INDIANA UNIVERSITY

PURCHASING DEPARTMENT

Request for Proposal:

RFP-TEC-1735-2025

For

Enterprise Class x86 Virtualization Server Hardware

Indiana University

University Information Technology Services

Final Response due no later than
05:00pm (Eastern Time) on 04/28/2025

Issued by:
Rachel Beall
Purchasing Sourcing Manager
Indiana University
2709 E 10th Street
Bloomington, Indiana 47408
Issued: 03/31/2025

Section A. Table of Contents

Section B - Purpose

Indiana University (IU) is requesting proposals from firms interested in providing enterprise class x86 virtualization server hardware for the University's two primary data centers, as specified herein. The intent of this Request for Proposal (RFP) and the ensuing process is to provide companies with the information, requirements, and specifications necessary for the preparation of a professional and comprehensive proposal. Specific terms and conditions are outlined.

Selection of the successful company (Contractor) will be based upon:

- Total Cost of Ownership
- Ability to Meet Technical Specifications
- Ability to Meet Statement of Needs (Scope of Work)
- Acceptance of Terms & Conditions
- Value Add
- References

These criteria have been listed in order of importance.

As used within this RFP, "Participant" shall refer to those companies receiving and responding to this RFP. "Contractor" shall refer to the successful Participant of the process. "University" shall refer to Indiana University.

If the Participant will not be selling directly to the University, it is the Participant's responsibility to choose one reseller with whom they will partner on this project.

Section C - Background

Founded in 1820, Indiana University is a public, multi-campus, educational institution with undergraduate and graduate students exceeding 90,000. IU spans the state with nine campuses, all 50 states, Washington, D.C., three U.S. territories and over 150 foreign countries are represented. IU online also provides over 120 academic programs across the globe. It has an additional 21,000+ faculty and staff body that supports the educational mission of the institution.

The University Information Technology Services department (UITS) is charged with the mission of building and maintaining the IT infrastructure by consolidating enterprise scale (multi-campus) services for software systems, server hosting, data storage, networks, backup, messaging, support services, and training, while also enabling innovative departmental-scale technology services.

Indiana University maintains a long-standing commitment to x86 virtualization as a key component of offering consolidated enterprise services. IU was an early adopter of VMware ESX x86 virtualization in production environments. The University's x86 virtualization platform currently spans over 110 physical hosts and supports over 4,500 virtual machines and over 16,000 containerized workloads with a significant presence within both primary datacenters ICTC (Indianapolis) and BLDC (Bloomington).

Indiana University's virtualization efforts to date have proven to be very successful, and the platform, which is internally known as the Intelligent Infrastructure or II, continues to see consistent and substantial growth. The University has migrated its most demanding tier-one applications over to this platform and remains committed to x86 virtualization to achieve maximum scalability, flexibility, and performance. As a result, the physical x86 servers supporting this platform remain a critical part of the overall service delivery.

Indiana University is also expanding its virtual desktop services with this proposal. The virtual desktop services internally branded as IUanyWARE leverages Citrix to deliver virtualized applications and virtual desktop. The underlying hypervisor is ESX and the environment will require GPUs for this refresh cycle. Indiana University (IU) is committed to supporting GPU-accelerated applications across various disciplines to enhance online and distance learning, as well as remote coursework.

An additional workload in scope for x86 refresh lifecycle replacement supports Commvault media agents. The environment is currently deployed on 24 physical hosts running native Windows 2019 operating system.

This RFP is focused on a lifecycle replacement for the x86 virtualization server hardware. The only components in scope for this RFP are the x86 server hardware and top of rack

fiber channel switches required to connect to existing campus network and SAN (Storage Area Network).

Indiana University's primary objective in releasing this RFP is to maintain and enhance a highly available and scalable x86 virtualization platform. The proposed infrastructure components should prioritize reliability and performance, while also offering product innovation and cost efficiency to enable scalable deployments.

For more general information about the institution, please visit the institution's home page at https://www.iu.edu/ and the Institutional Research and Reporting site at https://uirr.iu.edu/.

