REF: NIT – PR – 221849 02.01.2023

Due date for submission of Tender: **23.01.2023** Date of Opening of Technical Bid: **24.01.2023**

The Raman Research Institute invites sealed Tenders for supply of **Supply, Installation, Testing** and **Commissioning of Server Virtualization and Storage Infrastructure** directly from the manufacturers or their authorized agents adhering to the terms and conditions given below:

Description / Specification:

1. VM Node Server - 4nos.

Component	Description / Specification		
Form Factor	1U rack-mount chassis with tool-less rack mount kit		
Processor	Dual 3 rd Generation Intel Xeon Gold or AMD EPYC processor with minimum 24 cores, 48 threads, base frequency of 2.10GHz, 36MB Cache or better		
Memory slots	32 DDR4 DIMM slots RDIMMS supporting speeds minimum of 2933MT/s		
Memory configured	256GB DDR4 RDIMM, 2933MT/s, Dual Rank in Balanced Mode or better		
Disks supported	Front drive bays: Atleast to 8 x 2.5" SAS/SATA		
RAID Controller	12Gbps PCIe with RAID 1, 5, 6, 10, 50 with 8GB Cache		
Disks configured	2 x 960GB SSD Hot-Plug drive		
I/O slots	3 x PCIe Gen4 slot		
Ethernet ports & FC Ports	2 x 1GbE ports, 2 x Dual-Port 10/25GbE ports with 4 x 10/25GbE transceivers		
ТРМ	TPM 2.0		
Certification and compliances	Microsoft Windows Server, Hyper-V, VMWare, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES)		



Power Supply	Platinum rated redundant Power Supply	
Management integration Support for integration with Microsoft System Center, VMware vCe BMC		
Power & temperature Real-time power meter, graphing, thresholds, alerts & capping with historical power counters. Temperature monitoring & graphing		
Pre-failure alert	Should provide predictive failure monitoring & proactive alerts of actual or impending component failure for fan, power supply, memory, CPU, RAID, NIC, HDD	
Configuration & management	 Real-time out-of-band hardware performance monitoring & alerting Agent-free monitoring, driver updates & configuration, power monitoring & capping, RAID management, external storage management, monitoring of FC, HBA & CNA & system health Out-of-band hardware & firmware inventory Zero-touch auto configuration to auto deploy a baseline server configuration profile Automated hardware configuration and Operating System deployment to multiple servers Zero-touch repository manager and self-updating firmware system 	
HTML5 support	HTML5 support for virtual console & virtual media without using Java or ActiveX plugins	
Intrusion alert	Intrusion alert in case chassis cover being opened	
Spec Benchmark	System should have Spec CPU 2017 benchmark published in Spec.org at the time of Bidding. Bidder has to be provide Spec benchmark link published for the proposed system model and CPU. SPEC int_rate_base 2017; SPEC fp_rate_2017 base; SPEC fp_speed_2017 base details to be provided by bidder.	
Warranty 5 years On-site comprehensive OEM warranty with 24x7x365 re hardware support.		



2. Storage Server (Primary) - 1nos.

Operating System & Clustering Support	1. The storage array should support industry-leading Operating System platforms including: Windows 2022, 2019 and 2016, RHEL 8.2 and 7.8 SLES 15.2 and 12.5, VMware 7.0 and 6.7, Citrix XenServer 8.x and 7.x 2. Offered Storage Shall support all above operating systems in Clustering.	
Capacity & Scalability	The Storage Array shall be offered with 600TB Usable Capacity after RAID 5/6. It should have a minimum usable capacity of 55TB using (8+1) SSD drives and remaining usable capacity of 550TB using (10+2) NL-SAS drives in a single enclosure. Global Hot-spare to be included for each type of drives.	
Front-end Ports & Back-end Ports	 Offered Storage system shall be supplied with 8 x 10/25G iSCSI ports at Front End Offered storage system shall have 2 x 12G SAS ports for Backend connectivity. 	
Architecture	The storage array should support dual, redundant, hot-pluggable, active-active array controllers for high performance and reliability	
Storage Scalability	The storage should be scalable to atleast 300 drives or higher using additional enclosures	
No Single point of Failure	Offered Storage Array shall be configurable in a No Single Point of failure configuration including Cache memory, FAN, Power supply etc.	
Storage system shall support Enterprise SAS spinning a SSD and Near Line SAS / 7.2K RPM drives Disk Drive Support 2. Offered storage array shall also have support for self-ends SSD, SAS and near line SAS / 7.2K RPM		



