Corrigendum issued on 02.04.2019. Last date for submission of bids: <u>18.04.2019 at 2:00 PM</u>. Date of opening of PQ bids: 18.04.2019 at 4:00 PM

#	Page No.	Section	Sub-Section	Clarification	Remarks	Response
1.	78	8. Payment Schedule	8.1 Payment Schedule	We will request kindly amend the clause to :- 1. 60% Payment to be released on delivery of all items as per BOQ 2. 15% Payment to be released on Successful installation of all items as per BOQ 3. 15% Payment to be released on Successful final acceptance test 4. 10% Payment to be released on Go-Live	Request to change the payment terms for competitive bid.	1. 25% Payment of CAPEX (i.e. Hardware cost + 1st year warranty) to be released on delivery of all items as per BOQ 2. 25% Payment of CAPEX to be released on Successful installation of all items as per BOQ 3. 20% Payment of CAPEX to be released on Successful final acceptance test 4. 10% Payment of CAPEX to be released on Go-Live and rest of 20% of CAPEX to be released after Successful run of the S-NOC helpdesk for 3 months and against bank guarantee of the same amount which should be valid for 18 months 5. OPEX (Support cost and warranty/AMC cost for entire project duration i.e. 6 years) cost to be paid in equal installments on quarterly basis (QGR).
2.	RFP-BharatNet-NOC-Volume-II-08March2019 Page 70	7.13 NMS & OSS	35	All the functionalities of OSS console should be seamlessly available on smart mobile phone with Android, iOS and **Windows platform**, without any additional software or hardware on server side.	Windows platform is not a mainstream mobile application platform, we believe Android and iOS should be enough.	The bidder need to supply NMS/OSS and the GUI interface of the same system should be available through web interface or mobile application for mobile users with Android, iOS platform
3.	RFP-BharatNet-NOC-Volume-II-08March2019 Page 65	7.13 NMS & OSS	1	The product supplied by the OEM should be in Gartner leaders quadrant 2018	Refer to the certification of TMF (https://www.tmforum.org/certifications-awarded/). Our ZSMART has passed the certification. Will this TMF certification can fulfill this requirement instead of Gartner?	OSS OEM/s shall be in the 'Gartner's magic quadrant as per the latest report' or the OSS solution should have been 'successfully implemented* in any Telecom or BharatNet project in last 5 years in India or abroad'. *Successful implementation of OSS shall be validated by 'a project completion certificate' or 'Final acceptance certificate or report signed off by the client and shall be operations after FAT'.
4.	RFP-BharatNet-NOC-Volume-I	1 Fact Sheet	Scope of Work Selected agency is expected to deliver the services listed	1. Please clarify the contract execution period. 2. Does 'Responsibility of the services for a period of		The contract will be for 6 years and 6 months (includes 6 months implementation period, 3 years of warranty and 3 years of AMC/Support)

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	Page 6		in Scope of Work required for successful execution. Responsibility of the services for a period of six years. Selected bidder need to start the services at designated site within 15 days of signing of the Contract.	six years' mean that the contract execution period is 6 years? If yes, is there inconsistent with '3 years and 3 months' in the 4.1 Basic Information(Page 10) ? If I misunderstood, please help to point out.		
5.	RFP-BharatNet-NOC-Volume-I Page 24	6.6 Period of Contract	The period of the contract shall be for a period of three (3) years initially from the date of successful FAT. Both the parties may extend the period on yearly basis (maximum 3 years) on mutual agreement on similar terms and conditions.	Does it mean that after the period of three (3) years initially from the date of successful FAT, the both parties may choose whether to continue to extend the period on yearly or not?		The contract will be for 6 years and 6 months (includes 6 months implementation period, 3 years of warranty and 3 years of AMC/Support)
6.	RFP-BharatNet-NOC-Volume-I Page 97	11.7	This Performance Bank Guarantee (PBG) shall remain valid for sixty days beyond all the contractual obligations.	Are these two items inconsistent?		This Performance Bank Guarantee (PBG) shall remain valid for six months beyond all the contractual obligations.

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7.	RFP-BharatNet-NOC-Volume-I Page 97	11.7	After the PBG submitted by the bidder for initial 3 years period, they need to renew the PBG for further period of the contract and the PBG shall be valid for minimum contract period + 6 months.			
8.	52	7.10 Layer 3 Aggregation Switch	Point#61	Management- Solution should have separate control plane management.	**Request to please remove.**Request to consider fixed form factor with moduler base architectutre for Spine switch.	Clause stands deleted
9.		General		Request for addition	OEM of the proposed solution on Switches and Routers should be listed in Leaders/ Challengers Quadrant of Gartner's latest report for last 3 years. All switches and router must be of the same OEM.	OEM of the proposed solution on Switches and Routers should be listed in Magic Quadrant of Gartner's latest report.
10.	15	7.1 x-86 based Blade / Rack Servers	Point 1	Min. 2 numbers x-86 64 bit processor scalable upto 4 processors with 16 Core per processor @ 2.0 GHz or above of latest generation	Kindly remove "4 processor scalability" as considering the overall performance requirement, 2 processors will be sufficient. Moreover, additional servers can be added later if needed. This will optimize the current confioguration and related CAPEX.	Min. 2 numbers x-86 64 bit processor with minimum 16 Core per processor @ 2.0 GHz or above of latest generation
11.	15	7.1 x-86 based Blade / Rack Servers	Point 6	The available bandwidth on the server shall be 2x 10 Gbps (minimum) for Ethernet on separate port and 2x16 Gbps (minimum) for FC on separate ports to achieve redundancy.	Kindly allow converged solution offering while meeting the overall bandwidth requirement as asked in the RFP. Converged solutions in bladed architectures optimize the solution and offer better usability without any performance impact.	The available bandwidth on the server shall be 2x 10 Gbps (minimum) for Ethernet on separate port and 2x16 Gbps (minimum) for FC on separate ports to achieve redundancy. In case of blade, bidder may propose converged solution while meeting the overall bandwidth requirement as asked in the RFP without compromising performance of the proposed system.
12.	15	7.1 x-86 based Blade / Rack Servers	Point 9	Dedicated redundant management port	Kindly revise as "Dedicated management port/link". Servers have only 1 dedicated OOB management port (link if it's blade) as per industry standard offering.	Dedicated redundant management port/link

