Questions and Answers for University of Hawaii RFP# 103-2019

All questions received from vendors were transferred into this document “as is” except for choosing a single font and adding “Q:”. The answer to the question above begins “A:”. Some vendors included excerpts from the RFP prior to their question. Unless otherwise indicated, those excerpts are included just prior to the question.

Section 2 – Statement of Work

Physical:

Q: Will you please provide the exact Rack model of the Chatsworth Teraframe F Rack, as there appear to be multiple generations? If that is unavailable would you please provide the dimensions of width, height, and depth?

A: ITS Data Center utilizes Chatsworth TeraFrame Gen 2 cabinets.
Part Number: FF2L-111-E62
Width: EIA 19”
Available Rack Mount spaces available: 42 (top 3 saved for structured wiring)
Depth (rail to rail): 38.”
Depth (door to door): 43”

All cabinets have four sides, as such all inter-cabinet cabling must be via structured wiring or above cabinet cable trays.

Q: Given that each ServerTech ST V-4104Y 60A PDU’s deliver 17.3 KW each, do you deploy your HPC nodes utilizing the two (2) of them to provide up to the door capacity of 30KW/Rack? In another words, do you use single rail power delivered over 2 PDU’s, rather than redundant power to each HPC node which would limit you to 17.3KW/Rack?

A: Although the row has redundant power capability, in order to have sufficient power capacity we operate in a non-redundant manner allowing for 30 kW per cabinet with respect to the cabinet PDU’s. However, we currently operate a number of systems with N+1 redundancy at the subrack enclosure.

GPU nodes V100 & CPU nodes:

Q: This question is partially dependent upon the above question/answer on either the limit of 30KW/rack via 2 PDU’s with single power rail/feed, or 17.3KW/Rack with 1 PDU per separate power rails/feeds. For both GPU and CPU nodes, do you require only a single power supply?

A: Although the row has redundant power capability, in order to have sufficient power capacity we operate in a non-redundant manner allowing for 30 kW per cabinet with respect to the
cabinet PDU’s. However, we currently operate a number of systems with N+1 redundancy at the subrack enclosure. Vendors are welcome to include redundant power supplies as optional line items. We will score and rank all proposed configurations in our selection process.

Q: In both the GPU and CPU configuration, there is no reference to local storage. Just double checking that you do not desire local scratch?
A: Vendors are welcome to optionally include local SSD/NVME storage for use a scratch. Drive capacity should be 800GB minimum.

Alternatives CPUs:

Q: Can you clarify how you would compare alternative processors versus Intel processors? For example: do you look at cost/performance per socket or dual? Do you look at per core performance? Or, further, if for your budget you could have more sockets of an alternative to Intel's 6248 is that part of your consideration?
A: The aggregate of single core price/performance is most important, although all the pro’s and con’s of the proposed system design will be considered.

High-performance Low Latency Cluster Interconnect:

Q: For the 40 Port HDR Infiniband switch – you mention the x86 dual core, just for clarification do you want the ‘managed’ switch that will run the subnet manager?
A: Our current understanding leads us to prefer the managed HDR switch. We plan to run OpenSM eventually, but initially we will need to run the subnet manager from the switch.

Q: For Clarification, can you clarify that this 40 Port HDR Infiniband Switch will not have uplinks into any existing Infiniband Fabrics?
A: There is an existing managed EDR network switch which we may consider bridging into the HDR network.

CABLES:

Q: “Are non-Arista compatible cables/optics acceptable?”
A: Cables need only be compatible with Arista, they do not need to be Arista branded.

Management and monitoring:

The RFP states: “All CPU and GPU systems should be IPMI capable.”
Q: Can you clarify if you desire, prefer or require that this solution reside on an ‘out of band’ 1 GbE network? If yes, do you desire we provide adequate 1 GbE ports, with an uplink or two to your Arista network Switch (or other switch)?

A: IPMI should be out of band on a separate 1 GbE port that we will connect to our existing 1 GbE infrastructure with copper cables that we will supply.

Q: If you do not desire a dedicated out of band IPMI network to manage your system, can you validate that you expect the 25GbE ports to provide “Shared Lights Out Management/IPMI” over the same physical cable/port? This is often done by the switch setting a 'tag' and then using the 'tagged interface' to provide a separate VLAN for the IPMI/management controller. Can you confirm if you are sharing the 25GbE port for both Administrative traffic and management traffic how you deploy/configure that?

A: We do desire a dedicated out of band IPMI network. See last answer above.

3.1.3 SCHEDULE

The RFP Clearly States: “Hardware shall be delivered to the UH ITC Data Center and racked by University staff in University supplied racks.."

It also states: “All hardware will be installed and operational before full payment will be made. The systems should be fully functional and have passed all acceptance criteria agreed on in the statement of work by March 23, 2020.”

