Corrigendum and Response to Queries with reference to Tender Ref. No.: IoE-HPCStack/SV/HPC-Tender/2019-0303

for the procurement of a "CPU+GPU+Storage HPC Cluster" (Last date: 7th December 2019 by 5:00 PM IST)

Corrigendum to the Tender

SNo	Reference	Original	Modified
1	Page 1 Item 1 Table SNo 6 Page 3 Item 3 Table SNo 21 Page 3 Item 4 Table SNo 33	• Redundant power supply of Titanium Level (96%) • The minimum PSU wattages should be suitable for the provided solution. • A supporting calculation of the power utilization of the solution and PSU efficiency must be provided.	• Redundant power supply of 80 Plus Platimum Level • The minimum PSU wattages should be suitable for the provided solution. • A supporting calculation of the power utilization of the solution and PSU efficiency must be provided.
2	Page 2 Item 1 Table SNo 12	Should accommodate at least two GPUs (V100 or Titan RTX) per node	Should accommodate at least two GPUs (V100 or Titan RTX) per node. Should have PCI-E 3.0 x16 slots to install PCI-E version of V100/32GB GPUs for future expansion.
3	Page 5 Note on possibility of additional procurements	Based on the budget availability, the following items may be procured from the successful bidder in the given order of preference: 1. Additional CPU-only node given in item 1. 2. Additional storage of maximum 48 TB in the master node, i.e., in addition to the 48 TB requirement in item 2. 3. Up to two Titan RTX GPU cards given in item 5.	Based on the budget availability, some of the following items may be procured from the successful bidder: 1. Additional CPU-only node given in item 1. 2. Additional storage of maximum 48 TB in the master node, i.e., in addition to the 48 TB requirement in item 2. 3. Up to two Titan RTX GPU cards given in item 5.

			4. 4x NVIDIA v100s/32 GB connected by NVLink in place of 2x NVIDIA v100s/32 GB connected by NVLink specified for item 3 NVIDIA v100 node. 5. Any other such advanced/additional items

Response to Queries

SNo	Reference	Query	Response
1	Power supply	The tender specifies " Redundant power supply of Titanium Level (96%)" for the nodes of different types. We request you to change this to " Redundant power supply of 80 Plus Platinum level". The system we plan to propose are with Redundant Power Supplies with 80+ Platinum level and have more than adequate wattage to meet the requirement of the solution to be proposed.	Incorporated in the corrigendum above.
2	Item 5 Tital RTX GPUs	For "8 Titan RTX GPUs. These GPUs to be installed in the CPUonly nodes given in item 1 above with up to two GPUs per node.". Request you to allow us to quote RTX2080Ti GPUs instead. Titan RTX is a PC graphics card and not supported on Server configurations / Data center use.	The tender is particular on procuring Titan RTX GPUs to be installed with the CPU-only node configurations. This clause will stay unmodified.

3	Item 1 and 2	In Item 1 & 2 - you have asked for **7 CPU-Only Nodes** & one of them should be made a Master Node with 48TB Storage. Hence, you will need 1 + 6 = 7 Nodes ? Or is it 1+7=8 Nodes ??	The tender is clear. Refer to item 1 and item 2 description on the first page. So, it is 1+6=7 nodes
4	Item 5	In Item 5, you have mentioned **8 Titan RTX GPUs** - & specified that Item 1 & 2 must be fixed with the same. Do you want 2 GPU Cards on the Master & 1 GPU Card on the remaining 6 Nodes ? Or is it 7 GPU Cards only ??	The tender is clear. It asks for 8 Titan RTX GPUs. At the time of installation, we will let know the configuration that is desired wrt installation of the GPUs in the seven CPU-only nodes.
5	Power supply	In the Power Supply Specifications, you have specified - Titanium Level 96%. Our Servers have **80 PLUS Platinum only.**	Incorporated in the corrigendum above.
6	NVIDIA Tesla V100	For the GPU Nodes, you have specified Nvidia Tesla V100 - **SXM2 TYPE.** Our GPU Servers support **PCIe based V100 Cards only**. Also, these do not have NVLink. Is this OK ?	For item 3 node, the tender specifies “Two NVIDIA Tesla v100 SXM2 32 GB cards connected by NVLink” This clause will stay unmodified.
7	Total number of nodes	Is is a 9-Node Cluster or a 10-Node Cluster ?? The major confusion is in **Item 1 & 2** specified !	Clarified above. It is a total of 7 CPU-only nodes (item 1 and 2) + 1 node with NVIDIA V100 (item 3) + 1 node with non-volatile memory
8	Non-volatile memory node	Reg your requirement of Non-Volatile Node, you have asked for additional 2 x 128GB Intel Optane DC Memory. We generally use this for In Memory Large Databases / SAP kind of applications. It this for a large in memory problem size ? --- Usually, the ratio of regular to non-volatile memory node size is	This node is for research purposes. The specifications regarding non-volatile memory node will stay unmodified.

		1:4. But here, the sizes are about equal.	
9	Item 1 SNo 12	We have two variants of V100 GPUs, one is PCI-E and another one is SXM version. In all the compute nodes for future expansion, we require PCI-E 3.0 x16 slots to install PCI-E version of V100/32GB GPUs.	Incorporated in the corrigendum above.
10	Item 3 SNo 17	In a node, we require minimum 4 x V100 / 32GB memory GPUs if you want to connect with NVLink interconnect, since all these four GPUs are connected with NVLink using Hybrid cube mesh interconnect network topology in order to get maximum / full bandwidth between these GPUs. With 2xV100 GPUs, this topology will not be completed and it will have major impact on application performance. Hence we suggest you to include 4 x V100 /32GB memory GPUs in a single node with NVLink interconnect between all these 4 GPUs	The tender's primary requirement is for 2 x V100/32 GB. Hence item 3 SNo 17 will stay unmodified. However, we have expanded the "Note on possibility of additional procurements" in the corrigendum above to include 4x v100s with NVLink
11	Item 5 SNo. 39 Titan RTX GPUs	We recommend you to go with RTX 8000 which is a latest GPU in the RTX series with high performance for all your applications.	The tender is particular on procuring Titan RTX GPUs to be installed with the CPU-only node configurations. This clause will stay unmodified. However, we have expanded the "Note on possibility of additional procurements" in the corrigendum above to include RTX 8000 GPUs.