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**Request for Proposal**

**Yale University**

**Yale Center for Research Computing & Yale Center for Genome Analysis HPC Compute RFP**

Yale University

New Haven, Connecticut

**Issue Date: March 9th, 2022**

**Issued by: Yale University**

**25 Science Park**

**150 Munson Street**

**New Haven, CT 06511**

*This Request for Proposal contains confidential and proprietary information of Yale University and must be maintained in confidence and used only for the purpose of providing a proposal to Yale University. If you are not willing to abide by the foregoing, please return this Request for Proposal (and any copies) to the address set forth above immediately.*

1. **RFP CONTACTS INFORMATION:**

| **Steve Arnold** | **Dave Logie** |
| --- | --- |
| Yale University | Yale University |
| Purchasing Services | Yale Center for Research Computing |
| 25 Science Park, Room 664LL | Room 223 |
| 150 Munson Street | 160 St. Ronan Street |
| New Haven, CT 06511 | New Haven, CT 06511 |
| Email: [stephen.arnold@yale.edu](mailto:stephen.arnold@yale.edu) | Email: [david.logie@yale.edu](mailto:david.logie@yale.edu) |

1. **RFP EVENTS TIMELINE**

| **Milestone Date** | **Event** |
| --- | --- |
| **03/09/2022** | **RFP posted online** |
| **03/15/2022** | **Deadline for emailed submission of questions to RFP contacts, 5:00 PM EST** |
| **03/18/2022** | **Yale University e-mails responses to questions to vendors** |
| **03/23/2022** | **Deadline for vendors to submit their proposed specifications and pricing using the bill of material format described on page 3, Section D, 5:00 PM EST** |
| **TBD if necessary** | **Vendor Presentations (By Invitation)** |
| **TBD** | **Award of Contract(s) / Letter of Intent (LOI)** |
| **TBD** | **Latest delivery date for any and all hardware purchased in connection with any contract under this RFP** |

1. **REQUEST FOR PROPOSAL**
   1. Yale University (“Yale”) invites you to submit a proposalto provide **High Performance Computing equipment as described in sections and attachments contained herein** **this Request for Proposal.** Yale may modify this RFP, including the schedules set forth herein, at any time by notice to participating vendors. Each vendor shall be responsible for all of its expenses incurred in connection with the preparation and submission of any proposal in response to this RFP. Yale will not be liable in any manner or to any extent for any cost or expense incurred by any vendor, whether directly or indirectly, in the preparation, submission, presentation or any other action connected with proposing or otherwise responding to this RFP. Vendor proposals, and all materials associated with, attached to, or referenced therein, will become the property of Yale.
   2. This RFP is not an offer by Yale to enter into an agreement with any vendor. This RFP is a request to receive proposals from selected vendors interested in providing the services described herein. Yale reserves the right to reject any and all proposals, in whole or in part, for any or no reason, to waive formalities, and to enter into negotiations with any third party (including but not limited to one or more of the proposing vendors) to provide the services described herein. Yale may withdraw or cancel this RFP at any time, at no cost to Yale.
2. **PROCESS** 
   1. Questions Regarding this RFP. All questions regarding this RFP should be submitted prior to **03/15/2022, 5:00 PM EST** via email to the RFP contacts listed in Section 1. Inquiries should make specific references to the applicable section and page number of this RFP. Yale may communicate via email answers to questions posed by any vendor and any clarifications regarding this RFP to all vendors associated with this RFP.
   2. Form and Substance of Proposal. Proposals to provide the goods and services described in this RFP shouldcomply with the following:
      1. Include acknowledgement of receipt of any RFP amendments issued by Yale.
      2. Yale will entertain proposals including any or all of the objectives, or parts thereof, specified in Attachment A.
      3. **If your proposal differs in any way from the terms described in this RFP, include a detailed explanation noting all differences.**
      4. Include the name, title, street address, phone number and email address for the principal contact to which notices and communications related to this RFP should be directed. By submitting a proposal, you consent to receipt of notices and communications sent to such email address.
      5. Yale expects that if two or more legal entities are collaborating to submit a proposal, the proposal will be submitted in the name of only one entity and any contract resulting from such proposal will be between Yale and the proposing legal entity only. Include the legal name of the proposing vendor and any collaborating entities, as well as a description of the relationship between them. If, in order to accept the proposal, Yale would be legally required to enter into a contract with more than one legal entity then please describe the proposed contract structure in the proposal.
      6. Proposals must be signed by an authorized representative of the proposing vendor, identified by name and title.
      7. Include acknowledgement that the proposal (including pricing) will be valid for ***a period of not less than one year*** from the Proposal Deadline.
   3. Submit solution specifications and initial pricing based on Yale standards described in Attachment A. You must submit the specifications you will be basing your bid pricing on prior to **03/23/2022, 5:00 PM EST** to the RFP contacts listed in Section 1. **All pricing must be submitted on a bill of materials with separate line items. Each item must state the following:**

