Physical Research Laboratory

A Consolidated Responses with reference to Pre-bid Meeting held in online mode on 10/September/2022 during 03:00PM to 04:00PM for the Upgradation of existing 100 TeraFlops (TF) High Performance Computing Cluster to sustained 850 TeraFLOPS (TF) (400TF Pure CPU + 450TF pure GPU)

GEM Bid Number	**GEM/2022/B/2487302 Dated: 30-08-2022**
Subject	**Technical Queries**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**
Vendor Attendees:	**1. NEC** **2. Netweb Technologies (I) Pvt. Ltd.** **3. Concept Information Technologies (I) Pvt. Ltd** **4. Appcom Infotech LL**

1. Bidder Name: NEC

GEM Bid Number	**GEM/2022/B/2487302 Dated: 30-08-2022**
Subject	**Technical Queries (Total 07 numbers)**
Bidder	**NEC**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**

S. No.	Section No. of RFP	Clause No.	Page No.	Content of the RFP	Clarification / Amendment Sought	PRL Response
1	GeM T&C	-	-	Delivery Period: 84 days	Due to ongoing semiconductor shortage, kindly modify as: Delivery Period: **50 weeks**	Noted. Looking into similar queries raised by other vendors, PRL has considered changing the delivery period from 12 weeks to 14 weeks. PRL has accordingly modified the RFP/Technical Specifications.
2	C-Service Level Agreement & Penalty Clause	6	23	After having been notified of the defects / service requirement during warranty period, Seller has to complete the required Service / Rectification within 72 Hours time limit. If the Seller fails to complete service / rectification with	Kindly modify as: After having been notified of the defects / service requirement during warranty period, Seller has to complete the required Service / Rectification within 72 Hours time limit. If the Seller fails to complete service / rectification with defined time limit, a penalty of 0.5% of contract value of the delayed product shall be charged as penalty for each week of delay from the seller. Seller can deposit the penalty with the Buyer directly else the Buyer shall have a right to recover all such penalty amount from the	Adequate amendment has been made in the bid corrigendum.

				defined time limit, a penalty of 0.5% of contract value of the product shall be charged as penalty for each week of delay from the seller. Seller can deposit the penalty with the Buyer directly else the Buyer shall have a right to recover all such penalty amount from the Performance Security (PBG). Cumulative Penalty cannot exceed more than 10% of the total contract value after which the Buyer	Performance Security (PBG). Cumulative Penalty cannot exceed more than 10% of the total contract value after which the Buyer shall have the right to get the service / rectification done from alternate sources at the risk and cost of the Seller besides forfeiture of PBG. ~~Seller shall be liable to re-imberse the cost of such service / rectification to the Buyer.~~	

				shall have the right to get the service / rectification done from alternate sources at the risk and cost of the Seller besides forfeiture of PBG. Seller shall be liable to re-imberse the cost of such service / rectification to the Buyer.		

3	C-Service Level Agreement & Penalty Clause	10. A.	24	***(**Incorporation of Confidentiality Clause)***	Confidential Information: "Confidential Information" for the Purpose of this Contract shall mean any and all proprietary information in written or oral (to be reduced in writing within 14 days of such disclosure) regardless of whether or not the information is expressly stated as 'confidential' or the same is implied by the context thereof and/or may be recorded in documentary or digitized form, including but not limited to price sensitive information, information that has commercial value, intellectual property, patents, patents filed, ideas, background information and inventions, procedures, technology, techniques, methods, records, documents, proposals, concepts, ideas, data, know-how, processes, specifications and	Such clause is not a part of the "General Terms and Conditions" for procurement of Goods and Services on GeM Portal. Hence, there is no change in it.

					statistics travel and demonstration schedules and venues and other information and/or any other material so identified or not as confidential by the Disclosing Party disclosing such material to the Recipient Party. All references to Confidential Information in this Contract shall include any part thereof. Notwithstanding the foregoing, a party may disclose the Confidential Information to the extent required by law or any competent governmental or regulatory authority, provided that it first notifies the other party so as to enable the other party to take an appropriate protective order and/or other action.	

4	C-Service Level Agreement & Penalty Clause	10. B.	24	***(**Incorporation of Indemnification and Limitation of Liability Clause)***	Indemnification and Limitation of Liability: The bidder shall indemnify defend and hold harmless the PRL. during and after the term of this contract from and against all direct liabilities, damages, loses, expenses, demands, actions, proceedings, costs and direct claims of any nature whatsoever arising out of the acts, omissions, negligence and breach of this contract by the bidder. With the exclusion of death or bodily injury directly caused by the fault or proven negligence of either party, Bidder's aggregrate liability to PRL for claims under and in connection with this Contract irrespective of the form of action, whether for liability in contract, tort or otherwise shall be limited to the applicable	The bid is governed by the "General Terms and Conditions" for Goods and Service procured through GeM Portal. Indemnification and Limitation of Liability clauses are parts of these "General Terms and Conditions" available on GeM Portal. One may refer to the following for more details: https://assets-bg.gem.gov.in/resources/upload/shared_doc/gtc/GeM-GTC-40-1659862432.pdf

					purchase order /invoice / statement of work. Notwithstanding any other provision hereof, neither party shall be liable for (a) any indirect, incidental, special, consequential, exemplary or punitive damages or (b) any damages for lost profits, lost revenues, loss of goodwill, arising out of the performance or failure to perform under this Contract, even if advised of the possibility of such damages or losses or if such possibility was reasonably foreseeable.	

