



REQUEST FOR PROPOSALS #2022-032
UMaine Advanced Structures & Composites Center – CMMC Compliant
Technology Solutions
RESPONSE ADDENDUM #1
January 5, 2022

CLARIFICATION

QUESTIONS

Q1: Whether companies from Outside USA can apply for this?
(like, from India or Canada)

A1: Refer to RFP Appendix D, Rider A, Business and Performance Reviews. Any personnel interacting with or having access to CUI must be U.S. person-only.

Q2: Whether we need to come over there for meetings?

A2: Refer to RFP Appendix D, Rider A, Business and Performance Reviews

Q3: Can we perform the tasks (related to RFP) outside USA?
(like, from India or Canada)

A3: Refer to RFP Section 1.3.2 Eligibility to Submit Responses.

Q4: Can we submit the proposals via email?

A4: Refer to RFP Section 1.3.8.

Q5: Can you confirm the numbers of users that will be leveraging this environment based on RFP 2022-032?

A5: Between 150 – 300 personnel will require access to this environment.

Q6: Will there be any migration of existing content that needs to be migrated into this new environment (GCC High and or Azure). Or will this be a greenfield empty tenant?

A6: Yes, we are currently hosting several TBs of data in an on premises enclave that would likely be migrated into the new environment.

Q7: Will UMaine be managing this project or the awardee?

A7: The awardee will be managing the implementation, with support from University of Maine

Q8: How many users will have access to this new Cloud environment? - Will these users have access to both the EDU (Commercial tenant) and the new secure enclave (GCC High)?

A8: Between 150 – 300 personnel will require access to this environment.

Q9: Will UMaine need a quote for the license recommendations?

A9: Please use RFP Appendix C, Exhibit 1 Table 1 for licensing. All licensing should be listed separately, as we may already have the licensing.

Q10: Will UMaine be looking to include detailed educational workshops for your team members as part of the deployment, along with the managed services or will you be looking to have the environment configured and managed directly by included managed services teams?

A10: Post implementation, UMaine will provide educational workshops to train staff on the new environment. It would be helpful if the provider is available to participate and lead sections of those workshops. Regarding the second part of the question, it is likely that the environment will need to be configured and managed by the managed services team.

Q11: Will this project be managed entirely within the UMaine Advanced Structures and Composites Center, or will the project also include involvement with resources and departments across the university as a whole?

A11: This will likely require UMaine resources to assist with management, data migration, implementation, etc. We will make the necessary personnel available throughout the process.

Q12: Please confirm the level of CMMC to be assessed? (what level?)

A12: ASCC previously planned to achieve CMMC Level 3.0 (under the CMMC 1.0). With the advent of CMMC 2.0, this corresponds to Level 2. We do not have any requirements for CMMC in any of our contracts at the moment, but anticipate this level when the regulations are finalized.

Q13: Provide specifics of the size of the environment being assessed.

A13:

- Users: 150 – 300
- Workstations: 300
- Data: 5TB of CUI data

Q14: What cloud based data stores are in use today?

A14 There is no cloud-based storage for CUI data currently. CUI data is currently stored in the on-premises Enclave.

The University system currently offers Google Drive and MS Sharepoint for cloud-based storage solutions. The ASCC primarily uses Microsoft Teams/Sharepoint and Google Shared Drive file storage for cloud-based storage.

Q15: What is your current storage footprint and what is your expected rate of storage growth?

A15: Current storage footprint is answered in A18. See A23 for a rough future rate estimate and predicted usage pattern.

Q16: Please describe how computational resources are delivered today

A16: All workstation hardware is currently physical, purchased by the ASCC and configured internally. Additional resources, such as high performance resources, are specialized hardware.

Q17: What systems are in use today (ex. Windows Server VMs using MS HyperV, Vmware ESX virtualization, VDI, RDP)

A17: Controlled storage and AD servers are virtual Windows Servers running on VMware. Workstations and HPC units are physical hardware. RDP is used for server administration, but no remote access is currently allowed for controlled systems. Non-controlled systems are using OpenVPN and RDP for remote work.

Q18: Please provide a list of existing computational/data stores/data management resources, including capacity/utilization description (ex. 40 TB Hitachi NAS currently utilized at 65%) and location (UMA or cloud provider and region)

A18:

- 26 / 26TB QNAP NAS located at UM ASCC building (non CUI)
- 26 / 42TB QNAP NAS located at UM ASCC building (non CUI)
- 12 / 24TB QNAP NAS located at UM ASCC building (non CUI)
- 5 TB file storage located in UM Data Center (CUI)

Q19: Which if any existing computational resources may not be moved from it's physical location?

