

Amendment-3 to "RFP 17/2020-21 dated 16/09/2020 for Supply, Installation, Configuration, Implementation and Maintenance of Servers and Other Items in Canara Bank"

It is decided to amend the following in respect of the above RFP:

1	Page No.	Section/ Annexure/ Appendix of the RFP	Clause No.	Existing	Amended
a.	36 to 45	Annexure-7	Functional and Technical Specifications /Requirement s for Supply, Installation, Configuration, Implementati on and Maintenance of Servers and Other items in Canara Bank	Annexure-7 (Functional and Technical Specifications /Requirements for Supply, Installation, Configuration, Implementation and Maintenance of Servers and Other items in Canara Bank)	Amended Annexure-7 (Functional and Technical Specifications /Requirements for Supply, Installation, Configuration, Implementation and Maintenance of Servers and Other items in Canara Bank.) is attached as Annexure.
b.	49 to 51	Annexure-14	Bill of Material	Bill of Material	Amended Annexure-14 (Bill of Material) is attached as Annexure.

c. Amended Clause no. 6.1 of Section B on Page no. 10 (Requirement details)

6.1. Bank invites sealed offers ('Conformity to Eligibility Criteria', 'Technical Proposal' and 'Commercial Bid (Indicative)') for Supply, Installation, Configuration, Implementation and Maintenance of Servers and Other related items in Canara Bank for Data Center (DC) & Disaster Recovery Center (DRC) as per the Terms & Conditions, Technical Specifications and Scope of Work described elsewhere in this document. The brief description of Solution is furnished in following table:

SI. No.	Item Details	Quantity
a.	Servers as per Annexure-7(A), 7(B), 7(C) & 7 (D).	49 (26 in Bengaluru, 22 in Mumbai and 1 in Delhi)
b.	Microsoft Windows Server 2019 Standard Open License for 2 Core Pack	<u>552</u>
c.	Windows Server Remote Desktop Services User CAL	300
d.	Red hat Enterprise Linux with three year Standard Subscription	02

All the other Instructions and Terms & Conditions of the above RFP remain unchanged. Please take note of the above Amendments while submitting your response to the subject RFP.

Date: 20/10/2020 Place: Bengaluru Deputy General Manager





Amended Annexure-7

<u>Functional and Technical Specifications / Requirements for Supply, Installation, Configuration, Implementation and Maintenance of Servers and Other items in Canara Bank</u>

SUB: RFP for Supply, Installation, Configuration, Implementation and Maintenance of Servers and Other items in Canara Bank.

Ref: Your RFP 17/2020-21 dated 16/09/2020

Note:

- 1. The Bidder shall specifically mention the make and model of the items offered for all the requirements in terms of RFP without fail, failing which the Bid is liable for rejection.
- 2. If the Bidder feels that certain features offered are superior to what has been specified by the Bank, it shall be highlighted separately. Information regarding any modification required in the proposed configuration to meet the intent of the specifications and state-of-the-art technology shall be provided. However, the Bank reserves the right to accept the modifications / superior features suggested/offered.
- 3. The Bidder shall provide all other required equipment and services, whether or not explicitly mentioned in this RFP, to ensure the intent of specification, completeness, operability, maintainability and upgradability.
- 4. The selected bidder shall own the responsibility to demonstrate that the products offered are as per the specification/performance stipulated in this RFP and as committed by the bidder either at site or in bidder's work site without any extra cost to the Bank.

A. Technical specifications for Servers (5 Nos. at DC and 5 Nos. at DR):

SI. No.	Particulars	Detailed Configuration	Bidder's Compliance (Yes/No)
1.	Make	Bidder to specify	
2.	Model	Bidder to specify	
3.	Form Factor	2U Rack Mountable Server with Rail Kits & Screws. Bezel	
4.	Processor	 Socket: Minimum 2 Type: 2nd Generation Intel Xeon Scalable Processor Model: Intel® Xeon® Gold 6242 Processor Quantity: Minimum 2 Core: 16 Per Processor Unit Base Frequency: 2.80 GHz Turbo Frequency: 3.90 GHz Cache: Minimum 22 MB 	
5.	Platform Controller Hub	Intel C621 Chipset or latest/equivalent	
6.	Main Board	Suitable Intel Main Board or equivalent	
7.	Security	 TPM 2.0 (optional) Cryptographically signed firmware Hardware root of trust Secure Boot 	Lind Pr