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13.	16	7.2 Blade Enclosure	Point 4	The Chassis shall have redundant I/O modules for LAN & SAN Fabrics. Each of the chassis Ethernet Modules (Configured in redundancy) shall have 8 * 10G Ethernet uplink Ports Supporting Ethernet/iSCSI/FCoE. Each of the chassis FC Modules (Configured in redundancy) shall have 8 x 8G FC uplink ports	Kindly allow altrernate solution offering usinag redundant converged I/O modules while meeting the overall uplink bandwidth requirement from blade chassis as asked in the RFP. Converged solutions in bladed architectures optimize the solution and offer better usability without any performance impact.	The Chassis shall have redundant I/O modules for LAN & SAN Fabrics. Each of the chassis Ethernet Modules (Configured in redundancy) shall have 8 * 10G Ethernet uplink Ports Supporting Ethernet/iSCSI/FCoE. Each of the chassis FC Modules (Configured in redundancy) shall have 8 x 16G FC uplink ports. Bidder may propose alternate solution offering redundant converged I/O modules while meeting the overall uplink bandwidth requirement from blade chassis as asked in the RFP.
14.	73 & 74 of vol 2	7.13	Service Catalogue, provisioning and activation	Compliance number 58 to 71	It is requested to make "Service Fulfillment" as optional component. This includes service catalogue, provisioning & activation from compliance number 58 to 71. Service fulfilment is not a core function of a NOC and rather this can be put as future scope.	The proposed solution shall support the required functionalities
15.	45	Internet Router	Hardware Architecture	Router throughput should be minimum 10 Gbps upgradeable to 20 Gbps, 5 Gbps of IPsec performance.	Request to change as below as the Internet router will surely run multiple features like NAT, Security etc. and hence a dedicated core/thread is absolutely required for a seamless operation: " Router should have a multicore architecture and the throughput should be minimum 10 Gbps upgradeable to 20 Gbps with 5 Gbps of IPsec performance."	Router should have a multicore architecture and the throughput should be minimum 10 Gbps with 5 Gbps of IPsec performance
16.	45	Internet Router	Interface / Slots	Minimum 4 X 100/1000 base TX Ethernet interfaces (scalable upto 8 X 100/1000 base TX Ethernet interfaces) for LAN and WAN & 4 SFP (LX) populated for Fiber Connectivity. The Router should support minimum 4 no's of SFP+ modules	Request to change as below as the interface requirement seems to be on a very higher side and will unnecessarily push the OEMs to provide higher model which will surely push the overall budget to a higher side: "Minimum 4 X 100/1000 Ethernet interfaces (scalable upto 6 X 100/1000 Ethernet interfaces) for LAN out of which 2 interface to be populated	Minimum 4 X 100/1000 Ethernet interfaces populated (scalable upto 6 X 100/1000 Ethernet interfaces). The Router should support minimum 4 no's of SFP+ modules for future scalability

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					with long range SFP (LX) for Fiber Connectivity. The Router should support minimum 2 no's of SFP+ modules for future scalability"	
17.	45	Internet Router	Interface / Slots	Should support minimum 3 service/interface slots	Request to change as below as the interface requirement seems to be on a very higher side and will unnecessarily push the OEMs to provide higher model which will surely push the overall budget to a higher side: "Should support minimum 1 service/interface slots for future scale"	Should support minimum 1 service/interface slots for future scale
18.	49	Layer 3 Aggregation Switch		The forwarding rate should be 524 Mpps.	The forwarding rate should be 850 Mpps.	The forwarding rate should be minimum 892 Mpps.
19.	49	Layer 3 Aggregation Switch		The switch or solution should be scalable to minimum of 4 nodes.	Request to clarify If the clause means that the switch can be virtualized to form a single stack with minimum 4 switches in the stack	Clause stands deleted
20.	49	Layer 3 Aggregation Switch		"Port to Port latency less than 10 micro sec on the aggregation switch and the server farm switches"	Request to remove as this will provide undue benefit to a specific OEM	Clause stands deleted
21.	50	Layer 3 Aggregation Switch		Support for 100,000 or more MAC addresses	Support for 64,000 or more MAC addresses	Support for 64,000 or more MAC addresses
22.	50	Layer 3 Aggregation Switch		Routing Information Protocol	Request to remove RIP as this is very old and has been deprecated on most of the newer platforms. Removing this will ensure more OEM participation	Support of RIP stands deleted
23.	50	Layer 3 Aggregation Switch		The solution should have sufficient interfaces as asked and should be scalable to at least 96 X 10 Gig Servers in future	The solution should have sufficient interfaces as asked and should be scalable to at least 24 X 10 Gig Servers in future	Clause stands deleted
24.	53	Layer 3 Access/Leaf Switch – Type 1	Hardware Specification	The switch should have minimum 24 x 10/100/1000 Base-T Ports and 4 x 10 Gig ports with suitable transceivers populated as per	The switch should have minimum 24 x 10/100/1000 Base-T Ports and 2 x 10 Gig ports with suitable transceivers populated as per proposed design requirement.	The switch should have minimum 24 x 10/100/1000 Base-T Ports and 2 x 10 Gig ports with suitable transceivers populated as per proposed design requirement.

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				proposed design requirement.		
25.	53	Layer 3 Access/Leaf Switch – Type 1	Layer-2 Features	Multicast VLAN registration (MVR)/GVRP/GARP to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.	Multicast VLAN registration (MVR)/GVRP/GARP /IGMP Snooping to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.	Multicast VLAN registration (MVR)/GVRP/GARP /IGMP Snooping to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.
26.	53	Layer 3 Access/Leaf Switch – Type 1	IPv4 & IPv6 Unicast Routes	Static, OSPF routed access, OSPFv3, BGP, MPLS and PBR from day 1	Static, OSPF routed access, OSPFv3, and PBR from day 1	Static, OSPF routed access, OSPFv3, and PBR from day 1
27.	53	Layer 3 Access/Leaf Switch – Type 1	IPv4 & IPv6 Unicast Routes	PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), PIM sparse-dense mode and Source Specific Multicast (SSM)	PIM sparse mode (PIM-SM)/PIM dense mode (PIM-DM)/ PIM sparse-dense mode and Source Specific Multicast (SSM)	PIM sparse mode (PIM-SM)/PIM dense mode (PIM-DM)/ PIM sparse-dense mode and Source Specific Multicast (SSM)
28.	59	Layer 3 Access/Leaf Switch - Type – 2	Hardware Specification	The switch should have minimum 24 x 10/100/1000 Base-T Ports and 4 x 10 Gig ports with suitable transceivers populated as per proposed design requirement.	The switch should have minimum 24 x 10/100/1000 Base-T Ports and 2 x 10 Gig ports with suitable transceivers populated as per proposed design requirement.	The switch should have minimum 24 x 10/100/1000 Base-T Ports and 2 x 10 Gig ports with suitable transceivers populated as per proposed design requirement. Scalable upto minimum 44 x 10/100/1000 Base-T Ports and 4 x 10 Gig ports
29.	59	Layer 3 Access/Leaf Switch - Type – 2	Layer-2 Features	IEEE 802.1Q VLAN encapsulation. At least 1000 VLANs should be supported. Support for 4000 VLAN IDs.	IEEE 802.1Q VLAN encapsulation. At least 256 VLANs should be supported. Support for 4000 VLAN IDs.	IEEE 802.1Q VLAN encapsulation. At least 256 VLANs should be supported. Support for 4000 VLAN IDs.

