any deliberate vulnerability is observed in the equipment later on, the bidder/OEM of the equipment/systems should be liable to penalty as per DoT Amendment of ISP license agreement for security related concern no. 820-01/2006-LR (Vol.II) Pt. dated 03.06.2011. An undertaking to this effect should be given by the bidder/OEM".</p> <p>However, all equipment / service / software to be procured by ERNET for its customer institutions / organization may not require above arrangement.</p>		Request you to please reconsider this clause as you have already asked for a penalty clause.	No change. The bidders should give unconditional compliance to this clause as asked in the clause on their letter head duly signed & stamped by the authorised person submitting the bid.
2	Eligibility Criteria 5(a)			The tender carries wide range of products ranging from Networking, wireless, VC, server, storage and surveillance etc. It may not be practically possible that a single bidder may have the necessary competence to deliver all the products and services around the specific product line. In this view, you are requested to kindly confirm whether consortium bidding is allowed or not?	The Consortium bidding is not allowed
3	SLA - Penalty	<p>Penalty clause for non conformance to above SLA: ERNET India mayfor every 1 hour of down time at a stretch or in parts.</p> <p>In any case, if the equipment is not made operational for 08 days from the time of reporting of fault, the Bank/Performance Guarantee submitted by the Bidder to ERNET India shall be forfeited. Any payments (payable to Bidder) shall not be paid too. This will be deemed to be an event of default and ERNET India may terminate the contract.</p>		We request you to consider the penalty to be capped at a maximum of 10% of the value. In case of default, payment due to the vendor for any services/products already delivered should be paid.	No change.

			We request ERNET that the maximum penalty for non conformance of the SLA be capped at the value of the Performance Bank Guarantee	
4		General Query	After successful completion of I&C who will be responsible for system acceptance and sign-off -- ERNET India or the end user or both?	After successful completion of Installation & commissioning(I&C), the bidder should submit I&C report duly signed & stamped by end-user to ERNET India
5		General Query	Will the UAT be conducted for each and every user site or will it be one time activity for similar type/nature of user sites?	UAT will be done by the bidder at each site under the implementation
6	Eligibility criteria 5(a)-iv	The bidder must enclose relevant copies of the customer purchase orders, scope of work, deliverables, time period of execution, project value and satisfactory work completion certificate from client for at-least One Campus LAN (Passive & Active components) project of minimum Rs. 8 Cr. in single order executed in last five financial years for any Government Institutes/University/Organizations/PSU or Two Campus LAN (Passive & Active components) projects of minimum Rs. 5 Cr. in each order executed in last five financial years for any Government Institutes/University/Organizations/PSU or Three Campus LAN (Passive & Active components) projects of minimum Rs. 4Cr. in each order executed in last five financial years for any Government Institutes/University/Organizations/PSU.	We suggest that the bidder should be assessed on their capability to implement active components. Hence request ERNET to accept purchase orders having only active components also. Also request ERNET to accept enterprise customers as well , apart from Govt. & PSU clients.	No change.
7	Eligibility criteria 5(a)-v	The bidder must enclose a copy of at least one Campus LAN work order having minimum of 10Kms of Fibre optical cable with at least 500 Fibre Terminations and 1000 UTP nodes in any of the last five financial years for any Govt. educational institutes / University / Govt. entity / PSU.	Implementation of passive components are usually incidental to active components and hence request ERNET to delete this clause. Since the scope of the project include telepresence also, we request ERNET to rather replace this clause with asking implementation experience of Tele presence.	No change.
8	Eligibility criteria 5(a)-vi	The bidder must enclose a copy of at least one campus LAN work order having 1000 ports on data network switches and at least one chassis based layer 3 switch in a single order in any of the last five financial years for any Govt. Institute/University/Govt. entity/PSU.	We request ERNET to accept enterprise customers as well, part from Govt. & PSU clients	No Change

9	section 27 - LD	In the event of the Bidder's failure to have the stores ready for shipment/delivery by the date/dates specified in this Purchase Order, ERNET India may at its discretion withhold any payment, until the whole of the stores have been supplied by the contractor, as liquidated damages and not by way of penalty at the rate of 1% of the consignment value per week or a part of a week subject to a maximum of 10%. The amount towards Liquidated Damage would be recovered from the amount of Bank Guarantee as required vide para 25 above.		We suggest ERNET that he liquidated damages to be applicable only on the delayed portion of work/service and not on the entire contract value	No change
10		additional request		In order to enable the Supplier to commence work and meet its obligation under the contract, we request ERNET to provide physical possession of the site and access thereto, and making the site ready complete in all respect. We suggest that the Supplier should not in any manner be liable for any delay under the terms of this contract, if such delay is attributable to Purchaser's failure to make the site ready within seven (7) days of Supplier's direction in this regard.	As per tender
11		additional request		Limitation of liability	Rejected.
12	Point -25:	PERFORMANCE SECURITY			
13	Point 25.1,	<u>For US Dollar Value Equipments/goods:</u> In addition to Bank Guarantee required as per para 25.2 below, the successful vendor would also submit Bank Guarantee of equivalent amount of Dollar Value Equipments valid for a period of six months before opening of LC.		Bank Guarantee of 100% amount of Dollar value equipment valid for 6 months has been asked for over and above the PBG as defined in Clause 25.2. This clause is financially highly restrictive as it creates financial imbalance. It should be appreciated that the LC opening doesn't bear any payment	No change. However, ERNET may consider to release this BG after satisfactory delivery of equipment at end-user site/location.

14	Point 25.2,	<p>The successful bidder shall submit a Performance Security of 10% of the cost of the purchase order within 15 days of the placement of purchase order. The Performance Security may be in the form of Demand Draft/Pay Order/Bank Guarantee of any nationalized/scheduled bank. The Bank Guarantee should be valid for a minimum period of 42 months extendable to cover warranty period. In case supplier fails to deliver the items within delivery period or provide satisfactory after sales service within the warranty period, the Performance Security submitted by the firm is liable to be forfeited. Performance Security shall be released immediately after the warranty is over. No interest will be payable by ERNET India on the Performance Security.</p> <p>The Performance Security may be in the form of Demand Draft/Pay Order/Bank Guarantee of any Indian Nationalized/ Scheduled Bank In case supplier fails to deliver the items within delivery period or provide satisfactory after sales service within the warranty period, the Performance Security submitted by the firm is liable to be forfeited.</p>		<p>released till the equipment delivery is done. This sufficiently safe guards the interest of ERNET and its client as any payment made thru the LC would be after the material delivery itself. Further a PBG of 10% is always available with ERNET as further security. Hence it is suggested to remove this clause.</p>	No change.
15		additional request		Kindly share the formats for MAF and Bank Guarantee for EMD purpose.	As per tender
16		additional request			The bidder will make the connectivity diagram based on the end-user site requirements which may vary from site to site. The end-user may provide the autocad drawings of building plan subject to their availability with him on demand basis.
17	Point no 23: Payment terms	<p>In case of any discrepancy between rates mentioned in figures and words, the later shall prevail.</p> <p>The payment for Items quoted in US\$ would be released through irrevocable Letter of Credit(LC) after acceptance of the Purchase Order by the firm and subject to submission of Proforma Invoice and a Performance Security in conformity with Para 25 below. Payment in respect of rupee value components, 90% payment shall be made by ERNET India after delivery and satisfactory completion of installation, commissioning, testing and acceptance of the equipment as well as receipt of pre-receipted bill in duplicate. 10% payment would be released after expiry of the warranty period or 100% on satisfactory completion of installation, commissioning, testing and acceptance of the equipment if the firm submits the Performance Bank Guarantee of the amount equivalent to 10%, which should be valid for the period of warranty as well as receipt of pre-receipted bill in triplicate. The payments will be made as per actual supplied/installed/consumed quantities/items.</p>		<p>In case of Rupee value components, kindly consider 90% payment against delivery and balance 10% after commissioning and submission of 10% PBG</p>	<p>No change. However release of payment may be considered in case of site not ready situation wherein a "Site not ready" certificate is obtained from End-user and submitted to ERNET.</p> <p>Please note that all passive cabling components should be quoted in INR only</p>