	I		
		System Lockdown	
		System Erase	
		BitLocker Drive Encryption	
		AES New Instructions	
		Trusted Execution Technology	
		Module Type: DDR4 DIMM	
		Capacity: Minimum 32 GB	
		Quantity: Minimum 16	
8.	Memory	Speed: Minimum 2933 Mhz	
		Advanced ECC (Error Correcting Code) type or	
	,	similar technology	
		Registered ECC DIMMs	
		Interface: PCIe 3.0	
		Data Transfer Rate: 12Gbps per lane	
		Cache: 2GB or higher	
		• RAID 0, 1, 5, 10 or higher	
		Cooling: Heat sink with intelligent Fan	·
	·	Management: Browser based Tool, CLI (Command)	
	D-14	Line Interface- scriptable configuration tool) and	
9.	Raid	API Package	
	Controller	SMTP Email Alert Notification	
		Alarm Buzzer	
		Storage Health Inspector	
		Automatic and configurable RAID Rebuilding	
		Priority	
	,	Auto resume incomplete rebuilding after	
		Single-RAID or Multi-RAID Arrays per Controller	
		Data Center SSD for Enterprise	
		Interface: 12 Gb/s SAS Dual-port	
		Capacity: 1.6TB SSD or higher capacity	
-		No of Disks: 5	
		• Form Factor: 2.5"	
		Service: Hot swappable The service of the ser	
		Throughput Sequential Read/Write:	
		900MBps/900MBps or more	
10.	Disks	IOPS 4K Read/Write: 100K/60K or more for each	
		disk	
		Power Loss Protection Control of the Contr	
		Static & Dynamic Wear Levelling	
		Reliability tracking, usage statistics, Wear	
		Leveling, temperature, Life	
		Endurance - TBW: 6000 or more	
		Endurance - DWPD 5 Year: 3 or less	
		(Replacement warranty if endurance level is less	
		than 95%) during entire contract period.	
		Two Port of 1Gbase-T On-Board LOM with	
11.	Ethernet	supported minimum 10 meter Cat6 UTP Cable	·
- •		Two Port of 10GbE Base T LOM with Supported	
		minimum 30 Meter Cat6 UTP Cable	



<u> </u>	T	Dodicate One Port of 1Chara T management ment	1
		Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable	
12.	FC HBA PCI Slots	1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 4 No of 8x Gen3 PCIe slots per 2U compute module	
4.4	D	• 1 USB 3.0	
14.	Ports	• 1 VGA	
15.	Out of Band Management	 Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. 	
16.	OS & Hypervisor Certification	Windows Server 2019 Standard and its roles/features • 2019 Hyper V • Secure Boot • TPM 2.0 • BitLocker Drive Red hat Enterprise Linux 8	
17.	Power Supply	Server should be provided with Redundant hot swappable Power supplies. The Power supplies should be FCC class A certified and power cables to be IEC C13-14.	
18.	FAN	Server should have redundant fully populated Hot swap fans	
19.	Serviceability	Hot-swap/redundant fans, and PSUs; light path diagnostic LEDs	
20.	UEFI Firmware	UEFI 2.3.1c-based system and firmware that supports secure boot	
21.	Drivers & Accessories	Required drivers and accessories to be provided	
22.	Warranty and Support	03 Years, Comprehensive, On-Site Support Warranty including part replacement/repairs within 4 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for irrespective of read/writes on them. In case of Disk failure, the faulty disk will be maintained /destroyed by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)



