प्रसार भारती
PrasarBharati
कार्यालय अपरमहानिदेशक (उत्तरी क्षेत्र)
Office of the Additional Director General (N. Z.)
आकाशवाणी एवंदूरदर्शन : जामनगरहाउस, नईदिल्ली– 110011
Akashvani& Doordarshan , Jamnagar House
New Delhi – 110011

No. AIR-Cord/IT-I/2020-21(Data Center) Dated: 20.01.2021

Subject: Technical specification for Data Center for vendor/OEM's feedback & cost estimation

A draft specification for Data Center (20 pages) is uploaded to invite comments from vendor/OEM's dealing with supply such items. The interested parties are requested to provide feedback/request for modification in specification.

Vendor are requested to provide estimated cost of the data center (as per BOM in draft specification)

Comments & cost estimation may be provided by E-mail to adgnzddeco@gmail.com within 21 days from issue of this tender

Encl: Copy of specification (20 pages)

20/1.

(K.C. Soni)
Director Engg
For Additional Director General (E) (NZ)

Specifications for In-house Data Center to be established at NBH, New Delhi

Introduction:

The Data Centre (DC) for storage of our audio contents will be used for internal consumption of PB for programme production by AIR Stations and also for rendering service to general public in a control and secure manner making it a focal point and critical asset for everyday operations.

In addition to technical equipment, a data center also requires a significant amount of facilities infrastructure to keep the hardware and software up and running. This includes power subsystems, uninterruptable power supplies (UPS), ventilation and cooling systems, security system &backup generators and cabling to connect to external network operators.

A preliminary requirement of key components/building blocks of the data center are mentioned below:

Sl.No.	Item	Qty
1	Storage (1 Petabyte SAN)	1
2	Load balancer in HA Mode	2
3	Workgroup/Edge Switch POE	4
4	SAN Switch	2
5	Router in HA Mode	2
6	Firewall (NGFW) in HA mode	2
7	Layer 3 core switch	2
8	Server	4
9	Small Form Factor Pluggable Transceiver	8
10	Misc software/ Open source OS and Open source database	1 Set
11	Web application firewall in HA mode	2
12	Smart Racks with UPS and AC	2
13	Misc.hardware, Civil & electrical works	As required

The detailed specifications of the above mentioned equipment are placed at Annexure – II

1. The budgetary quotes and industrial feedback is being obtained.

2. **SPACE**: Tentative space has been identified in NBH for installation of the Data Center.

3. **POWER SUPPLY**: Existing power supply in NBH shall be used.

4. **AIR-CONDITIONING**: Existing air conditioning arrangements at NBH shall be used wherever required.

5. **STORAGE** : The amount of initial storage required is approximately one petabytes.

6. **Architecture :** Technical Architecture of Data Center from various aspects like data storage, data management and networking, composition and layout of the IT equipment is placed at Annexure – I.

7. **Skilled manpower:** The existing staff at NBH shall manage the data center.

8. **Data center security and safety**: Delhi station will submit its requirement on this aspect.

11. **Civil & electrical works:** To be decided in consultation with Zonal office and Delhi station.

12. **Internet Bandwidth**: Requirement to be finalized after studying the data flow requirement from and to the data center at present and in near future.

13. **Warranty of Equipment**: All equipment are to be procured with 5 years comprehensive on-site warranty on SITC basis.