A19: The ASCC includes many manufacturing and measurement devices which require dedicated computing hardware – much of this is manufacturer-provided, but research-related custom sensors placed around the devices often require dedicated computers to control securely. Also, adaptive process control is an active research interest, which requires in-situ prediction, modeling, and response during the manufacturing process itself.

It is not expected that a proposal address the deployment of in-situ resources, though better standardization of our in-situ or “edge” computing with standard cloud compute resources is desirable.

Q20: Regarding Solution Requirement 1 (CMMC 1.0 Level 3 with a transition path to CMMC 2.0 Level 2), are there any existing written policies or procedures that need be accounted for?

A20: The University of Maine ASCC does have a series of SOPs for data security and a System Security Plan which were referenced in the initial NIST 800-171 self-assessment. We can discuss this self-assessment with the vendor upon award.

Q21: Regarding Solution Requirement 1 (CMMC 1.0 Level 3 with a transition path to CMMC 2.0 Level 2), has the organization categorized and labelled its Controlled Unclassified Information(CUI) and is storing it in known locations? Please specify those locations.

A21: Each project's Technology Control Plan specify what data is CUI. All CUI data is stored in our on prem secure enclave located in the UM Data Center. There is also some locally generated data on workstations for manipulation and generation before being placed into the enclave.

Q22: Regarding Solution Requirement 2 (Cloud based data storage), what file formats are in use for the storage of project information?

A22: We have several categories of file data:

- Project management – Microsoft Project, Office Suite, Adobe files
 - Latex files for publication
- Software codebase – Python/(Visual)C++/Javascript/Bash/Ansible/IaC
- Experimental data storage – Wide variety of image and dataset formats, for example Matlab, HDF5, ROSbags, image series for test coupons, micro-computed tomography scans
- Modeling data formats for solver and design tools

Q23: Regarding Solution Requirement 2 (Cloud based data storage), how much cloud data does organization currently have? How much data is projected over next 5 years?

A23: Currently we store project management and software codebases in (private) cloud systems. We are building in-house archival systems for experimental and design data, however it is estimated that these will not be flexible enough to enable rapid data collection in more exploratory research areas where it is unclear what is important to archive. Our data collection is bottlenecked by storage at this point, but a conservative estimate for our manufacturing research may be 52 prints a year each of which may generate 10TB storage = ~0.5PB/yr.

Access to large amounts of historical experimental data need not be rapid, but ideally it would be automated and tiered so that recent data was widely available.

Q24: Regarding Solution Requirement 3 (send/receive CUI/ITAR in emails), approximately how many users will require secure email?

A24: It is possible that the entire organization (including student employees) will need to have provisioned accounts on this system, to include email addresses. Provisioning/deprovisioning

will need to be handled easily as students come and go from the organization frequently. The organization will likely require between 150 - 350 accounts, depending on whether the full team is required to use the solution or merely those who work with CUI/ITAR information.

Q25: Regarding Solution Requirement 3 (send/receive CUI/ITAR in emails), will data migration from an existing system be required? If so, please describe the technology in use, and whether this system already contains CUI.

A25: No such system exists, so this would be a greenfield implementation.

Q26: Regarding Solution Requirement 4 (secure video conferencing), how are end user devices currently managed?

A26: End user devices have a mix of managed and unmanaged systems.

Q27: Regarding Solution Requirement 5 (collaborative file editing), what file formats are in use?

A27: O365 files are of primary interest for collaborative editing.

Q28: Regarding Solution Requirement 5 (collaborative file editing), will collaboration with external parties be required? If so, what cloud systems are in use?

A28: Collaborative editing with external parties would be beneficial and required if the full organization migrates to this solution. However, a means of sharing project files (such as an external-facing SharePoint site specific to the client) may be of interest.

Q29: Regarding Solution Requirement 6 (scalable computational resources), please describe projected resource needs, including OS type.

A29: Linux (Ubuntu and Oracle Linux preferred) and ideally Windows-OS virtual machine instances deployable on-demand, hosted transparently to the end-user. Projects may require the deployment of custom software for data processing over a short time frame (though this need is partially met by other HPC installations), the hosting of private services for data collection and visualization over longer time frames, and, importantly, a way to prototype research software in both categories. Researchers and engineers should be able to deploy secure servers without manual intervention from the IT organization.

“Serverless” hosting of general compute services would also be considered such as AWS Lambda, but these services aren’t configurable enough for all project needs (for example, legacy and proprietary software).