B. Technical Specifications of Server (14 Nos. at DC and 10 Nos. at DRC):

SI. No.	Particulars	Detailed Configuration	Bidder's Compliance (Yes/No)
1.	Make	Bidder to specify	
2.	Model	Bidder to specify	
3.	Form Factor	2U Rack Mountable Server with Rail Kits & Screws. Bezel	
4.	Processor	 Socket: Minimum 2 Type: 2nd Generation Intel Xeon Scalable Processor Model: Intel® Xeon® Gold 6242 Processor Quantity: Minimum 1 with Upgrade option Core: 16 Per Processor Unit Base Frequency: 2.80 GHz Turbo Frequency: 3.90 GHz Cache: Minimum 22 MB 	
5.	Platform Controller Hub	Intel C621 Chipset or latest/equivalent	
6.	Main Board	Suitable Intel Main Board or equivalent	
7.	Security	 Cryptographically signed firmware Hardware root of trust Secure Boot System Lockdown System Erase BitLocker Drive Encryption AES New Instructions Trusted Execution Technology 	
8.	Memory	 Module Type: DDR4 DIMM Capacity: Minimum 32 GB Quantity: Minimum 4 Speed: Minimum 2933 Mhz Advanced ECC (Error Correcting Code) type or similar technology Registered ECC DIMMs 	
9.	Raid Controller	 Interface: PCIe 3.0 Data Transfer Rate: 12Gbps per lane Cache: 2GB or higher RAID 0, 1, 5, 10 or higher Cooling: Heat sink with intelligent Fan Management: Browser based Tool, CLI (Command Line Interface- scriptable configuration tool) and API Package SMTP Email Alert Notification Alarm Buzzer Storage Health Inspector Automatic and configurable RAID Rebuilding Priority 	TO AND AND