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	Offered Storage Array shall be given with Minimum of 16GB cache per controller in a single unit 32GB Cache across Array
Cache	2. Cache shall be backed up in case of power failure for indefinite time either using batteries or capacitors or any other equivalent technology.
	3. Offered Storage shall also have optional support for Flash cache using SSD / Flash drives.
	1. Offered Storage Subsystem shall support Raid 1, 5, 6, 10, & Adapt
Raid Support	2. All Raid Sets shall support thin provisioning. Vendor shall offer the license of thin provisioning for complete supported capacity of the array.
Point in time and clone copy	Offered Storage array shall support at-least 512 point in time copies (Snapshots)
Replication	Offered storage subsystem should support storage based replication; Asynchronous replication via iSCSI; from day 1
Thin provisioning	Offered Storage shall be offered and configured with Thin Provisioning capability
Data Tiering	Offered Storage should support Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc.
Global and dedicated Hot Spare	 Offered Storage Array shall support Global hot Spare for offered Disk drives. Atleast 2 Global hot-spare drive should be configured for every 30 drives. Offered storage array shall have the support for distributed hot spare
Logical Volume &	1. Storage Subsystem shall support minimum of 1000 Logical Units.



Performance	Storage Array shall also support creation of more than 100TB volume at controller level.	
	Offered Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.	
	Storage should support Virtualization integration with:	
Virtualization Integration	VMware vSphere (ESXi) vCenter; SRM Microsoft Hyper-V	
Drive Support	Storage should support following drives: • NL-SAS (7.2K 3.5"): 4TB, 8TB,12TB, 16TB, 18TB, 20TB • SAS (10K 2.5"): 1.2TB, 2.4TB, 2.4TB SED • SSD: 960GB, 1.6TB, 1.92TB, 3.84TB, 7.68TB	
Large Pool support	Storage system should support pool capacity of minimum 4000 TB Raw capacity using NL-SAS Disks	
Licenses All requested features license should be supplied from day complete supported capacity		
Deployment	Onsite Deployment	
Warranty 5 Yrs. Comprehensive Next Business Day OEM Onsite Sup 24x7x365 remote hardware support.		



3. Storage Server (Secondary/DR) - 1nos.

Operating System & Clustering Support	 The storage array should support industry-leading Operating System platforms including: Windows 2022, 2019 and 2016, RHEL 8.2 and 7.8 SLES 15.2 and 12.5, VMware 7.0 and 6.7, Citrix XenServer 8.x and 7.x Offered Storage Shall support all above operating systems in 	
	Clustering.	
Capacity & Scalability The Storage Array shall be offered with 600TB Usable Ca after RAID 6. It should have a minimum of 600TB using (1 NL-SAS drives in a single enclosure. Global hot spare to be included.		
Front-end Ports & Back-end Ports	 Offered Storage system shall be supplied with 8 x 10/25G iSCSI ports at Front End Offered storage system shall have 2 x 12G SAS ports for Backend connectivity. 	
Architecture	The storage array should support dual, redundant, hot-pluggable, active-active array controllers for high performance and reliability	
Storage Scalability	The storage should be scalable to atleast 300 drives or higher using additional enclosures	
No Single point of Failure Offered Storage Array shall be configurable in a No Single failure configuration including Cache memory, FAN, Power etc.		
Disk Drive Support	Storage system shall support Enterprise SAS spinning drives, SSD and Near Line SAS / 7.2K RPM drives Offered storage array shall also have support for self-encrypted SSD, SAS and near line SAS / 7.2K RPM	