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30.	60	Layer 3 Access/Leaf Switch - Type – 2	Layer-2 Features	Multicast VLAN registration (MVR)/GVRP/GARP to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.	Multicast VLAN registration (MVR)/GVRP/GARP /IGMP Snooping to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.	Multicast VLAN registration (MVR)/GVRP/GARP /IGMP Snooping to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.
31.	62	Layer 3 Access/Leaf Switch - Type – 2	Quality of Service (QoS) & Multicast	Static, OSPF routed access, OSPFv3, BGP, MPLS and PBR from day 1	Static, OSPF routed access, OSPFv3, and PBR from day 1	Static, OSPF routed access, OSPFv3, and PBR from day 1
32.	62	Layer 3 Access/Leaf Switch - Type – 2	Quality of Service (QoS) & Multicast	PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), PIM sparse-dense mode and Source Specific Multicast (SSM)	PIM sparse mode (PIM-SM)/PIM dense mode (PIM-DM)/ PIM sparse-dense mode and Source Specific Multicast (SSM)	PIM sparse mode (PIM-SM)/PIM dense mode (PIM-DM)/ PIM sparse-dense mode and Source Specific Multicast (SSM)
33.		"7.8 Firewalls Make: Model:"		Minimum NG Firewall throughput using mix traffic– 10 Gbps scalable up to 20 Gbps. If the OEM does not support throughput scalability, shall supply the firewall with 20 Gbps NGFW throughput from day 1.	Please confirm NG Firewall throughput include Firewall and Application visibility.	Minimum NG Firewall application throughput (combination of Firewall, IPS, Application Control/check.) (measured with traffic mix) – 10 Gbps. The bidder shall submit the performance test report or publicly accessible datasheet

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34.		"7.8 Firewalls	Minimum NG Threat prevention throughput in real world/production environment (by enabling mix traffic) – 5 Gbps scalable up to 10 Gbps. If the OEM does not support throughput scalability, shall supply the firewall with 10 Gbps throughput in real world/production environment (by enabling mix traffic) from day 1.	Please confirm NG Threat Prevention throughput include Firewall, Application Visibility and IPS		Minimum NG Threat prevention throughput in (by enabling and measured with IPS, Anti- Virus / Anti-Spyware/Anti- Bot / Zero-Day Protection and all other security threat prevention feature and traffic mix) – 5 GBPS. The bidder shall submit the performance test report or publicly accessible datasheet confirming performance
35.		"7.8 Firewalls	Should perform stream-based Anti-Virus inspection and not store-and-forward traffic inspection to keep the maximum firewall performance	Please change the clause to "Should perform stream-based Anti-Virus inspection and not store-and-forward traffic inspection to keep the maximum firewall performance or should perform Anti Persistent Threat based inspection		Should perform stream-based Anti-Virus inspection and not store-and-forward traffic inspection to keep the maximum firewall performance or should perform Anti Persistent Threat based inspection
36.		"7.8 Firewalls	Should be able to perform Anti-virus scans for SMB traffic	Please change the clause to "Should be able to perform Anti-virus/APT scans for SMB traffic"		Should be able to perform Anti-virus/APT scans for SMB traffic
37.		"7.8 Firewalls	The proposed firewall shall support Drive-by-download control	Please change the clause to "The proposed solution shall support Drive-by-download control	Different OEM support different mechanism to achieve the functional requirement and hence requesting change	The proposed solution shall support Drive-by-download control
38.		"7.8 Firewalls	The proposed firewall shall be able to identify, decrypt and evaluate SSH Tunnel traffic in an inbound and	Please remove the clause	SSH is used for remote access and highly insecure enabling in firewall and hence request to remove this clause	Clause stands deleted

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			outbound connections			
39.		"7.8 Firewalls	Original Manufacturer Authorization Certificate for product plan of 8 years down the line to be submitted along with the bid. The OEM should provide warranty/AMC and support for at least 7 years from the date of installation, commissioning & acceptance.			Original Manufacturer Authorization Certificate for product plan of 7 years down the line to be submitted along with the bid. The OEM should provide warranty/AMC and support for at least 6 years from the date of installation, commissioning & acceptance.
40.		"7.8 Firewalls	The proposed firewall shall be able to protect the user from the malicious content upload or download by application such as Facebook chat or file sharing by enforcing the total threat protection for known and unknown malicious content such as virus, malware or bad URLs.	Request to remove	Facebook Messenger app uses embedded certificates, so you would not be able to decrypt it and block operations selectively.	Clause stands deleted
41.	12	SAN Switch	Switch shall support in built diagnostics, power on self-test, command level diagnostics, online and offline diagnostics.	Switch shall support in built diagnostics, power on self-test, online and offline diagnostics.	Current specification is OEM specific. Request to relax this point for wider participation.	Clause stands deleted