18	Point no 24, Warranty (ii)	(ii) Warranty shall include free maintenance of the whole equipment supplied including free replacement of parts free software upgrades/updates/renewals. The defects, if any shall be attended to on immediate basis but in no case any defect should prolong for more than 24 hours. The comprehensive warranty shall be for a minimum period of three years from the date of acceptance of the equipment by ERNET India. The bidders are also required to quote for Comprehensive AMC of two years after warranty period is over. The Comprehensive AMC includes onsite warranty with parts and software updates/upgrades/renewals. The bids received without quotes for Comprehensive AMC would be out rightly rejected. AMC cost for two years will also be taken into account for commercial evaluation.		Warranty of 3 years has been asked for from the date of completion and acceptance. At times it has been observed that the completion of work doesn't happen due to issues at site wrt client which are beyond the preview of bidder. Hence it is requested that the clause be modified to read as 3 years warranty from acceptance of 3.5 years from date of delivery.	No change
19	Eligibility Criteria 5(a) xvi	All offered products; softwares & components should support seamless inter-operability among them. There should be no compatibility issue among the supplied products, software & components etc. All offered products, softwares & components should be as per IEEE standards. An undertaking to this effect should be submitted by the bidder.		Kindly include ITU-T standards as well as quite a few equipment are based on the same.	Please replace "IEEE standards" with "IEEE standards/ITU-T standards." Rest remain the same.
	ADD clause as				All the IP based devices/products offered by the bidders should be IPv4 & IPv6 enabled from day one

Clarification/amendment Response to the Queries raised by the aspiring bidders against the tender no. EI-D/Tech/51-16/13

S.no.	Tender Section-Clause	Specification in the tender	Bidder's Query	Bidder's Recommendation	ERNET response to Queries
	Annexure-II, C,1-VC MCU				
1	Point-1	MCU should be advanced architecture for real time media conferencing platform with higher processing power capabilities. It should be hardware based purpose-built system for advanced video & voice communications. Software based MCU are not acceptable. The MCU should be a non-Windows based operating system with inbuilt Gatekeeper functionality.	MCU should be advanced architecture for real time media conferencing platform with higher processing power capabilities. It should be hardware based purpose-built system for advanced video & voice communications. Software based MCU are not acceptable. The MCU should be a non-Windows based operating system with inbuilt / external gatekeeper functionality	Most of the OEMs have video infra architecture with external gatekeeper. Therefore request for changes to provide required flexibility to multiple OEMs. Also external gatekeeper is separately asked for in the RFP.	The inbuilt gatekeeper in this clause is deleted. Rest remain the same.
2	Point- 3	The MCU shall be a rack mountable unit, provided with all the necessary accessories to integrate into a rack. The MCU shall have at least three dedicated 10/100/1000 Mbps Ethernet interface for diverse IP communication.		We request you to provide two Ethernet ports which is the standard norm and provide the required public /private interfaces if need be	No Change. The bidder may fulfill the requirement through inbuilt/addon device.
3	Point- 5	The MCU should support min 20 ports on HD 720p (send and receive) on 4Mbps on IP. It should be scalable to 60 ports on HD 720p. The port quantity (min and scalable) should met in single chassis. Cascading of MCU for port support is not applicable. MCU should support the above with 25/30fps and H.264 resolution and AES encryption.	The MCU should support min 20 ports on HD 720p (send and receive) on 4Mbps on IP. MCU must be flexible enough to support 10 ports on HD 1080p.It should be scalable to 60 ports on HD 720p. The port quantity (min and scalable) should met in single chassis. Cascading of MCU for port support is not applicable. MCU should support the above with 25/30fps and H.264 resolution and AES encryption.	MCU should capable of supporting 1080p HD resolution to connect video endpoints on 1080p.	The clause is amended as "The MCU should support min 20 ports on HD 720p (send and receive) on 4Mbps / 10 ports on 1080p (send and receive) on 4Mbps on IP. It should be scalable to 60 ports on HD 720p. The port quantity (min and scalable) should met in single chassis. Cascading of MCU for port support is not applicable. MCU should support the above with 25/30fps and H.264 resolution and AES encryption."
4	Point - 6	MCU should be able to support H.320/PSTN Voice conferencing without using any external gateway.	MCU should be able to support H.320/PSTN Voice conferencing with or without using any external gateway. MCU must support 4 PRI ports and should be capable to support 8PRI through license upgrade.	ISDN PRI ports were not defined. 4 PRI lines can connect atleast 8 locations on HD 720p.	Please refer to the BOM at Annexure-I-C-1 for details on PRI ports requirement. This clause to be read as "MCU should be able to support H.320/PSTN Voice conferencing with using any internal/external gateway."
5			MCU should be able to support H.320/ PSTN Voice Conferencing with using any external/ internal Gateway.	Different OEM's have different architectures. There is no loss in functionality if ISDN is internal or external to the MCU chassis.	

6	Point-10	<p>MCU should support H.261, H.263, H.263++, H.264 video resolutions from QCIF to HD 1080p including intermittent resolutions (SIF, CIF, SD, WSD, and HD 720p).</p> <p>It should support up to HD 1080p in continuous presence (CP) transcoding (TX) and full transcoding on all ports</p> <ul style="list-style-type: none"> • Video Switching (Voice-Activated Switching) • 16:9 and 4:3 aspect ratio • H.239 content sharing resolution: VGA, SVGA, XGA, HD • Ability to send content to a legacy endpoint 	H.239 content sharing resolution: VGA, SVGA, XGA, HD 720p, HD 1080p	HD resolution doesn't provide clarity. Proposed MCU should support both 720p and 1080p content resolution.	No change. Minimum requirement has been specified. The bidders may offer higher/advanced features
				We request you to kindly include H.264 HP, H.264 BP & H.264 SVC which is latest technology standards and provide huge saving in terms of Bandwidth & tolerate packet loss upto 20%.	
				Request you to also add the support for H.264 High Profile and H.264 SVC which helps in bandwidth optimization and call in unstable networks. Request you to also add the support for 1080p at 60fps.	
7	Point-13	It should support Administrator, operator, auditor, and chairperson views		We request 3 level of privilege which is more than enough to meet any kind of requirement as the same could be OEM specific feature	This is an important feature. The bidder may offer the appropriate equivalent solution to meet the functionality.
8		Additional Points	MCU must be equipped with Telepresence License or hardware to support advanced telepresence layouts in both CP and VA mode to minimum 6 Telepresence locations.	As honorable committee is evaluating telepresence systems therefore proposed MCU must be flexible or capable enough to support telepresence systems for advanced telepresence layouts. Since MCU is required with 20 HD 720p ports therefore it should support minimum 6 nos 3 screen telepresence systems.	Add as "The MCU should be capable of supporting layouts for Telepresence systems as Telepresence is integral part of the Bil of Material"

9		Additional Points		<p>The MCU is core of the VC infrastructure and its operations. With growing foot print of VC devices, the MCU would practically be hosting conferences involving internal end points and external end points based on different platforms including hardware, software and mobile/handheld end points. This requires the MCU to support the latest and advanced VC standards in order to provide a cost effective and optimized solution. Considering the same it is suggested that the MCU should have the following features available</p> <ol style="list-style-type: none"> 1. MCU should support H.264 SVC standard. This not only allows wider acceptability of end point clients but also increases the MCU resources 2. H.264 High Profile – Bandwidth continues to remain a problem. H.264 High Profile is ITU-T standard which allows HD quality at 50% of bandwidth thereby enabling greater user experience at lower cost. 3. The MCU should support 1080p 60 FPS capability in order to future proof the infrastructure. 	No Change. Minimum specification has been specified. The bidder may offer same or higher/better.
	Annexure-II,C-1-Mngmt & scheduling for above MCU				
1	Point- 3	The system should be built on a powerful platform to support large registration of endpoints at least 200 from day one. Should be capable to support upto 500 devices via license upgrade on same chassis	The system should be built on a powerful platform to support large registration of endpoints at least 200 from day one. Should be capable to support upto 5000 devices via license upgrade on same chassis.	Management server is required to register all video systems, infrastructure and desktop or mobility clients for advanced features of management, directory, provisioning or desktop clients. Understanding it to be core infrastructure system for any organisation which would be installed in backend data center. As best practice only one management server is installed and is expected to have high future scalability to meet any future upgrade. Therefore future upgrade has been requested to change from 500 to 5000.	No Change. Minimum specification has been specified. The bidder may offer same or higher/better.