***Product Number***

***List Price***

***Discount %***

***Net Price***

***Estimated Lead Time (Purchase Order to Delivery)***

* 1. Presentations to Yale. Upon Yale’s request, each participating vendor shall present its proposal to certain Yale designees at a mutually agreed upon time and place. An invited vendor’s presentation should not exceed one (1) hour.
  2. Evaluation of Proposals. Yale’s objective is to identify the proposal(s) that offer the greatest overall benefit/value to Yale. Each proposal will be evaluated on the basis of its content, with primary consideration given to the following:

• Auditable pricing and other financial considerations;

• The vendor’s overall performance record as assessed by current and former clients;

• Evidence of corporate capability and commitment to sustainability;

• A quality and innovative program that demonstrates the vendor’s understanding of the needs of Yale, as identified in this RFP; and

• The feasibility of implementing the proposal.

* 1. Negotiations. Yale retains the right to select, request further information from and negotiate with any one or more of the responding vendors. Negotiation may take place in any manner Yale deems appropriate, at any time. Yale also reserves the right to reject any proposals submitted and to terminate negotiations at any time without incurring liability.
  2. Contract. Any contract resulting from a proposal submitted in response to this RFP will adhere to the terms and conditions stipulated by Yale found at URL <https://your.yale.edu/work-yale/financial-management/procurement/vendor-information/purchase-order-terms-and-conditions>, including, without limitation, vendor representations and warranties, service level commitments, vendor insurance requirements and indemnification of Yale.
  3. Notification to Vendors. After Yale has executed one or more contracts that collectively cover the goods and services described in this RFP (or elected not to enter into such contracts), Yale will notify any vendor who has submitted a proposal that was not the subject of an executed contract.
  4. Transition to Selected Vendors. In the event of a transition, Yale anticipates transitioning to the selected vendor(s) on a schedule determined by Yale, in consultation with the vendor(s).
  5. Non Exclusive Agreement. Notwithstanding the terms of this agreement, Yale University may operate or permit others to operate without breaching the terms of any agreement resulting from the award of this RFP.

1. **VENDOR'S REPRESENTATIONS**

By making a proposal, the proposing vendor represents that:

* 1. The vendor understands the requirements of this RFP and the work for which the proposal is submitted. The proposal is based upon the services, materials, equipment and systems required by this RFP without exception or qualification, except as expressly stated in the proposal.
  2. The vendor has not colluded with any other person in regard to any proposal submitted.
  3. The vendor is not barred from proposing or performing work in any jurisdiction.
  4. The proposal is made in full conformance with this RFP.
  5. Vendor is not aware of any violation of the Conflict of Interest policy referred to below.