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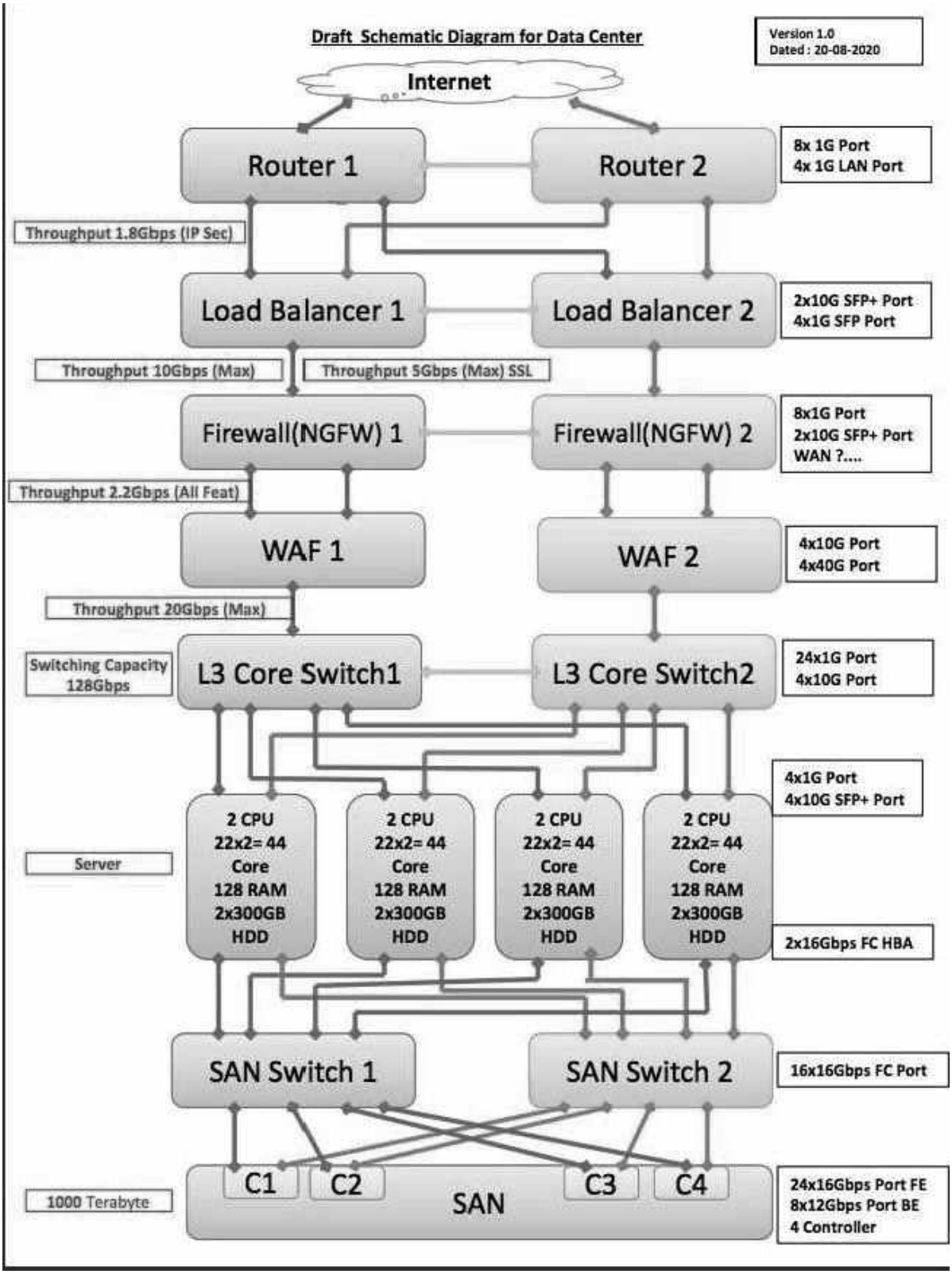
ANNEXURE – I


Draft Schematic Diagram for Data Center
Version 1.0
Dated : 20-08-2020
Internet
Router 1
Router 2
8x 1G Port
4x 1G LAN Port
Throughput 1.8Gbps (IP Sec)
Load Balancer 1
Load Balancer 2
2x10G SFP+ Port
4x1G SFP Port
Throughput 10Gbps (Max)
Throughput 5Gbps (Max) SSL
Firewall(NGFW) 1
Firewall(NGFW) 2
8x1G Port
2x10G SFP+ Port
WAN ?....
Throughput 2.2Gbps (All Feat)
WAF 1
WAF 2
4x10G Port
4x40G Port
Throughput 20Gbps (Max)
Switching Capacity
128Gbps
L3 Core Switch1
L3 Core Switch2
24x1G Port
4x10G Port
4x1G Port
4x10G SFP+ Port
Server
2 CPU
22x2= 44
Core
128 RAM
2x300GB
HDD
2x16Gbps FC HBA
SAN Switch 1
SAN Switch 2
16x16Gbps FC Port
C1
C2
C3
C4
SAN
1000 Terabyte
24x16Gbps Port FE
8x12Gbps Port BE
4 Controller