2	Point - 9	The system should be capable of provisioning in which an administrator can configure one or more endpoints with the set of information (based on administratively configured user policies) the registering devices need to operate within the network. This eliminates the need to configure each endpoint individually.		This clause should be removed as it is OEM Specific	No Change. This is an important feature. The bidder may offer the appropriate solution to meet the functionality.
3	Point - 11	It should be possible for the endpoint to automatically pull the device and site provisioning information from the system while start up.		This clause should be removed as it is OEM Specific	This is an important feature & functionality The bidder may offer the appropriate equivalent solution to meet the functionality.
4	Point-13	It should be possible to upgrade the software on one or more endpoints with a standard software package thereby eliminating the need to upgrade each endpoint individually.		This clause should be removed as it is OEM Specific	This is an important feature & functionality The bidder may offer the appropriate equivalent solution to meet the functionality.
5	Point-14	The system must support two exclusive soft up date processes: automatic and scheduled.		This clause should be removed as it is OEM Specific	This is an important feature & functionality The bidder may offer the appropriate equivalent solution to meet the functionality.
6	Point-15	It should be possible for the endpoint to automatically pull the soft update profile and package from the device.		This clause should be removed as it is OEM Specific	This is an important feature & functionality The bidder may offer the appropriate equivalent solution to meet the functionality.
7	Point-17	The appliance should support min 100 desktop clients from the day one so that video, voice, content and chatting features can be availed by the users in the network.	the appliance should support min 100 desktop clients for the day one so that video , voice , content features can be availed by the users in the network.(ib also	Chatting feature is specific to one OEM : Hence request you to remove the same or make it optional.	This clause to be read as "The appliance should support min 100 desktop clients from the day one so that video, voice, content features can be availed by the users in the network.
8	Point-18	Presence service	Provisioning	Subheading requires correction from Presence to provisioning as its general terminology for all oems for management server as per ITU standards.	Presence services are not required
9	Point-19	The system should include a presence service that allows video endpoint users to view details about their contacts, including the availability and system capability of the contacts in their contact list. This feature must be ready to use for the desktop clients.	System should registration of deskop clients for advanced features like address book, recent calls including indication of registration of desktop client with backend server on both H.323 and SIP.	Requires correction as per general architecture of management and desktop client registration.	Presence services are not required

10	Point-20	Topology: The system must offer a graphical view of sites and site links and the ability to automatically generate functional multi-site links. The Topology page should supplement the existing Sites and Site Links pages, and the functions and data available on the Sites and Site Links pages should also be available on the Topology page.		We request you to kindly Modify the same so as to support Tree structure/Map View also.	The requirement is to be able to get a graphical view of the sites. The bidders should propose the appropriate equivalent solution to meet the functionality.
11	Point-34	Advanced Gatekeeper support	Advanced Gatekeeper Support :The Gatekeeper should support 200 Conncurrent Calls and 500 registration.	Gatekeeper licensing information was missing.	The capacity defined is required from day one
12	Point-37	Auto ISDN provisioning - Allows for auto provisioning of DID (ISDN) and E.164 numbers for automated deployment of video endpoints.		This clause should be removed as it is OEM Specific	This is an important feature & functionality. The bidder may offer the appropriate euivalent solution to meet the functionality.
13	Point-43	Sophisticated dial plan support - Enables a higher level of network security by controlling the routing and blocking of certain calls.		This clause should be removed as it is OEM Specific	This is an important feature & functionality. The bidder may offer the equivalent solution to meet the functionality.
14	Point-47	On-the-fly parameter modification of in-progress scheduled conferences, including video layout, participant mute and un-mute, and conference duration		This clause should be removed as it is OEM Specific	This is an important feature & functionality. The bidder may offer the appropriate equivalent solution to meet the functionality.
15	Point-52	The Gatekeeper should run on Microsoft platform and external hardware if required must be supplied	Gatekeeper should run on Microsoft / Linux platform and external hardware if required must be supplied.(ib also	Different OEM's have different architectures and hence support different Operating System for Gatekeepers. Therefore, we request you to consider Linux as well	This clause to be read as "The Gatekeeper should run on Microsoft/Linux platform and external hardware if required must be supplied"
			The Gatekeeper should run on Microsoft/ Linux platform and external hardware if required must be supplied.	Different OEMS have different architecture and platform for their gatekeeper, infact most of the OEMS are adopting non-windows platform going forward with their gatekeepers.	
	Annexur e-II ,C,2- Telepresence Solution				

1	Point- 3	Video Standards: H.261,H.263++,H.264,H.239,,H.263 & H.264	H.261/ H.263++/ H.264/ H.239/BFCP/ H.263 and H.264, TIP	.Telepresence Interoperability protocol should be added as it is very import for overall interoperability with other OEM solutions. H.261, H.263++, H.263 are primarily applicable from Videoconference endpoints. As Telepresence solution operates along with a gatekeeper, these protocols should be supported by overall solution for interoperability with VC Endpoints.	The proposed Telepresence solution should be able to integrate and interoperate with other standards based VC end points and equipment.
2	Point- 6	Cameras:Must support three high-definition video cameras and codecs out of the view (hidden) for better eye to eye contact.	Cameras: Must support three high defination video cameras and codecs for better eye to eye contact.	" out of the View (hidden) " are specific to one OEM : Hence request you to remove the same.	This clause to be read as "Cameras:Must support three high-definition video cameras and codecs for better eye to eye contact."
			Must support three high-definition video cameras and codecs out of the view for better eye to eye contact"	Camera cant be hidden and any kind of such functionality may be limited to one OEM.	
3	Point- 7	Analog Line support: The system should support atleast 1 analog line support for audio add on	the system should support atleast 1 analog line support for audio add on via external / internal ISDN Gateway	1 analog telephone line is specific to one OEM. We request you to consider audio(PSTN) add on over ISDN PRI line via the external/internal ISDN Gateway	This clause is deleted
				We request you to modify the same to support Analog/IP users in the conference as IP phones are mostly deployed in corporate	
4	Point- 9	Components:Two Digital Ceiling Microphone Arrays	two digital ceiling/ Table microphones arrays.	Different OEM's have different architectures. Telepresence solution with ceiling microphones have certain disadvantages such as echo, noise feedback etc. Therefore, we request you to consider an option of table microphones also for high quality audio.	This clause to be read as "Components: Minimum Two Digital Ceiling/Table Microphone Arrays"
				We request you to modify this to ceiling / table microphone arrays	
5		Room control system with 6 inch color touch panel.		We request you to modify to Room control with Tablet Min 6 inches	The requirement mentioned is minimum configuration. The bidders may propose higher/better configuration
6		Content Monitor : Suitable size & number of high resolution content displays integrated in the system		We request you to kindly modify to Min three 22 Inches content display on Table	No Change. The clause is self explanatory. Please refer clause below also for display

7	Point-10	High definition audio : The system should have High definition audio supported on 22 kHz bandwidth with Stereo surround , G.722.1 Annex C ,7 kHz bandwidth with G.722, G.722.1	the system should have high definition audio supported on 22 khz bandwidth with stereo surround , G.722.1 Annex C/ 7KHz bandwidth with G.722 / G.722.1 or equivalent	Telepresence is all about delivering high quality spatial audio. G.722, G.722.1 and G.722.1 Annex C are protocols delivering low audio quality, hence, we request you to make them optional.	The requirement is to deliver high quality audio functionality. The bidders may propose equivalent solution without compromising the functionality
8	Point-11	Encryption: The system should support AES Media Encryption for secure video/audio and content	The system should support AES Media Encryption / equivalent SIP encryption standard for secure video / audio and content.	"AES Media encryption" is falls under H.323 stack. As there are Telepresence solutions based on SIP protocol, we request you to consider SIP based encryption also.	No Change. AES is important feature. The bidders may propose external device to meet the requirement & functionality.
9	Point-13	High definition video: The system should have 3 nos, 65" or higher high definition LCD/Plasma displays.		Not all display vendors have 65" LCD/LED system hence you are requested to allow Plasma to be offered as well which is a proven and acceptable technology. Alternatively you may allow 55" or higher LCD/LED display.	No Change. The clause is self-explanatory
10	Point-14	Camera: The system should have three mini 3-CCD high definition video cameras embedded (out of view) hidden	Camera : The system should have three mini 3 -CCD/ CMOS 2/3 inch sensor high definition video cameras	Different OEM's have different designs and architectures. In the Telepresence and Video conference industry, for HD quality mainly CMOS Sensors are used. We request you to consider CMOS also. " out of the View (hidden) " are specific to one OEM : Hence request you to remove the same.	The bidders may propose CCD/CMOS camera systems with 1080p resolution without compromising on the overall functionality.
			The system should have three 1/3 CMOS or equivalent high definition 1080p video cameras.	Different OEMs have different cameras for their telepresence systems. Therefore request for changes to provide required flexibility to bidders.	
11	Point-17	Flexibility: It should be possible to have customized wood finish, carpet finish, chair fabric and back wall branding color	Customizable interiors and furniture, carpet options for telepresence systems.	To provide flexibility to all OEMs.	This clause is deleted
12	Point-18	Flexibility:The system must have microphones hanging from the ceiling to have clear conference table	the system must have microphones hanging from the ceiling/ Table microphones to have clear controls on the table.	Different OEM's have different architectures. Telepresence solution with ceiling microphones have certain disadvantages such as echo, noise feedback etc. Therefore, we request you to consider an option of table microphones also for high quality audio.	Refer Point no 9 above for mics. Rest remain the same
			The system must have ceiling or table top microphones.	To provide flexibility to all OEMs.	