Section D - Proposal Instructions and Conditions

D1 All questions and inquiries regarding this document should be submitted via the Jaggaer supplier portal. If you experience issues, you may contact Purchasing Category Manager, Rachel Beall, directly at rabeall@iu.edu. EXCEPT FOR CASES AUTHORIZED IN WRITING BY RACHEL BEALL, DURING THE DURATION OF THIS RFP PROCESS, THROUGH SELECTION AND NOTIFICATION, ANY COMMUNICATION BY PARTICIPANTS WITH INDIANA UNIVERSITY STAFF OTHER THAN RACHEL BEALL MAY RESULT IN IMMEDIATE REJECTION OF THAT PARTICIPANT. Questions regarding this RFP should be submitted through the Q&A Board within the Jaggaer supplier portal as they occur. Questions asked after the deadline shown in the schedule in Section E will not be answered

D2 Proposals (responses) should be submitted via the Jaggaer supplier portal. The responses must be received by the due date/time stated in Section E. Fax or Telephone Proposals will not be accepted.

D3 The University reserves the right to waive any irregularities, to reject any or all proposals, and to select the proposal that, in the sole opinion of The University, best meets The University's interests. The University also reserves the right to negotiate with potential bidders so that its best interests are served. Proposals will be evaluated on the assumption that the proposed rates are your most favorable.

D4 The University will not pay for any information requested herein, nor is it liable for any costs incurred by the participant in responding to this request. All proposals submitted become the property of the University; they will not be returned and may be subject to the Freedom of Information Act.

D5 Participants may withdraw their proposals prior to the closing date and time. The proposal constitutes an offer by the participant, which shall remain open and irrevocable for a period of 90 days.

D6 After the RFP closing time, proposals will be opened and reviewed at the convenience of the University Purchasing Sourcing Manager. There is no public opening.

D7 The University reserves the right to accept the proposal that appears to be in the best interests of Indiana University and to negotiate a contract with that participant using the proposal submitted as a basis.

D8 The University reserves the right to award multiple contracts if deemed by University to be in its best interest. Consequently, any contract awarded does not provide supplier exclusive rights.

D9 Any information released either verbally or in writing prior to the issuance of this request shall be deemed preliminary and not binding upon the University in any manner.

D10 If requested, participants must submit audited financial statements for the past two (2) years (or equivalent data) in order to demonstrate financial capability to provide the required services.

D11 Participants may be invited to come to Indiana University to provide a presentation about their submission at their own expense.

D12 The University will not enter into any agreement or execute any contract or affix signature to any document from a participant whose terms, written or verbal, require the University to waive all conditions or requirements negotiated, provided for in this document, our purchase order, or by mutual consent. Any document containing a clause or clauses that serve to supersede all other documents attached to this transaction may be rejected.

D13 Notwithstanding any other provision of this Request for Proposal, the University expressly reserves the right to:

1. Conduct discussions with any or all participants for the purpose of clarification of proposals;
2. Accept, reject, or negotiate the terms of any proposal, or any parts thereof, for the purpose of obtaining the best and final offer;
3. Reissue a Request for Proposal;
4. Select the finalist(s) based on the University's analysis and evaluation of proposals submitted.
5. Request presentations of proposals if the University feels further information is appropriate to the decision-making process.

D14 The University reserves the right to use any and all concepts presented in any reply to obtain the most beneficial and effective path to achieving the desired goals. Selection or rejection of submittals shall not affect this right.

D15 By virtue of submittal, the participant is attesting that all requirements, terms, and conditions in Section G have been read and understood. Unless the responding participant expressly and specifically provides otherwise in its written proposal, the

proposal received in response to this Request for Proposal shall automatically be deemed to include the responding participant's agreement to all terms and conditions of the RFP.

D16 Your response to this Solicitation constitutes an offer to do business with Indiana University under (at a minimum) the terms, conditions and pricing collectively gathered by this Solicitation process. In the event a contract is awarded, the University, at its option, may incorporate all or parts of your response in that contract. Any or all answers and information contained within your proposal shall become part of the final agreement between you and the University.