ANNEXURE – II

1. Router (2Nos. in HA mode)

Technical Specifications of Router		
1.1	**Ungrouped**	
1.2	Type of Router	WAN
1.3	No. of Gigabit Ethernet (10/100/1000 Base-T) Interface Ports	8 or more
1.4	No. of 1G SFP Slot (Fiber / Copper)	2 or more
1.5	Number of Gigabit Ethernet (10/100/1000 Base-T) LAN Ports	4 or more
1.6	Ethernet LAN PORT	Non PoE
1.7	Packet forwarding rate (MPPS)	3.5 or better
1.8	Support for Redundant Power Supply	Internal
1.9	No. of Free Slots (Low density)	3 or more
1.10	No. of Free Slots (High density)	3 or more
1.11	Routing Protocols from day-1	Static IPv4 Routing, RIP, OSPF, BGP-4), MPLS, VXLAN, (MPLS) Layer 3 VPN, (MPLS) Layer 2 VPN
1.12	Network Management Protocols	CLI, TELNET, RMON, SNMP V3, PING, traceroute , NTP, NQA,
1.13	IPsec Throughput (Mbps)	1800 or better
1.14	IPsec Encryption	3DES,AES,IPSec VPN,IKEv2,ADVPN
1.15	Security Protocol	Stateful Firewall, Zone based Firewall, Enhanced Stateful Firewall, ACL,IEEE 802.1X
1.16	Support for QoS	Available
1.17	Wattage (Watt)	300 or less
1.18	Dimension / Form Factor(RU)	Rack-mountable/2 or less
1.19	Operating Temperature Range(Degree C)	0°C to 45°C
1.20	Operating Humidity (RH) (%)e	5% to 90%
1.21	IPv6 Ready	Yes
1.22	On Site OEM Warranty (Year)	5

2. Load Balancer (2 Nos. in HA Mode)

Technical Specifications of Load balancer		
2.1	Type of Load Balancer	Link Load Balancer
2.2	Internet Link Connections Supported by Load balancer	At least two Internet links or more
2.3	Concurrent Sessions Support (million)	14 or more
2.4	Network Interface Ports	2x10G SFP+ and 4x1G RJ45 or more
2.5	Throughput (Maximum) (Gbps)	10
2.6	SSL Throughput (Maximum) (Gbps)	5
2.7	Hardware Based SSL Acceleration	SSL/TLS encryption offload
2.8	SSL Transaction (TPS)	RSA: 2.5K TPS (2K keys); ECC: 2.1K TPS (ECDSA P-256)
2.9	Throughput Scalability	Required
2.10	If Available, then scalable without changing hardware upto (Gbps)	Scalable up to 8 Gbps SSL throughput
2.11	Facility to define inbound/outbound (Kbps/Mbps) throughput limit of any link	Yes
2.12	Device with multicore CPU support	Yes
2.13	Internal Storage	Required
2.14	If Available, then capacity of Internal Storage (GB)	500 or better
2.15	RAM (GB)	16 or better
2.16	Support Dynamic routing and Static routing Protocols	Yes
2.17	Support Static NAT	Yes
2.18	Support Dynamic NAT	Yes
2.19	Support PAT	Yes
2.20	Link Health Monitoring	Yes
2.21	Link Failover Detection Time (Seconds)	30 or better
2.22	Support Virtual Grouping	Yes
2.23	Support Load Balancing Algorithms	Round Robin, Least connections, Fastest, Predictive, Observed, Weighted least connection etc.
2.24	Supported Load Balancing Layers	Layer 3 to Layer7
2.25	Supported Redundancy Protocol	HA
2.26	Built-in authoritative DNS capable	Yes
2.27	Supported Application optimization modules such as compression, caching, connection multiplexing, SSL offloading, TCP optimization	RAM cache and compression,OneConnect, MQTT Parser, Scripting through iRules,inbuilt apps templates