				We request you to modify this to ceiling / table microphone arrays	
13	Point-21	Flexibility:The system should have Stereo surround audio with digital ceiling microphones for capturing even the lowest audio signal in the room.	the system should have stereo surround audio with digital ceiling microphones / table microphones for capturing even the lowest audio signal in the room.	Different OEM's have different architectures. Telepresence solution with ceiling microphones have certain disadvantages such as echo, noise feedback etc. Therefore, we request you to consider an option of table microphones also for high quality audio.	This clause to be read as "Flexibility:The system should have Stereo surround audio with digital ceiling/table microphones for capturing even the lowest audio signal in the room."
14	Point-24	It should be possible to use the monitors for content displayed from the far site	Minimum 3 Nos. Motorized 21.5-inch high resolution content displays (display resolution 1920 X 1080p) integrated in conference table.	Content Monitors specifications and numbers were not mentioned.	Minimum 3 nos of 20" content monitors or 2 nos of 42" LCD display screens to be provided for content display
15	Point-30	Should support IPv4 and IPv6 from day One	Should support IPV4 day one. The same system should support IPV6 in future	As IPV6 networks are yet to be rolled out, products and technology are also on the migration roadmap to support IPV6. Hence we request you to accommodate IPV6 in future, with product roadmap on the same from the OEM	This clause to be read as " Should be IPv4 & IPv6 enabled from day one"
				Should support IPV4/IPV6 as still IPV6 is not deployed in most of the locations	
	Annexure-II ,C,3 (i) - Type 1: HD VC Endpoint/Codec				
1	Point- 1	The system must be a hardware device based on PAL with a PTZ camera, mic, wireless remote control, etc. The codec must be based on industry standards such as the H.323 and SIP umbrella standards for IP-based audio/video and H.320 umbrella standard for ISDN-based audio/video	The system must be a hardware device based on PAL with a PTZ camera, mic, wireless remote control, etc. The codec must be based on industry standards such as the H.323 and SIP umbrella standards for IP-based audio/video.	Please remove ISDN as this facility is already provided in MCU. Not used these days as all are migrating to IP only	No Change
2	Point- 2	System should support video protocols H.261, H.263, H.263++, H.264,	System should support video protocols H.261/ H.263/ H.263++/ H.264	H.261 is a old , obsolete protocol, primarily used in standard definition. H.263 is mainly used for interoperability with standard definition solution. In high definition video conferencing H.264 is largely used.	No Change

				We request you to kindly modify and add H.264SVC,H.264HP,H.264 BP which impacts the performance and Bandwidth of HD video call drastically	
3	Point- 4	System should support following video /audio inputs			
4	i	1xHD input for connecting main HD camera		We request you to modify the same to one HDMI Input & one VGA input	HD Input camera has been asked for . The bidders can propose relevant interfaces
5	ii	1x input for connecting PC/Laptop to share HD content			The bidder may fulfill the requirement through inbuilt/addon device.
6	(iii)	1x input for connecting to Document Camera/VCR/DVD player	1xinput for connecting Document Camera / VCR / DVD Player (optional)	In Video conferencing only two streams can be sent simultaneously i.e. Content and main video. As document camera stream also goes as content stream, hence input source between document camera and PC can be switched using an external switcher.	The bidder may fulfill the requirement through inbuilt/addon device.
				We request you to modify the same to one HDMI Input & one VGA input	
				kindly remove this as this may not be required.	
7	iv	1xMic input (quoted system should support upto 2 mic arrays)		We request you to modify the same to one 3.5 MM jack for audio in and One MIC port apart from 2 integrated MICs	The bidder may fulfill the requirement through inbuilt/addon device.
8	v	1xLine-Level stereo in (RCA or equivalent)			The bidder may fulfill the requirement through inbuilt/addon device.
9	vi	1x3.5mm stereo mini (PC Audio) i.e. for content audio			The bidder may fulfill the requirement through inbuilt/addon device.
10	vii	1xVCR/DVD stereo audio-in (RCA or equivalent)	We request you to please remove the same	As network based recording has been asked in the RFP, VCR/DVD port becomes redundant. Hence, we request you to please remove the same.	The bidder may fulfill the requirement through inbuilt/addon device.
				We request you to modify the same to one 3.5 MM jack for audio in and One MIC port apart from 2 integrated MICs	
11	Point- 5	System should support following audio/video outputs			
12	Point- 5(i)	Should have 4 x HD output interface for display and other devices	should have 2x HD output interface for display and other devices	As one codec can display video only on 2 dispays and not on 4 displays, hence, request you to please modify the same to 2 x HD outputs.	This clause to be read as "Should have min 2 x HD output interface for display and other devices"

				We request you to kindly modify the same to one HD Output & one VGA output	
			Should have 2 x HD output interface for display and other devices.	2HD Output can be used to connect two monitors to display far and near site video or content. Any higher number may limit participation from other OEM.4 HD output are not supported by any video system by polycom.	
13	Point-5(ii)	2xRCA or equivalent for main monitor audio out or to external speaker system and for VCR/DVD player audio		2xRCA or equivalent for main monitor audio out or to external speaker system or for VCR/DVD player audio"	This clause to be read as "1xRCA or equivalent for main monitor audio out to external speaker system." The bidder may fulfill the requirement through inbuilt/addon device.
				We request you to kindly modify the same to One HDMI audio out & one 3.5 mm jack for stereo out	
14	Point - 9	2 port 10/100 auto NIC (RJ-45). Must support ISDN PRI	1 port 10/100 auto NIC (RJ-45) Must support ISDN PRI	2 NIC (RJ-45) are not required in endpoint / codec as the 2nd Ethernet port does not have any functionality - It neither provides redundancy nor terminates direct ISDN connection. 1 Ethernet port is sufficient for overall operations of Videoconferencing end point.	This clause to be read as "1 port 10/100 auto NIC (RJ-45). Must support ISDN PRI "
			System should support following network interface 2 port 10/100 auto NIC (RJ-45).	Please remove ISDN as this facility is already provided in MCU Not used these days as all are migrating to IP only	
				We request you to modify the same to 2 Lan ports with one RJ-45 & Second as Wireless LAN.	
15	Point-10	H.323 and SIP at 4 Mbps and H.320 at 2Mbps	Request H.320 to be removed	Not used these days as all are migrating to H.323 and SIP only(agg.glo	No Change
16	Point-12	System should support 1/3"CCD or equivalent 1920X1080p camera with 10x optical zoom, 70 degree or more horizontal FOV, 40 degree or more vertical FOV, pan should be atleast +90 to - 90 degrees and tilt range should be +10 to -15 degrees	It should support 1/3"CMOS or equivalent 1920X1080p camera with 12x optical zoom, 70 degree or more horizontal FOV, 40 degree or more vertical FOV, pan should be atleast +90 to - 90 degrees and tilt range should be +10 to -15 degrees"	As per industry standard most of leading oems video system have 12X zoom camera. Different OEMS have different cameras for their video systems. Therefore request for changes to provide required flexibility to bidders. Polycom system support CMOS cameras.	CMOS 1080p cameras are also acceptable. Rest remain the same