Q: Regarding Acceptance criteria is expected that the offeror will validated the connection of the compute and storage configuration or will U of Hawaii provide that.

A: UH staff will conduct all onsite testing.

Q: In addition to racking the gear, does U of Hawaii plan to cable, label the Infiniband and Ethernet cables and the Mellanox 40 Port HDR Infiniband switch?

A: UH staff will cable and label all network connections.

Q: There are no requests for servers such as “head nodes,” or “login nodes.” Does this imply that U of Hawaii will deploy this new hardware with existing provisioning tools, enabling all needed software, scheduling, monitoring, etc. from existing infrastructure over the Ethernet Network via the Arista 25GbE network?

A: Yes, UH will employ existing infrastructure including the 1 GbE and 25 GbE networks to provision and manage the compute infrastructure procured in this RFP. We use xCAT for provisioning and management of our current cluster.
Q: Are there any components of deployment that the U of Hawaii desires us to provide professional HPC services to assist, or possibly provide full on-site HPC deployment services? If so, please describe.
A: No.

**GENERAL QUESTIONS:**

Q: Are substitutions allowed?
A: Substitutions are allowed if they meet or exceed the performance characteristics defined in the RFP.

Q: Please further describe the expectations of the acceptance criteria, including required benchmark runs, cluster testing, or other testing? The extent of the testing may incur unexpected costs if not defined before submission of the response.
A: The acceptance criteria will be determined by mutual agreement between the winning bidder and UH during the process of writing a statement of work. Thus, there should be no unexpected cost to the vendor, especially considering UH staff will be conducting all of the testing.

Q: The single Mellanox HDR IB switch should be a managed or unmanaged switch?
A: Our current understanding leads us to prefer the managed HDR switch. We plan to run OpenSM eventually, but initially we will need to run the subnet manager from the switch.

Q: Are there any expected software packages (like compilers licenses, or admin applications) or other software licensing that must be included on the proposal? We do not see a request for any software to be included in the proposal.
A: No. There are no software licenses or packages included in the

Q: Installation of the hardware into the Chatsworth racks is clearly stated. Is the OFFEROR required to provide the physical cabling of all components once the systems are racked on-site?
A: UH staff will cable and label all network connections.

Q: Will testing be required on-site to meet the acceptance criteria or would factory testing results meet the acceptance criteria?
A: Factory testing is not adequate for acceptance. UH staff will conduct all onsite testing. The acceptance tests will be mutually agreed upon by the winning bidder and UH in drafting the statement of work.
Q: How many years of support should be included?

A: Quoted from the RFP regarding warranty and maintenance:
“Proposals must include five-year warranty coverage on all major equipment items. At a minimum, the University should be able to initiate service calls Monday through Friday, 8 AM to 4 PM HST for next business day parts delivery. Next day delivery of parts from the mainland is often problematic, so offerors may wish to include an onsite spare parts strategy in their warranty. Preference will be given to vendors with local repair technicians and a parts depot on Oahu.”

Q: Will the purchase order and the delivery address be from and to the University of Hawaii? This can affect GPU pricing and whether or not we can apply GPU EDU pricing.

A: Yes, all billing and deliveries for this purchase are for the University of Hawaii. RCUH is a public entity established by the Hawaii State Legislature to handle

Q: Being this is an expansion to a current HPC system, will any software need to be installed on the systems or will they be baremetal?

A: Nodes should be baremetal

Q: What brand and model are the current existing nodes so we can try and quote the same brand?

A: Matching the brand and model of the existing nodes is not desired. Suffice to say it quite heterogeneous.

Q: Can you provide a current rack diagram of the current environment and where these new nodes will be going? This will help with cable lengths and get a sense of where everything will be laid out.

A: We will not provide a diagram of the current environment, since only 3 adjacent cabinets are involved in this RFP. The equipment requested in the RFP will fit in 1 or 2 adjacent racks of type described previously and again below. The servers purchased in the RFP each require 25 GbE and HDR100 connections in the upper half of the third adjacent rack. From the servers the cables will be routed through the rear-top cable access ports on either side of cabinets, across the solid cabinet top toward the front of the cabinet up to cable trays 5” and 18” above the front of the cabinets, down the row to the switch cabinet, across the cabinet top, toward the back and dropped into rear cable ports.

Height: 45U/ 84.6"
Width: 27.6"
Depth: 41.3"
Rail style:Square-Punched, 2-Pair
Q: Can cables to adjacent racks go in-between, over, or below racks?

A: Cables should go over the racks if required to reach between adjacent racks. There are two cable trays above the front of the cabinet at 5 inches and 18 inches.