5	C-Service Level Agreement & Penalty Clause	10. C.	24	***(**Incorporation of Bidder's Termination Rights Clause)***	Bidder's Termination Rights: Bidder shall have the right to terminate this Contract, without prejudice to any other right or remedy it may have against the other party, in the event that: (a) PRL commits any material breach of this Contract and such breach is not cured within 30 (Thirty) days after the written notice of such breach to that party; or (b) PRL is adjudicated bankrupt, becomes insolvent, makes a general assignment for the benefit of creditors, or enters dissolution or liquidation proceedings; or (c) A petition is filed by or against the PRL under bankruptcy law, corporate reorganization law or any other law for the relief of debtors and such petition is consented to or is	The bid is governed by the "General Terms and Conditions" for Goods and Service procured through GeM Portal. Indemnification and Limitation of Liability clauses are parts of these "General Terms and Conditions" available on GeM Portal. One may refer to the following for more details: https://assets-bg.gem.gov.in/resources/upload/shared_doc/gtc/GeM-GTC-40-1659862432.pdf

					not dismissed within 30 (Thirty) days of filing.	
6	C-Service Level Agreement & Penalty Clause	10. D.	24	***(**Incorporation of Force Majeure Clause)***	Force Majeure: The term “Force Majeure” as employed herein shall include but not limit to national disaster, hostilities or wars, revolutions, acts of public enemy, restrains of any de jure or de facto Government general strikes, any kind of fire, explosion, earthquake, epidemic, pandemic including but not limited to COVID-19, quarantine restrictions and/or any other situation(s) beyond the reasonable control of the affected Party	The bid is governed by the "General Terms and Conditions" for Goods and Service procured through GeM Portal. Indemnification and Limitation of Liability clauses are parts of these "General Terms and Conditions" available on GeM Portal. One may refer to the following for more details: https://assets-bg.gem.gov.in/resources/upload/shared_doc/gtc/GeM-GTC-40-1659862432.pdf

					and which event affects the performance of obligations under this Contract by the affected Party. Neither Party to the Contract shall be deemed to be in breach of this Contract or held liable for its failure to comply with any of the terms of this Contract due to an act of god or other natural calamity, fire, strikes, war, insurrection, governmental restrictions or other causes beyond its control and without its fault but the Party claiming such force majeure event shall use its best efforts to remove the cause of such force majeure and shall resume compliance with this Contract, if possible as soon as practicable after the removal of such cause. (ii). If the force majeure persists for a continuous period exceeding thirty (30) days after the best efforts for	

					removing the cause of such removal, then bidder shall have the right to terminate the contract. iii) PRL shall pay all the outstanding amount due on PRL and/or which have been incurred by the bidder during the performance of the Contract	
7	C-Service Level Agreement & Penalty Clause	10.E.	25	***(**Incorporation of Governing Law and Settlement of Disputes Clause)***	Governing Law and Settlement of Disputes : The validity and construction of this Contract shall be governed by the laws of India, without reference to its conflict of laws principles. Should the Parties be unable to amicably resolve disputes, related to or arising out of one or more of the provisions of this Contract, the Parties agree that the same shall be	The bid is governed by the "General Terms and Conditions" for Goods and Service procured through GeM Portal. Indemnification and Limitation of Liability clauses are parts of these "General Terms and Conditions" available on GeM Portal. One may refer to the following for more details: https://assets-bg.gem.gov.in/resources/upload/shared_doc/gtc/GeM-GTC-40-1659862432.pdf

					settled by an arbitration under Arbitration and Conciliation Act 1996. Such arbitration proceedings shall be conducted by a sole arbitrator to be mutually appointed by the Parties. The arbitration proceedings shall be conducted exclusively in English language. The seat of arbitration shall be Delhi. The Arbitration award made by the Arbitration Tribunal shall be final and binding on the Parties.	

2. **Netweb Technologies (I) Pvt. Ltd.**

GEM Bid Number	**GEM/2022/B/2487302 Dated: 30-08-2022**
Subject	**Technical Queries (Total 10 numbers)**
Bidder	**Netweb Technologies (I) Pvt. Ltd.**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**

Sr. No.	**Existing Tender Clause**	**Query**	**PRL Response**
1.	**Page no 7 of 66 "Configuration:** Two master nodes in HA mode and redundant to each other, jointly administering all the compute nodes. Master nodes will share peripherals (KVM switch,1U Rack mount TFT with keyboard and mouse) mounted on rack within a 1U slide-away housing. These nodes. will be used as login node and job submission node for users. Both master nodes must have identical configuration as per specifications below.	Clarity required if the KVM solution is expected for the entire solution or only for the master node	Noted. Yes, KVM solution is for Master nodes only.
2.	**Page No.4 of 66.** SMP CPU Compute NodesCPU details are given as below. CPU: Latest generation Four Processors with x86-64 Architecture with minimum 28 cores, 2.9GHz (Base Frequency), 48MB Cache, Minimum 2.59TF Theoretical Peak per CPUs or better in terms of all parameters.	Closest match with CPU asked for is PX 8380H 4P 28C/56T 2.9G 38.5M 10.4GT 250W. There is no other match with 48 MB Cache. Requesting to change Cache specs from 48MB to 38.5 MB	Noted. PRL considers to modify as – cache should be 38 MB or higher. PRL has considered it and accordingly the technical specifications are revised.