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42.	15	SAN Switch	Should support multilevel security on console access prevent unauthorized users from altering the switch configuration	To remove this point.	Current specification is OEM specific. Request to remove this point for wider participation.	Clause stands deleted
43.	15	Server	The available bandwidth on the server shall be 2x 10 Gbps (minimum) for Ethernet on separate port and 2x16 Gbps (minimum) for FC on separate ports to achieve redundancy.	The available bandwidth on the server shall be 2x 10 Gbps (minimum) for Ethernet on separate card and 2x16 Gbps (minimum) for FC on separatecard. Converged adapters can also be quoted.	A single card cannot provide both Ethernet & FC ports. Both traffic can however be provided using converged technology. Request to kindly allow vendors who offer converged technology which is latest as per the current IT Industry.	The available bandwidth on the server shall be 2x 10 Gbps (minimum) for Ethernet on separate port and 2x16 Gbps (minimum) for FC on separate ports to achieve redundancy. In case of blade, bidder may propose converged solution while meeting the overall bandwidth requirement as asked in the RFP without compromising performance of the proposed system.
44.	15	Server	Integrated RAID controller & hot plug HDD with multiple RAID levels	Integrated RAID controller & hot plug HDD with RAID 0/1/5/6 level using 2GB cache.	Request to define multiple RAID levels required at the RAID controller card. Also, to enable RAID5/6/10 additional cache module at the RAID card is required. Kindly update.	As per bidders, solution but it should support multiple RAID levels for rack servers and RAID 0. 1 for blade servers
45.	49	7.3 Design Consideration of IT Infrastructure	7.3.7.1 Firewalls	The specification has clearly mentioned that max 490Mbps of traffic would come from internet at a given point of time. Then why 4x 40G & 4x 10G interfaces will be required. To handle the internal zone to zone traffic, 2x 10G interfaces are well enough to suffice the requirement.	The firewall should support minimum 2 nos of 10 Gbps SFP & 8 nos of 1 Gbps copper ports	Firewall specifications considered as - Minimum 4 x 10G SFP+ Interfaces populated on day 1. Scalable upto 6x10 G SFP+ interfaces. 4 x 1 G copper interface.
46.	55	7.11	4	At least 64 Gbps switching fabric	request you to change the switching fabric to 128Gbps. **Justification:** Full Duplex ((24x2=48Gbps) (4x20=80Gbps)=128Gbps)	At least 84 Gbps switching fabric

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47.	63	7.12	4	At least 50 Gbps switching fabric	request you to change the switching fabric to 128Gbps. **Justification:** Full Duplex ((24x2=48Gbps) (4x20=80Gbps)=128Gbps)	At least 168 Gbps switching fabric
48.	Page 59 of 129	7.4 Design Considerations of Passive Components	7.4.8 Cabling	Category 6a is recommended for new installations to support 10G over Ethernet For backbone cabling, use of Category 6a (preferably)/6e cabling should be limited to analog voice Applications only	Detailed Network Passive Cable specification is not provided; Hence attached Annexure A for the generic specification for the Network Passive Cabling	Refer Corrigendum for Passive Cabling Specifications/ Requirements
49.	39	7	7.8	Minimum IPsec VPN throughput – 1000Mbps - As mentioned above, the NGFW throughput is asked to be 10 Gbps. As it is quite evident from the technology that IPSEC encapsulation and 256 bit encryption incurs an overhead of 10-15% of the overall throughput, the asked VPN throughput is very less and biased to lower performance solution from some of the vendors. This will make the competition unfair and biased.	Lower IPSEC VPN throughput would ensure mid-size appliance solution to be provided by some of the competitive vendors, which would have impact on NGFW performance on a real world when IPSEC VPN is enabled. The sizing of the solution is done based on current load and scalability of the solution to sustain the growth anticipated in next 5 years.	Minimum IPsec VPN throughput – 2 Gbps
50.	45	7	7.8	Kindly Clarify the eligibility criteria of the OEM - whether the OEM needs to be in the leaders' quadrant of Gartner for last 3 years and have 99.5 recommendations from NSS Labs.		The OEM needs to be in the leaders quadrant of Gartner for last year
51.	20/ Vol 1	6	6.1 Pre-Qualification	The bidder should propose the NMS and OSS, which have been deployed successfully in at least one	Request to make it more relevant: "The bidder should propose the NMS and OSS which have been deployed successfully in at least three telecom	OSS OEM/s shall be in the 'Gartner's magic quadrant as per the latest report' or the OSS solution should have been 'successfully implemented* in any Telecom or BharatNet

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				telecom network in India.	network globally"	project in last 5 years in India or abroad'. *Successful implementation of OSS shall be validated by 'a project completion certificate' or 'Final acceptance certificate or report signed off by the client and shall be operational after FAT'.
52.	20/ Vol 1	6	6.2 Techical Evaluation Clause 6: NMS Proposed	NMS and OSS must have been satisfactorily deployed in at-least one telecom network in India. WO/Completion certificate from the client telecom company.	Request to make it more relevant" "NMS and OSS must have been satisfactorily deployed in at-least Three telecom network globally. WO/Completion certificate from the client telecom company."	OSS OEM/s shall be in the 'Gartner's magic quadrant as per the latest report' or the OSS solution should have been 'successfully implemented* in any Telecom or BharatNet project in last 5 years in India or abroad'. *Successful implementation of OSS shall be validated by 'a project completion certificate' or 'Final acceptance certificate or report signed off by the client and shall be operational after FAT'.
53.	30/ Vol 1	7.1 Design Considerations for S-NOC	Scalability	The router and aggregation/core switch shall be capable of supporting 100G ports as well.	As per the design considerations along with specifications, we understand that 100G support will be only in Core Switch. WAN/Internet Bandwidth is very less for the router here. Please clarify and change the clause accordingly.	Clause stands deleted
54.	52/ Vol 2	7.10 Layer 3 Aggregation Switch	Clause 1 & Clause 3	Please revise the active switching bandwidth as per the RFP ask. Also, request mention the per-slot throughput needed as the ask is for a modular switch.	Clarity need to properly size the solution to be offered against the RFP	Fixed / Modular Chassis with Distributed architecture from day-1. High back plane speed (1 Tbps or more)
55.	52/ Vol 2	7.10 Layer 3 Aggregation Switch	Clause 5	Request to revise as "Solution should have at least 24 x 1000/10000 BaseT auto sensing ports with Line rate forwarding performance"	It's better to opt for 10G baseT with backward compatibility for 1G BaseT here for the overall investment protection. Also, standard offering is either 24 or 48 ports.	Clause stands deleted
56.	52/ Vol 2	7.10 Layer 3 Aggregation Switch	Clause 5, 6, Clause 7	Request consider 24 and/or 48 ports in all asked port requirements	Standard offering is either 24 or 48 ports.	Clause 5. and Clause 6. stands deleted. Clause 7. - Min 24 x 10 Gig SFP+ Fiber ports populated on day 1 with fiber modules (12 no's of SR and 12 nos. of LR), scalable upto 48 x 10 Gig SFP+ ports, support upto minimum 4 x 40 Gig QSFP+ ports