We expect relatively modest needs for long-term VMs, currently we host only one or two services per project for dozens of people. The ability to test and iterate our infrastructure is a higher priority than hosting large numbers of services.

To use cloud VMs or other scalable infrastructure for real-time data collection and downloading research data, network bandwidth of 1Gbps (symmetric) is desired - not all services will require this, so ideally networking limits would be configurable.

We also expect a relatively modest need for high-availability VMs, though secure snapshots or VM storage backups of some kind are required.

Q30: Regarding Solution Requirement 7 (virtual machines), please describe projected resource needs, including OS type.

A30: See A29 above.

Q31: Regarding Solution Requirement 9 (Git/code repository), please describe device management status and technologies in use today to manage programmer devices.

A31: Device management is largely controlled by IT policies for UMaine, and access to code is treated similarly to access of other project management and data. Currently, however, the authorization system for project codebases is separate from other shared project files (Teams), which is a pain point for the organization. Currently hosting a Gitlab repository in the UM Data Center for a code repository.

Q32: Regarding Solution Requirement 10 (managed support services including governance, IT security & basic IT support), how many users with devices will need to be supported for managed services?

A32: 150 – 300 users.

Q33: Regarding Solution Requirement 10 (managed support services including governance, IT security & basic IT support), please include an asset list which includes model & OS of all computing and networking devices.

A33: 150 - 450 workstation type devices. Upon award a complete list of models/OS can be provided.

Q34: Regarding Solution Requirement 10 (managed support services including governance, IT security & basic IT support), what services will managed services provider be responsible for? What parts of IT will UMaine remain responsible for?

A34: We would ask the vendor to propose a level of managed support services that includes an array of services suitable for the vendor's business model, including enclave management, cloud hosting, device procurement and management to potentially include endpoints (laptops, desktops, etc), help desk, cybersecurity monitoring, assistance with developing policies or policies-as-a-service, etc. These services should be itemized on the Cost Table with an explanation of each service proposed.

Q35: Regarding Solution Requirement 10 (managed support services including governance, IT security & basic IT support), is end user support in scope of managed services?

A35: Some level of collaboration between US:IT and the vendor would be required for end user support. See comment for A34 to better define that line.

Q36: Regarding Solution Requirement 11 (incorporation of existing computational resources), Can we perform an assessment of the existing computation resources? Please describe in detail existing computational resources, including inventory of hardware, virtual resources, OS, and applications

A36: Currently the ASCC houses servers for a number of services:

- Project file share server (being migrated to Teams)
- Resources at the Portland office

We are also building an on-premise data warehouse for manufacturing data storage – this system is composed of a web API and UI to enable data collection and a database (MongoDB/Postgres/Minio) backend to store and serve the ASCC's manufacturing history. Currently the system cannot store CUI/ITAR data, but it is hoped that a version of the system can be deployed in the compliant environment once built.

Q37: With the latest CMMC changes by DoD from CMMC v1.0 to CMMC v2.0, would the University still initiate activities in alignment with CMMC v1.0 with a plan for CMMC v2.0 compliance?

A37: We would prefer this solution to align with v2.0

Q38: Can the UMaine please list and describe any application/program that will require migration to the new CMMC environment? How are these currently being controlled for compliance?

A38: See A36 for one example (though the data warehouse cannot store CUI/ITAR data at this point, so is not yet controlled). The current secure enclave (NIST 800-171 environment) would either become a bridged solution or entirely migrated to the cloud environment.

Q39: What email platform does UMaine currently utilize?

A39: Google Apps / Gmail

Q40: Does the University currently have a CMMC compliant environment and if so, can details be shared as it relates to compliance?

A40: A CMMC compliant environment is currently not implemented at UMaine.

Q41: If the University has an existing environment, can you describe the current and/or expected workload and associated architecture for each environment across the various campuses?

A41: ASCC currently has multiple offices across Maine which would need access to this environment.

Q42: There is a request for cloud based storage, can you explain its utility and associated requirements?

A42: See A22 and A23 – the goal is to use cloud file storage for project data whenever reasonable, as it enables much simpler access to data with less maintenance than custom hosted solutions. The other use case is for flexible storage while data is being characterized – often “bursts” of data must be collected and stored in a time-sensitive way while the analysis takes much longer.

Q43: Can the University further explain the requirements for scalable computational resources?

A43: See A29

Q44: Is the use of non-US based professionals allowed?

A44: Our existing contracts that include CUI specifically restrict foreign national participation so it is difficult to see how this could be achieved.