OLCF-6 Technical Requirements Document Version Change Comparison

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1. UPDATED DESCRIPTIONS

Code	Name	Red Line
1156	PFS 15% SAHM write performance	The PFS will provide the capability of writing 15% of SAHM in ~~5~~ ~~minutes~~ 1 minute using a sequential file-per-process workload. Performance will be reported with compression enabled on the PFS for all cases. Offeror will describe the compression algorithm used. Offeror will describe the expected performance for the Single-client, Application Checkpoint, Application Restart, Application Cold Restart, Application Cold Reboot Restart, Hero Sequential, and Hero Random use cases. If the ~~Offeror's~~ Offeror's solution requires tiering to meet performance requirements, Offeror will describe the read/write performance of every tier. Additionally, the Offeror will describe the file object placement, file size, I/O request size, the tool and tool options used to measure the performance, number of CNs, and number of processes or threads per node used to derive each performance value.~~-~~
1363	Requirements Definitions	Requirements in this document have priority designations, which are defined as follows: • Mandatory Requirements (MR) are performance features that are essential to the ~~Company's~~ Company's requirements, and an Offeror must satisfactorily propose all Mandatory Requirements in order to have its proposal considered responsive. • Target Requirements (TR-1, TR-2, or TR-3) are features, components, performance characteristics, or other properties that are important to the Company, but that will not result in a nonresponsive determination if omitted from a proposal. Target Requirements are prioritized by dash number. TR-1 is most desirable to the Company, while TR-2 is more desirable than TR-3. • Mandatory Options (MO) are features, components, performance characteristics, or upgrades whose availability as options to the Company are mandatory, and an Offeror must satisfactorily propose all MOs to have its proposal considered responsive. The Company may or may not elect to include such options in the resulting subcontract(s). Each proposed MO should appear as a separately identifiable item in an Offeror's proposal response. • Target Option Requirements (TO) are features, components, performance characteristics, or upgrades that are important to the Company, but that will not result

<table>
<tr><th>Code</th><th>Name</th><th>Red Line</th></tr>
<tr><td></td><td></td><td>in a nonresponsive determination if omitted from a proposal. Target Options add value to a proposal. Target Option responses will be considered as part of the proposal evaluation process; however, the Company may or may not elect to include Target Options in the resulting subcontract(s). Each proposed TO should appear as a separately identifiable item in an Offeror’s proposal response.

The aggregate of MRs and TR-1s form a baseline system. TR-2s are goals that boost a baseline system, taken together as an aggregate of MRs, TR-1s and TR-2s, into a moderately useful system. TR-3s are stretch goals that boost a moderately useful system, taken together as an aggregate of MRs, MOs, TR-1s, TR-2s and TR-3s, into a highly useful system. Therefore, the ideal OLCF-6 system will meet or exceed all MRs, MOs, TR-1s, TR-2s and TR-3s. Target Requirement responses will be considered as part of the proposal evaluation process.

TOs provide alternative features, components, performance characteristics or system sizes that may be considered for technical and/or budgetary reasons. Target Options may also affect the ~~Company's~~ Company's perspective of the ideal OLCF-6 system, depending on future budget considerations</td></tr>
<tr><td>1482</td><td>Microbenchmarks Summary Table</td><td>Provide a summary table of the microbenchmarks.

<table><tr><th>Microbenchmark</th><th>Description</th><th>Figure of merit</th><th>Result</th></tr><tr><td>BabelStream</td><td>Measures accelerator bandwidth per MPI process</td><td>GB/s</td><td></td></tr><tr><td>py-DGEMM</td><td>Measures accelerator GEMM performance (preferably</td><td>FLOPs/sec</td><td></td></tr></table></td></tr>
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<tr><th>Code</th><th>Name</th><th>Red Line</th></tr>
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<tr><td></td><td>for all floating point types) per MPI process</td><td></td><td></td></tr>
<tr><td>OSU All-to-All</td><td>Measures full system all-to-all performance for the largest possible power-of-two message size in accelerator memory.</td><td>GB/s</td><td></td></tr>
<tr><td>~~Spatter~~</td><td>~~Performance of sparse and irregular memory access.~~</td><td>~~Memory references/second~~</td><td></td></tr>
</table>
For each microbenchmark, assume similar number of processes per node as the benchmarks as in 3.5.1. That is, if the benchmarks use 8 processes per node, use 8 processes per node for these microbenchmarks as well.
</td></tr>
<tr><td>1499</td><td>Guidance for Offerors</td><td>The Company has structured these requirements with the objective of allowing Offerors to propose a wide range of solutions, including an on-premises system ~~with~~ or ~~without~~ ~~storage and/or~~ an off-premises system~~.~~ ~~The Company also invites standalone proposals for the Parallel File System (PFS) and AI-Optimized Storage (AOS) options~~.</td></tr>
</table>

Code	Name	Red Line
		Specific guidance for preparing responses to each of these scenarios is given below. Offerors may provide one or more proposals for the scenarios. All Offerors ~~(except storage-only proposals)~~ must respond to the Mandatory Requirements in Section 2 (2.1.1.1 System Description and 2.1.2.1 High-Level Software Model) and the Mandatory Options in Section 4 (5.1.1 Parallel File System and 5.2.1 AI-Optimized Storage) at a minimum to be considered responsive. All other requirements are graded TR-1/2/3 to indicate the importance to the Company. Offerors should respond to as many requirements and options as are applicable to the proposal and are practicable but should not feel obligated to respond to all. In Section 13 of this document, the Company requires maintenance for the first five years post-acceptance with options for maintenance in years 6 and 7. If offeror is bidding a service for which maintenance is included in the service price, describe the maintenance as requested in the requirements and indicate in the separate Price Proposal that the cost is included. For extended maintenance in years 6 and 7, describe the maintenance in this document and indicate in the Price Proposal what the service price would be in those years.

2. ITEMS REMOVED SINCE V2.0

Code	Type	Name	Description	Priority
1503	Text	Guidance for Storage Only Proposals	If the Offeror is only proposing storage, the Offeror needs to complete Sections 4: I/O Subsystem and Sections 10-13. The proposal should provide solutions for both options: Parallel File System (PFS) and AI-Optimized Storage (AOS). The proposal should also include options for extended maintenance for years 6 and 7, increasing and decreasing capacity for all media, and scaling bandwidth as well as any other options that the Offeror believes make sense. Some of the storage requirements are written as a multiple of compute system memory capacity. A storage-only proposal should assume 8 PiB for this value. The proposal's options should allow the Company to adjust the storage systems up or down once the final system memory capacity is known. Within the proposal, the Offeror should indicate which interconnect technologies are currently supported and are planned to be supported in this timeframe. The proposal's hardware and software description in 4.1.1 and 4.2.1 should include what software needs to be installed on clients (i.e., compute nodes). The proposal should indicate which Enterprise Linux distributions are supported. The storage Offeror's proposal should define a solution compatible with the requirements in Section 10: Facilities.	