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**Council of Scientific and Industrial Research
NATIONAL AEROSPACE LABORATORIES**

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CORRIGENDUM – Changes in Specification (Chapter – 4)

Tender No.: NAL/PUR/ICTD/137/22-Z

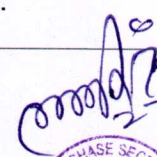

Tender ID: **2022_CSIR_130154_1**

In continuation of CSIR-National Aerospace Laboratories tender for Supply, Installation of Virtual Desktop Infrastructure Solution at CSIR-NAL, please find attached changes in specification in chapter-4. Bidders to take cognisance of the same before submission of bid.

Other clauses of the bidding document remain unchanged.

**Stores & Purchase Officer
For and on behalf of CSIR - NAL**

| Sl.No. | Page No. | Section | Title of the Clause | Amended Specifications |
|--------|----------|-------------------------------|--|--|
| 1. | 46 | 4.2.1 Technical Specification | 3. HCI Solution should be able to be Configured using All-Flash combination of SSD and NVMe) storage type with 100TB usable storage. | 3. HCI Solution should be able to be Configured using All-Flash combination of SSD or NVMe or both) storage type with 100TB usable storage with RF2 and RAID10 or equivalent configuration. Storage has to be calculated without compression and /or deduplication |
| 2. | 46 | 4.2.1 Technical Specification | HCI system should be Scale UP and SCALE OUT Design. Within the existing node should support hardware upgrade like Memory, Storage disks(Cache and Capacity), PCIe hardware FC HBA, NICs, GPU etc. | HCI system should be Scale UP and SCALE OUT Design. Within the existing node should support hardware upgrade like Memory, Storage disks(Cache and Capacity), PCIe hardware, NICs, GPU etc." |
| 3. | 47 | 4.2.1 Technical Specification | 20. Even after one node failure HCI cluster should be able deliver same capacity (CPU,GPU, memory and Storage). | 20. Even after one node failure HCI cluster should be able deliver same capacity (CPU,GPU, memory and Storage). one node failure per site, i.e. Two Nodesfor both sites (DC as well as DR). |
| 4. | 48 | 4.2.1 Technical Specification | 35. HCI should have a provision for future integration HPC cluster for better computation if required. Required SW (i.e. customized API) should be provided at the time of implementation. | Existing HPC system consists of five computing nodes(Fusionstor Invento i534e purely Series) and One master node (Fusionstor Invento i611e) build with CentOS using SLURM. Necessary API / interface software to be provided to use the above HPC by the VDI users (should be able to off-load to HPC from VDI seamlessly on demand) whenever the compute-intensive tasks (like heavy simulations) are available. |
| 5. | 48 | 4.2.1 Technical Specification | 36. The OEM shall provide onsite warranty of 5 years on hardware. The OEM shall provide performance warranty for 5 years on VDI. Any issue related to compromised user experience on the thin clients must be resolved by the OEM. OEM Should arrange accessories like Rack, rails, switches, router, cables etc. to build HCI infrastructure. | 36. The OEM shall provide onsite warranty of 5 years on hardware. The OEM shall provide performance warranty for 5 years on VDI. Any issue related to compromised user experience on the thin clients must be resolved by the OEM /Bidder. OEM /Bidder should arrange accessories like Rack, rails, switches, router, cables etc. to build HCI infrastructure. |


 27/10/2022


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| 6. | 49 | 4.2.2. Specification of HCI Appliance nodes (8 Numbers) | 6. Disks supported: Front drive bays: 2.5 Chassis with up to 24 Hot Plug SSD. Should have 4 x 3.84 TB SSD and 2X1.92 TB NVMe for Capacity, 1 X 800GB for caching (if required) and 2x 240 GB M.2 Internal SSD for Hypervisor per node. | Front drive bays: 2.5 Chassis with Hot Plug SSD or NVMe and should have 5 x 3.84 TB SSD or NVMe or Both or 4 x 3.84 TB SSD and 2X1.92 TB NVMe Capacity; 1 X 800GB for caching (if required) and 2x 240 GB M.2 Internal SSD for Hypervisor per node. The chasis should be able to support future expansion upto 450TB or more for total eight nodes. Each node should have 4X25G LAN ports with down compatible to 10G LAN |
| 7. | 49 | 4.2.2. Specification of HCI Appliance nodes (8 Numbers) | 9. GPU: GPU card should be distributed amongst the nodes to match the VDI and DC/DR requirements. Minimum 2x48GB GPU or higher in each node. | GPU: GPU card should be distributed amongst the nodes to match the VDI and DC/DR requirements. Minimum 2x48GB GPU or higher in cards each node. Each GPU card should have only one GPU with 10,500 CUDA Cores or more |
| 8. | 49 | 4.2.2. Specification of HCI Appliance nodes (8 Numbers) | 6. Disks supported: Front drive bays: 2.5 Chassis with up to 24 Hot Plug SSD. Should have 4 x 3.84 TB SSD and 2X1.92 TB NVMe for Capacity, 1 X 800GB for caching (if required) and 2x 240 GB M.2 Internal SSD for Hypervisor per node. | Each HCI node details are as per the specifications given. For each Network Switch 25Gbe with minimum 24-ports; all should work at 25G down compatible to 10G |
| 9. | 49 | 4.2.2. Specification of HCI Appliance nodes (8 Numbers) | 8. disks configured: As per HCI requirement. Flash SSD /NVMe only with a minimum 100TB usable required to provide the storage requirement mentioned in section 4.2.3 for 200 VDI users. Faulty Disks would not be returned back to OEM /Vendor /Bidder | 8. disks configured: As per HCI requirement. Flash SSD /NVMe only with a minimum 100TB (including DC, DR with 25% extra storage) usable required to provide the storage requirement mentioned in section 4.2.3 for 200 VDI users. Faulty Disks would not be returned back to OEM /Vendor /Bidder |
| 10. | 55 | 4.7.1 Solution details to be submitted | 18. Implementation time lines including migration of data | It's a new infrastructure (This is green field Project) |
| 11. | 57 | 4.8 Delivery Schedule (including supply, installation, commissioning, training & acceptance) | Delivery of the Item: 4 Weeks | 8 weeks |

Handwritten signature and date: 27/10/2022