2.28	Support SNMP	Yes
2.29	Support both IPv4 and IPv6	Yes
2.30	Support Bandwidth Management and QoS	Yes
2.31	Interfaces for device configuration and management	Management ports, USB port and console port
2.32	Input-Output Port	2x10G SFP+ ,4x1G RJ45
2.33	Power Supply	Dual
2.34	Power Consumption (Watt)	100 or less
2.35	Operating Temperature Range (Degree C)	0-40
2.36	Storage Temperature Range (Degree C)	0-40
2.37	Operating Humidity (% RH)	85
2.38	Compliance Certificates	FCC Class A,, IC Class A, VCCI
2.39	Dimensions (H x W x D) (cm x cm x cm)	Industry Standard Rack-Mount
2.40	Weight (Kg)	10 or less
2.41	On Site OEM Warranty (Years)	5

3. Firewall (NGFW) (2 Nos. in HA Mode)

Technical Specifications of Firewall - NGFW		
3.1	Type	NGFW
3.2	Form Factor (RU)	1
3.3	Features	Layer 3 - Layer 4,NAT,VPN,Application Visibility and Control (AVC),User Identity,Next Generation Intrusion Prevention System (IPS),Zero Day Protection / Advance Malware protection,Web Security Essentials / URL Filtering
3.4	Traffic handled	TCP,UDP,HTTP/TCP,TCP/UDP
3.5	Packet Size (KB)	1024
3.6	Throughput with all features enabled(Under Test Condition) (Mbps)	2200 or better
3.7	Throughput (Real World/Prod Performance)(Under Test Condition) (Mbps)	2600 or better
3.8	Concurrent Session/Concurrent Connection	20M or better
3.9	New session/Connection per second	200K or better
3.10	Type of Interface Supported Multiselect	GE Copper
3.11	Number of GE Copper interface	8 or more
3.12	Number of 10G SFP+ interface	2 or more
3.13	Number ofcol /WAN Ports	8 or more
3.14	Number of Ipsec VPN Peers supported (Site to Site)	3000 or more
3.15	Number of Ipsec VPN Peers supported (Client to Site)	3000 or more
3.16	Number of SSL VPN Peers supported (Client to Site)	350 or more
3.17	Type of Storage Disk	SSD
3.18	Storage Capacity (GB)	240 or more
3.19	Power Supply	Dual
3.20	Type of Processor	x86
3.21	High Availability Support	Yes
3.22	Interface Expansion slots supported	2 or more
3.23	Firewall Policies - License	Yes

3.24	Details of the Firewall Policies for the Firewall provided with the License	Web Security Essentials / URL Filtering,IPS License,Application Visibility License,APT (Advance Persistant Threat) License (Anti Malware Protection, C&C attacks, Geo IP Protection, Zero Day Threat Protection),Gateway Anti virus,Gateway Anti spam
3.25	NGIPS Signature supported	5000 or more
3.26	Security Intelligence	URL,IP,Domain
3.27	Certification	Common Criteria /NDPP/NSS
3.28	Maximum Operating Temperature (Degree C)	40
3.29	Minimum Operating Humidity (%RH)	10
3.30	Maximum Operating Humidity (%RH)	75
3.31	IPv6 Ready from day 1	Yes
3.32	On Site OEM Warranty (Year)	5

4. Web Application Firewall (2 Nos. in HA Mode)

Technical Specifications of web application firewall		
4.1	Deployment modes	Bridge mode, Transparent Proxy mode, Reverse proxy and Full Proxy Mode
4.2	Web Application Security	Solution must distinguish between browsers & bot's by tech. as browser capability &CAPTCHA challenge
4.3	Concurrent Connection (Maximum) (Numbers)	28000000
4.4	HTTP Connections/Sec (Maximum) (Numbers)	250000
4.5	System Throughput (Maximum) (Gbps)	20
4.6	Request Latency	Sub-ms
4.7	Network Interface Ports	8X1G RJ45, 4X10G SFP+
4.8	Attack Protection	OWSAP TO 10, SQL&WEB INJECTION. deviceID tracking alongwith protection of credential setting.
4.9	Detect and prevent attackers from finding hidden directories Features	Available
4.10	Processor	One 4 Core Intel Xeon Processor or better
4.11	Storage (GB)	500 gigabyte or more
4.12	Authentication and Authorization	Soln. must provide capability to obfuscate sensitive field name to defeat Man-in-The-Browser Attack
4.13	Logging, Reporting and Monitoring	Through Centralized Mgmt. WAF & ADC OEM to be in top 3 in latest Gartner Report
4.14	Input-Output Port	Management Port - RJ45; Console Port - RS232. Monitoring & policy through single GUI for WAF & ADC.
4.15	Power Supply	Dual
4.16	Power Consumption (Watt)	130 Watt or less
4.17	Operating Temperature Range (Degree C)	0-40
4.18	Storage Temperature Range (Degree C)	0-40
4.19	Operating Humidity (%RH)	85
4.20	Compliance Certificates	ETSI EN 300 386 V1.6.1 (2012), EN 55032:2012 Class A, EN 61000-3-2:2014, FCC Class A(Part 15),
4.21	Dimensions (H x W x D) (cm x cm x cm)	Industry Standard Rack-Mount
4.22	Weight (Kg)	10 kilogram or less
4.23	On SIte OEM Warranty (Year)	5