	Offered Storage Array shall be given with Minimum of 16GB cache per controller in a single unit 32GB Cache across Array	
Cache	2. Cache shall be backed up in case of power failure for indefinite time either using batteries or capacitors or any other equivalent technology.	
	3. Offered Storage shall also have optional support for Flash cache using SSD / Flash drives.	
	1. Offered Storage Subsystem shall support Raid 1, 5, 6, 10, & Adapt	
Raid Support	2. All Raid Sets shall support thin provisioning. Vendor shall offer the license of thin provisioning for complete supported capacity of the array.	
Point in time and clone copy	one Offered Storage array shall support atleast 512 point in time copies (Snapshots)	
Replication	Offered storage subsystem shall support storage-based replication; Asynchronous replication via iSCSI; from day 1	
Thin provisioning	Offered Storage shall be offered and configured with Thin Provisioning capability	
Data Tiering	Offered Storage should support Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc.	
Global and dedicated Hot Spare	 Offered Storage Array shall support Global hot Spare for offered Disk drives. Atleast 2 Global hot spare drive should be configured for every 30 drives. Offered storage array shall have the support for distributed hot spare 	
Logical Volume & 1. Storage Subsystem shall support minimum of 1000 Logic		



Performance	Storage Array shall also support creation of more than 100TB volume at controller level.	
	Offered Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.	
	Storage should support Virtualization integration with:	
Virtualization Integration	VMware vSphere (ESXi) vCenter; SRM Microsoft Hyper-V	
Drive Support	Storage should support following drives: • NL-SAS (7.2K 3.5"): 4TB, 8TB,12TB, 16TB, 18TB, 20TB • SAS (10K 2.5"): 1.2TB, 2.4TB, 2.4TB SED • SSD: 960GB, 1.6TB, 1.92TB, 3.84TB, 7.68TB	
Large Pool support	Storage system should support pool capacity of minimum 4000 TB Raw capacity using NL-SAS Disks	
Licenses	All requested features license should be supplied from day 1 for complete supported capacity	
Deployment	Onsite Deployment	
Warranty 5 Yrs. Comprehensive Next Business Day OEM Onsite Support. 24x7x365 remote hardware support.		



4. Network Switch - 2nos.

General Features	 High Density Wire-speed Layer3 Switch 19" rack mountable - 1RU Should have high-availability feature for active-active & active-passive operation from day-1
 Wire rate 24 x 10/25GbE SFP+ ports and 4 x 100GbE QSFP points. As per solution requirement the switch should support 1G, 100 40G & 100G transceivers from day-1. Bidder should provide 16nos. of 25GbE Transceivers & 8 nos. 10GbE Transceiver with 5 meters' cables in each switch. 1 RJ45 console port, 1 RJ45 management port. HA cables to be included as part of solution. 	
Minimum Switch Fabric Capacity: 2Tbps full – duplex or better Latency of 890ns or better.	
Architecture	 Should have redundant hot-swap power supplies & fans 32MB packet buffer memory, 8GB RAM Modular operating system, OpenFlow 1.3 CLI commit, Uplink Failure Detection, BFD, Zero Touch Deployment. Should support Leaf/Spine fabric architecture using BGP EVPN, VXLAN.
 VRRP, active-active, active-passive operation High Availability Software upgrades with minimal traffic disruption during the upgr LAG load balancing based on L2, IPv4 or IPv6 headers 	
 128 LAG groups with 16 members per LAG Minimum 32K MAC addresses Port, subnet based 802.1Q VLANs. The switch should support VLANs The switch should support IEEE 802.1w RSTP and IEEE 802 MSTP 	