1. **CONFLICT OF INTEREST**
   1. Yale’s policies require the avoidance of real and apparent conflicts of interest. No employee, officer or agent of Yale shall knowingly participate in the selection, award or administration of a contract with a vendor if such individual or any member of such individual’s immediate family has a material financial interest in such vendor, or is negotiating, or has any arrangement concerning prospective employment with such vendor.
   2. No officer, employee or agent of Yale shall either solicit or accept gratuities, favors or anything of monetary value from any vendor, including any contingent fee.
   3. If vendor has reason to believe any officer, employee or agent of Yale has violated any provision of this paragraph, vendor immediately shall notify Yale of the suspected violation by sending notice thereto to the Director of Purchasing Services, at Yale University, PO Box 208233, New Haven, CT 06520, explaining the situation in full.

**Attachment A: High Performance Computing Cluster Specifications**

**Overview:**

* Yale has requested grant funding under NIH’s [High-End Instrumentation (HEI) Grant Program PAR-21-126](https://grants.nih.gov/grants/guide/pa-files/PAR-21-126.html) to purchase High Performance Computing equipment to replace the existing Ruddle cluster. This cluster is used exclusively in connection with genome sequencing performed by the [Yale Center for Genome Analysis](https://medicine.yale.edu/keck/ycga/). The use of the new equipment will be a mix of high throughput computing, multi-threaded applications and occasional MPI workloads. Jobs on the existing Ruddle cluster typically request a single node and up to 20 cores.
* A portion of the compute nodes in the existing cluster will be retained and will be operated in parallel with the new equipment.
* Nodes consisting of approximately 3,000 compute cores are planned to be purchased – See **Objective 1**. These nodes are expected to use Direct Liquid Cooling (DLC) and will be incorporated into an existing HPC cluster.
* Four (4) Large Memory Nodes (at least 2TiB RAM) may be purchased – See **Objective 2**. These nodes are also expected to use Direct Liquid Cooling (DLC).
* The components of the cluster will be networked via 25Gb/sec Ethernet and 1Gb/sec Ethernet – See **Objective 3**.
* Five (5) years of support is required for all components.
* Include power and cooling requirements for each device under maximum use as configured. If separate figures for maximum use, typical HPC use, and idle are available, include these. Any environmental considerations related to power and cooling, including, but not limited to, air intake temperatures and the requirements for the availability of chilled water, must also be described.
* Each component should have dual, redundant power supplies sized such that if one side fails, the other can power the component at maximum load (e.g., no CPU throttling required). If such sizing is not possible, make that clear.
* As noted above, we anticipate that Direct Liquid Cooling (DLC) will be used for the majority, if not all, of the cluster. Please include a complete description of and pricing for the technology you are proposing including the nature of the liquid involved and how cooling for any non-DLC components will be handled.
* All proposals should include at a minimum, a detailed description of the complete scope, any prerequisites or dependencies, typical timelines for deployment, and how future expansions to the cluster would be possible.

**Objective 1:**

* Direct Liquid Cooled Compute Nodes
  + Dual Intel Xeon Platinum 8358 processors or similar with a minimum of 32 cores per processor at a clock speed of 2.6GHz or higher
  + ~8 GiB RAM per core
  + 2 TiB local mixed-use SSD or better
  + 25GbE SFP28 compatible interface (can include a faster card, but should be compatible with 25GbE)
  + 1GbE IPMI remote management connection
* Network cables as necessary for node to switch connections
  + 3m SFP28 cables
  + 10ft Cat5e/Cat6 1GbE cables
  + The precise lengths of cables will be determined prior to any order being placed

Proposals for multiple configuration options may be submitted.