3.	**Page No. 1 & 3** Compute Nodes with Mixed CPU and NVIDIA GPU Architecture - 450 TF pure performance	Pls confirm if the performance is expected from Pure GPU or from GPU node with CPU will be also considered	Noted. The performance is expected from CPU and NVIDIA GPU of GPU Nodes.

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Sr. No.	**Existing Tender Clause**	**Query**	**PRL Response**
4.	Page no 10 of 66 Back-up software	Pls mention more details of imp features of backup software and SOW required	Noted. There is no change. Backup software is for backing up of data from PFS Storage. The bidder has to supply, install and commission backup solution, and configure system to take regular backup (full and incremental) during on-site warranty and CAMC period.
5.	Page no 10 of 66 Compute node configuration	Instead of having same config for all the compute nodes , requesting to relax the clause -" compute nodes can be mixed configuration without compromising any other technical configs"	Noted. As per RFP all the nodes must be of same configuration.

6.	Page no 20 of 66 CAMC of UPS, DG, RACK, & CAMC of HPC setup (Vikram-100)	Since the technology used in Vikram-100 set up is 3-4 generation old. Currently it is declared as EOL by OEM like Intel etc. Requesting to relax the clause from compulsory to "Optional"	Noted. There is no change. However, there is no CAMC of HPC compute nodes and other computing hardware.

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Bidder	**Netweb Technologies (I) Pvt. Ltd.**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**

Sr. No.	**Existing Tender Clause**	**Query**	**PRL Response**
7.	Page 17 pf 66 Installation and mounting of Storage, Point no.11. The successful bidder must shift the existing 300 TB HPC storage, two master nodes, and two GPFS nodes to Thaltej Campus data centre of PRL, format the entire storage, install RHEL on two master nodes, mount formatted storage partitions on the two master nodes and make it operational. The existing HPC setup is under CAMC up to 31/03/2023. The bidder should take over CAMC from the existing contractor.	New bidder - scope of work needs relaxation as the current Master node & Storage belongs to particular vendor & having proprietary config . If the knowledge transfer is not perfect then the entire project success would be at stake. Will it be possible that existing vendor will complete shifting and make it operational & handover the operational setup for further installation .	Noted. There is no change. As per RFP/Tender document, there is no use of GPFS file systems. The bidder has to format the storage and servers, install RHEL and create file system to take backup.

8.	Page 21 of 66 Delivery Point no. 30) The HPC solution must be delivered onsite within preferable 12 weeks after the release of purchase order.	We request you to please allow at least 12 to 14 weeks.	Noted. Looking into similar queries raised by multiple vendors, PRL has considered changing the delivery period maximum to 14 weeks. PRL will accordingly modify the RFP/Technical specifications.

GEM Bid Number	**GEM/2022/B/2487302 Dated: 30-08-2022**
Subject	**Technical Queries (Total 10 numbers)**
Bidder	**Netweb Technologies (I) Pvt. Ltd.**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**

Sr. No.	**Existing Tender Clause**	**Query**	**PRL Response**
9.	**Page 21 of 66** Installation: Point no.31 The HPC solution must be commissioned within 4 weeks from the date of complete delivery.	We request you to allow 4 to 6 weeks.	Noted. There is no change.

10.	**Page No 7 of 66 - Additional details applicable to specifications 1, 2 and 3:** You have mentioned that you will be providing 5 server racks and 18KW power for each server rack. Also, one more rack will be available only after shifting of existing 300 TB storage of existing HPC. This translates to total 108KW of power with 18KW of power for each of the 6 server racks. As per our calculations, these values of 6 server racks and 108KW are not sufficient for the solution asked. Hence, we humbly request you to downsize the number of nodes asked in the solution.	Hence, we humbly request you to downsize the number of nodes asked in the solution, Or help to provide more power for the same.	Noted. PRL has considered changing it from 18KW to 22KW. PRL has asked for a maximum of 80 compute nodes. If a bidder is able to meet the quoted TF computing requirement with a smaller number of nodes, he/she may propose a solution with the same number of nodes.