Routing Protocols	 RIP v1/v2, BGPv4, OSPF v1/v2/v3, VXLAN routing from Day 1 IPv6 routing & VRF-Lite feature from day-1 	
Security Features	 ACLs - port based/VLAN based. Integrated security features like DHCP relay, Control Plane DoS protection 	
Traffic Policing	 Ingress/Egress shaping and policies Filter, mark and limit traffic flows Minimum 8 hardware queues per port Policy based traffic classification based on MAC Address, Port, DSCP, IP Address, VLAN 	
Multicast	 H/W based Ipv4 and Ipv6 Multicasting IGMP v1, v2, v3, IGMP Snooping Protocol Independent Multicast – Sparse Mode and PIM – SSM 	
Network Management	IPv6 Management support telnet, FTP, TACACS, RADIUS, SSH, NT	
IEEE Standards	 802.3ae, 802.3ba, 802.3bj, 802.3x, 802.3z IEEE 802.3ad LACP, 802.3ab LLDP IEEE 802.1p CoS Prioritization 802.1Qbb, 802.1Qaz 	
Certifications RoHS, IPv6 ready, FCC CFR 47 Part 15, EN 61000-4-5		
Connectivity	The switch & transceivers should be from the same OEM	
Warranty	5 years On-site comprehensive OEM warranty with 24x7x365 remote hardware support.	



Other mandatory technical requirements and conditions:

- 1. VM Node servers, primary and secondary Storage servers should be from the same OEM.
- 2. All required accessories and licenses, including the ones mentioned in the above description, to complete the installation should be accounted for and included in the bid.
- 3. Make, model number, configuration of the quoted products should be listed in the technical bid.
- 4. Datasheet of all the quoted products should be included in the technical bid.
- 5. Detailed BOM/BOQ and Compliance statement for all the products should be included in the technical bid.
- 6. Upon supply, a document made on the letter head of the OEM stating that the OEM shall undertake to provide five year back-to-back comprehensive, on-site warranty, support, software updates and firmware updates, access to the support portal for all the products, with serial number of each component, sold through the bidder.
- 7. The supplied products should be installed, configured, tested and commissioned in the RRI Data Center as per the requirement of RRI.

Eligibility Criteria:

- 1. The bidder should have experience in the IT Infrastructure services in India for a minimum period of 5 years. A proof should be attached.
- 2. A letter stating that the vendor is an authorized channel partner, reseller of the principal should be attached.
- 3. Manufacturer's Authorisation Form (MAF) for the quoted products should be included in the bid.
- 4. Details with contact information and telephone numbers for service support of the products should be provided. Escalation matrix with contact information and telephone numbers should also be provided.
- 5. The bidder must not be blacklisted by Central Government, State Government or any Organization in India. A certificate or undertaking to this effect must be submitted.
- I) As per the Government of India, Ministry of Commerce and Industry and Department for Promotion of Industry and Internal Trade (Public Procurement Section) Order No. P-45021/2/2017-PP (BE-II) dated 04 June 2020
 - a) The Bidder shall produce a certificate whether he/she belong to "Class I' and 'Class
 II supplier' and Non Local suppliers.
 - b) Class I' and 'Class II supplier' and Non Local suppliers as classified under above mentioned Order are eligible to submit the offer. While finalising the quotation, the instructions given in the above order shall prevail.



II) As per the Government of India, Ministry of Finance and Department of Expenditure, Public Procurement Division – Office Memorandum No. F.No.6/18/2019-PPD dated 23.07.2020, the Institute reserves the right by order in writing, impose restrictions, including prior registration and/or screening, on procurement from bidders from a country or countries, or a class of countries, on grounds of defence of India, or matters directly or indirectly related thereto including national security; no procurement shall be made in violation of such restrictions.

EVALUATION OF BIDS:

- The bids conforming to the eligibility criteria will be considered for further evaluation.
- The bids will be shortlisted on the basis of technical parameters, features, standards compliance of all materials and equipments used, etc.
- For Technical evaluation, bidders have to ensure the availability of appropriate expert, along with every type of documentation from their organization for interacting with the Institute

OTHER TERMS AND CONDITIONS:

The Institute is eligible to issue Central Excise Duty Exemption Certificate or Customs Duty Concession Certificate. The Institute is not eligible to issue State Goods and Service Tax/ Central Goods and Service Tax Concession Certificate.