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57.	57/ Vol 2	7.11 Layer 3 Access/Leaf Switch– Type 1 (24 port)	Clause 5	Revise the forwarding rate as per port configuration asked in the RFP		Forwarding rate – At least 60 Mpps.
58.	63/ Vol 2	7.12 Layer 3 Access/Leaf Switch- Type – 2 (24 port)		Please mention the forwarding rate as per port configuration asked in the RFP		Forwarding rate – At least 120 Mpps.
59.	19/ Vol 2		7.3 SAN Solution	**Present Clause:** Host interface: Minimum 12 FC host ports 8 /16 Gbps or total of 192 Gbps across controllers 4 Nos SAS Port total 16 Lanes across controllers. 12 Gbps SAS **Clarification:** Please change this clause as "Host interface: Minimum 4 FC host ports 8 /16 Gbps or total of 64 Gbps across controllers 4 Nos SAS Port total 16 Lanes across controllers. 12 Gbps SAS".	Four number of FC ports are more than sufficient to cater to the requirement	Host interface: Minimum 4 FC host ports 8 /16 Gbps or total of 64 Gbps across controllers
60.	23/ Vol 2		7.3 SAN Solution	**Present Clause:** Storage should support inbuilt automated tiering feature that migrates the most frequently accessed data to the SSDs. The tiering feature should have flexibility in deployment across the tiers (SSD/FC/SAS/SATA) and the user should be able to activate the same. The activation of this feature should not require the reconfiguration of array. **Clarification**: Please		Storage should support inbuilt automated tiering feature. The tiering feature should have flexibility in deployment across the tiers (FC/SAS/SATA). The activation of this feature should not require the reconfiguration of array

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				amend this as"Storage should support inbuilt automated tiering feature that migrates the most frequently accessed data to the SSDs. The tiering feature should have flexibility in deployment across the tiers (SSD/FC/SAS/SATA) The activation of this feature should not require the reconfiguration of array." RFP has not asked for any SSD drives		
61.	25/ Vol 2		7.4 Virtual Tape Library	Please remove the disc based backup license specification. This looks like a typo error as entire specification is for primary unified storage system and not for purpose built backup appliance.	This is vendor specific and request you to revise the same for a generic backup appliance specification.	VTL specifications stands deleted. Refer corrigendum for Tape Library Specifications
62.	6 (Vol 1)	5.3 Key Requirements of Bid	5.3.2 Cost of RFP and EMD	Bidders shall submit, along with their General Bid, EMD of Rs. 40,00,000/- only in the shape of an account payee Demand Draft issued by any scheduled commercial bank only in favor of Odisha Computer Application Centre payable at Bhubaneswar and shall be valid for 180 days from the due date of the RFP.	Demand Draft has a validity period of 3 Months. Also 40,00,000/- is high value amount. So we are requesting you kindly allow to submit Demand Draft / Bank Guarantee for a valid period of 180 days.	EMD can be paid in the form of Bank Guarantee from any Nationalized or Commercial Bank payable at Bhubaneswar. Validity of the BG shall be 180 days.
63.	112 (Vol-1)	12.7 Annexure: G-7 - Price Bid Format	12.7.1 Abstract of Cost Components	Note: · Implementation cost (I) cannot be less than 0.2 times of the CAPEX (C) · OPEX (O) cost cannot be less than 1.1 times of the CAPEX (C)	CAPEX is IT & Non-IT Infrastructure (Product + 3Years Warranty) Cost and OPEX is (4th, 5th & 6th Year AMC + FMS) Cost. Therefor we are requesting you kindly delete the Note mentioned in the Price Bid.	Clause changed as - Note: OPEX (O) cost cannot be less than the CAPEX (C)

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64.	31(Vol-2)	7.6 Racks 42U	Point 10	Racks compatible should be with floor- throw as well as top-throw cooling systems.	Floor throw and top throw cooling point to remove. It is for perforated rack and cooling through front to rear	Clause stands deleted
65.	107		8.2 Electrical Panels including cabling	Details of Electrical work and specification as mentioned as below -		Clause stands deleted
66.				· VCB 11KV/630 Amps- input -1,output-2 nos	This is not required. Pls clarify	
67.				· HT Panel. 11KV. Input one, two outputs, All monitoring feature	This is not required. Pls clarify	
68.				· Transformer 11KV/440v,OLTC	This is not required. Pls clarify	
69.				· Transformer isolators,440v,bbt in. bbt-out	This is not required. Pls clarify	
70.				· Bus bar trunking-1500 Amps	This is not required. Pls clarify	
71.				Protection over BBT for rain and weather outside rooms	This is not required. Pls clarify	
72.				· Cabling laying work from Sub Stations to HT transformers	This is not required. Pls clarify	
73.	109		8.3 Earthing Pits, Earthing Grids, Earth Cabling	Earth for TX and Substation - Earth for Grid	This is not required	Clause stands deleted
74.			DG Sets	Engine, Alternator, Digital Control Panel for 3x 150KVA automatic start Diesel Generator	This is in contradition with first point where 2 nos DG is mentioned. Here it is 3 nos. Please Clarify	Engine, Alternator, Digital Control Panel for 2x 150KVA automatic start Diesel Generator
75.	115		8.6 Precision Air Conditioner	Minimum 10500 CMH	9TR PAC can not deliver this much CMH. Please allow as per manufacturer's specification	Minimum 9000 CFM
76.		Firewall	Point-6	Minimum 4 x 10G SFP+ Interfaces	Future Expansion provision needs to be kept in case the network backbone is upgraded in future. All the Servers and network switches are coming with 40G interfaces these day. So request to modify the same as Minimum 4 X10 G SFP+ interfaces and should have	Minimum 4 x 10G SFP+ Interfaces populated on day 1. Scalable upto 6x10 G SFP+ interfaces