Single-RAID or Multi-RAID Arrays per Controller Data Center SSD for Enterprise Interface: 12 Gb/s SAS Dual-port Capacity: 960TB SSD or higher capacity No of Disks: 2 Form Factor: low profile Service: Hot swappable Throughput Sequential Read/Write: 900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - TBW: 6000 or more Endurance - TBW: 6000 or more Endurance - TBW: 6000 with supported minimum 10 meter Cat6 UTP Cable Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 1Gbase T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCle with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switchs & Storage (FC HBA & transceivers should Support 16GBps Switch) 1 Ports 1 Nos 6 Sa Gen3 PCle slots per 2U compute module 1 USB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UsB 3.0 1 UGB 3.0 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UsB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U compute module 1 UGB 3.0 1 UGB 4 No of 8x Gen3 PCle slots per 2U	ŗ	·		
Data Center SSD for Enterprise Interface: 12 Gb/s SAS Dual-port Capacity: 960TB SSD or higher capacity No of Disks: 2 Form Factor: low profile Service: Hot swappable Throughput Sequential Read/Write: 900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 1Gbase-T On-Board LOM with supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 2 Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management for hardware and software components, Power on/off, boot process, Management tog, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Widows Server 2019 Standard and its roles/features 2019 Hyper V Widows Server 2019 Standard and its roles/features 2019 Hyper V			Auto resume incomplete rebuilding after	
Interface: 12 Gb/s SAS Dual-port Capacity: 960TB SSD or higher capacity No of Disks: 2 Form Factor: low profile Service: Hot swappable Throughput Sequential Read/Write: 900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 1GGbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Two Port 32GB FC HBA PCIe with Supported SFP+transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots A No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 IUSB 3.0 Integrated BMC with IPMI 2.0 & Redfish Management Out of Band Management for hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V Windows Server 2019 Standard and its roles/features 2019 Hyper V			4	
Capacity: 960TB SSD or higher capacity No of Disks: 2 Form Factor: low profile Service: Hot swappable Throughput Sequential Read/Write: 900MBps/900MBps or more 10. Disks Disks Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 10Gbs Base T LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10Gbs Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 16Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 16Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 1 Nos of Band Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management of hardware and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V Windows Server 2019 Standard and its roles/features 2019 Hyper V			·	
No of Disks: 2 Form Factor: low profile Service: Hot swappable Throughput Sequential Read/Write: 900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 10Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 11. Ethernet 11. Ethernet 12. FC HBA 13. PCI Slots 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA 1 Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V			·	
Form Factor: low profile Service: Hot swappable Throughput Sequential Read/Write: 900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 30 Meter Cat6 UTP Cable Two Port of 1Gbase-T On-Board LOM with supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 10. PCI Slots 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 UGA Integrated BMC with IPMI 2.0 & Redfish Management On the Band Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V			 Capacity: 960TB SSD or higher capacity 	
Service: Hot swappable Throughput Sequential Read/Write: 900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 1Gbase-T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC Cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 USB			No of Disks: 2	
Throughput Sequential Read/Write: 900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 30 Meter Cat6 UTP Cable Two Port of 1Gbase-T On-Board LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 UGA I UGA I INGERIAL PORTS Anangement of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V			Form Factor: low profile	
900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 1GbGE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 UGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V			Service: Hot swappable	
900MBps/900MBps or more IOPS 4K Read/Write: 100K/60K or more for each disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 1GbGE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 UGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V			Throughput Sequential Read/Write:	
10. Disks IOPS 4K Read/Write: 100K/60K or more for each disk				
disk Power Loss Protection Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 16Base-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 16Base-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 UGA Integrated BMC with IPMI 2.0 & Redfish Management Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V	10	Dicks	· '	
Static & Dynamic Wear Levelling Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Nos of Dual Port 32GB FC HBA PCle with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) Ports 10 Vos 8 K Gen3 PCle slots per 2U compute module 11 USB 3.0 Integrated BMC with IPMI 2.0 & Redfish Management Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V	10.	DISKS	disk .	
Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCle with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) Ports 1 USB 3.0 1 USB 3.0 1 USG Integrated BMC with IPMI 2.0 & Redfish Management Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V			Power Loss Protection	
Reliability tracking, usage statistics, Wear Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCle with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) Ports 1 USB 3.0 1 USB 3.0 1 USG Integrated BMC with IPMI 2.0 & Redfish Management Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V			Static & Dynamic Wear Levelling	
Leveling, temperature, Life Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 UGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V				
Endurance - TBW: 6000 or more Endurance - DWPD 5 Year: 3 or less (Replacement warranty if endurance level is less than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V				
(Replacement warranty if endurance level is less than 95%) during entire contract period. 1 Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable 1 Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V			· · · · · · · · · · · · · · · · · · ·	
than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V			Endurance - DWPD 5 Year: 3 or less	
than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V			(Replacement warranty if endurance level is less	
Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V				
supported minimum 10 meter Cat6 UTP Cable Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 UGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V				
Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) Ports 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features Very Cable 10 Neet Cat6 UTP Cable Neet Cable Neet Cat6 UTP Cable Neet Cable Neet Cat6 UTP Cable Neet Cat6 UTP Cable Neet Cable				
minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V			· ·	
chassis card with minimum 10 meter Cat6 UTP Cable 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V	11.	Ethernet	minimum 30 Meter Cat6 UTP Cable	
12. FC HBA 1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V			Dedicate One Port of 1Gbase-T management port	
1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots			chassis card with minimum 10 meter Cat6 UTP	
transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots			Cable	
transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots				
cable or higher for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots				l
Switches & Storage (FC HBA & transceivers should Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 14. Ports 15. Out of Band Management Managemen	12.	FC HBA		-
Support 16GBps Switch) 13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 14. Ports 15. Out of Band Management Management		1 0 1.2,1	1	I
13. PCI Slots 4 No of 8x Gen3 PCIe slots per 2U compute module 1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V			1 ,	I
1 USB 3.0 1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V	43	50.0		
1 VGA Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 2019 Hyper V	13.	PCI Slots	the same of the sa	
Integrated BMC with IPMI 2.0 & Redfish Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 16. Hypervisor Windows Server 2019 Standard and its roles/features	14.	Ports		
Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features Volume 15. Windows Server 2019 Standard and its roles/features 2019 Hyper V			the state of the s	A
Components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features Vindows Server V				
Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 4 2019 Hyper V				
Should able to integrate with industry wide KVM solution. Management Software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 4 2019 Hyper V				
solution. Management Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS Windows Server 2019 Standard and its roles/features 4 2019 Hyper V			,	
Management Management Management solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features Management solution. Management solution. Management solution. Management solution. Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security through LDAP or Local and able to provide Policy Security Securi	15.		,	
Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features • 2019 Hyper V	•	Management		
provide pre-failure alarms for CPU, Memory & HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features • 2019 Hyper V			•	
HDD by SMTP. OS & Windows Server 2019 Standard and its roles/features 16. Hypervisor • 2019 Hyper V			1	
OS & Windows Server 2019 Standard and its roles/features 16. Hypervisor • 2019 Hyper V			1	
16. Hypervisor • 2019 Hyper V				
				/4
Certification • Secure Boot	16.); DI.Y.
		Certification	Secure Boot	<u>*</u> _