3. **Concept Information Technologies (I) Pvt. Ltd**

GEM Bid Number	**GEM/2022/B/2487302 Dated: 30-08-2022**
Subject	**Technical Queries**
Bidder	**Concept Information Technologies (I) Pvt. Ltd**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**

	Bid #	**GEM/2022/B/2487302 Dated: 30-08-2022**		
	Subject	**Technical Queries**		
	Bidder	**Concept Information Technologies (I) Pvt. Ltd**		
Annexure-II				
Technical Specifications of High Performance Computing Cluster of total sustained 850 TeraFLOPS with 400 TeraFLOPS from CPU and rest 450 TeraFLOPS from GPGPU nodes.				
1. Pure CPU Compute nodes (Maximum 80 nodes over Infiniband):				
Make and Model				
Sr. No.	**Technical Specifications Required**	**Requested Amendment / Clarification**	**Remarks**	**PRL Response**
1.1	Maximum 80 nodes over Infiniband. Provide the exact numbers of nodes			Noted. Number nodes can be decided based on meeting the goal of the mentioned TF computing requirement.

	proposed in Remarks column.			
1.2	**CPU**: Latest generation Dual Processors with x86-64 Architecture with minimum 32 core, 2.6GHz (Base Frequency), 48MB Cache, Minimum 2.6TF Theoretical Peak per CPUs or better in terms of all parameters	**CPU**: Latest generation Dual Processors with x86-64 Architecture with minimum 32 core, **2.4GHz** (Base Frequency), 48MB Cache, Minimum 2.6TF Theoretical Peak per CPUs or better in terms of all parameters	This provides option to quote for 36Core CPU with even higher Theoretical TFs per CPU performance.	Noted. There is no change.
1.4	**HDD:** Usable 1TB on SATA Hot Swappable SSD, configured the disks in RAID 1 to protect fully against disk failure.	**HDD:** Usable **min 800GB or more** on SATA Hot Swappable**/Plug gable** SSD, configured the disks in RAID 1 to protect fully against disk failure.	SSD disk are available either 960GB capacity or 1.6TB or more per SSD. Also we support hot-plug SSDs.	Noted. PRL has considered modifying it from 950GB or higher in the technical specification.
1.8	Power Supply:			
	Hot swappable redundant Platinum level power supply (230V, 50Hz input).	Hot swappable/**Plug gable** redundant Platinum level power supply (230V, 50Hz input).	We support Hot Plug Power Supplies.	Noted. PRL has modified it as - "swappable/pluggable".
2. SMP CPU Compute nodes (Qty.: 08 numbers)				
Make and Model				

Sr. No.	Technical Specifications Required	Requested Amendment / Clarification	Remarks	
2.1	CPU:			
	CPU: Latest generation Four Processors with x86-64 Architecture with minimum 28 core, 2.9GHz (Base Frequency), 48MB Cache, Minimum 2.59TF Theoretical Peak per CPUs or better in terms of all parameters	CPU: Latest generation Four Processors with x86-64 Architecture with minimum **24 core, 2.7GHz** (Base Frequency), **35MB Cache**, Minimum **2.22TF** Theoretical Peak per CPUs or better in terms of all parameters	4-Socket servers are available with 2nd Gen Cascadelake processor series which has max 2.7Ghz clock speed for 24core or above processors and Cache Memory 35MB or more.	Noted. There is no change.
2.2	RAM:			
	3TB DDR4 3200MHz ECC Memory or better, and equal distribution of memory on DIMMs and should be upgradable up to 6TB.	3TB DDR4 3200MHz ECC Memory or better, and equal distribution of memory on DIMMs and should be upgradable up to 6TB **without replacing existing Memory Modules.**	This will ensure free slots availability on the servers for future memory upgrades and to avoid replacement of existing modules with higher size modules for future memory upgrades.	Noted. There is no change.
2.3	HDD:			

	Usable 1TB on SATA Hot Swappable SSD, configured the disks in RAID 1 to protect fully against disk failure.	HDD: Usable **min 800GB or more** on SATA Hot Swappable**/Plug gable** SSD, configured the disks in RAID 1 to protect fully against disk failure.	SSD disk are available either 960GB capacity or 1.6TB or more per SSD. Also we support hot-plug SSDs.	Noted. PRL has considered modifying it from 950GB or higher in the technical specification.
2.7	Power Supply:			
	Hot swappable redundant Platinum level power supply (230V, 50Hz input).	Hot swappable**/Plug gable** redundant Platinum level power supply (230V, 50Hz input).	We support Hot Plug Power Supplies.	Noted. PRL has modified it as - "swappable/plugg able" in the technical specifica tion.
3. Compute Nodes with Mixed CPU and NVIDIA GPU Architecture (Qty.: 20 numbers)				
Make and Model				
Sr. No.	**Technical Specification s Required**	**Requested Amendment / Clarification**	**Remarks**	
3.1	CPU:			
	Latest generation Dual Processors with x86-64 Architecture with minimum 32 core, 2.6GHz (Base Frequency), 48MB Cache, Minimum	Latest generation Dual Processors with x86-64 Architecture with minimum 32 core, **2.4GHz** (Base Frequency), 48MB Cache, Minimum 2.6TF Theoretical Peak per CPUs	This provides more options to quote for 36Core CPU with even higher Theoretical TFs per CPU performance.	Noted. There is no change.