D17 All proposals or offers must be signed by a duly appointed officer or agent of your company.

D19 Proposals responding to this Solicitation shall not be tied to any potential or future arrangements.

Please note that all prerequisites must be agreed to before a proposal can be submitted. Any requested edits to the prerequisites can be submitted as an addendum to the participant's proposal. If needed, negotiations related to the language in the prerequisites will occur before an award is made.

Section E - Schedule of Events

Following is the detailed schedule of events for this RFP. The University reserves the right to modify the schedule below.

	ACTIVITY	DATE
E1	Request for Proposal issued.	03/31/2025
E2	Participants' questions concerning the proposal must be received no later than 5:00 pm Eastern Time, in accordance with Section D1. An email response or status of response will be provided within 24 business hours. If the information is related to substantive content of the RFP, then clarifications will be sent to all known participants of the RFP.	04/14/2025
E4	Proposals due by 5:00 pm Eastern Time, in accordance with Section D2.	04/28/2025
E5	Selection of Contractor, on or about	05/12/2025
E6	Delivery of equipment to begin, on or before	06/16/2025

Section F - Statement of Needs

Objectives

Indiana University is requesting proposals for a lifecycle replacement of the University's x86 virtualization server hardware. The new x86 hosts will support the University's enterprise VMware and Commvault environment. This hardware lifecycle will result in equal x86 capacity located in both Indianapolis (ICTC) and Bloomington (IUDC) data centers.

F1.1 x86 Form Factor

IU will be deploying rack mount servers with a preference of 2U form factor. Please review "Appendix X – Data Center Rack & Power" for planned rack space, maximum expected installation size is 12 racks total (6 per site).

F1.2 Management Feature Sets and Ease of Use

The proposed solution must include a robust toolset for monitoring, management, and online configuration of the rack mount servers and all related components. A single management interface for all hardware across the entire environment is preferred. The ability to quickly configure and deploy additional x86 capacity is strongly desired.

F1.2.1 Isolation and Encryption of Management

- The proposed solution must support secure protocols for remote administration of the entire deployment. The Management connectivity must be isolated on dedicated NICs.
- The solution must provide the ability to perform remote power control operations (power on, power off, reboot) as well as remote console access to each server.

F1.3 Overall x86 Capacity and Baseline Performance

Note: The shipment will be evenly split between two delivery sites.

F1.3.1 The proposed II solution should provide an initial total of 304 TB of memory equally distributed across 152 identical x86 servers (2 TB of DDR5 of memory in each server) split evenly across the 2 sites. Each server should be built around a two-socket design, focused on the Intel Xeon processor (Granite Rapids) family of CPUs. The preferred CPU option is the Intel Xeon 6517P Processor, but alternative processors within the same family with 16 physical cores would also be considered. All servers should be capable of adding GPU cards in the future. Specific alternative processor selection within that family

should look to maximize, clock speed, cache, and total core count (in that order), that allows the design requirement of 2 TB of memory in each server. Memory frequency should be at the highest level certified for your proposed design. The total number of II servers will be 152 (76 per site).

Boot From SAN – No Internal Storage (ESXi) our current x86 environment contains no local storage inside each x86 host and boots from our existing SAN infrastructure. Any proposed solution must follow this design.

F1.3.2 The proposed VDI servers' solution must match the same CPU selection as the ESXi solution and memory per server. This workload will also require GPU cards (2 cards per server). The preferred GPU option is NVIDIA Ampere A16 adapter, alternative GPU adapters will be considered. The total number of servers for the VDI will be 12 (6 per site). GPU enablement software will need to be included with this response for 200 concurrent users.

Boot From SAN – No Internal Storage (ESXi) – Virtual Desktop Infrastructure (VDI) our current x86 environment contains no local storage inside each x86 host and boots from our existing SAN infrastructure. Any proposed solution must follow this design.

F1.3.3 The proposed Commvault solution must match the same CPU selection as the ESXi solution, but the memory per server should be configured at 512GB.

This workload will also require a minimum of 6 TB local NVMe of usable storage configured with hardware-based RAID. The total number of servers for the Commvault solution will be 28 (14 per site).