#	Page No.	Section	Sub-Section	Clarification	Remarks	Response
					expansion slot available for upgrading the solution with 2 X 40G QSFP in future.	
77.			Point-20	The proposed firewall shall be able to create custom application signatures and categories using the inline packet capture feature of the firewall without any third-party tool or technical support such as virus, malware or bad URLs.	This clause will be restricting the major Os in the Gartner. Please remove the clause	Clause stands deleted
78.			Point-68	Should support SLAAC Stateless Address Auto configuration	SLAAC is proprietary terminology. Please remove the clause	Clause stands deleted
79.			Point-74	Should support on device and centralized management with complete feature parity on firewall administration	On-device management and logging degrades the performance of the firewall when the logs starts getting filled up or the policy database increases. So request to modify the same as The solution should be proposed with separate centralized management with complete feature parity on firewall administration.	The proposed solution should have on device or separate appliance/software based centralized management solution
80.	150 of 155	8.18 Video Wall Specifications	1) Monitor Type - LED	Please change to : DLP Cubes with Laser Light	DLP is the Best suitable for NOC and 24x7 control room/data centre	1) Monitor Type - LED/DLP Cubes with Laser light
81.	150 of 155	8.18 Video Wall Specifications	2) Panel Technology - IPS	Please change to: Rear Projection	Kindly replace IPS with DLP as it is LCD Technology and not recommended for 24x7 applications	2) Panel Technology - IPS/DLP
82.	150 of 155	8.18 Video Wall Specifications	3) Screen Size - 42" (diagonal)or Higher	Please change to: 50"	Standard size of DLP is 50" and 70"	3) Screen Size - 46" (diagonal) or Higher
83.	150 of 155	8.18 Video Wall Specifications	6) Brightness - 450nit or higher	Please change to : 2000 Lumens or Higher	Better Brightness on the screen	6) Brightness - 450 nit or higher for LED or 2000 Lumens or higher for DLP
84.	150 of 155	8.18 Video Wall Specifications	11) Orientation - Portrait & Landscape both	Please remove	Not required as this It has to permanent Installation in the NOC and not a signage for temporary installation	Clause stands deleted
85.	150 of 155	8.18 Video Wall Specifications	13) Digital - HDMI(1), DVI-D(1) or DP (1), With HDCP for all inputs	Please change to: 1x Digital DVI /HDMI Port	Multiple Inputs as asked is available in LCD panels and not required for a video wall setup as Display will be connected to controller thru one input i.e. DVI/HDMI only. Also Audio can be	13) Digital - HDMI(1), DVI-D(1) or DP (1) 14) Analog - RGB(1), Component (RGB Shared), AV [for LED] 15) Shall support external Audio inputs 16) External Control - via IP

#	Page No.	Section	Sub-Section	Clarification	Remarks	Response
86.	150 of 155	8.18 Video Wall Specifications	14) Analog - RGB(1), Component (RGB Shared), AV		provide externally if required	17) USB - 1 or more
87.	150 of 155	8.18 Video Wall Specifications	15) Audio - PC Audio In-1, AV/Component Audio In (RCA-1]			
88.	150 of 155	8.18 Video Wall Specifications	16) External Control - RS232C(1), RJ45(1), IR(1)			
89.	150 of 155	8.18 Video Wall Specifications	17) USB - 1 or more			
90.	150 of 155	8.18 Video Wall Specifications	19) Digital - DVI-D(1) or Display Port (1)			
91.	150 of 155	8.18 Video Wall Specifications	20) Analog - RGB(1)	Please change to: 1x Digital DVI- D	No Need to have output from the Cubes/Panel as taking out single from individual cubes are not required.	19) Digital - DVI-D(1) or Display Port (1) 20) Analog - RGB(1) for LED 21) Audio - External Speaker 22) Should support external control
92.	151 of 155	8.18 Video Wall Specifications	21) Audio - External Speaker-1			
93.	151 of 155	8.18 Video Wall Specifications	22) External Control - RS232C(1)			
94.	General			We request to kindly extend bid submission by minimum 30 days from the release date of corrigendum	Due to the complex nature of the bid we request the extension	15 days from the date of publication of corrigendum
95.				The cameras will be of 1/3" format CCD pickup device for fixed lens camera and ¼ " format for PTZ cameras . The cameras are being	Applicable for Analog Cameras. For IP Cameras, the resolution should be defined in Pixels / Mega-Pixels etc. And the Sensor shall be CMOS based. Usually PTZ Cameras shall be full HD 1080p and Fixed Cameras should be of 2 MPx.	PTZ Cameras shall be full HD 1080p and Fixed Cameras should be of minimum 5 Mega Pixels.
96.			RFP-BharatNet-NOC-Volume-II-08March2019 Page 131 of 155	The colour cameras (Integrated Pan/Tilt/Zoom dome) shall have a minimum resolution of 420 lines and sensitivity of 0.08 lux (colour) and 0.013 lux	If you are going towards IP Technology, TV Lines shall not be applicable. Also probably there is typographical error – Cameras should have Light sensitivity of 0.008 Lux (Color) and 0.001 Lux (Monochrome) as a standard.	Cameras should have Light sensitivity of 0.008 Lux (Color) and 0.001 Lux (Monochrome) as a standard.. The outdoor PTZ cameras shall be day/night camera with a minimum of 23 X optical zoom and 12 X digital zoom

#	Page No.	Section	Sub-Section	Clarification	Remarks	Response
				(monochrome). The outdoor PTZ cameras shall be day/night camera with a minimum of 23 X optical zoom and 12 X digital zoom	Also, it would be better if you go for higher range 30X Optical Zoom feature to ensure more distance coverage.	
97.			Vol -1 ---Page no 29	The Computing Infrastructure shall be Latest Generation x86_64 Bit processor. The Compute Infrastructure shall have high performance connectivity to network (10 Gbps) and storage (16 Gbps). The Network backbone for State NOC shall be on 10G at the access layer and 40G at the aggregation layer on day 1 which can scalable up to 100G at the aggregation layer	The Computing Infrastructure shall be Latest Generation x86_64 Bit processor. The Compute Infrastructure shall have high performance connectivity to network (10 Gbps) and storage (16 Gbps). The Network backbone for State NOC shall be on 10G at the access layer and 40G at the aggregation layer on day 1 which can scalable up to 100G at the aggregation layer with MPO-LC Fiber Pre-term Solution.	The Computing Infrastructure shall be Latest Generation x86_64 Bit processor. The Compute Infrastructure shall have high performance connectivity to network (10 Gbps) and storage (16 Gbps). The Network backbone for State NOC shall support 10G at the access layer and 40G at the aggregation layer on day 1
98.	page 35 of 129	7.2.2.3	UPS System	As per RFP initial UPS capacity required is 40KVA for 6 racks. Which is expected to increase up to 12 racks, making the UPS capacity 80KVA, so we would propose to go for 2 nos. 40KVA to work in N+N redundancy initially and to add one more 40KVA UPS in future to make it 120 KVA (80KVA working & 40KVA redundant) which will work in N+1 redundancy.		No need to supply modular UPS. Total 3 No's of UPS of 40 kVA each needs to be consider. Initially 2 UPS will be supplied by the bidder to cater the load of 40 kVA and in future additional 40 kVA UPS will be installed as nd when required. So that in N+1 mode total 80 kVA load can be catered. Bidder to keep the electrical cabling ready for the third UPS to be installed in the future.