	2.6TF Theoretical Peak per CPUs or better in terms of all parameters.	or better in terms of all parameters.		
3.4	HDD:			
	Usable 1TB on SATA Hot Swappable SSD, configured the disks in RAID 1 to protect fully against disk failure.	HDD: Usable **min 800GB or more** on SATA Hot Swappable**/Plug gable** SSD, configured the disks in RAID 1 to protect fully against disk failure.	SSD disk are available either 960GB capacity or 1.6TB or more per SSD. Also we support hot-plug SSDs.	Noted. PRL has considered modifying it from 950GB or higher in the technical specification.
3.5	Infiniband:			
	FDR Infiniband 100Gbps Single port adaptor in non – blocking modes between the nodes.	Infiniband 100Gbps Single port adaptor in non – blocking modes between the nodes.	This seems to be a typing error. Request to remove FDR. Also on page no 5 for the same item, it is mentioned EDR. Please mention HDR 100Gbps which is latest.	Noted. PRL has considered modifying it as "HDR 100Gbps" or better in the technical specifications.
3.8	Power Supply:			
	Hot swappable redundant Platinum level power supply (230V, 50Hz input).	Hot swappable/**Plug gable** redundant Platinum level power supply (230V, 50Hz input).	We support Hot Plug Power Supplies.	Noted. PRL has considered adding it as - "swappable/pluggable" in the technical specification.
4. Visualization Compute Nodes with CPU and NVIDIA GPU Architecture (Qty.: 01 number)				

Make and Model				
Sr. No.	**Technical Specifications Required**	**Requested Amendment / Clarification**	**Remarks**	
4.1	CPU:			
	Latest generation Dual Processors with x86-64 architecture with minimum 32 core, 2.6GHz (Base Frequency), 48MB Cache, Minimum 2.6TF Theoretical Peak per CPUs or better in terms of all parameters.	**CPU**: Latest generation Dual Processors with x86-64 Architecture with minimum 32 core, **2.4GHz** (Base Frequency), 48MB Cache, Minimum 2.6TF Theoretical Peak per CPUs or better in terms of all parameters	This provides option to quote for 36Core CPU with even higher Theoretical TFs per CPU performance.	Noted. There is no change.
4.4	HDD:			
	Usable 1TB on SATA Hot Swappable SSD, configured the disks in RAID 1 to protect fully against disk failure.	HDD: Usable **min 800GB or more** on SATA Hot Swappable**/Plug gable** SSD, configured the disks in RAID 1 to protect fully against disk failure.	SSD disk are available either 960GB capacity or 1.6TB or more per SSD. Also we support hot-plug SSDs.	Noted. PRL has considered modifying it from 950GB or higher in the technical specification.
4.5	Infiniband:			
	FDR Infiniband 100Gbps Single port adaptor in non – blocking modes between the nodes.	Infiniband 100Gbps Single port adaptor in non – blocking modes between the nodes.	This seems to be a typing error. Request to remove FDR. Also on page no 6 for the same item, it is mentioned EDR. Please mention HDR 100Gbps which is latest.	Noted. PRL has modified it accordingly as "HDR 100Gbps" or better in the technical specifications.

4.8	Power Supply:			
	Hot swappable redundant Platinum level power supply (230V, 50Hz input).	Hot swappable/**Plug gable** redundant Platinum level power supply (230V, 50Hz input).	We support Hot Plug Power Supplies.	Noted. PRL has considered adding it as - "swappable/pluggable" in the technical specification.
Sr. No.	**Additional Details**		**Remarks**	
1	**Additional details applicable to specification 1, 2 and 3**:	**This needs to be verified.**	**We would like to bring it to PRL's notice that the power rating/Rack @18KW is too low. A total of 6 Racks will ensure only 108KW of power for the HPC infrastructure which is far lower than the actual power consumption of the complete HPC setup in clusing CPU only nodes, SMP nodes, GPU nodes , Storage , Networking, Tape Archival.** **We request to increase the power rating/Rack to 30KW with a overall power umbrella of 180kW.** **Also for data migration, we would also like to understand if any NFS protocol IO**	
	The number of nodes specified in the technical specifications is the minimum estimated value calculated with more than 65% efficiency of the theoretical peak. The bidders may quote additional compute nodes (in both categories – Sr. No. 1 and 2) required to satisfy conditions (Annexure-I Acceptance Test Procedure) for sustained performance. However, the bidder must make sure to house the			Noted. PRL has changed it from 18KW to 22KW in the technical specifications.

	proposed setup within present HPC Rack and Cooling Infrastructure room (5 x 42U Server Rack (600mmX1070mm) with 18KW per Rack Cooling Capacity) only. One additional rack will be available only after shifting of existing 300TB storage of existing HPC. No additional space and Cooling will be given for installation or setup.		**nodes are configured with the existing GPFS PFS Storage.**	
	Total number of compute nodes must be accommodated within existing five racks only. No additional Racks space will be given for new proposed setup.			Noted. There is no separate NFS protocol I/O node.
5. Master Node with Redundancy High Availability (HA) mode to Administer Pure CPU, SMP and Mixed NVIDIA GPU Nodes (Qty.: 02 numbers)				
Make and Model				
Sr. No.	**Technical Specifications Required**	**Requested Amendment / Clarification**	**Remarks**	