F1.4 Ethernet Support per Server

Each server must support four port 25Gb Ethernet connectivity for each individual server. Broadcom10/25Gb NICs based on the Quad-port P425G or N425G adapters are the preferred option, but alternative adapter selection would also be considered. NICs must also fully support PXE boot.

F1.5 Fiber Channel Support per Server

Each server must support two 32Gb fiber channel connections for each individual server. A single Broadcom LPe37102 or LPe35002 dual-port HBA adapter is the preferred option, but alternative adapter selection would also be considered. 64Gb connectivity and ability to natively encrypt fiber channel traffic is preferred. Solutions that include generation 7 fibre channel adapters are required.

F1.6 Fiber channel Top of Rack Switches – 64 Gb

The proposed solution must include Fibre Channel (FC) switches that allow for aggregation of FC connectivity through multi-uplink ISL (Inter-Switch Links) trunks. The proposed design must provide fully redundant A and B FC paths/components that integrate into the University's existing FC infrastructure (outlined in Appendix Z). 64Gb FC must be fully supported from each server as well as the access and trunk ports. There should be a minimum of four (4) 64Gb aggregate/trunk ports with the ability to expand to eight (8) 64Gb aggregate/trunk ports (8 per switch). The solution must support and participate in FC-FC (Fibre Channel to Fibre Channel) routing and be compatible with existing core FC-FC environment including the use of Peer zoning and LSAN peer zoning. Solutions that include generation 7 fibre channel switches are required. There will be a total of 24 switches (12 per site).

F1.7 Standardization of x86 Hardware Environment

As the University's centralized infrastructure continues to expand, it is crucial to standardize hardware components and design elements. The proposed solution should be based on a unified server design. While standard configurations may evolve over time, all x86 servers included in the proposal must be identical.

F1.8 Highly Available and Redundant Hardware Components

As previously mentioned, the University's x86 virtualization platform supports mission-critical virtual machines and applications. Any proposed solution must be inherently redundant in both nature and design. Participants are required to include redundant and hot-swappable power, cooling, and management components in their proposed designs. Additionally, any suggestions on how a participant's solution can further enhance hardware resiliency and recoverability are welcome and encouraged.

F2 Scope of Work

F2.1 Equipment Delivery

The selected Contractor must provide a product set which meets the objectives defined in F and meets all of the criteria in H, to the University premises by 06/16/2025.

F2.2 Training

The selected Contractor must provide online training for up to twelve (12) University personnel on the proposed products. This training must include instruction on the installation, configuration, and troubleshooting of the equipment which is pertinent to the University's intended use of the equipment.

F2.3 Hardware and Technical Support

As part of this acquisition it is our intent to commit to four years of maintenance and support. This support must include online access to software/firmware upgrades,

online access to the manufacturer's knowledge base, online initiation of technical support cases, phone-based initiation of technical support cases, and initial response from a technical support engineer within four hours of initiating a technical support case, Next Business Day replacement of failed server hardware components. The ability to perform self-dispatch for common component failures (such as DIMMs) is preferred.

F2.3.1 Automated Hardware Notifications to Contractor

Automated notifications to Contractor via a "phone-home" feature to proactively notify Contractor of a degraded or failed component is highly desirable.

F2.3.2 Automated Hardware Notifications to University

Automated notification to University employees of degraded or failed hardware is required.

F2.3.3 Predictive Hardware Failure Analysis

Predictive hardware failure analysis and notification for x86 servers and components is highly desirable.

F2.3.4 Hypervisor Specific Support Channels

Participant's technical support infrastructure must include a clearly defined path to reach technical support resources with product knowledge as it relates to highly complex virtualization environments.

F2.4 Installation Services

Installation of equipment is not in scope. IU will perform equipment installation including racking, cabling, logical configuration of Ethernet, Fibre Channel, Management modules, and logical configuration of any included management solutions.