- 1. The quotation shall be divided into two parts:
 - The first part should be "Technical" Bid containing only detailed specifications for tendered Supply, Installation, Testing and Commissioning of Server Virtualization and Storage Infrastructure The details include:
 - a) Detailed literature including Data Sheets of quoted products
 - b) Supporting Documents as per the Eligibility Criteria.
 - c) The first part (Technical Bid) shall not contain any financial aspects of the offer. It shall contain only a cross reference to the second part (Financial Bid).
 - II) The Second part (Financial Bid) shall contain detailed financial outlay with List of deliverables / Bill of materials / Bill of Quantities and services, unit price of items as in the technical bid (i.e., First Part).
- The quotations should be complete in all respects and the details specified in this request should be adhered to and submitted on or before 23.01.2023 and the Bid will be opened on 24.01.2023 at 4.00 PM
- 3. Quotations should be valid for **180** days from the due date.



- 4. EMD of <u>Rs. 4,60,000.00</u> should accompany the tender enclosed along with the technical bid (envelope). Payment should be by way of DD / Banker's cheque only, drawn in favour of "Raman Research Institute, Bengaluru". No other form of payment will be accepted. The Tenders without the EMD will be rejected.
- 5. The MSME Units/Enterprises claiming exemption of EMD should submit MSME UDYOG AADHAAR MEMORANDUM or registration certificate issued by District Industries Centre (DIC) / Khadi & Industries board (KVIB) / Coir board / National Small Industries Corporation (NSIC) / Directorate of Handicrafts and handlooms or any other body specified by Ministry of MSME. The memorandum / certificate submitted should be for the scheduled items of this tender and shall be valid as on due date /extended due date of the Tender. However, MSME Unit/Enterprises must submit a duly signed Bid Security Declaration in lieu of EMD as per the Form of Bid-Security Declaration.
- 6. EMD of successful tenderer will be returned / adjusted on satisfactory completion of order.
- 7. The refund of EMD for unsuccessful tenderers will be made through Cheque or Electronic mode within a month after expiration of the Bid Validity period or any extension to it.
- 8. The Financial Bids will be opened only for those technical bids found suitable and approved by our technical evaluation committee.
- 9. Unit price should be mentioned, which is inclusive of all applicable discounts. Taxes and other levies should be indicated separately.
- 10. The Institute reserves the right to modify the technical specification or the required quantity at any time but within one week before the due date and will be notified in the Institute website
- 11. **Security Deposit:** On award of the work, the bidder shall provide **3%** (Three percent) of the order value as Security Deposit in the form of a Bank Guarantee towards satisfactory performance. The PBG should be valid through-out the period of completion of work and the warranty period plus six months as claim period. The said Security Deposit shall be refunded to the vendor after satisfactory completion of the purchase order placed as well as warranty period as per the terms of Purchase Order. In case of failure to render the contracted service, either at the time of execution or during the warranty period or non-compliance of due performance of contract, the Security Deposit will be forfeited.
- 12. **Warranty**: The Charges for Five (5) years back-to-back Comprehensive on-site warranty, software support and firmware updates, access to the support portal for all the products, with serial number of each component supplied, with Next Business Day response time, including the Standard Warranty should be indicated.
- 13. **Test Certificates:** On completion of installation test certificates are to be provided by the Vendor, countersigned by the certified supervisor under whose direct supervision the installation was carried out.



- 14. The Institute reserves the right to reject any or all of the quotations received without assigning any reason. It also reserves the right to accept an offer other than the lowest.
- 15. The final order quantity can be lower or higher than that mentioned in the request.
- 16. The Institute reserves the right to postpone/extend the due date for submission of the quotation without assigning any reason.
- 17. All deliveries should be completed within the stipulated delivery time of the purchase order due date. While the Institute reserves the right not to accept delivery in part or full, beyond the due date of delivery, liquidated damages at 0.5% per every week of delay will be levied. Exceptions: Force Majeure.
- 18. Delivery of goods should be made at our stores located on campus near Mekhri Circle, Bengaluru 560 080, at suppliers cost and risk.
- 19. The Institute reserves the right to call potential suppliers for technical discussions and product demonstrations.
- 20. Any Technical clarification required towards submission of offer may please be mailed to purchase@rri.res.in
- 21. All disputes, arbitration, if any are subject to jurisdiction of courts in Bengaluru only.