17		Additional Points	Kindly consider wireless microphone to be used with room based VC which is the current trend in the market and solves all the cabling hassles. The microphone should be immune to GSM / CDMA interferences.		Please refer technical specifications at Annexure-II-C-3(i). Wireless mics have already been asked for quoting. Please add at Annexure-I-C-3-(i)d- Wireless mics= 7 units with the End points.
18	Point-15	System should support audio Standard like G722.1 Annex C, G.722, G722.1, G.711, G.728, G.729A	system should support audio standards like G.722.1 Annex C , G.722, G.722.1, G.711/ G.728/G.729A or equivalent	G.728 and G.729 are primarily used in IP Telephony and have no relevance in Videoconference. As video conference is about high quality audio, 20KHz audio standard is required for the same.	This clause to be read as "system should support audio standards like G.722.1 Annex C , G.722, G.722.1, G.711/ G.728/G.729A or equivalent"
19	Point no 16	System should support other standards H.221, H.224/H.281, H.323 Annex Q, H.225, H.245, H.241, H.331, H.239. H.231, H.243. H.460, BONDING. Model, BFCP (RFC 4562)		We request you to kindly remove Bonding Mode 1	Bonding mode 1 stands deleted from this clause. Rest remain the same
20	Point-20	It should support for at least 20 camera presets and Dual Monitor Emulation	it should support for atleast 10 camera presets and dual monitor emulation.	10 camera preset are enough to cover the full room and more over 20 preset is specific to one OEM : hence to be removed	This clause to be read as "It should support for at least 10 camera presets and Dual Monitor Emulation"
				We request you to kindly modify the Camera presets to 16 as anyways its not used too much	
	Annexure-II ,C,3 (ii) - Type 2: HD VC End points/C odec (Desktop Type)				
1	Point- 3	ITU-T supported network, video and audio standards: Network: H.323 (IP), H.320 (ISDN/PSTN) and SIP Video: H.264, H.263 ,H.261. Audio: G.711, G.722, G.722.1, MPEG4 AAC-LD stereo / Siren 22 stereo supporting audio bandwidth @ 20kHz or higher. Should support IPv4 and IPv6 from day One	ITU-T supported network, video and audio standards: Network: H.323 (iP), and SIP Video: H.264, H.263,H.261. Audio: G.711, G.722, G.722.1, MPEG4 AAC-LD stereo / Siren 22 stereo supporting audio bandwidth 20kHz or higher. Should support IPv4 and IPv6 from day One	Please remove ISDN/PSTN as this facility is already provided in MCU Not used these days as all are migrating to IP only	The bidder may fulfill the requirement through inbuilt/addon device for ISDN/PSTN. Should be IPv4 and IPv6 enabled from day One. Rest remain the same.
				We request you to kindly remove IPv4	
2	Point-10	Support for HD 2nd monitor from day one		We request you to kindly remove the point as it is OEM Specific	No Change. The bidder may fulfill the requirement through inbuilt/addon device for
3	Point-17	EPTZ Camera with auto / manual focus.	EPTZ/CMOS Camera with auto / manual focus	EPTZ is specific to one OEM	EPTZ is deleted. Rest remain the same

4	Point-20	24 inch display unit		We request you to kindly modify the same to minimum 21.5 inches	This clause to be read as "minimum 21 inch display unit" The same may read for this in the Bill of material.
5	Point-26	1x RJ-11 (for POTS)	the system should support atleast 1 analog line support for audio add on via external / internal ISDN Gateway /module. 1x RJ-11 (for POTS) /ISDN Gateway	This feature is specific to one OEM : Hence to be removed. It should be via ISDN Gateway	This clause is deleted
			Request to be removed.	Not supported by most of the OEMs, can be connected on audio via MCU.	
				We request you to kindly remove the point as it is OEM Specific	
	Annexure-II,C,3 (iii) - Type 3: Video Phone for Conferencing				
1	Point- 1	Should have minimum of 7 inch TFT LCD display with adjustable screen angle	should have minimum of 5.6 inch or higher TFT Display with adjustable screen angle	7 inch is specific to one OEM : hence to be removed	Minimum specifications have been listed here.
2	Point- 2	Should have a minimum of 16:9 wide screen aspect ratio	should have a minimum of 4:3 or higher wide screen aspect ratio	as the screen size on ip phones are small hence the wide aspect ratio will not make any difference. And also 16:9 is specific to one OEM and should be removed.	Both 4:3 or 16:9 wide screen aspect ratio is acceptable
3	Point- 3	Should support full-duplex conversations, acoustic echo cancellation and background noise suppression. Type 1 compliant (IEEE 1329 full duplex)	should support full duplex conversations , acoustic echo cancellation and background noise suppression .	"Type 1 compliant (IEEE 1329 full Duplex)" is specific to one OEM and hence should be removed.	Type 1 compliant stands deleted from this clause. Rest remain the same.
4	Point-4	Should have Frequency response – 100 Hz – 14 kHz for handset, optional headset and hands-free speakerphone modes	should have frequency response for handset , optional headset and hands free speakerphones modes	"frequency response - 100 hz - 14 khz" is specific to one OEM and hence should be removed	The desired functionality should be met. The bidders can propose equivalent solution without compromising the functionality & quality.
5	Point- 5	Should support following Codecs: G.711 (A-law and μ -law), G.729AB, G.722, G.722.1, G.722.1C	should support following codecs: G.711 (A-law and u-law) , G.729AB, G.722, G.722.1, G.722.1C	"G.722.1, G.722.1C" are specific to one OEM and should be removed or equivalent standards should be supported	The Standards listed are ITU-T standards. The bidder can propose equivalent solution without compromising functionality
6	Point-15	H.263, H.263+ (1998), and H.264	H.263+(1998), H.263 and H.264	"H.263+(1998), H.263" specific to one OEM and should be removed H.264 is latest video standard and consume less bandwidth.	This clause to be read as "H.263 and H.264

	Annexure-II,C,4 - HD Recording & Streaming Solution				
1	Point-1	The device should support windows XP / Linux based Operating System. Should be a rack mountable device		We request you to kindly remove this point as it is OEM specific	The bidder can propose equivalent solutions to meet the functionality.
2	Point-4	The device should have recording capacity of up to 700 hours of H.323 and Windows compatible file format content in a 500GB hard disk or higher capacity.		We request you to kindly modify the point to :The device should have recording capacity of up to 2000hrs of H.323 and windows compatible file format content in a 1TB hard disk or higher	No change. Minimum requirement has been specified. The bidders may offer higher capacity solutions.
3	Point- 5	The device should support at least 1 live streaming at 720p, 30fps content and video on a single screen with varying bit rates - 128Kbps to 4Mbps.		We request you to kindly modify the point to The device should support at least 5 live streaming at 720p, 30fps content and video on a single screen.	No change. Minimum requirement has been specified. The bidders may offer higher capacity solutions.
4	Point-9	The windows media player must be embedded on the GUI for the ease of use of the administrator.		We request you to kindly modify this clause to Use the browser/server (B/S) architecture and allow web-based access for on-demand playback and live broadcasts.	This clause to be read as "The device must support windows media player / web based access for the ease of use of the administrator."
5	Point-10	Should support up to 1080p HD record and playback, record stereo calls in single point and point to point calls	should support upto 1080p HD Record / playback record stereo calls in single point and point to point calls.	1080p playback is specific to an OEM, hence, request you to please make it optional.	The desired functionality is important. The bidder may offer appropriate equivalent solution to meet the functionality.
6	Point - 16	The functions of pause, play, stop should be possible from the endpoint remote using DTMF command from the endpoint's remote control.	the functions of pause, play, stop should be possible from endpoint remote using DTMF command / GUI from the endpoints remote control	Different OEM's have different architectures and design. Request you to consider GUI as it does not have any loss of functionality	The desired functionality should be provided. Alternate equivalent solution with no compromise on functionality are acceptable.
				We request you to kindly remove this point as it is OEM specific	
7	Point-19	It should be possible to do recording of 2 x point to point endpoint's session without MCU (External or Embedded) .	it should be possible to do recording of 2x point to point endpoints session without/with MCU (EXTERNAL or embedded) -	This feature is specific to one OEM .	This clause is deleted
				We request you to kindly remove this point as it is OEM specific or modify the same to recording by MCU	

