

Request for Proposals (RFP)

The supply, delivery and commissioning of Parallel File System Storage Hardware, and Software, and Maintenance and Support to the CSIR for a five (5) year period.

RFP No. 3671/04/02/2025

CSIR Response to the first batch of enquiries/clarifications

#	Bidders' Questions	CSIR Answers
1	How far is the cabinet that we need to supply from the service cabinet?	Refer to Figure 2 in the RFP There are two (2) racks between the storage and service rack and rack dimensions are (800 X 1520 x 2012) (width x depth x height). A bidder will be required to install the system in the storage node rack.
2	Do the cable run from the top or bottom in the data centre?	Cable runs from the top.
3	How many IB switches and ports per IB switch you have allocated or spare?	12 OSFP ports per switch. This translates to 24 x NDR ports per switch or 48 x NDR200 ports per switch.
4	What is the form factor and speed for in-band management network?	Rj45 10GbE
5	Under 3.1.7. References in the tender document it is indicated that bidders must provide a minimum of 3 contactable references from clients who received similar solutions. Since the HPC environment is highly specialised, it will be a bit difficult for SMME's or Resellers to have 3 contactable references. In this instance can we use the OEM references where they have implemented a similar solution?	The bidders must provide a minimum of 3 contactable references from clients who received similar solutions as per section 3.1.7.4 of the RFP. The CSIR recommends that bidders must submit the required documents for references as per the technical evaluation in Annexure D. OEMs are allowed to participate in the tender if they have the required references where they have implemented a similar scope of work as per the Terms of Reference in Annexure C of the RFP document.
6	Is CSIR open to a storage subsystem that achieves the objectives in terms of performance and capacity but is not based on Lustre or GPFS type of file system?	Yes
7	Is CSIR open to a storage subsystem that achieves the performance requirements but using Ethernet protocol instead of Infiniband? The storage array would connect via the provided NDR200 switches by using 100Gb/s Ethernet cards instead of the Infiniban cards.	No, our HPC system is based on InfiniBand
8	Due to the nature of this tender and the requirement around benchmarking, we formally request an extension to this tender to ensure that we put forward a solution that is best suited.	Extend closing date to 11 February 2025 @ 16:30

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9	<p>Page28 3.1.1. Technical Requirements. The project aims to procure, implement, and integrate an all-flash high-performance Parallel File System (PFS) that supports the growing data storage and performance needs of the CSIR's HPC infrastructure. The bidder will be responsible for delivering a robust, scalable, and reliable storage solution that integrates seamlessly with the new HPC system.</p> <p>Question: must the solution for the 4,7,10 Petabytes requirements be an all-flash solution?</p>	Yes, the solution must be all flash								
10	<p>As per Annexure F - Proposal Form and List of Returnable Documents</p> <p>P38: Furthermore, I/we agree to a penalty clause/s which will allow CSIR to invoke a penalty against us for non-compliance with material terms of this RFP including the delayed delivery of the Services due to non-performance by ourselves, failure to meet Subcontracting.</p>	Refer to the Other Essential Returnable document in Annexure F – Proposal Form and List of Returnable Documents for the subcontracting evidence required.								
11	<p>If we sub-contract with a Bidder with 100% black women ownership, would we be able to claim the 5 points for Black Women ownership.</p> <table border="1"> <thead> <tr> <th>Specific Goals</th> <th>Preference Points</th> </tr> </thead> <tbody> <tr> <td>Black Ownership</td> <td>15</td> </tr> <tr> <td>Black Women Ownership</td> <td>5</td> </tr> <tr> <td>Total</td> <td>20</td> </tr> </tbody> </table>	Specific Goals	Preference Points	Black Ownership	15	Black Women Ownership	5	Total	20	Preference Points will only be awarded based on the bidder's specific B-BBEE certificate or a valid sworn affidavit. Also, the subcontracting agreement must be submitted.
Specific Goals	Preference Points									
Black Ownership	15									
Black Women Ownership	5									
Total	20									
12	<p>Annexure B: 3.1.1.5 Should the proposed solution accommodate scalability beyond 10 PB and 1200 compute nodes?</p>	Yes								
13	<p>Annexure B: 3.1.1.3 – Envisaged Process and Performance Testing – As part of the Project Deployment, a Performance Sign Off</p>	Yes, we can. However, FLASH-IO should probably be compiled on the system. It is included in the pnetcdf package, under the benchmarks directory. pnetcdf								