F2.5 Value Add

Each participant is encouraged to list features or services that provide additional value or function not described above such as but not limited to the items listed below:

- Complimentary or discounted training as specified in F2.2
- Complimentary or discounted consulting hours included with the installation
- Post-upgrade installation health check service

Section G - Proposal Response

The Participant's response to this proposal should include answers to the following series of questions. So that the RFP team can easily follow the questions and responses, please ensure that the question is stated immediately before the response. In addition to point-by-point responses, you may include descriptive literature if you refer to specific contents. In reviewing the proposals, university personnel will not search through general literature.

When a question is asked, answer the specific question and supply any supportive detail. Any deviation from this format and sequence may result in the proposal being immediately rejected.

While responses should address all solicitation items, it is important to note that we also encourage and will consider any creative ideas for functional improvements or cost savings related to this transaction that may not be suggested in this document. Functional, technical, and economic solutions beyond the confines of this solicitation may also be considered.

The responses should address all solicitation items. However, the University reserves the right to consider other ideas and solutions, or only a restricted subset of the configuration discussed in this document.

All optional arrangements should be described and priced separately.

G1 All proposal responses must include:

G1.1 The name, address, phone and fax number, and email address for the duly authorized agent submitting the proposal.

G1.2 Full description of company, including experience, qualifications and organizational chart.

G1.3 Documentation of any intent to partner with a reseller for any part or the whole of the services offered in response to this RFP. Indiana University reserves the right to approve or reject any subcontracting agent or to reject proposals based on the use of subcontracted work

G1.4 Copies of all documents that could become a part of a final Agreement arising from this process. A legal review of the Participant's proposed Agreement terms will be part of the criteria in evaluating the Participant's offer.

G1.5 Three references from previous clients, references from similarly sized higher education are preferred.

G2 Pricing:

G2.1 Provide base proposal for product and installation.

G2.2 Identify any other software or hardware products that are needed along with the base product that you provide.

G2.3 Indicate what price guarantees or caps are offered on annual maintenance and support, or any other component.

G2.4 Identify training options available and costs associated with those options.

G2.5 Identify implementation and deployment service options and costs associated.

G2.6 Specify the complete warranty terms and conditions for all products and services.

G2.7 Attach a copy of all relevant terms and conditions, such as sample contracts, Service Level Agreements, etc.

G2.8 Specify trade-in amount for equipment listed in Appendix Y. If equipment trade-in is not in scope for submitted bid, specifically state not in scope.

G2.9 The Enterprise-class x86 virtualization server infrastructure is considered a critical foundation for successfully managing high-density virtualization workloads. Indiana University (IU) aims to establish a contract with a contractor for the hardware lifecycle, initially set for four years, with an option to extend the contract for an additional four years upon the end-of-life of the installed base. This requires the selected contractor to commit to extending the proposed discounts to IU for the initial four-year period, with an option for the University to extend the discount for an additional four years.

G3 Provide point-by-point responses in Section F, describing in detail your company's capability of meeting the stated objectives and needs, while meeting the technical requirements beginning in Section G7.

G4 Describe in detail similar deployments your company has executed in the past 3-5 years.

G5 Describe in detail similar deployments your company has executed in the past 3-5 years for an institution of higher education within the United States.

G6 Describe your methodology for providing requested services, how you would organize your team and the IU team, and how you would ensure you deliver a quality product that meets expectations.

G7 All proposed solutions must offer components which support the following list of features. Please simply affirm or deny that your proposed solution meets the following requirements by notating each item with "**accept**," "**deny**," or "**variance**." Please explain any variances in your product. The Participant cannot answer "accept," if the feature is not currently available in the proposed hardware running current general availability (production) release software. If a feature is not in production software at the time of the RFP submission, the Participant must choose "deny" or "variance." If a feature not in production software is described under a "variance," it must be noted the feature is not currently available.

G7.1 General Features

1. All proposed solutions must support modern encrypted connections to administrative interfaces (for example SSH and HTTPS/TLS1.2+).
2. All proposed solutions must support logical connectivity to multiple servers to allow for multi-server management through a single administrative interface.
3. All proposed solutions must allow for the x86 BIOS updates to be managed, deployed, and confirmed by the management software. Updates must be capable of being staged while the x86 server is still in production and then applied during the next boot cycle.
4. All proposed solutions must allow for the x86 server HBA firmware updates to be managed, deployed, and confirmed by the management software. Updates must be capable of being staged while the x86 server is still in production and then applied during the next boot cycle.