**Objective 2:**

* Direct Liquid Cooled Large Memory Compute Nodes
  + Dual Intel Xeon Gold 6346 processors or similar with a maximum of 16 cores per processor at a clock speed of 2.9GHz or higher
  + 2 TiB RAM per node, 4 TiB RAM should also be quoted, if available. Intel Optane Persistent Memory may be used, if appropriate.
  + 2 TiB local mixed-use SSD or better
  + 25GbE SFP28 compatible interface (can include a faster card, but should be compatible with 25GbE)
  + 1GbE IPMI remote management connection
* Network cables as necessary for node to switch connections
  + 3m SFP28 cables
  + 10ft Cat5e/Cat6 1GbE cables
  + The precise lengths of cables will be determined prior to any order being placed

**Objective 3:**

* 25 Gigabit Ethernet for intra-cluster and external communication
  + Sufficient switches for the number of nodes in your proposal plus 50% for future expansion, each with a minimum of 2 100G uplink ports, and the associated 100GbE uplink cables
* Unmanaged Gigabit Ethernet for IPMI communication
  + Sufficient switches for the number of nodes in your proposal plus 50% for future expansion, each with a minimum of 2 10G uplink ports, and the associated 10GbE uplink cables
* IMPORTANT: Ensure that all network topology is specified and explained in your proposal
* The precise lengths of cables will be determined prior to any order being placed but assume 20m for pricing purposes in your proposal

**Attachment B: Requirements/Questions**

**(To include in your proposal)**

**Customer Service**

1. Please provide a description of your customer service capabilities, including but not limited to: hours of service, number of customer service representatives, service levels, etc.
2. The selected supplier(s) will have a customer service team with an experienced dedicated account manager to address the needs of Yale. The single point-of-contact will be a manager that can oversee all Yale interactions. Name your customer service team that would be dedicated to Yale including the title/functional areas and physical locations as well.
3. Describe your reporting capabilities, including both standard and custom that would be available to Yale, (e.g. volume and type of items supplied to Yale over a specific period of time). This information should be available electronically at a summary and/or detailed level by item, product category, etc.

**System Requirements**

1. The proposal must follow ***our specification in Attachment A.***
2. Mandatory hardware requirements
   * Five (5) year warranty options on all hardware, parts and labor. Core servers and network equipment should have 24x7, 4-hour response support. Next Business Day (NBD) support is sufficient for other equipment such as compute nodes and individual drives.

**Pricing Requirements**

1. Auditable Pricing – If you are awarded the High Performance Computing Cluster then you must have verifiable price discounts spelled out in our agreement.
   * Please describe how your pricing will be easily auditable and verifiable.
   * What benchmark will you provide Yale to verify the agreed upon discounts?
   * If your pricing is based on a discount off an established price or a list price then provide a URL to where this pricing can be found.
   * Pricing Transparency - Yale’s price must fall as list or established pricing falls.
   * For any future expansion of this cluster, established pricing discounts must be maintained or increased.
   * Yale reserves the right to conduct a new RFP if future model pricing is unacceptable.

**Shipping and Handling**

1. Shipping and handling charges are to be included in the final price. Shipping is FOB Destination and at the cost of the vendor.
2. Please include estimated availability, from the point of contract, for shipping each of the components listed in Attachment A.

**Operations**

1. Please describe your warranty policy for the specification listed in Attachment A.

**Returns**

1. You will pay all shipping and handling fees when incorrect or damaged product received at Yale is sent back to your company.
2. Describe your return policy.

**Equipment Support**

1. Describe your overall support plan for any hardware purchased as a result of this RFP.
2. Describe your plan to stock equipment parts for no charge at Yale in a parts locker.
3. All equipment Yale deems as “lemons” will be replaced by you free of charge. A lemon refers to any hardware which exhibits the same problem multiple times under the warranty and after a reasonable number of repair attempts continues to exhibit said problem.

**Sustainability**

1. Please provide documentation detailing their efforts in regard to supporting Yale’s sustainability efforts found at <http://sustainability.yale.edu/planning-progress>
2. Please provide information on your server equipment energy efficiency
3. What cost savings information do you have pertaining to sustainability?
4. Describe your “Cradle to Grave” program for server equipment.
5. Is your hardware rated against some type of criteria such as EPEAT?