5.2	CPU:			
	Latest generation Dual Processors with x86-64 Architecture with minimum 32 core, 2.6GHz (Base Frequency), 48MB Cache, Minimum 2.6TF Theoretical Peak per CPUs or better in terms of all parameters	Latest generation Dual Processors with x86-64 Architecture with minimum 32 core, **2.4GHz** (Base Frequency), 48MB Cache, Minimum 2.6TF Theoretical Peak per CPUs or better in terms of all parameters	This provides option to quote for 36Core CPU with even higher Theoretical TFs per CPU performance.	Noted. There is no change.
5.4	HDD:			
	Usable 1TB on SATA Hot Swappable SSD, configured the disks in RAID 1 to protect fully against disk failure.	Usable **min 800GB or more** on SATA Hot Swappable**/Plug gable** SSD, configured the disks in RAID 1 to protect fully against disk failure.	SSD disk are available either 960GB capacity or 1.6TB or more per SSD. Also we support hot-plug SSDs.	Noted. PRL has considered changing the disk to 950GB or higher and accordingly technical specifications are revised.
5.8	Power Supply:			
	Hot swappable redundant Platinum level power supply (230V, 50Hz input).	Hot swappable/**Plug gable** redundant Platinum level power supply (230V, 50Hz input).	We support Hot Plug Power Supplies.	Noted. PRL has considered adding it as - "swappable/plugg able" in the technical specification.
6. Storage System and Storage Server:				
Make and Model				

Sr. No.	Technical Specifications Required	Requested Amendment / Clarification	Remarks	
6.2	Disk Space:	Direct attached Storage of 1PB usable capacity in RAID6 with atleast 1 global hot spare per **40** drives and atleast 2% metadata scalable up to 5 PB. Scalable to **336** Drives within same Controller pair. The storage disk must be either SAS or NL-SAS or SSD or better.	**This specs of Storage are incliend towards a specific OEM**	
	Direct attached Storage of 1PB usable capacity in RAID6 with atleast 1 global hot spare per 30 drives and atleast 2% metadata scalable up to 5 PB. Scalable to 480 Drives within same Controller pair. The storage disk must be either SAS or NL-SAS or SSD or better.			Noted. There is no change.
6.3	Storage Throughput (Read/Write) :	Minimum 20GBps – read and minimum 20GBps write (individually by **IOZone**/IOR benchmark).		
	Minimum 20GBps – read and minimum 20GBps write (individually by IOR benchmark).			Noted. PRL has considered modifying it as "IOZone/IOR benchmark" and accordingly technical specifications are revised.
	The bidder must demonstrate this storage throughput using standard benchmark applications like IOzone, IOR or			

	Bonnie++, as part of Acceptance Test Procedure.			
	The read performance should not be less than write performance.			
6.4	Controller and Cache:	Dual Active-Active controllers – with Minimum **32GB** Cache per **controller pair**, automatic load-balancing and failover.	**This specs of Storage are incliend towards a specific OEM**	
	Dual Active-Active controllers – with Minimum 64GB Cache per controller, automatic load-balancing and failover.			Noted. There is no change.
6.6	Reliability:	The storage solution must have no single point failure. Ensures support for **checksum and ECC** for data integrity in the storage system. Support for 1024 or better snapshot.		
	The storage solution must have no single point failure. Ensures industry-standard T10-PI end-to-end data integrity in the storage system. Support for 1024 or better snapshot.			Noted. There is no change.
6.7	Availability:	99.9999%		

	99.9999% availability with redundant hot-swap components, including controllers and I/O modules, power supplies, proactive maintenance, and non-disruptive firmware upgrades. Sync and Async replication support.	availability with redundant hot-swap components, including controllers and I/O modules, power supplies, proactive maintenance, and non-disruptive firmware upgrades. **Async** replication support.		Noted. There is no change.
6.12	Storage Server(s):			
	Rack mountable with redundant and hot swap power supply.	Rack mountable with redundant and hot swap**/Plug** power supply.	We support Hot Plug Power Supplies.	Noted. PRL has considered adding it as - "swappable/pluggable" in the technical specification.
7. Backup Server with Backup Software:				
Make and Model				
Sr. No.	**Technical Specifications Required**	**Requested Amendment / Clarification**	**Remarks**	
7.3	HDD:			
	Usable 1TB on SATA Hot Swappable SSD, configured the disks in RAID 1 to protect fully against disk failure.	Usable **min 800GB or more** on SATA Hot Swappable**/Plug gable** SSD, configured the disks in RAID 1 to protect fully against disk failure.	SSD disk are available either 960GB or 1.6TB or more capacity per SSD. Also we support hot-plug SSDs.	Noted. PRL has considered modifying it from 950GB or higher in the technical specification.

7.4	Interconnect:			
	Dual Port 100Gb IB Adapter and FC HBAs to connect Tape Library.	Dual Port 100Gb IB Adapter **or 2x single port 100Gb IB Adapters** and FC HBAs to connect Tape Library.	We provide single port IB adapter and also this ensures adapter level redundancy.	Noted. There is no change.
7.6	Power Supply:			
	Hot swappable redundant Platinum level power supply (230V, 50Hz input).	Hot swappable/**Plug gable** redundant Platinum level power supply (230V, 50Hz input).	We support Hot Plug Power Supplies.	Noted. PRL has modified it as - "swappable/pluggable" in the technical specification.
7.8	Backup Software:			
	Licensed, commercial or open source (OEM/Bidder supported) Backup Software with RHEL support with required number of licenses for backup data.		Backup of only HPC data from PFS Storage system ? Pls confirm/clarify.	Noted There is no change. It is to take backup of only HPC data from the PFS storage system.
8. HPC Tape Library with Barcode reader:		**Requested Amendment / Clarification**	**Remarks**	
Make and Model				
Sr. No.	**Technical Specifications Required**			
8.1	Drive:			