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	<p>Test will be carried out by the CHPC in conjunction with the partner/OEM to validate the solution. Can Current Performance Benchmarks and Testing Data be provided as part of the proposal with the theoretical numbers?</p> <p>a. FlashIO Benchmark – Please can CHPC provide the compiled version and cli command set used to run the performance test? (as per 3.1.1.6.1 IOR Benchmark)</p>	<p>can be obtained here: https://parallel-netcdf.github.io/wiki/Download.html. The package also includes an example script to run it.</p>
14	<p>Annexure B: 3.1.3.3 TIERING – Context – As the tender requirements state that the solution must support TIERING and must be based ON SOLID STATE DRIVES – what tiering is envisaged?</p> <p>a. TIERING between different performant SSD modules? SLC to QLC? b. If the solution is based on all flash, then TIERING is not required?</p>	<p>a) Tiering between any kinds of disk based on your solution b) Solution should still support tiering for CSIR future plans</p>
15	<p>Annexure B: 3.1.6.1 - Please confirm that a Rack must be Provided as per 3.1.6 or will there be a rack provided by the CHPC?</p>	<p>Yes, the rack must be provided by the bidder. Please refer to Annexure A – Technical Specifications Requirements.</p>
16	<p>Annexure B: What is the depth of the rack, if it is supplied by CHPC?</p>	<p>The rack must be provided by the bidder. Please refer to Annexure A – Technical Specifications Requirements.</p>
17	<p>Annexure B: 3.1.6.2 Must we supply the 3-phase smart PDUs?</p>	<p>Yes. Please refer to Annexure A – Technical Specifications Requirements.</p>
18	<p>Annexure B: 3.1.2 How many ports will be available on the provided NVidia NDR200 switch for the proposed solution and what is the medium of connectivity (copper or fibre)?</p>	<p>12 OSFP ports per switch. This translates to 24 x NDR ports per switch or 48 x NDR200 ports per switch.</p>
19	<p>Annexure B: 3.1.7 / 3.1.8 Are there preferred formats or templates for CVs, references, and the OEM support letter to ensure compliance?</p>	<p>Preferably PDF format.</p>

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20	Annexure D: Performance – As per the sizing requirement being 4PB, 7PB and 10PB respectively, is the performance requested of 200GB/s READ and Write for all 3 sizes?	Yes, performance of 200GBps is for all (3) options
21	Annexure D: Is the write performance of the CSIR perhaps overstated at 200GBps? Based on our experience with an HPC deployment READ Write Ratios Are Predominantly 80/20 Read/Write. Would the CHPC not rather prefer a real-world sizing over the requested 100% READ/WRITE as requested in Annexure D?	Requested read and write is 200GBps. CHPC experience of a scientific HPC system is that the 80:20 read: write ratio is not valid in this case. 200GBps write performance is indeed required.
22	Annexure D: Technical Evaluation Matrix – Can an example be provided on how the scoring is calculated. i. Is each topic max points 10 meaning if you achieve 10 (100%) points your weighting is 25 ii. If you achieve 5 (50%) points your weighting is 12.5%	The scores are calculated as follows: = weight (%) for criterion X (achieved points per criterion/ total points allocated for that criterion) = 40% x (7/10) = 28% (Achieved weighted %)
23	Annexure D: If you achieve 75% on the Matrix overall but 0% on one of the criteria will the respondent still be eliminated?	Yes, the bidder must achieve a minimum of 50% on each individual criterion and a minimum threshold of 50% on 100 points overall to be considered further.
24	Annexure D: Figure 1 & 2 - Diagrams – Please can the Network Diagram be provided as separate files such as Visio as the resolution in the RFP is poor?	Please see Figures 1& 2 on pages 8 and 9 of this document.
25	Annexure D: How many Engineer CVs are required?	Minimum of 1 Engineer's CV
26	Annexure D: Must the mandatory documentation be filled out in black ink or can they be filled out electronically? (For instance Annexure B)	Preferable electronic