8	Point-23	it must be possible to email the conference recording achievable link with the link name information to any or all the participants through the GUI.		We request you to kindly remove this point as it is OEM specific	It should be possible to notify the users about the link of recording for playback. The bidder may offer equivalent solution
9	Point-30	The device should support 2 x Ethernet RJ45 interface supporting 10/100 Mbps full/half duplex manual or auto sensing. Should support IPv4 and IPv6 from day One	The device should support 2X Ethernet RJ-45 interface supporting 10/100Mbps full/half duplex manual or autosensing. Should support IPV4 and IPV6 day one in overall video solution.	Recording solution will never be installed as a standalone device in the network. It will always form part of overall videoconferencing solution. Hence, IPV4 and IPV6 should be supported in the overall video solution day one.	This clause to be read as "The device should support 2 x Ethernet RJ45 interface supporting 10/100 Mbps full/half duplex manual or auto sensing. Should be IPv4 and IPv6 enabled from day One"
10	Point-32	min. 2 x power supplies and dual hard drives.		We request you to kindly remove this point as it is OEM specific	The desired functionality should be provided. Alternate equivalent solution with no compromise on functionality are acceptable.
11	Point-34	min. 2 X USB ports for upgrade and a RS232 serial port.		We request you to modify the same to Minimum 1 x Lan / USB Port for Upgrade and minimum 1 x RS232 Serial Port. As the current specification is specific to one particular OEM	This clause to be read as "Minimum 1 x Lan / USB Port for Upgrade and minimum 1 x RS232 Serial Port"
	Annexure-II ,C,5-NAT Traversal Device				
1	Point - 2	Resolves firewall traversal problems by providing application layer Gateway (ALG) or voice and video aware firewall that supports SIP and H.323	Resolve firewall traversal problems by providing voice video aware networks that supports SIP and H.323 .	Firewall Traversal solution is typically installed to traverse already available firewall in the customer network. Firewall traversal solution never acts as a firewall.	No Change. The clause is self-explanatory
2	Point- 4	Protects the enterprise LAN using stateful packet inspection (SPI) firewall for both voice and data traffic.	Protects enterprise LAN for both voice and data traffic	"using stateful packet inspection (SPI) Firewall " is specific to one OEM and should be removed	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
3	Point- 9	Performance			
4	Point - 10	Supports up to 10 Mbps of H.323 video traffic or 10 video calls at 1Mbps each from the Internet	Supports up to 25 Mbps of H.323 video traffic or 25 video calls at 1Mbps each from the Internet."	Most of the video firewalls have licensing based on concurrent calls. Polycom video firewalls licensing is based on concurrent calls.	This clause is self explanatory. No Change. Minimum feature is specified. The bidder may offer higher/better.
5	Point- 14	H.323 application-aware Stateful packet inspection firewall	To be removed	Firewall Traversal solution is typically installed to traverse already available firewall in the customer network. Firewall traversal solution never acts as a firewall.	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
6	Point - 15	Application layer gateway dynamically provisions and closes UDP ports used for video and voice calls	To be removed	Specific to one OEM : Hence to be removed	The desired functionality should be provided. Alternate equivalent solution with no compromise on functionality are acceptable.

7		Additional: 65" display		Not all display vendors have 65" LCD/LED system hence you are requested to allow Plasma to be offered as well which is a proven and acceptable technology. Alternatively you may allow 55" or higher LCD/LED display.	No Change
8		Additional query	This refers the supply of Video Conferencing End points. In this regard we would like to submit that you have asked for only Hardware based endpoints in your tender and there is no mention of the software based endpoints. With the technology moving fast towards unified communication, it is highly recommended that software based end points are also part of the solution so that individual participants can also be part of the conferences through their laptop with a High definition Webcam and microphone.	You are as such requested to kindly include the Software based endpoints along with the Webcam and necessary audio in/out component in the Bill of material.	The bidders should offer HD 720p based software based end points as well. The solution for software end points should work independently without any dependency on any other equipment. The solution should be offered with USB based mic and speaker. The quantity may be considered as 50 units in the Annexure-I-C-VCS
					The HD webcam may be quoted as an optional item.

Clarification/amendment Response to the Queries raised by the aspiring bidders against the tender no. EI-D/Tech/51-16/13

S.no.	Tender Section-Clause	Specification in the tender	Bidder's Query	Bidder's Recommendation	ERNET response to queries
	Annexure-II -D-1(i): IP based CCTV Camera				
1	Point-1	CCTV Camera with Dual camera, brilliant image color quality during the day and highest sensitivity at night to two separate image sensors for color and B/W,	Please amend this to " CCTV Camera with Single image sensor with Day/ Night capabilities.	This is a OEM specific specification. As industry standard, we would request you to consider a camera with single image sensor with Day/Night capabilities	This clause to be read as "" CCTV Camera with Single image sensor with Day/ Night capabilities."
2	Point- 2	Should be used for indoor and outdoor (minimum IP65)with 3MEGA-resolution (QXGA, 2048x1536 pixels),	Please amend this to : 1920 X 1080 (1080p) Resolution	This is a non standard specification. We would request you to consider the industry standard resolution of 1920 X 1080 (1080p) for the camera.	Minimum resolution should be 1920 X 1080 (1080p). Rest unchanged. The bidder may propose higher configuration as required.
			We request you to kindly amend the requirement from 3 Mega Pixel to 2 Mega Pixel Fixed Dome Cameras		
		Since this has to be used for outdoor surveillance, only professional outdoor cameras should be preferred.	Should be outdoor with IP66 and effective pixels of 2048x1536		
3	Point- 3	Should have B/W sensor (at night or IR lighting): 0.1 lux at 1/60 s, 0.005 lux at 1 s exposure time	Please amend this to : Sensor should have both Colour and B/W capabilities	Kindly approve camera with single sensor for Colour and B/W	The camera should be with single sensor for both Color and B/W. Rest clause remains the same.
		Usually 0.01 Lux is considered as the benchmark for sensitivity as this is equivalent to Moonlight. Hence IR is not that critical for the sensor. Also this should be for Colour as well as B/W. may please be changed accordingly.	Should have sensitivity of 0.6 Lux in colour and 0.006 Lux in B/W		
			Clarification: Does this mean sensor should have both color and B/W capabilities		
4	Point- 4	Should have PIR sensor for motion detection in the dark,	Please remove this clause	With a Single sensor the PIR sensor is not required to detect motion. Hence the same needs to be deleted.	This clause to be read as "Should have motion detection feature". The bidders may propose the solution accordingly.

			All IP cameras can be configured for intelligent Motion Detection based Recording or Alarm whereas PIR sensor in the camera is specific.	Should have Motion Detection capability	
5	Point- 5	Should have Microphone and speaker with full audio functionality (VoIP and SIP telephony with video)	Please remove this clause	This functionality is of no use since this camera will be installed in a noisy environment and at the height. Hence this requirement needs to be deleted.	This clause to be read as "Should be capable to connect to external mic and speaker."
				Kindly clarify whether it is required inbuilt or external is also ok?	
			This functionality is of no use since this camera will be installed in a noisy environment and at the height. Hence this requirement needs to be deleted. Also the microphone and speaker requirement are need based.	Should have provision for MIC input and MIC Output for PA Application(agg	
				Clarification: Please clarify if voice communication is required for CCTV camera. In general these are for video only.	
6	Point- 6	Should have Integrated switch functions (3 x In, 1 x Out), RS232	Please remove this clause	Specification is proprietary and hence needs to be deleted.	This clause is deleted
				Kindly explain the functionality required?	
			RS232 is very rarely used these days. RS485 interface is the latest one in use	Should have Integrated switch functions (3 x In, 1 x Out), RS485	
7	Point - 7	Should come with Internal DVR recording without network load		Kindly explain the requirement	This clause to be read as "Should come with Internal DVR/onboard memory for recording without network load"
			A dedicated NDRS has been asked so instead of a internal DVR a more advanced option like SD Card slot should be considered. This will be cheaper and would also provide higher storage capacity	Should have SD caard slot to support upto 64GB	
8	Point - 8	Should support IPv4 & IPv6 from day one with atleast one Ethernet LAN port		Only IPV4 supported, Since no need to use IPv6 as most of the cameras are allocated private network IP address and IPv4 is enough	This clause to be read as "Should be IPv4 & IPv6 enabled from day one with atleast one Ethernet LAN port"
	Point- 10	For smooth, seamless and easy manageability, operation, interoperability and maintenance, the bidder should offer/quote all cameras at D-1(i, ii & iii) above from the same make (OEM).		All Camera Cameras, Recording system should be from the same OEM for seamless integration.	All cameras and recording system(NDRS) should be prefferably from the same OEM to ensure interoperability & compatibility