5. Layer-3 Core Switch (2 Nos.)

Technical Specifications of Layer-3 Core Switch		
5.1	Generic	
5.2	Type Of Core Switch	Non Chassis Based
5.3	No. of Power supply (with redundancy)	1
5.4	No. of FAN Tray	1
5.5	No. of 1G/10G SFP+ Port	4 or more
5.6	No. of 1000 base-T Ports	24
5.7	Console Port	Available
5.8	Modular OS	Available
5.9	Switching Capacity (Gbps)	128 or better
5.10	Throughput (MPPS)	95.23 or better
5.11	Advance Layer-3 Protocol	RIPv1v2, BGP, PBR, MPLS
5.12	Security Feature	ACL, 802.1x, RADIUS/TACACS, Port Security, SSHv2 RA Guard DHCP v6 protection, STP root guard
5.13	Management Protocol	CLI, Web GUI, RMON, SNMPv3, sFlow FTP, NTP, ISSU
5.14	QoS	802.1p SP WRED WRR WFQ SP+WFQ CAR Traffic policing
5.15	Dimension/ Form Factor(RU)	Industry Standard Rack-Mount/ 1 RU
5.16	Wattege (Watt)	120 or less
5.17	Operating Temperature (Degree C)	0°C to 45°C
5.18	Operating Humidity (RH)(%)	10% to 90%
5.19	IPv6 Ready	Yes
5.20	On Site OEM Warranty(Year)	5

6. Server (4 Nos.)

Technical Specifications of Server		
6.1	Processor Architecture	CISC(X86)
6.2	Processor Make	Intel
6.3	Number of Cores per Processor	22 or more
6.4	Processor Base Frequency (GHz)	2.1 or better
6.5	Processor Turbo Frequency (GHz)	3.7 or better
6.6	Total Cache (L1+L2+L3)(MB)	30 or more
6.7	Processor Description/ Number	Intel Xeon Gold 6238
6.8	**Chassis**	
6.9	Form Factor	Rack
6.10	Size (RU)	2
6.11	**Motherboard**	
6.12	Chipset compatible with CPU	Intel C621 or better
6.13	Expansion Slots Gen 3 (PCIe x8)	2 or more
6.14	Expansion Slots Gen 3 (PCIe x16)	1 or more
6.15	Maximum number of Sockets available on Server	2
6.16	Maximum number of Sockets populated with Processors available on Server	2
6.16	Type of RAM	DDR4 SDRAM with ECC
6.17	Total Number of DIMM Slots available	24
6.18	Number of DIMM Slots populated with DDR SDRAM	4
6.19	DDR SDRAM Size(GB)	128
6.20	DDR SDRAM upgradable upto using spare DIMM Slots (GB)	2048
6.21	Type of Interface for Hard Disk Drive	SAS
6.22	Total number of slots available for SAS drive	8
6.23	Number of Slots populated with SAS Drive	2 or more
6.24	Capacity offered per SAS Drive (GB)	300 or more
6.25	SAS drive Speed (Hot plug or better) (RPM)	10K or better
6.26	Total Storage Capacity offered with SAS Drive (GB)	600 or more
6.27	**RAID**	
6.28	RAID level	1
6.29	No of RAID Controller Ports	8
6.30	Speed of RAID Controller Ports (Gbps)	12
6.31	RAID Controller Cache (GB)	2