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27	we request the OpenFOAM test files.	<p>The case can be downloaded here: https://csircoza-my.sharepoint.com/:u:/g/personal/ccrosby_csir_co_za/EcBaCXZo3TIGgAIWaxxOGw8BCE6kb-PRJBPE6trPeroQ-A?e=i4zKJY</p> <p>It is made for OpenFOAM-v2206</p>
28	we request details on the FlashIO benchmark tool.	<p>It is available in the "benchmarks" directory of the pnetcdf build directory, when compiling pnetcdf from the standard distribution, which is available here: https://parallel-netcdf.github.io/Release/pnetcdf-1.14.0.tar.gz . It is built as part of the pnetcdf compile, which is a straightforward exercise.</p>

Figure 1 : New HPC network diagram

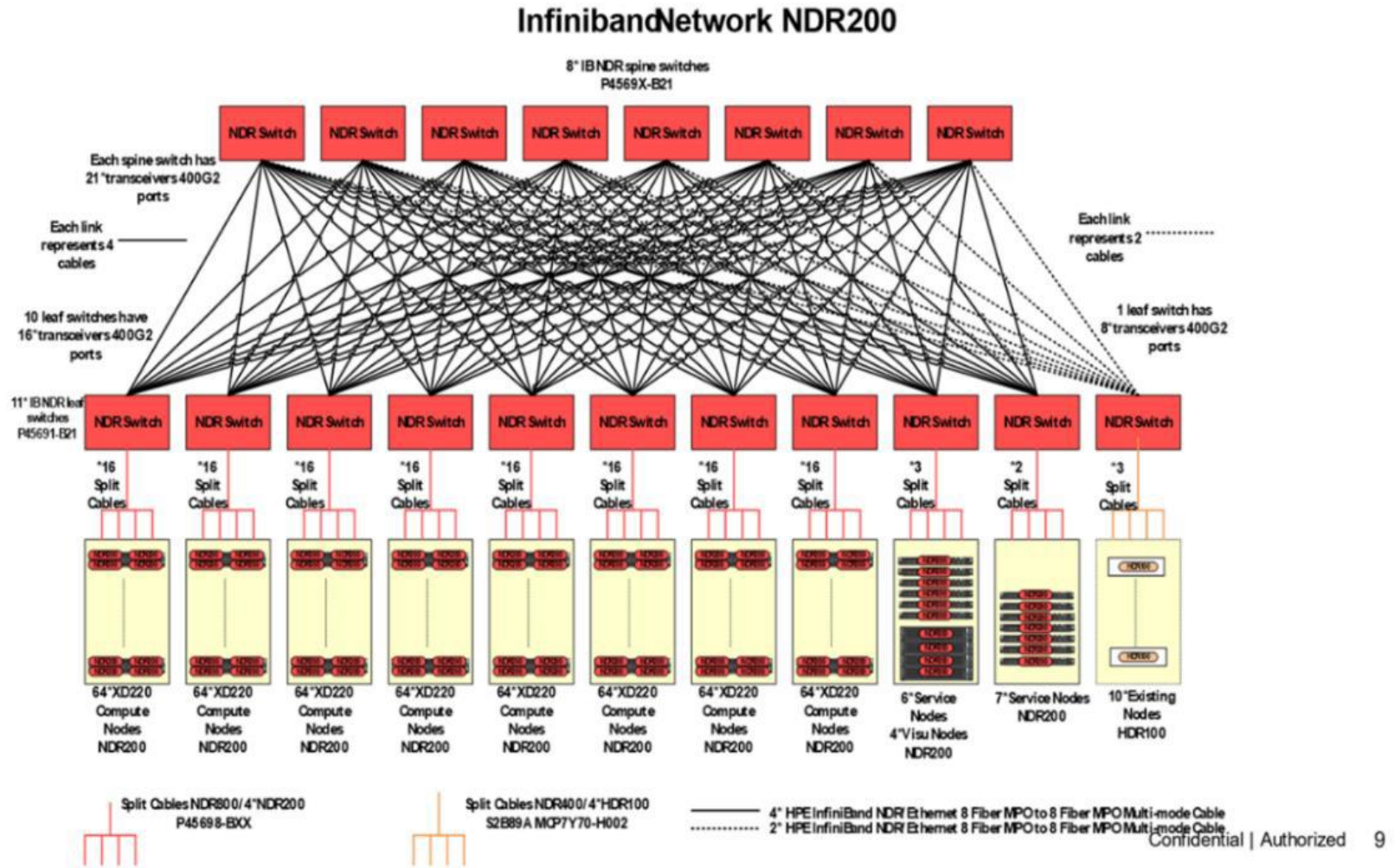


Figure 2 : New HPC racks configuration