		• TPM 2.0	
		BitLocker Drive	
		Red hat Enterprise Linux 8	
17.	Power Supply	Server should be provided with Redundant hot swappable Power supplies. The Power supplies should be FCC class A certified and power cables to be IEC C13-14.	
18.	FAN	Server should have redundant fully populated Hot swap fans	
19.	Serviceability	Hot-swap/redundant fans, and PSUs; light path diagnostic LEDs	
20.	UEFI Firmware	UEFI 2.3.1c-based system and firmware that supports secure boot	
21.	Drivers & Accessories	Required drivers and accessories to be provided	
22.	Warranty and Support	03 Years, Comprehensive, On-Site Support Warranty including part replacement/repairs within 4 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for irrespective of read/writes on them. In case of Disk failure, the faulty disk will be maintained /destroyed by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS	

C. <u>Technical Specifications of Server (5 Nos. at DC and 5 Nos. at DRC):</u>

SI. No.	Particulars	Detailed Configuration	Bidder's Compliance (Yes/No)
1.	Make	Bidder to specify	
2.	Model	Bidder to specify	
3.	Form Factor	2U Rack Mountable Server with Rail Kits & Screws. Bezel	
4.	Processor	 Socket: Minimum 2 Type: 2nd Generation Intel Xeon Scalable Processor Model: Intel® Xeon® Gold 6242 Processor Quantity: Minimum 2 Core: 16 Per Processor Unit Base Frequency: 2.80 GHz Turbo Frequency: 3.90 GHz Cache: Minimum 22 MB 	
5.	Platform Controller Hub	Intel C621 Chipset or latest/equivalent	
6.	Main Board	Suitable Intel Main Board or equivalent	P
7.	Security	 TPM 2.0 (optional) Cryptographically signed firmware Hardware root of trust 	L'E CANA



Γ	T	T	
		Secure Boot Support Local design	
		System Lockdown System France	
		System Erase	
		BitLocker Drive Encryption	
		AES New Instructions	
		Trusted Execution Technology	
		First Module Type: DDR4 DIMM	
		Capacity: 32 GB	
		• Quantity: 12	
		• Speed: 2666 MHz	
		Second Module Type: DCPMM/PMEMs	•
8.	Memory	Capacity: 128 GB	
0.	Melliory	• Quantity: 12	
		Speed: 2666 MHz	
		DCPMM Modes: Memory/App Direct/Mixed Memory	
		Advanced ECC (Error Correcting Code) type or	
		similar technology	
		Registered ECC DIMMs	
		Interface: PCIe 3.0	
		Data Transfer Rate: 12Gbps per lane	
		Cache: 2GB or higher	
		RAID 0, 1, 5, 10 or higher Coolings Hoot sink with intelligent For	
		Cooling: Heat sink with intelligent Fan	
		Management: Browser based Tool, CLI ((Command Line Interface corrintable configuration to allowed)	
	Raid	Line Interface- scriptable configuration tool)and	
9.	Controller	API PackageSMTP Email Alert Notification	
	Controller		
		Storage Health Inspector NYAMA CAMART ANALYSIS	
		NVMe SMART status	
		 Automatic and configurable RAID Rebuilding Priority 	
		Auto resume incomplete rebuilding after	
		Single-RAID or Multi-RAID Arrays per Controller	
		Data Center SSD 3D TLC for Enterprise	
		Interface: 12 Gb/s SAS Dual-port	
		Capacity: 3TB SSD or higher capacity	
		No of Disks: 8	
		• Form Factor: 2.5"	
		j	
		Throughput Sequential Read/Write: 3GBs/2.5GBs Throughput Sequential Read/Write: 3GBs/2.5GBs	
10.	Disks	or more	
		 IOPS 4K Read/Write: 100K/60K or more for each disk 	
		Power Loss Protection	
		Static & Dynamic Wear Levelling	
		Reliability tracking, usage statistics, Wear	
		Leveling, temperature, Life	ing.
		Endurance - TBW: 3PB or more	
		Endurance - DWPD 5 Year: 1	CANA
			10



