Terms of Reference (ToR) for Procurement of Parallel Computing System (PCS)

1. Introduction and Project Scope

These Terms of Reference (ToR) outline the requirements for the procurement, delivery of a new Parallel Computing System (PCS), including computer nodes, a high-capacity networked file system, and essential networking/power equipment.

1.1. Objective

To procure and implement a robust, scalable, and high-performance computing cluster to support the project activities.

1.2. Scope of Work (Deliverables)

The successful vendor shall provide, at a minimum:

1. Supply and delivery of Compute Nodes and required Operating System (OS) licenses (if applicable). Hardware must be delivered in a rack-ready state.
2. Supply and delivery of a Networked File System/Storage solution.
3. Supply and delivery of Networking Equipment-Switch and Power Distribution Units (PDUs).
4. Provision of comprehensive technical documentation to facilitate local installation, including OS installation and configuration of remote access.
5. Remote technical support during the initial setup phase: up to half a day (4 hours) of dedicated remote support, delivered in English on a business-hours basis (8x5, Monday to Friday, excluding public holidays), covering one (1) device at Meteo Rwanda, Kigali, Rwanda. Support includes step-by-step guidance, configuration assistance, and troubleshooting as needed. Technical problems arising during this phase shall be treated with high priority; standard industry response and resolution times apply (e.g. initial response within 4 business hours; resolution or documented workaround within 1–2 business days).
6. Comprehensive Warranty (minimum 3 years) and Support services as detailed below.
7. Shipment of the server to the Rwanda Airport.

Installation Note: Physical rack mounting, OS installation, and configuration of remote access will be carried out by qualified local personnel on-site. The vendor is therefore not required to travel to Rwanda for installation purposes. The vendor shall provide up to half a day (4 hours) of remote technical support during the initial setup phase as specified under Deliverable 5 above.

2. Technical Specifications

2.1. Compute Nodes (HPC Server)

The cluster requires a scalable number of compute nodes designed for intensive parallel processing. All components need to be in the 19” rack format and will be installed in an existing rack.

Component	Minimum Specification
Processor	2x 86-64 or ARM scalar CPUs (min. 48–64 cores)
RAM	4 GB per core (ECC DDR4/DDR5)
Local Storage	2 x 2TB NVMe SSD
Network Interface	Minimum 2 x 10/25 GbE ports per node for data/management network
Management	Dedicated management port (e.g., IPMI 2.0, iDRAC9, iLO)

	Addition cluster management: Rackmount KVM Switch (8-Port) with Integrated Monitor and Keyboard
Operating System	Compatible Open-Source Linux Distribution (e.g., CentOS Stream, Rocky Linux 8/9 (preferable), or Ubuntu LTS) - to be installed locally by on-site personnel

2.2. File System / Network Storage

The storage solution must provide high-speed, scalable network file access to all compute nodes.

Component	Minimum Specification
Raw Capacity	Minimum 50 TB (Terabytes)
Storage Type	Network Attached Storage (NAS) or Storage Area Network (SAN) based on a Parallel File System (e.g., Lustre, BeeGFS, GPFS/Spectrum Scale) is strongly preferred
Disk Type	Mix of High-Capacity SAS/NL-SAS HDDs and SSD/NVMe for metadata and hot data is preferred
Connectivity	At least 2 x 25/40 GbE uplinks for connection

2.3. Networking Equipment (Switch)

Component	Minimum Specification
Switch Model	Network switch
Port Density	Minimum 48 x 10/25 GbE ports (or a port count sufficient to connect all Compute Nodes and Storage units with a 20% future buffer)
Uplinks	Minimum 4 x 40/100 GbE uplinks to support high-speed core connectivity
Management	Full Layer 3 functionality, CLI/GUI management, and support for network virtualization/stacking

2.4. Power Distribution Units (PDU)

Component	Minimum Specification
Type	Rack-mountable, Switched, or Metered intelligent PDUs
Input/Output	Compatible with local data center power standards (e.g., 208V/230V AC) and appropriate connectors (IEC C13/C19)
Feature	Remote power cycling, per-outlet monitoring, and SNMP/network management capabilities

3. Comprehensive Warranty (Minimum 3 Years) and Support Services

The vendor shall provide a minimum 3-year comprehensive warranty covering all supplied hardware components against manufacturing defects and hardware failures.

Support Services during Installation Phase
As specified under Deliverable 5, the vendor shall provide up to half a day (4 hours) of dedicated remote technical support during the initial server installation and setup phase. Support shall be available on a business-hours basis (8x5, Monday to Friday, excluding public holidays) and delivered exclusively in English via remote channels (e.g. phone, video call,

email, or ticketing system). Support is scoped to one (1) device, serving multiple on-site users at Meteo Rwanda, Kigali, Rwanda.
In the event of a technical problem arising during the installation phase, the issue shall be treated with high priority. The vendor is expected to apply standard industry response and resolution times commensurate with a high-priority classification (e.g. initial response within 4 business hours; resolution or documented workaround within 1–2 business days). No on-site travel, spare parts provision, replacement devices, or periodic reporting are required under this support scope.

Warranty Coverage
For the duration of the 3-year warranty period, the vendor shall address confirmed hardware defects through standard warranty replacement or repair procedures in accordance with the vendor's warranty terms. All warranty claims shall be handled remotely; no on-site service obligation applies.