5. All proposed solutions must allow for the x86 server BIOS settings to be managed, deployed, and confirmed by the management software.
6. All proposed solutions must allow for failback/rollback of an unintended or problematic BIOS/firmware update that was initiated by the management software. This includes server BIOS updates and HBA firmware updates.
7. All proposed solutions must provide remote management/remote console functionality for each individual x86 server.
8. All proposed solutions require hardware mounting needed to install the servers in data center rack as specified in "Appendix X – Data Center Rack & Power". Note: Cable management arms are not desired for this installation.
9. All proposed solutions must include power modules that are fully redundant as well as hot swappable in the event of a module failure.

G7.2 VMWare (II) Specific Requirements:

1. All proposed solutions must be built around a single design for the x86 server component. All proposed x86 server hardware should be identical.
2. All proposed solutions must be built around the Intel Xeon Processor CPUs as described in section F1.3.
3. All proposed solutions must include 2048 GB (2 TB) of Error Correcting Code (ECC) memory in each individual x86 server as described in section F1.3.
4. All solutions must utilize a four port 10/25Gb Ethernet adapter within the proposed x86 server as described in section F1.3.
5. All solutions must provide Generation 7 Fibre Channel Adapters with a minimum of two 32Gb ports. Preference towards adapters that are 64Gb Fibre Channel adapters.
6. All proposed solutions servers must be capable of adding GPU adapters in the future.
7. Describe the process of adding GPU adapters within the server in detail (including what components would be installed, modified, and any additional entitlement software) as described in section F1.3.2.
8. All proposed solutions must be designed with hardware and related components that are fully supported by the VMware ESXi 8.0 Hardware Compatibility List and

continue to support all newly released versions of VMware ESXi throughout the lifecycle of the hardware.

9. Describe if, and to what degree, the proposed x86 servers are able to integrate management or inventory capabilities with VMware vCenter through vCenter plug-ins or VMware APIs. Specify if the management solution is included with the proposed solution or available for additional cost.

G7.3 VDI (IUanyWARE) Specific Requirements:

1. All proposed solutions must be built around a single design for the x86 server component. All proposed x86 server hardware should be identical.
2. All proposed solutions must be built around the Intel Xeon Processor CPUs as described in section F1.3.
3. All proposed solutions must include 2048 GB (2 TB) of Error Correcting Code (ECC) memory in each individual x86 server as described in section F1.3.
4. All solutions must utilize a four port 10/25Gb Ethernet adapter within the proposed x86 server as described in section F1.3.
5. All solutions must provide Generation 7 Fibre Channel Adapters with a minimum of two 32Gb ports. Preference towards adapters that are 64Gb Fibre Channel adapters.
6. All proposed solutions must be designed with hardware and related components that are fully supported by the VMware ESXi 8.0 Hardware Compatibility List and continue to support all newly released versions of VMware ESXi throughout the lifecycle of the hardware.
7. Describe if, and to what degree, the proposed x86 servers are able to integrate management or inventory capabilities with VMware vCenter through vCenter plug-ins or VMware APIs. Specify if the management solution is included with the proposed solution or available for additional cost.
8. All proposed solutions must align with requirements in "Appendix G - GPU Requirements".
9. All proposed solutions must be configured to allow a minimum of 200 concurrent GPU virtual desktops.
10. All proposed solutions must include any enablement software to deliver the virtual desktop and virtual application from via Citrix orchestration on VMware hypervisor.