#	Page No.	Section	Sub-Section	Clarification	Remarks	Response
99.	19	7.3	**SAN-1:** Unified Storage Solution with redundant components inbuilt. The Storage solution should support NAS & SAN & FCOE/iSCSI as an integrated offering with high availability at each level. The architecture should allow modular upgrades of hardware and software for investment protection. The system must support dual-ported 4/6 Gbps FC/SAS Disk Drives (Latest Drive interface) and SATA/NL-SAS Disk Drives (latest Drive interface).	Request to change the clause as - Unified Storage Solution with redundant components inbuilt. The Storage solution should support NAS & SAN & FCOE/iSCSI as an integrated offering with high availability at each level. The architecture should allow modular upgrades of hardware and software for investment protection. The system must support dual-ported 6/12 Gbps FC/SAS Disk Drives (Latest Drive interface) and SATA/NL-SAS Disk Drives (latest Drive interface).	According to the latest technology, 12 Gbps disk drives are widely used throughout the industry.	Unified Storage Solution with redundant components inbuilt. The Storage solution should support NAS & SAN & FCOE/iSCSI as an integrated offering with high availability at each level. The architecture should allow modular upgrades of hardware and software for investment protection. The system must support dual-ported 6/12 Gbps FC/SAS Disk Drives (Latest Drive interface) and SATA/NL-SAS Disk Drives (latest Drive interface).

#	Page No.	Section	Sub-Section	Clarification	Remarks	Response
100	21		7.3	**SAN-18:** The storage shall be supplied with 15 TB (SAS of net usable data capacity after RAID 5/6 for SAS after removing the drives required for (a) Parity/Mirror, (b) Hot spares. The storage is to support SAS, SATA or equivalent (7.2K, 10K, 15K RPM) on the proposed controller. (c) The storage should have minimum 6 Gbps SAS Drive interface.)	Request to change the clause as - The storage shall be supplied with 15 TB (SAS of net usable data capacity after RAID 5/6 for SAS after removing the drives required for (a) Parity/Mirror, (b) Hot spares. The storage is to support SAS, SATA or equivalent (7.2K, 10K, 15K RPM) on the proposed controller. (c) The storage should have minimum 12 Gbps SAS Drive interface.)	According to the latest technology, 12 Gbps disk drives are widely used throughout the industry.	The storage shall be supplied with 15 TB (SAS of net usable data capacity after RAID 5/6 for SAS after removing the drives required for (a) Parity/Mirror, (b) Hot spares. The storage is to support SAS, SATA or equivalent (7.2K, 10K, 15K RPM) on the proposed controller. (c) The storage should have minimum 6/12 Gbps FC/SAS Drive interface.)
101					Additional changes made	Implementation Time schedule changed to 26 weeks
102					Additional changes made	Role of PMU excluded from the RFP
103					Additional changes made	Helpdesk Service level changed for – 1. Incident Logging – T = 5 Minutes 2. Assign/Escalation – T = 5 Minutes
104					Additional changes made	Initially 2 no's of 9 TR PACs will be supplied by the bidder but civil and cabling arrangement should be carried out for total 3 no's of 9 TR PACs, so that, as and when required 3rd PAC can be procured and installed without any cabling or civil work.
105					Additional changes made	BSS is deleted from scope of work
106		Video Controller			Additional changes made	Bidders are free to propose their solution meeting basic requirements specified in the RFP. They are free to provide LED or DLP based video walls.
107		Passive Cabling			Additional changes made	Specifications of Passive Cabling is added separately

Minimum Passive Cabling Specifications

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Cabling between the network rack and server racks shall be done using OM4 MPO trunk cables to support 10G				
2	Backbone links between Network access/leaf switch to Network Core/Spine switches shall be support 10 G				
3	CAT6A Copper cabling to be considered for management services upto each rack.				
4	Fiber and copper cabling shall be provisioned over redundant paths on an end-to-end design basis.				
5	The cable pathway design must consider the cable fill ratio, separation and bend limits as per TIA 569-C, ISO/IEC 14763-2:2012 and BICSI TDMM 13 design guidelines				
6	Dedicated copper trays and enclosed fiber pathway system to be considered for respective cable routing for the entire Data center.				

Fiber & Copper Cabling Solution

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Fiber and copper cabling as per TIA guidelines. Passive OEM offered must be in India for more than 5 years.				
2	Cabling design shall meet TIA 942 recommendations for Tier III DC design.				
3	OEM shall have ISO 9001 & 14001 certified manufacturing units in India.				
4	All cabling used in the DC must be LSZH IEC 60332-3 compliant.				

Fiber MPO Cassette, OM4

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	24F MPO-LC OM4 cassette with 2 MPO trunks at rear.				

S. No	Min Specification			
2	Cassettes shall have internally collapsible translucent shutters, compatible with VFL.			
3	Cassettes shall have wiring pattern to enable use of same cassette on either end of link, for easy management and scalability.			
3	UL 1863 listed			
4	MPO cassettes must have low loss. Max IL < 0.35dB.			

Fiber Panel

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Fiber enclosure shall be 19"-1U/2U with sliding drawer feature along with front patch cord trough and transparent label window				
2	High density fiber panels shall be used in the network racks which support upto 144 duplex LC ports in 2U.				
3	Fiber panel shall have front sliding design for easy access during MAC's				
4	Fiber panel shall have rear and side entry ports for cables, supported by sealing glands.				
5	Shall have a powder coated metal premium finish				
6	Shall have adequate depth, min 500mm, to support fiber cable storage.				

Fiber MPO trunk, OM4

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Fiber MPO 12/24 core trunk cables shall be type B enhanced with LSZH jacket as per IEC 60332-3.				
2	Should use bend insensitive multimode OM4				
3	Trunk dia. Not more than 5.5 mm				
4	Shall support low loss performance: MPO: Insertion Loss, < 0.27 dB MPO: Return Loss, > 27.0 dB.				
5	Vendor should support 40/100G and future applications on proposed MPO solutions. Documentary proof to be submitted for 40G/100G support.				