	Annexure-II -D-1(ii): Outdoor PTZ Camera				
1	Point - 2	The HD PTZ Dome Network shall feature a dome cover with Rain Wash Coating which shall soak rain drops into surface of camera dome maintaining better view during raining conditions. In addition, stain on camera dome surface can be relatively washed away by rain or by just spraying water without wiping.	Please remove this clause	Specification is proprietary and hence needs to be deleted.	This clause is deleted
2	Point - 3	Fog and Sandstorm compensation for better image quality in rough weather conditions.	Please remove this clause	Specification is proprietary and hence needs to be deleted.	This clause is Deleted
3	Point - 4	The HD PTZ Dome Network Camera shall offer an advanced 1/2.8" Progressive Scan double speed Megapixel MOS Sensor, 2.0 megapixels effective, with a microlens on each pixel for superior picture detail and clarity.	1/2.8" sensor is used by only 1 or 2 OEMS. Kindly make it more generic as per industry standards.	Should be 1/4" or 1/3" Or better	This clause to be read as "The HD PTZ Dome Network Camera shall offer an advanced 1/2.8" or 1/3" or 1/4" Progressive Scan double speed Megapixel MOS Sensor, 2.0 megapixels effective, with a microlens on each pixel for superior picture detail and clarity.
4	Point-14	The Network Camera shall offer 8 privacy zones that mask areas dynamically with a grey box or mosaic; the size of masked zones shall change dynamically with operator control of pan/tilt/zoom functions.		We request you to kindly amend the same to 5 Privacy Zones	No Change
5	Point - 15	The Network Camera shall be capable of Advanced Auto Tracking function which track and follow a single moving target. The Advanced Auto Tracking function shall not require an external video processor to control the Network Camera. The Advanced Auto Tracking mode shall be able to be interrupted by manual operator control and automatically resume to its previous tracking mode after operator releases control.	Please remove this clause	This feature is available on limited products and hence shall be deleted.	This clause is deleted.
				Please explain the functionality & requirement expected out of this function.	

6	Point-16	The Network Camera shall offer on-device intelligence, Face Detection feature to enhance details of human faces for better identification	Please remove this clause	Specification is proprietary and hence needs to be deleted.	This clause is deleted.
				Kindly clarify whether Face detection is required or the camera should have intelligence to recognize the face of the person	
7	Point-17	The Network Camera shall incorporate a 1/4" motorized zoom lens with a focal length of 4.3 to 129mm (20x) or better. It shall provide Extended Optical Zoom in VGA mode to support up to 90x zoom. The zoom lens shall have automatic iris and automatic focus features but will allow manual override if the need arises.	Please amend this to : 4.7 mm to 94.0 mm	As per industry standard 4.7 mm to 94.0 mm is 20X Optical zoom. Request you to accept the same in place of the tender specified zoom. Also 90x Zoom is proprietary specification and the same shall be deleted.	The minimum optical zoom required is 20x. The bidder may propose the appropriate solution with right focal lengths without compromising the functionality & quality
8	Point-18	The Network Camera shall provide continuous digital zoom (minimum 12X) for a total maximum magnification of 1080x.	Please remove this clause	Specification is proprietary and hence needs to be deleted.	The clause is deleted
9	Point-19	The Network Camera shall offer an automatic zoom-to-window feature allowing the user to draw a box area using his mouse and the camera will automatically zoom in on that area.	Please remove this clause	Specification is proprietary and hence needs to be deleted.	The clause to be read as "The Network Camera shall offer the zoom feature allowing the user to zoom using his mouse/joystick sitting in the control room"
10	Point -24	The Network Camera shall offer a minimum of 256 preset positions.	Please amend this to : 16 presets	Request to accept minimum 16 presets as per industry standard.	The network camera should offer sufficient presets to cover the area seamlessly
				We request you to amend the same to " should support atleast minimum 128 presets"	
11	Point-27	The Network Camera shall use a Triple Streaming Codec capable of simultaneously generating and transmitting MJPEG and two independent MPEG-4 (Part 2) / H.264 (High Profile) video streams which are different in resolutions and frame rates. The camera shall keep 30ips at 1,280 x 960 with less than 2.0 Mbps of bandwidth.	Please amend this to : Dual Streaming	Specification is proprietary and hence needs to be deleted. Please accept industry standard dual streaming specifications.	The network camera should support minimum dual streaming capability. Rest remain the same.

12	Point-36	Up to 15 other network cameras shall be viewable simultaneously by the user, when connected to the Internet Explorer of the Network Camera without any additional software required.	Please remove this clause	Specification is proprietary and hence needs to be deleted. Also the proposed system calls for a NVR, the camera viewing functions are controlled by NVR and is the easiest way to view multiple camera.	This clause to be read as "Up to 15 other network cameras shall be viewable simultaneously by the user through the NDRS"
13	Point - 45	The Network Camera shall support IPv4 and IPv6 network addressing and shall support TCP/IP, UDP/IP, HTTP, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, and SNMP protocols		Since no need to use IPv6 as most of the cameras are allocated private network IP address and IPv4 is enough. We request you to kindly amend the same to only IPv4	No Change
14				Our camera support IPv4, HTTP, RTP, RTCP, SIP, TCP, UDP, ARP, ICMP, DHCP, ONVIF 2.0	No Change
15	Point - 48	All units must be certified to CE and UL, FCC Safety/EMC standards		We request you to kindly amend this clause to read as " All units must be certified to CE/UL/, FCC Safety/EMC Standards	The clause to be read as " All units must be certified to CE/UL/, FCC Safety/EMC Standards
	Annexure-II -D-1(iii): Fix Dome indoor camera				
1	Point- 1	The semi-flush-mounted 3 megapixel high sensitivity MOS sensor cameras shall incorporate a 1/3" progressive scan megapixel high sensitivity MOS sensor, 3 megapixels effective, with a microlens on each pixel for superior picture detail and clarity. The camera shall have a minimum illumination of 0.3 lux color mode and 0.2 lux B/W mode.	Please amend this to : 1920 x 1080 (1080p)	This is a non standard specification. We would request you to consider the industry standard resolution of 1920 X 1080 (1080p) for the camera.	Minimum resolution to be supported should be 1920 x 1080p (1080p)
				We request you to kindly amend the requirement from 3 Mega Pixel to 2 Mega Pixel Fixed Dome Cameras	

			Please amend this to : 1920 x 1080 (1080p). This is a non standard specification. Please amend this to : 1920 x 1080 (1080p) Generally Indoor cameras should be preferred with lesser the bandwidth consumption and storage requirement without compromising on the image quality	This is a non standard specification. We would request you to consider the industry standard resolution of 1920 X 1080 (1080p) for the camera. The semi-flush-mounted 1.3 megapixel high sensitivity MOS sensor cameras shall incorporate a 1/3" progressive scan megapixel high sensitivity MOS sensor, 1.3 megapixels effective, with a microlens on each pixel for superior picture detail and clarity. The camera shall have a minimum illumination of 0.3 lux color mode and 0.2 lux B/W mode.	
2	Point- 2	3 megapixel high sensitivity MOS sensor shall be charged with high sensitivity, lower power consumption and superior color reproduction by primary (RGB) color filter. The 3 megapixel sensitivity MOS sensor shall feature images with wide dynamic range linked with ABS (adaptive black stretch) and face detection.	Please remove this clause	Specification is proprietary and hence needs to be deleted.	This clause is deleted
			This is a non standard specification. Please amend this to : 1920 x 1080 (1080p) Generally Indoor cameras should be preferred with lesser the bandwidth consumption and storage requirement without compromising on the image quality	1.3 megapixel high sensitivity MOS sensor shall be charged with high sensitivity, lower power consumption and superior color reproduction by primary (RGB) color filter. The 1.3 megapixel sensitivity MOS sensor shall feature images with wide dynamic range linked with ABS (adaptive black stretch) and face detection.	
3	Point - 16	The camera shall have up to 20 alphanumeric characters as on-screen camera title display.		We request you to kindly delete this clause as its OEM specific requirement	The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
4	Point- 22	The camera shall support IPV4 and IPV6 network addressing		Only IPV4 supported, Since no need to use IPv6 as most of the cameras are allocated private network IP address and IPv4 is enough	No change
		Supported protocols:			
5		IPv4:TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP and UPnP. IPv6: TCP/IP, UDP/IP, HTTP, RTP, FTP, SMTP, DNS, NTP, SNMP and DHCPv6		We request you to kindly amend the same to " should support minimum IPv4, HTTP, RTP, RTCP, SIP, TCP, UDP, ARP, ICMP, DHCP, Network Protocol"	No Change