6.32	**Ports & Interfaces**	
6.33	Network Card Supported	1G,10G
6.34	Number of Networking Interface Cards (LAN)	1
6.35	Whether Network Interface Card Embedded	Yes
6.36	Number of Ports Per Network Interface Card	4x1G,4x10G with SFP+
6.37	Networking Interface Card Features	Asset Feature Tracking,Security Management
6.38	Number of Dual port FC HBA card	1
6.39	FC HBA Speed (Gbps)	16
6.40	USB Ports (version 2point0/3point0)	5 or more
6.41	Total number of Spare Bays Available for Future Upgradation (Internal)	6 or more
6.42	Total number of Spare Bays Available for Future Upgradation (Hot Plugable)	6 or more
6.43	**Certifications**	
6.44	Certifications/Compliance (OS)	Windows,Red Hat Linux,Suse Linux,Ubuntu,Cent OS,Debian,AIX
6.45	Certification/Compliance (Virtualization/Cloud Platform)	VM ware,HyperV,Oracle Virtualization,Red Hat Virtualization,Xen,KVM
6.46	**Features**	
6.47	Management Features-1	Remoter power On/ Shutdown of server,Remote Management of Server over LAN & WAN with SSL encryption through gigabit management port, Should have virtual Media support with all required licenses,Remote KVM,Server Health Logging,Out of Band Management

6.48	Management Features-2	Management of multiple Servers from single console with single source of truth for multiple sites,Automated infrastructure management for patch upgrades, version upgrades ,etc.,Simplified management with analytics driven actionable intelligence. System tagging giving admin flexibility to provide metadata tags to each System to enable users to filter and sort systems based on user-assigned attributes,Hardware Profile based deployment to multiple Servers simultaneously,Policy template for deployment of single policy to multiple Servers simultaneously,Platform inventory and health status,Server utilization statistics collection (including firmware updates and diagnostic tools),Should provide an alert in case the system is not part of OEM hardware compatibility test,Solution should be open and programmable providing Rest API, SDK for programming languages like Python, power shell scripts etc.,Should have customizable dashboard to show overall faults/health/inventory for all managed infrastructure the solution should provide option to create unique dashboards for individual users.the user should be flexibility to select name for dashboards and widgets (viz. health, utilization etc),Single pane of glass for auto Provisioning across Multi vendor & multi hypervisor platform,Self service portal deployment for automated provisioning,Real-time out-of-band hardware performance monitoring & alerting
6.49	Security Features-1	Secure Boot(Firmware and Bios Level Security),Provision to lock the system on breach,Hardware root of trust/Dual Root of Trust,Server should provide policy based security,Server should provide server intrusion detection, "Malicious Code Free design" (to be certified by OEM)

6.50	Security Features-2	Provision for Cryptographic firmware updates,Capability to stop execution of Application/Hyperviser/ Operating System on predefined security breach,Secure /Automatic BIOS recovery,Network Card secure firmware boot,In case of any security breach system should provide the lock down feature
6.51	Server scalability to be achieved within the box & without adding nodes	Yes
6.52	Support for high availability clustering and virtualization	Yes
6.53	**Generic**	
6.54	Redundant Power Supply	Yes
6.55	Hot Swappable (Redundant Power Supply)	Yes
6.56	Power Supply Efficiency	Platinum
6.57	Redundant Fan	Yes
6.58	Hot Swappable (Redundant Fan)	Yes
6.59	Server Main Supply	230 +/- 10%Vac
6.60	Maximum power consumption of the system (Watts)	500 or less
6.61	BIS Registration under CRS of MeitY	Required
6.62	BIS Registration Number Under CRS of MeitY and its validity	Mandatory
6.63	Other Certifications Available	UL,CE,FCC
6.64	RoHS Compliance	Yes
6.65	Installation and Commissioning shall be included in the scope of supply	Yes (It includes installation, commissioning & integration together with all necessary software to make the system fully functional as intended.)
6.66	On Site OEM Warranty (Year)	5