CHECKLIST

SELF ATTESTED COPIES OF THE FOLLOWING DOCUMENTS SHOULD BE SUBMITTED ALONG WITH TECHNICAL BID, FAILING WHICH THE TENDERS ARE LIABLE TO BE REJECTED

SL.	CRITERIA / CRECIFICATION / CONDITION	VEC / NO
NO	CRITERIA / SPECIFICATION / CONDITION	YES / NO
1.	The bidder should have experience in the IT Infrastructure services or similar business in India for a minimum period of 5 years. A proof attached.	
2.	A letter stating that the vendor is an authorized channel partner, reseller of the principal attached.	
3.	Manufacturer's Authorisation Form (MAF) for the quoted products included with the technical bid.	
4.	Details with contact information and telephone numbers for service support of the products should be provided. Escalation matrix with contact information and telephone numbers provided.	
5.	The bidder must not be blacklisted by Central Government, State Government or any Organization in India. A certificate or undertaking to this effect submitted.	
6.	EMD of Rs. 4,60,000.00 enclosed along with the technical bid (envelope). Payment by way of DD / Banker's cheque only, drawn in favour of "Raman Research Institute, Bengaluru".	
7.	Quotations valid for 180 days from the date of opening.	
8.	 (I) As per the Government of India, Ministry of Commerce and Industry and Department for Promotion of Industry and Internal Trade (Public Procurement Section) Order No. P-45021/2/2017-PP (BE-II) dated 04 June 2020 a. The Bidder shall produce a certificate whether he/she belong to "Class – I' and 'Class – II supplier' and Non – Local suppliers. b. Class – I' and 'Class – II supplier' and Non – Local suppliers as classified under above mentioned Order are eligible to submit the offer. While finalising the quotation, the instructions given in the above order shall prevail. 	
	(II) As per the Government of India, Ministry of Finance and Department of Expenditure, Public Procurement Division – Office Memorandum No. F.No.6/18/2019-PPD dated 23.07.2020, the Institute reserves the right by order in writing, impose restrictions, including prior registration and/or screening, on procurement from bidders from a country or countries, or a class of countries, on grounds of defence of India, or matters directly or indirectly related thereto including national security; no procurement shall be made in violation of such restrictions	



FORM OF BID-SECURITY DECLARATION

[The Bidder should fill in this Form on Letter Head in accordance with the instructions indicated]

To

The Administrative Officer (i/c) Raman Research Institute C.V. Raman Avenue, Sadashivanagar, Bangalore – 560 080.

Ref: Tender document No. NIT - PR - 221849 dated 02.01.2023

We, the undersigned declare that:

We know that the bid should be supported by a Bid Security Declaration in accordance with your conditions.

We hereby declare that the prices offered by us against RRI Tender Document No NIT – PR – 221849 dated 02.01.2023 for Supply, Installation, Testing and Commissioning of Server Virtualization and Storage Infrastructure will be firm for a period of 180 days or the date when the tenders are finalised, whichever is earlier.

We accept to automatically be suspended from being eligible for bidding in any contract in RRI for a period of 3 years from the date of opening of Bid. If we are in breach of our obligation(s) under the bid conditions, because we:

After having been notified of the acceptance of our bid by the Contracting Authority within the period of bid validity:

1) We failed or refused to furnish a Performance Security in accordance with the Condition of the Tender Document No. **NIT – PR – 221849 dated 02.01.2023**

OR

2) We failed or refused to sign the contract.

We know that this Bid – Security Declaration will expire, if contract is not awarded to us, upon:

,	•	of the name of the successful bidder or tion of our Bid or any extension to it
Dated this	•	
		For and on behalf of M/s.
		Address:
		Signature
		Name
		In the capacity of