	·	(Replacement warranty if endurance level is less	
		 than 95%) during entire contract period. Two Port of 1Gbase-T On-Board LOM with supported minimum 10 meter Cat6 UTP Cable 	
11.	Ethernet	 Two Port of 10GbE Base T LOM with Supported minimum 30 Meter Cat6 UTP Cable Dedicate One Port of 1Gbase-T management port 	
		chassis card with minimum 10 meter Cat6 UTP Cable	
12.	FC HBA	1 Nos of Dual Port 32GB FC HBA PCIe with Supported SFP+ transceivers and 2 Nos of minimum 30 Meter OM3 FC cable or higer for SAN Connectivity to existing SAN Switches & Storage (FC HBA & transceivers should Support 16GBps Switch)	
13.	PCI Slots	4 No of 8x Gen3 PCIe slots per 2U compute module	
14.	Ports	1 USB 3.01 VGA	
15.	Out of Band Management	 Integrated BMC with IPMI 2.0 & Redfish Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM solution. Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. 	
16.	OS & Hypervisor Certification	Windows Server 2019 Standard and its roles/features • 2019 Hyper V • Secure Boot • TPM 2.0 • BitLocker Drive • Remote Server Administration Tools (RSAT) • Remote Desktop Services Red hat Enterprise Linux 8	
17.	Power Supply	Server should be provided with Redundant hot swappable Power supplie. The Power supplies should be FCC class A certified and power cables to be IEC C13-14.	
18.	FAN	Server should have redundant fully populated Hot swap fans	
19.	Serviceability	Hot-swap/redundant fans, and PSUs; light path diagnostic LEDs	
20.	UEFI Firmware	UEFI 2.3.1c-based system and firmware that supports secure boot	
21.	Drivers & Accessories	Required drivers and accessories to be provided	
22.	Warranty and Support	03 Years, Comprehensive, On-Site Support Warranty including part replacement/repairs within 4 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7	CANAR



x 365 days. SSD drives should be covered for irrespective	
of read/writes on them. In case of Disk failure, the faulty	·
disk will be maintained /destroyed by Canara Bank.	
Proactive storage monitoring & support from OEM should	
be enabled. The proposed bidder will need to ensure	
support of product & change of components @ zero cost	
in case of any part becoming obsolete/EOL & EOS	

D. <u>Technical Specifications of Server (2 Nos. at Bengaluru, 2 Nos. at Mumbai and 1 at Delhi):</u>

SI. No.	Particulars	articulars Detailed Configuration						
1.	Make	Bidder to specify	(Yes/No)					
2.	Model	Bidder to specify						
3.	Form Factor	2U Rack Mountable Server with Rail Kits & Screws. Bezel						
4.	Processor	 Socket: Minimum 2 Type: 2nd Generation Intel Xeon Scalable Processor Model: Intel® Xeon® Gold 6242 Processor Quantity: Minimum 1 with Upgrade option Core: 16 Per Processor Unit Base Frequency: 2.80 GHz Turbo Frequency: 3.90 GHz Cache: Minimum 22 MB 						
5.	Platform Controller Hub	Intel C621 Chipset or latest/equivalent						
6.	Main Board	Suitable Intel Main Board or equivalent						
7.	Security	 TPM 2.0 (optional) Cryptographically signed firmware Hardware root of trust Secure Boot System Lockdown System Erase BitLocker Drive Encryption AES New Instructions Trusted Execution Technology 						
8.	Memory	 Module Type: DDR4 DIMM Capacity: Minimum 32 GB Quantity: Minimum 8 Speed: Minimum 2933 Mhz Advanced ECC (Error Correcting Code) type or similar technology Registered ECC DIMMs 						
9.	Raid Controller	 Interface: PCIe 3.0 Data Transfer Rate: 12Gbps per lane Cache: 2GB or higher RAID 0, 1, 5, 10 or higher Cooling: Heat sink with intelligent Fan Management: Browser based Tool, CLI (Command 	(170 × 115)					