7. SAN Switch (2 Nos.)

Technical Specifications of SAN Switch		
7.1	**General Specification**	
7.2	Fiber Channel Generation	16Gbps
7.3	Switch Type	Fixed
7.4	Fiber Channel base ports	24 (All Ports usable from day 1)
7.5	Scalability (Ports)	48
7.6	Fiber Channel Port Speed (Gbps)	16
7.7	Media Type Fiber Channel	SWL
7.8	Autosensing (Gbps)	4/8/16
7.9	Aggregate Switch Bandwidth FC (end to end full duplex)	384 Gbps or better
7.10	Maximum Fabric Latency (nano second) / Locally switched port latency (nano second)	700 or better
7.11	Maximum Frame Size	2112-byte payload
7.12	Class of service	Class F
7.13	Port Types	F/E/EX/M/VE
7.14	Form factor (U)	1U, Industry Standard Rack-Mount
7.15	AC Power Supply	Dual Redundant Hot Swappable AC Power Supply
7.16	Support for DC Power Supply	Yes
7.17	Airflow	Front-to-back airflow
7.18	Operating Temperature Range (Degree C)	0-40
7.19	Operating Humidity (RH%)	85
7.20	Maximum Power Consumption (Watt)	120 or less
7.21	BIS Registration Under CRS of Meity	Required
7.22	BIS Registration Number	Mandatory
7.23	On Site OEM Warranty (Year)	5

8. Storage System

Technical Specifications of Storage System		
8.1	Storage System Type	Unified Storage
8.2	**Group2**	
8.3	Storage Capacity (TB)	1000 terabyte
8.4	**Group3**	
8.5	Hardware Form Factor of Storage System (RU)	40 or less
8.6	**Disk**	
8.7	Disk Type	SSD,NL-SAS
8.8	Speed of dual ported disk drive in Gbps	6 or better
8.9	Total Numbers of Drive Slots	550
8.10	Number of Drive Slots Populated with drives of different type in the Storage System	204
8.11	Total no of drive slot populated with SSD	24
8.12	Total no of drive slot populated with NL-SAS	180
8.13	Drive Type Wise Storage Capacity of System in GB	1920GB (SSD),8000GB (NL-SAS)
8.14	Automated Storage tiering feature across the populated Drives types(in case of multiple drive system)	Yes
8.15	Automated Storage tiering Software License Included	Yes
8.16	Hot Spares	Yes
8.17	Number of Populated Disks per Hot Spare	20
8.18	Provision for additional Capacity	Yes
8.19	If Yes, Number of Drive Slots available to achieve additional capacity	346
8.20	Connectivity/Port	
8.21	**Type of Front end Ports**	8FC,8iSCSI,8xNAS
8.22	Number of Front end Ports	24
8.23	Speed of front end Ports in Gbps	16
8.24	Type of Back end Ports	12Gbps
8.25	Number of Back end Ports	8
8.26	Speed of Back end ports in Gbps	12
8.27	Number of Remote Replication Ports(FC/Ethernet)	4
8.28	**Controllers**	

8.29	Number of Controllers/VSD/ Node available in the storage System on common back plane without using external switch/device OR without common backplane using switches	4
8.30	RAID Level Support	1,5,6
8.31	Active-Active Controllers Configured in HA	Yes
8.32	**System Cache**	
8.33	Cache Availability Type	Global
8.34	Total Configurable Cache (GB)	128
8.35	**Group4**	
8.36	Wide Stripping or equivalent feature	Yes
8.37	**Group5**	
8.38	No of Snapshot Copies Per Volume	255
8.39	License for Snapshot included	Yes
8.40	**Data Replication**	
8.41	Remote Replication	Yes
8.42	Synchronized Replication Support	Yes
8.43	Asynchronous Replication Support	Yes
8.44	3-DC Zero Data Loss Support	Yes
8.45	If Yes, Supported Replication Topology for 3-DC Zero Data Loss	Controller Based
8.46	No Single point of Failure with Non-Disruptive replacement of Hardware	Yes
8.47	The Storage provide Non disruptive Firmware /Microcode upgrade	Yes
8.48	**Group7**	
8.49	Storage management software for configuration and multi-pathing(part of the supply).	YES
8.50	**Group8**	
8.51	Multi-pathing and load balancing and fail over software (part of supply) with license for windows/Linux servers or shall support native multipathing of OS.	YES
8.52	**Group 9**	
8.53	Protocols Supported by the storage system from day one	FC,iSCSI,NFS,CIFS
8.54	**Group 10**	
8.55	Operating System Platform and Clustering Supported by the Storage from day one	WINDOWS,HP-UX, LINUX
8.56	**Group11**	