Fiber Patch Cord, OM4

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Fiber LC-LC duplex patch cords shall be bend insensitive multimode OM4				
2	LSZH jacket IEC 60332-3 tested.				
3	Shall support low loss performance: IL: max 0.33dB Return Loss: Min 25dB				

CAT6A UTP Cable

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	4 pair 23 AWG, CAT 6A U/UTP cable LSZH jacket IEC 60332-3-22				
2	Min 500 Mhz tested ETL verified with 4 connector channel for short link (15m). Certificate to be submitted.				
3	Cable OD not more than 7.3mm				
4	UTP cable shall not have any metal foil or shield.				
5	DC Resistance, maximum 7.61 ohms/100 m				

CAT6A UTP Patch Panel

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	24 port CAT6A U/UTP Patch Panel, 1U loaded, compliant to ANSI/TIA 568-C.2 and ISO/IEC 11801				
2	Panel shall have rear cable bundle support managers				
3	Panel shall be upgradable to intelligent in future without any network disconnection.				
4	The panel shall be UL and cUL Listed				
5	Insertion Life = 750 minimum insertions of an FCC 8-Position Telecommunications Plug				

CAT6A UTP Patch Cord

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Cat6A U/UTP Patch cord, meets and exceeds ANSI/TIA 568-C.2 and ISO/IEC 11801 requirements.				
2	23 AWG solid strands for higher performance than stranded versions.				
3	Shall have LSZH jacket compliance to IEC 60332-3				

Fiber Pathway System

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Fiber pathway system shall be from the same OEM as of the cabling components.				
2	System shall be made from a low-smoke, non-brominated, non-chlorinated, flame retardant material and is loaded stress tested under high temperature and humidity to verify durability under extreme conditions.				
3	Material should be non metallic to avoid radiation and grounding hazards.				
4	Shall be free of nylon or poly-vinyl chloride (PVC) materials, for fire safety.				
5	Materials used in the systems must comply with NEC and NEBS standards for fire resistance.				
6	The fiber raceways system shall be available in 2-, 4-, 6-, 12- and 24- inch dimensions.				

Copper Pathway System

Make:

Model:

S. No	Min Specification	Specification proposed by bidder	Compliance (Y/N)	Page Reference in Data sheet	Value Add (if any)
1	Shall be of Open mesh type design to support easy airflow				
2	Ensures cable lay is compliant to TIA-568C guidelines				
3	Shall feature specially designed pre-fabricated cross sections (L, T Cross, up, down) to support easy flow of cables during turns, ups and down spots.				

Tape Library Specifications

#	Minimum Specification	Specification Proposed By Bidder	Compliance (Y/N)	Page Reference in Data Sheet	Value Add (If any)
1	Shall be scalable up to 8 x FC LTO drives.				
2	Shall provide native Fiber connectivity to SAN Environment.				
3	Shall have redundant power supply.				
4	Shall be offered with minimum of 40 Cartridge slots scalable up to 280 Slots.				
5	Shall support Barcode reader and shall be provided with required cleaning cartridges.				
6	Shall be rack mountable and shall be offered with mounting kit.				
7	Warranty: 3 years warranty along with 3 years AMC from the date of acceptance				

Revised minimum consolidated Bill of Material for State NOC

#	DC Components	Unit	Qty	Make	Model
IT Infrastructure					
1.	Physical server: x-86 blade/rack servers (minimum 2 processor, 16 core/processor, 2.0 Ghz, Minimum 256 Gb RAM) - for Active Directory, Backup, other management servers - 2 no's - for NMS, OSS - 3 no's	No's	5		
2.	Blade enclosure (if applicable)	No's	As required		
3.	SAN Storage - 15 TB usable and scalable upto 100TB usable	No's	1		
a.	Additional storage disks for scalability	TB	10		
4.	SAN Switch - 24 ports scalable upto 48 ports	No's	2		
5.	Tape Library along with tape cartridges	No's	1		
6.	Backup solution - volume based	TB	15		

7.	Intelligent Racks	No's	6		
8.	Internet routers	No's	2		
9.	Firewall	No's	2		
10.	L3 Aggregation/Spine Switch	No's	2		
11.	L3 Access/Leaf Switch – Type 1	No's	2		
12.	L3 Access/Leaf Switch – Type 2	No's	2		
13.	LAN passive components including Cabling for the entire SNOC Area	Set	1		
14.	Windows Server OS Data Center Edition (Latest version)	No's	1		
15.	Windows Server OS Standard Edition (Latest version)	No's	As required		
16.	Linux Enterprise Edition (Latest version)	No's	As required		
17.	Any Other Software for Virtualization	No's	As required		
18.	NMS & OSS	Set	1		
20.	End Point Protection Solution	No's	1		
a.	Licenses for Physical Server (Windows)	No's	As required		
b.	Licenses for Physical Server (Linux)	No's	As required		
c.	Licenses for Virtual Server (Windows)	No's	As required		
d.	Licenses for Virtual Server (Linux)	No's	As required		
21.	Any Other IT components (please specify)				
Non-IT Components					
22.	Civil & Interior Works (Including Brick work, masonry work, painting, diesel storage tank, Partition, False floor, Raised Floor, False ceiling, Water proofing, etc.	Set	1		
23.	Electrical Cabling (including electrical panel, Earthing, NOC internal electrical wiring, DB, Switchgears, UPS, DG Set, all NOC Areas-for 12 racks, Lighting & fixtures, etc.)	Set	1		
24.	Generator Set (Each 150 KVA)	No's	2		
25.	UPS (modular) for the Server Farm Area for 12 racks and Auxiliary areas; 40 kVA with VRLA battery and minimum 30 Min. backup on full load	No's	2		

26.	Precision Air Conditioning System for the Server Farm Area as per the specifications - 9 TR	No's	2		
27.	Comfort Air Conditioning for the Auxiliary Area as per the specifications- ~ 10 TR	Set	1		
28.	Fire Suppression and Detection System (for all Areas)	Set	1		
29.	VESDA System (for all Areas)	Set	1		
30.	Water Leak Detection System (for all Areas)	Set	1		
31.	Access Control System (for all Areas)	Set	1		
32.	IP CCTV System (for all Areas)	Set	1		
33.	Public Address System (for all Areas)	Set	1		
34.	Fire Proof Enclosure for Media Storage	Set	2		
35.	Rodent Repellent System (for all Areas)	Set	1		
36.	Fire extinguisher	Set	1		
37.	Building Management Solution (for the DC Area, as well as for rest of the floor)	Set	1		
38.	Video Wall (3x3) with Controller	Set	1		
39.	Any Other (please specify)				

Bidders are required to mention unpriced BoQ for required NMS, OSS solutions including requirement of servers, OS, Database licenses and other licenses for support as applicable.

The BoQ mentioned above is indicative and minimum but if the bidder feels they need more quantity of any items to implement the State NOC, bidder must include that in their BoQ and financial as well.