	Min 4 x LTO9 drives or better.	Min **3 x LTO9** drives or better.	If the no of drives is moderated to 3 nos, then it will save precious 3U rack space in a space constraint environment.	Noted. There is no change.
8.3	Interface:			
	16G FC.	**8G FC or higher.**	Tape drive is available with 8Gb FC interface.	Noted. PRL has considered changing it from "16G FC to 8G FC or higher" and has modified the technical specifications accordingly.
11. Workload Management Software				
Make and Model				
Sr. No.	**Technical Specifications Required**	**Requested Amendment / Clarification**	**Remarks**	
11.1	Integrated workload management solutions for both GPGPU and CPU with web based as well as terminal/console based job submission and HPC performance analysis and reporting.	Integrated **Commercial** workload management solutions for both GPGPU and CPU with web based as well as terminal/console based job submission and HPC performance analysis and reporting.		Noted. There is no change.
		Request to add Porposed Workload Manager should support EAL3+ Certification		Noted. There is no change.

S/N	**B. Terms and Conditions**	**Requested Amendment / Clarification**	**Remarks**	
Page #21	30) The HPC solution must be delivered onsite within preferable 12 weeks after the release of purchase order.	The HPC solution must be delivered onsite within preferable 40 weeks after the release of purchase order.	Due to supply constraint of Semiconductor components worldwide, the supply of some of the switching products/components are affected heavily and having hudge lead time of delivery	Noted. Looking into similar queries raised by other vendors, PRL has considered changing the delivery period from 12 weeks to 14 weeks. PRL has accordingly modified the RFP/Technical Specifications.
Page #21	31) The HPC solution must be commissioned within 4 weeks from the date of complete delivery	The HPC solution must be commissioned within 12 weeks from the date of complete delivery	Since it is turnkey project and multiple OEM products / componets are involve supply and implementation, electrical, civil, which will require more time for implemenations	Noted. There is no change.
	Bid Submission date : 20-09-2022 21:00:00	Bid Submission date : 13-10-2022 21:00:00	Since it is turnkey project and multiple OEM products / componets are involve, it will require more time to design the BOM and prices.	Noted. There is no change.
	As per RPF-CPU / Processor required / mentioned for CPU Node, SMP Node, CPU-GPU Node,	Can we supply the SMP Compute Node with Intel Cascadelake CPUs and rest of the all Nodes with latest generation		Noted. There is no change. As per RFP all the nodes must be of the same configuration.

	Master Node, Backup Node etc..	AMD CPUs		
**	**Datacenter**			
1	The existing Ups and Battereies	The existing UPS and Batteries are 7 years old.	Since the batteries are 7 year Old , the life cycle of these batteries is over. We suggest the Old existing batteries must be replaced by new one by PRL.	Noted. There is no change. PRL is going to replace the old batteries of old UPS one time. Any next replacement during the CAMC period if required will be taken care of by the bidder.
			Since the UPS is also 7 year old, The OEM of exixting UPS should confirm the service support available for next 5 years and should not declare end of support for the existing UPS.	Noted. It is the bidder's scope of work.
2	UPS ROOM	The flooring of UPS room is Old and must be capable of additional load of New UPS and Batteries,	Please confirm the Floor of UPS room is required to be replaced or keep as it is and capable of sharing the extra load (weight).	Noted. PRL is not going to allow any change in the floor of the UPS room.
		Cooling for UPS room not available	Please confirm sufficient room cooling for UPS room considering additional load is to be considered or	Noted. PRL will provide cooling in the new UPS room.

			PRL will provide the same?	
3	Electrical cable	The Electrical power cable I srequired to be layed from power distribution till UPS room. Road digging is required to be done for the same.	All required permissions for road digging is to provided by PRL timly.	Noted. PRL will provide necessary permission(s) for the work required within the Main Campus of PRL premises only. The bidder must submit the requirement in writing at least 2 working days before the commencement d ate.
4	Polution certificate		Please expalin in details	Noted. There is no change. It is the bidder's scope of work to arrange the pollution certificate as per the guideline(s) prescribed by the Gujarat Government.