Q: For the GPU nodes, do you need 16GB or 32GB V100’s? Should these be PCIe or SXM2 cards?

A: V100’s should have 32GB and connecting using SXM2.

Q: Do the GPU and CPU nodes need any SSDs or HDDs (for scratch or OS) or will these be booting diskless?

A: The cluster nodes are booted diskless, but vendors are welcome to optionally include local SSD/NVME storage for use as a scratch. Drive capacity should be 800GB minimum.

Q: Will the HDR switch that is being quote out connect to a current HDR/EDR switch? If so, can you provide a network diagram on the existing configuration?

A: No existing HDR/EDR currently exists, but there is an existing managed EDR network switch which we may consider bridging into the HDR network.

Q: Will the new nodes be connecting to a current GbE management switch? If so, can you provide a network diagram on the existing configuration?

A: Node management via IPMI should be out of band on a separate 1 GbE port that we will connect to our existing 1 GbE infrastructure with copper cables that we will supply.

Q: Will is the current software environment of the existing cluster? OS, cluster stack software, management utilities, applications, etc?

A: We use xCAT for provisioning and management of our current cluster. The nodes purchased with this RFP will be provisioned an managed by those same systems.

Q: Will any software or applications need to be quoted out? Intel Cluster Studio, complier tools, CUDA libraries, etc?

A: There is no explicit software component called for in the RFP.
Q: The RFP requests 6 GPU nodes with 4 x Nvidia V100 GPUs each. Do you require the GPU nodes to have Nvidia NVLink for the V100 GPUs? If So, Do you require that the storage system supports Nvidia GPUDirect Storage and Nvidia Magnum IO?

A: Yes, the V100 GPU nodes should be NVLink capable. Nvidia GPUDirect Storage and Nvidia Magnum IO are both very desirable features. If there were costs associated with these particular features, we would like to see line items for each.

Q: Do you require the storage system to support RDMA?

A: Yes, the storage system should support RDMA.

Q: Could RCUH please clarify whether exceptions will automatically disqualify a bid, or if exceptions will be considered? (The rest of this question follows the current provisional answer).

A: We have requested clarification from RCUH on the following question regarding legal/procedural sections of the RFP. We do not yet have a time frame for getting a definitive answer to this question, but we can not further delay posting the answers to all of the other questions. I would encourage all interested vendors to bid. Thanks for your patience.

Please see highlighted text below which we are seeking to clarify: Section 1.15 of the RFP says that “an Offeror shall be disqualified and its proposal automatically rejected if… the proposal has any provision reserving the right to accept or reject award, or reserving the right to enter into a contract pursuant to an award, or has any provision contrary to those required in the solicitation”. However, Section 1.15 also states that “any other set of terms and conditions contradictory to those in the RFP may be disqualified…”. Additionally, the language in Section 1.19 and Modifications to Agreement clause suggest that exceptions will be considered/negotiated.

- **1.15 DISQUALIFICATION OF PROPOSALS**
  The RCUH reserves the right to consider as acceptable only those proposals submitted in accordance with all the requirements set forth in this RFP, and which demonstrate an understanding of the scope of work. Any proposal offering any other set of terms and conditions contradictory to those included in this RFP may be disqualified without further notice.
  - An Offeror shall be disqualified and its proposal automatically rejected for any one or more of the following reasons:
    - The proposal shows any noncompliance with applicable law.
    - The proposal is conditional, incomplete, or irregular in such a way as to make the proposal indefinite or ambiguous as to its meaning.
    - The proposal has any provision reserving the right to accept or reject award or reserving the right to enter into a contract pursuant to an award, or has any provision contrary to those required in the solicitation.
    - The Offeror is debarred or suspended. Entities that are currently debarred or suspended from federal procurement transactions are listed in the Excluded Parties Listing System.
  - A search can be performed at [www.sam.gov](http://www.sam.gov) to determine whether an entity has an active exclusion.

- **1.19 PROCESS FOR NEGOTIATIONS**
The RCUH will attempt to negotiate with the selected Offeror a mutually acceptable Agreement for Services. If this cannot be accomplished within 21 calendar days after initial Selection, the RCUH reserves the right to terminate contract negotiations with the first-ranked Offeror, and may select the second-ranked Offeror for negotiation of a potential award. This process may continue in order of Offeror ranking until a mutually acceptable Agreement for Services is achieved with the RCUH and an award is made to a selected Offeror.

- Modifications of Agreement. Any modification, alteration, amendment, change, or extension to any term, provision, or condition of this Agreement shall be made only by written amendment to this Agreement, signed by CONTRACTOR and RCUH. No modification, alteration, amendment, change or extension to any term, provision, or condition of this Agreement, signed by any persons, including the University of Hawaii, shall be binding on RCUH unless signed by an authorized official of RCUH.