Lift Prince Prin



16.	OS & Hypervisor Certification	 Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP. Windows Server 2019 Standard and its roles/features 2019 Hyper V Secure Boot TPM 2.0 BitLocker Drive 					
		Red hat Enterprise Linux 8					
17.	Power Supply	Server should be provided with Redundant hot swappable Power supplies. The Power supplies should be FCC class A certified and power cables to be IEC C13-14.					
18.	FAN	Server should have redundant fully populated Hot swap fans	·				
19.	Serviceability	Hot-swap/redundant fans, and PSUs; light path diagnostic LEDs					
20.	UEFI Firmware	UEFI 2.3.1c-based system and firmware that supports secure boot					
21.	Drivers & Accessories	Required drivers and accessories to be provided					
22.	Warranty and Support	03 Years, Comprehensive, On-Site Support Warranty including part replacement/repairs within 4 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for irrespective of read/writes on them. In case of Disk failure, the faulty disk will be maintained /destroyed by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS					

E. <u>Technical Specifications of Software:</u>

SI. No.	Software/Operating System	Quantity	Bidder's Compliance (Yes/No)
1.	Microsoft Windows Server 2019 Standard Open License for 2 Core Pack	552	
2.	Windows Server Remote Desktop Services User CAL	300	
3.	Red hat Enterprise Linux with three year Standard Subscription	2	

Note: Bidders must fully comply with all requirements. Non-Compliance to any one of the requirements leads to disqualification of the Bidder in Part B - Technical Proposal.

Date:

Signature with seal

Name

Designation





Amended Annexure- 14

Bill of Material

SUB: RFP for Supply, Installation, Configuration, Implementation and Maintenance of Servers and Other items in Canara Bank.

Ref: Your RFP 17/2020-21 dated 16/09/2020

Notes

- 1. These details should be on the letter head of Bidder and each & every page should be signed by an Authorized Signatory with Name and Seal of the Company.
- 2. Please be guided by RFP terms, subsequent amendments and replies to pre-bid queries (if any) while quoting.
- 3. Do not change the structure of the format nor add any extra items.
- 4. No counter condition/assumption in response to commercial bid will be accepted. Bank has a right to reject such bid.

<u>Table -A</u> <u>Price details of Servers and Other items in Canara Bank</u>

AMC/ATS Charge Fotal Price with Three Years Comprehensive Unit Price with Three Years Comprehensive **Total Price with Three Years Comprehensive** Unit Price with Three years Comprehensive after completion of Onsite Warranty and Three Years AMC/ATS Onsite Warranty and Three Years AMC/ATS Onsite Warranty and Three Years AMC/ATS Tax for Column warranty period of 3 G vears onsite warranty and support (Excl. of tax) after Warranty period after Warranty period after Warranty period Requirement Details Excl. of tax) Excl. of tax) Excl. of Tax) Qty SI. No. 6th 4th 5th Tax Tax % Amt. vear vear vear F G=ExF J=G+I $\overline{\mathsf{c}}$ E=A+B+C+D Н В D Α Servers as per 10 1. Annexure-7(A) Servers per 24 2. Annexure-7(B) Servers per as 10 3. Annexure-7(C) Servers as 5 4. Annexure-7(D) Total Cost (total of column J of row 1, 2, 3 & 4) 5.