6	Point-26	Should have universal AC power adaptor & other accessories. The power source for the camera shall also support PoE (IEEE 802.3af) ,PoE 48 V: 54 mA (Class 1 device)		We request you to kindly amend the same to " AC24V/DC12V/PoE 802.3af"	No Change
	Annexure-II -D-3: Network Disk Recorder System(NDRS)				
1	Point- 1	NDRS shall be capable of connecting to up to 64 network cameras without extra license fees and their images can be recorded simultaneously with in single chassis.	Clarification: The BOM has asked for one NVR with 35 TB storage. However in this clause the limit of number of camera per NDR is restricted to 64. Please clarify. Request you to consider OEM recommended camera per NVR based on OEM performance benchmark.		Minimum requirement has been specified. The bidders may quote accordingly. The desired functionality should be provided. Alternate solution with no compromise on functionality are acceptable.
2	Point - 2	The NDRS shall be equipped with minimum 9 hot plug HDD slots	Clarification: The HDD slots specified and the total storage asked for does not match. Request to clarify the exact storage requirements.		This requirement is for internal storage. SAN storage has been defined separately.
3	2a	should be provided with 35TB HDD storage	Generally the storage is used for storing recording upto 3 to 6 months. This is then transferred to portable media and archived. So the NDRS can be provisioned with lower capacity.	Should be provided with 25TB HDD storage or better.(agc	Minimum requirement has been specified. The bidders may quote accordingly.
4	2b	Should have the capability of expansion up to 160 TB		Kindly clarify whether this is required as internal or external storage	The expansion is required on external storage
5	Point - 8	Should have up to 36 audio capabilities and can be recorded and played back at G.726 (ADPCM) 32 kbps.	Please remove this clause	Specification is proprietary and hence needs to be deleted.	This clause is deleted
6	Point-17	NDRS should support IPv4 & IPv6 from day one		Only IPv4 supported, Since no need to use IPv6 as most of the cameras are allocated private network IP address and IPv4 is enough	This clause to be read as "NDRS should be IPv4 & IPv6 enabled from day one"

**Clarification/amendment Response to the Queries raised by the aspiring bidders against the tender
no. EI-D/Tech/51-16/13**

S.no.	Tendor Section Clause	Specification in the Tendor	Bidder's Query	Bidder's Recommendation	ERNET response on Queries
	Annexure-II, -10-(iii) - UPS 1KVA				
1	Point - 1	Type: Single-phase UPS systems in double-conversion technology (VFI-SS 111) with internal “hot swap” compatible batteries, USB and serial interface. Power Factor 0,7 Topology Double conversion On-Line Type Rack/Tower	(i) Kindly allow Internal/external batteries.(ii) Kindly allow RS 232/USB interface since they serve the same purpose.(iii) Kindly clarify meaning of VFI-SS 111. It seems to be related to a specific brand.		This clause to be read as "Type: Single-phase UPS systems in double-conversion technology with internal “hot swap” compatible batteries, USB/RS232 interface. Power Factor 0,7 Topology Double conversion On-Line Type Rack/Tower"
2	Point - 3	Input : Rated Voltage 230 V (160 – 288 V) Frequency : 50/60 Hz ± 5 % Power Factor : > 0.99 with linear load	Kindly amend to 50 Hz ± 5% as per Indian conditions. As per the industry standards and Indain elcectricy rules, input power factor should be ≥ 0.9. Higher PF is generally required for higher rating UPS Systsem. Also the Technical specificaitons of DGSnD, NIC and other Mission Mode Projcets of DIT which are being framed for multi locational Installations, the I/P p.f being asked for is ≥0.9 only. Request to kindly ammend the same.		This clause to be read as "Input : Rated Voltage 230 V (160 – 288 V) Frequency : 50 or 60 Hz ± 5 % (Indian conditions) Power Factor : ≥ 0.9 with linear load"
3	Point - 4	Output: Voltage : 230 V ±1 % (200/208/220/230/240 V adjustable) Output Frequency : 50Hz ± 0.1% Crest Factor Should be 3:1 Power Factor : 0.7 or better	Please amned Out Voltage to (220/230/240V) as Output Voltage: (200/208) are not as per Indian Standards.In Indian Standards the permissible O/P voltage is 220-240V		This clause to be read as "Output: Voltage : 230 V ±1 % (220/230/240 V adjustable) Output Frequency : 50Hz ± 0.1% Crest Factor Should be 3:1 Power Factor : 0.7 or better"

4	Point- 5	Battery: Sealed maintenance free battery for backup duration of 30 minutes. Battery & UPS to be housed in a cubicle with suitable louvers.	It is suggested to kindly specify the minimum VAH for the desired backup time for the UPS, which will help to provide a 'Common' platform to all vendors. We recommend minimum VAH of 900 VAH for 30 minutes backup. Kindly consider this request and amend this clause, if considered appropriate.		The bidders may propose the solution to ensure 30 minutes battery backup
			Seperate cubicals for UPS & batteries may be allowed for safety considerations		
5	Point - 9	Certification: Safety IEC/EN 62040-1-1, IEC 60950-1	Kindly consider CE certification as it will suffice as it covers these standards.		The bidder should offer solution with standards complying for safety, performance, etc.
		Performance IEC/EN 62040-3			
		EMC IEC/EN62040-2 Class A, FCC Part 15 Subpart B Class A, IEC/EN55011, CISPR11, IEC61000-4-2/-3/-4/-5, IEC61000-2-2, IEC61000-3-2/-3			
		Markings CE, WEEE	WEEE may be made optional since it is not relevant to Indian Standards		WEEE is deleted from this clause
6	Point - 11	Form Factor: 19" Rack mountable/ Tower Type Necessary mounting kit to be provisioned along with the UPS	Tower Type suggested as rugged. Tower Type UPS are easy in transportation & for rugged use. Requested to kindly allow it.		The bidder may offer Either Rack mountable or Tower.

7		Additional Request : Inbuilt Isolation Transformer	The best solution for protecting the connected IT load from surges / spikes / transients is through an inbuilt isolation transformer in the UPS. it is recommended to specify that an inbuilt galvanic isolation transformer may be provided in the UPS System to provide protection from surges & spikes prevalent in input supply especially at non-metro location. Also the Technical specifications of DGSnD, NIC and other Mission Mode Projects of DIT which are being framed for multi locational Installation major focus is given on Inbuilt Galvanic Isolation Transformer considering the power conditions prevalent in our Country.		The bidder may offer solution with or without inbuilt isolation transformer without compromising the functionality & quality.
	Annexure-II, -10- i) & ii) UPS 10KVA & 5 KVA				
1		UPS at i), ii) & iii) should be from same make and the preferred brand are Emerson/APC/Numeric.	Request to include Rittal make	Rittal is industry player in UPS and IT infrastructure domain. With ISO 9001, 14001, 18001 and UL certificate for quality	UPS at i), ii) & iii) should be from same make and the preferred brand are Emerson/APC/Numeric/ equivalent
2	Point - 1 Technology	Microprocessor controlled True On-line using IGBT as switching devices.	request to Include : VFI-ss-111 classification	VFI ss 111 is the highest classification UPS market where voltage, frequency and current in independent and not have any adverse effect of there is any change at the input voltage, frequency and current all the major mentioned OEM comply to this specification	No change
3	Point 4 Efficiency Overall	>85%	The minimum efficiency at any given load should not be less than 94%	The higher the efficiency it is less power loss and increase uptime.	Minimum efficiency is specified. The bidder may offer same or higher

4	Point No-4 Power Factor	>=0.85	Unity power factor 0.8	It is advised that having unity power factor improves efficiency as transformer based UPS consumes more power due to step up function to maintain overall 230V voltage requirement.	Minimum power factor is specified. The bidder may offer same or higher
5	B Passive Components Point No-8	1. The RJ45 type telecommunication outlets should be surface or flush mounted and should support Gigabit Ethernet or higher. Should have integral hinged dust cover if not available on the face plate and suitable wire management unit for cable entry to protect against any loose joints, strain, etc.	Racks 12U, 27U, 42U should be UL certified	It is advised that network and server racks should be minimum load carrying capacity of 1400KG for floor standing and UL certified for safety precautions.	As per tender
6	B Passive Components		Kindly confirm if we can provide alternate makes of conduit and channel apart from those mentioned.		The bidder may offer alternate makes for conduit & channels without compromising the Quality standards as specified in the tender

Note: Subject to all the above clarifications/amendments, all other terms & conditions and specifications of the tender documents remain unchanged.