**Training**

1. If you anticipate any training being necessary for Yale staff to operate the equipment in this proposal, please describe your program offerings.
2. If you anticipate any transition costs if Yale moves from its existing High Performance Computing Cluster supplier to your company, please state your plan to reimburse Yale for any costs associated with transition.

**Rebate**

1. Describe any rebate program you may be able to offer to Yale on a continual basis, e.g. quarterly.

**Aggregate Business – Volume Incentive Opportunities**

1. Describe the volume incentive discount pricing program for Yale if it engages in other business lines you offer such as services, other hardware, software etc.

**Trade-in Programs**

1. Describe the program where you will take in old Yale equipment in return for credits towards new servers or other offerings for Yale.

**Indirect Purchasing Model**

1. Describe the business model of selling your equipment to Yale via a value added reseller (VAR) such as GovConnection at the same price (or lower) that you will sell direct to Yale.

**Value Added Services**

1. Describe unique capabilities or advantages that your organization will use to deliver on Yale’s RFP requirements that your competitors will be unable to duplicate.
2. Describe your value added services above and beyond the requirements listed in this RFP

**Other**

1. If your organization is unable to fulfill the requirements as described in this RFP then please list each requirement with a description as to why you cannot meet these requirements.
2. Technical Support via phone – your technical support hotline staff will be located in the United States.

**Attachment C: Elements of Proposal**

1. Pricing Proposal: You are to provide your cost for the systems defined in Attachment A, Current Hardware Specification.
2. Payment Discounts: Yale’s standard payment terms are Net 45. Specify any dynamic discounting that you can offer for early payment. Note that Yale will not agree to interest or finance charges.
3. Agreement Terms: All pricing structures and financial terms must be fixed for the duration of any contract resulting from this RFP.
4. Terms and Conditions: The terms and conditions governing this agreement between the awarded vendor and Yale are located at <https://your.yale.edu/work-yale/financial-management/procurement/vendor-information/purchase-order-terms-and-conditions>. Are you in agreement with Yale’s terms and conditions governing over an agreement between Yale and your company? (Yes or No)
5. Master Agreement: If Yale has an existing master agreement in place with any vendor, the terms of that agreement will supersede any terms stated here or elsewhere.
6. Employee Background Checks. Describe your process for employee background checks. You may be required to provide sample documentation if you are invited to present at Yale.
7. Yale Implementation Resources. If applicable, please provide a timeline and a description of the number and type of Yale resources that you anticipate will be required to implement your agreement.
8. Vendor Representatives. Provide a list of your representatives that will support and service the Yale account. This should include key Account Management personnel, with details of their responsibilities. Yale reserves the right to conduct interviews with identified vendor representatives.
9. Form of Agreement. Provide vendor’s proposed form of agreement, modified as necessary to reflect the terms of this RFP. This proposal is to be provided in an editable format such as “*Microsoft Word*”.
10. References: Identify no fewer than two (2) higher education references that utilize your services as their primary vendor for this type of agreement, with contact information sufficient for Yale to contact such references. By submitting such references as part of its proposal, vendor consents to Yale contacting such references in connection with this RFP.
11. No Use of Yale Name: Neither any RFP respondent nor any contracting party is permitted to use (a) Yale’s name, (b) the name of any employee, student or agent of Yale, or (c) any trademarks, service marks or trade names owned or controlled by Yale, in any public manner, including any sales, promotional, advertising or other publication, without the express prior written permission of the Yale Secretary.
12. Tax Exemption: Yale is generally exempt from federal, state and local taxes for purchases made in furtherance of its exempt mission, including Connecticut sales and use taxes (Permit E00015) and federal excise taxes (Exemption No. 06730237F). Vendors shall not charge Yale for any taxes in connection with the services described in this RFP, to the extent permitted by law. Without limiting the foregoing, Yale will not be responsible directly or indirectly (including by reimbursement to vendor) for any property taxes assessed on any leased property. Vendors shall comply with the requirements applicable to claiming such exemptions. Yale shall provide copies of exemption certificates upon request