[Amount in Indian Rupees]



<u>Table-B</u> Price details of Operating Systems Software

[Amount in Indian Rupees]

			· · · · · · · · · · · · · · · · · · ·				an Napees
SI. No.	Item Details	Unit Price (Excl. of Tax)	Qty	Total Cost Excl. of tax)	Tax for Column C		Total Cost (Incl. of tax)
		A	В	C=(AxB)	D % of tax	E Tax Amt.	F=C+E
1.	Microsoft Windows Server 2019 Standard Open License for 2 Core Pack		552				
2.	Windows Server Remote Desktop Services User CAL		300				
3.	Red hat Enterprise Linux with three year Standard Subscription		2				
4.	Total Cost (total of column F of row 1, 2	& 3)					

<u>Table - C</u> <u>Price details of Server Upgrade Components and Other items</u>

[Amount in Indian Rupees]

		prehensive	prehensive oort		prehensive		prehensive oort		ATS Cha ompleti ty perio years cl. of ta	on of d of 3	prehensive s AMC/ATS		prehensive s AMC/ATS	Tax for G		prehensive s AMC/ATS
SI. No.	Requirement Details	Unit Price with Three years Comprehensive onsite warranty and support (Excl. of Tax)	4 th year	5 th year	, 6 th year	Unit Price with Three Years Comprehensive Onsite Warranty and Three Years AMC/ATS after Warranty period (Excl. of tax)	Qty	Total Price with Three Years Comprehensive Onsite Warranty and Three Years AMC/ATS after Warranty period (Excl. of tax)	Tax %	Tax Amt.	Total Price with Three Years Comprehensive Onsite Warranty and Three Years AMC/ATS after Warranty period (Incl. of tax)					
		Α	В	С	D	E=A+B+C+D	F	G=ExF	Н	1	J=G+I					
1.	Upgrade of 16 Core Processor in Servers as per Annexure-7(B)						24									
	Upgrade of 16 Core Processor in Servers as per Annexure-7(D)						5									
3.	Upgrade of 128 GB Memory with Same Rank & DIMM Size in Servers as per Annexure-7(A)						10									
4.	Upgrade of 128 GB Memory with Same Rank & DIMM Size in Servers as per						24									





	Annexure-7(B)										
5.	Upgrade of 128 GB Memory with Same Rank & DIMM Size in Servers as per Annexure-7(D)						5				
6.	Upgrade of 1.6 TB SSD with similar or higher endurance & performance in Servers as per Annexure-7(A)						10				
7.	Upgrade of 960 GB SSD with similar or higher endurance & performance in Servers as per Annexure-7(B)				·		48				
8.	Upgrade of 1.6 TB SSD with similar or higher endurance & performance in Servers as per Annexure-7(D)						10				
9.	. Total Cost (total of column J of row 1, 2, 3, 4, 5, 6, 7 & 8)										

Charges mentioned in above Table-C should be valid till 6 years from the date of Reverse Auction.

<u>Table-C</u> <u>Total Cost for 6 Years Contract Period</u>

[Amount in Indian Rupees]

SI. No.	Details	Total Cost of Ownership [inclusive of tax]
Α	Total Price details of Servers & Other Items as per Table-A [Total of Column J]	
В	Total Price details of Operating Systems Software per Table-B [Total of Column F]	
С	Total Price details of Server Upgrade Components and Other items [Total of Column J]	
D	Total Cost of Ownership [Sum of A, B & C]	

Undertaking

- i. Bill of material is submitted on the letter head and is signed by an Authorized Signatory with Name and Seal of the Company.
- ii. We confirm that we have gone through RFP clauses, subsequent amendments and replies to pre-bid queries (if any) and abide by the same.
- iii. We have not changed the structure of the format nor added any extra items. We note that any such alternation will lead to rejection of Bid.



- iv. We agree that no counter condition/assumption in response to commercial bid will be accepted by the Bank. Bank has a right to reject such bid.
- v. We are agreeable to the payment schedule as per "Payment Terms" of the RFP.

Date:

Signature with seal

Name

Designation