Sr. No.	Technical Specifications Required	Requested Amendment / Clarification	Remarks	PRL Response
i	The bidder must demonstrate in total 850 TeraFLOPS or higher cumulative sustained performance across CPU Compute Nodes, SMP Compute Nodes and Mix CPU+NVIDIA GPU compute nodes using LINPACK, CUDA-LINPACK or HPL benchmark tools. This must be run for at-least 48 hours as part of stress/burn test.	Pls amend the same as "The bidder must demonstrate in total 850 TeraFLOPS (**+/- 2% deviation)** or higher cumulative sustained performance across CPU Compute Nodes, SMP Compute Nodes and Mix CPU+NVIDIA GPU compute nodes using LINPACK, CUDA-LINPACK or HPL benchmark tools. This must be run for at-least 48 hours as part of stress/burn test."		Noted. There is no change.
ii	The bidder must demonstrate 400 TeraFLOPS or higher cumulative sustained performance across CPU (using CPUs of pure CPU , SMP as well as of CPU/GPGPU compute nodes).	We request to amend thois clause as "The bidder must demonstrate 400 TeraFLOPS(**+/- 2% deviation**) or higher cumulative sustained performance across CPU (using CPUs of pure CPU , SMP as well as of CPU/GPGPU compute nodes) **running HPL seperately on each of these node type.**	HPL need to be run seperately for CPU only Node, SMP Node and CPUs in a Accelerator/GPU Node. Agrregate of the same needs to meet the required 400TF Rmax criteria.	Noted. There is no change.
iii	The bidder must demonstrate 450 TeraFLOPS or higher cumulative sustained performance across all mix CPU+NVIDIA GPU compute nodes.	Pls amend the same as " The bidder must demonstrate 450 TeraFLOPS **(+/- 2% deviation)** or higher cumulative sustained performance from the GPUs only.	HPL need to be run seperately for CPUs and GPUs in a Accelerator/GPU Node.	Noted. There is no change.

iv	Must demonstrate 1PB or more storage delivering minimum 20GBps – read and minimum 20GBps write (individually by IOR benchmark) or better.	Must demonstrate 1PB or more storage delivering minimum 20GBps – read and minimum 20GBps write (individually by **IOZone**/IOR benchmark) or better.		Noted. PRL has considered modifying it as " IOR/IOZone benchmark" and accordingly technical specifications are revised.
vii	The bidder must demonstrate High performance Linpack (HPL) must be at least 65% for CPU + GPU hybrid nodes with Turbo OFF. The HPL test will be carried continuously for 72 hours to check hardware consistency prior to acceptance.	The bidder must demonstrate High performance Linpack (HPL) must be at least **55%** for CPU + GPU hybrid nodes with Turbo OFF. The HPL test will be carried continuously for 72 hours to check hardware consistency prior to acceptance.		Noted. There is no change.

4. Appcom Infotech LLP

GEM Bid Number	**GEM/2022/B/2487302 Dated: 30-08-2022**
Subject	**Technical Queries (Total 07 numbers)**
Bidder	**Appcom Infotech LLP**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**

Sr. No.	Existing Tender Clause	Query	PRL Response
11.	PRL has asked for 1TB SSD in all type of Nodes.	Request to change to 960 GB Enterprise SATA SSD. Normally, 1 TB SATA SSDs are used for Desktop systems where as 960 TB Enterprise SATA SSDs are used in Enterprise Class servers.	Noted. PRL has considered modifying it from 950GB or higher in the technical specification.
12.	PRL will provide only required input for electrical power cables from PRL sub-station to the new UPS room.	Kindly clarify whether PRL will be providing the electrical power cable from PRL sub-station to the new UPS room.	Noted. PRL will provide technical inputs related to power cables. It is bidder's scope of work to supply, install and commission power cables, connect with UPS, DG set, Electrical Panel etc..
13.	It is mentioned that diesel for DG set is consumable and the price of same should be included in the quote. Page No.19, Point No.28.a last sentence.	We request PRL to kindly remove word "Diesel" from the list for quoting purpose as the same will be paid at actuals.	Noted. The clarification regarding Diesel is given under caption: For Diesel in both old DG Set and new DG set. See page no. 20 for details.
14.	The HPC solution must be delivered onsite within preferable 12 weeks after the release of purchase order. Page No.21, Point No.30	Extension for delivery period is required due to global supply shortage of semiconductor products. 12 weeks to 18 weeks.	Noted. Looking into similar queries raised by other vendors, PRL has considered changing the delivery period from 12 weeks to 14 weeks. PRL has accordingly modified the RFP/Technical Specifications.

GEM Bid Number	**GEM/2022/B/2487302 Dated: 30-08-2022**
Subject	**Technical Queries (Total 07 numbers)**
Bidder	**Appcom Infotech LLP**
Pre-bid Meeting Date, Time, Venue:	**10/September/2022, 03:00PM, Online Mode**

Sr. No.	**Existing Tender Clause**	**Query**	**PRL Response**
15.	Tape Library. Page no. 10, point no. 8 and Page No.34, point No.8.3	Kindly note that All LTO Tape Library OEM are offering solutions with 8G FC Interface only. We request you to change 16G FC to 8G FC Interface.	Noted. PRL has considered changing it from "16G FC to 8G FC or higher" and the technical specifications are modified accordingly.
16.	DG Set should develop 487 BHP with an electrical output of 320KVA. Page No. 43, point No 14.1	There seems to be a mismatch in BHP and KVA rating as 320KVA DG set has 399 BHP whereas a DG set with More then 320KVA will have 487 BHP.	Noted. PRL consider to change BHP from "487 BHP to 350 BHP or higher". PRL will modify the technical specifications accordingly.
17.	2 numbers of maintenance free battery of 12V 95 AH. Page No.46, Point No.14.12	2 Nos of 12V 95AH battery. 95AH capacity seems to be for a Dgset with Higher then 320KVA. The normal battery requirement for a 320 KVA DG set is 2 numbers of maintenance free battery of 12V 65AH.	Noted. PRL has changed the maintenance free battery from "12V 95 AH to 12V 60AH or higher", and accordingly technical specifications are revised.