8.57	Operating Temp Range	5° to 40° C
8.58	**Group12**	
8.59	Storage Temp Range	5° to 40° C
8.60	**Group13**	
8.61	Operating Humidity (Rh)	10% to 90%
8.62	**Group14**	
8.63	Storage Humidity (Rh)	10% to 90%
8.64	**Group15**	
8.65	BIS Registration under CRS of MeiTY	Required
8.66	If Yes, BIS Registration No under CRS of MeiTY otherwise indicate N/A	Mandatory
8.67	BIS Registration Certificate shall be furnished when demanded by the buyer	Required
8.68	**Group16**	
8.69	Storage System is compliant with IPv6	Yes
8.70	**Group17**	
8.71	Standby power consumption of System in Watt	5000 or less
8.72	**Group18**	
8.73	Scope of Supply	It includes installation, commissioning & integration together with all necessary software to make the system fully functional as intended.
8.74	**Group19**	
8.75	On Site OEM Warranty (Year)	5

9. Smart Rack

Technical Specifications of Smart Rack		
9.1	Type of rack	Smart Rack
9.2	Size of Rack Enclosure	42U
9.3	Mount Type	Free-Standing
9.4	If Seismic Racks, Earthquake zones	Zone 4
9.5	Front glass Door	Yes
9.6	Type of glass used in front door	Glass
9.7	Material used for rear door	CRCA STEEL
9.8	Rear split door design	Yes
9.9	Doors with Perforation	Rear
9.10	Dust or water resistant	Yes
9.11	Keyboard Tray Sliding and Rotary	Yes
9.12	Shelf For Display	Yes
9.13	Cable channel in rear side for cable management	Yes
9.14	Support cable entry from top or bottom	Yes
9.15	Vertical & Horizontal managers	Yes
9.16	Number of Rack trays	1
9.17	Number of cooling Fan For Heat dissipation	8
9.18	Load Bearing Capacity (Kgs)	1400 kilogram
9.19	Secure Locks	Available
9.20	Power of Cooling Unit (kW)	7(N+N)
9.21	Climate control	Available
9.22	Fire suppression	Piping ready
9.23	Hooter for fire	Yes
9.24	Auto emergency Door Open	Yes
9.25	Humidity Control	Yes
9.26	Biometric Access Front Door	Yes
9.27	Rear Door Biometric	Yes
9.28	Rodent Control	Yes
9.29	Completely Insulated Cabinet	Yes
9.30	Water Leak Detection	Yes
9.31	UPS Power Backup	Yes
9.32	If available,UPS rating (KVA)	10
9.33	If available,UPS Back up time (Mins)	Upto 30
9.34	PDU Power Strips	Available
9.35	If Available, number of power Strips	4
9.36	Dimensions (H x W x D) (mm)	1600 W ,2100 H,1200D
9.37	Weight (Kgs)	600 kilogram
9.38	On Site OEM Warranty (years)	5

10.Small Form Factor Pluggable Transceiver (8 Nos.)

Technical Specifications of Small form-factor pluggable transceiver		
10.1	Type of Transceiver	SFP+
10.2	SFP Mode	Single
10.3	Supported Protocols	IEEE 802.3ae
10.4	Compatibility with OEMs Products	HPE/Cisco
10.5	Wavelength(nm)	1310
10.6	Fibre Cable Type	Single-mode
10.7	Core Size (Micron)	125
10.8	Maximum Data Rate	10.31
10.9	Max.Cable Distance	10
10.10	Optical Component (nm)	1310
10.11	Digital Optical Monitoring (DOM) Support	Yes
10.12	Interface	SFP+10G LR SM
10.13	Tx Power (dBm)	-8.2
10.14	Receiver Sensitivity (dBm)	-14.4
10.15	Operating Temperature Range(Degree C)	0°C to 60°C
10.16	Operating Humidity (RH) (%)	93%
10.17	On Site OEM Warranty (Year)	5