G7.4 Commvault Specific Requirements:

1. All proposed solutions must be built around a single design for the x86 server. All proposed x86 server hardware should be identical.
2. All proposed solutions must be built around the Intel Xeon Processor CPUs as described in section F1.3.
3. All proposed solutions must include 512 GB of Error Correcting Code (ECC) memory in each individual x86 server as described in section F1.3.
4. All proposed solutions must include dedicated NVME media for Operating System/application installation with a minimum of 3.2TB usable.
5. All proposed solutions must include dedicated NVME media for Commvault Application Database with a minimum of 3.2TB usable.
6. All storage media must be protected via mirroring, utilizing hardware-based RAID (RAID1 or RAID10).
7. All failed storage media must be kept by Indiana University for secure disposal.
8. Describe, in detail, the drive replacement process.
9. All solutions must utilize a four port 10/25Gb Ethernet adapter within the proposed x86 server as described in section F1.3.
10. All solutions must provide Generation 7 Fibre Channel Adapters with a minimum of two 32Gb ports. Preference towards adapters that are 64Gb Fibre Channel adapters.
11. All proposed solutions must be designed with hardware and related components that are fully certified within the Windows Server Catalog for Windows Server 2025 and continue to support all newly released versions of Windows Server throughout the lifecycle of the hardware.

G7.5 Fiber Channel Connectivity:

1. All proposed solutions must include Generation 7, 64Gb Fibre Channel switches described in F1.6.
2. All proposed solutions must support multiple link aggregation connectivity to existing core Fibre switching infrastructure via ISL as described in F1.6.
3. All proposed solutions must support and participate in Fibre Channel to Fibre Channel routing (FC-FC) and be compatible with existing core FC environment as described in F1.6.

4. All proposed solutions must support and participate peer zoning with existing core as described in F1.6.
5. All proposed solutions must support and participate in LSAN (Logical storage area network) zoning with existing core FC environment as described in F1.6.
6. Describe, in detail how your solution integrates with Broadcom (Brocade) SANnav Management Portal for monitoring and configuration.
7. Solution must include all enablement software to provide full functionality as described in F1.6.
8. Solution must be configured to utilize Nonport-side air intake (Pulls air from the nonport side of the switch and exhausts it out the port side).

G7.6 Hardware Maintenance and Service:

1. All proposed solutions must include four years of maintenance on all x86 server hardware. All individual x86 servers must be covered by hardware maintenance that provides Next Business Day replacement of failed hardware components.
2. All proposed solutions must include four years of maintenance on all Fibre Channel switches that provide same day replacement of failed hardware components.
3. All proposed solutions must include a framework for the University to acquire additional capacity (x86 server hardware, x86 modular components such as memory and HBAs, GPUs and associated software, Fiber channel switches, and related software/hardware maintenance in support of this centralized infrastructure with the same discount percentages off manufacturer's list price, provided by the Participant in response to this RFP. The aforementioned discount percentages would remain in effect for 48 months after the initial delivery date of the original hardware.
4. All proposed solutions must include clearly defined escalation paths, with specific contacts, for both sales/service related and hardware/technical issues. These escalation paths and contacts must be maintained and clearly communicated by the Contractor to the University during the extent of the product lifecycle.
5. Given that the initial deployment will be based on a highly standardized design with a single x86 server design that is identical across the University's entire environment, indicate to what degree the Participant would be willing to keep spare hardware onsite and in storage at both the Indianapolis (ICTC) and Bloomington

(IUDC) data centers. This could be expanded to include common components as well.

6. Specify the proposed server release date.
7. Specify the proposed server end-of-sales date.
8. Specify the proposed server end-of-support date.
9. Specify the proposed fiber channel switch release date.
10. Specify the proposed fiber channel switch end-of-sales date.
11. Specify the proposed fiber channel switch end-of-support date.
12. Describe, in detail IP connectivity required for administrative interfaces to manage the server infrastructure. Note: All servers and out-of-band management interfaces will be on private IP address space (no routing to external public network without proxy).
13. Specify each advanced monitoring feature that would provide value during troubleshooting and analysis of a high complexity virtual environment; including any features that can monitor performance or physical hardware utilization at a virtual machine level within a hypervisor.
14. Describe, in detail, your hardware support and replacement methodology in the event of a large-scale natural disaster or national incident. Specify any FEMA frameworks that are used as a reference architecture for your response process.

G7.7 Physical, Power, and Cooling Characteristics:

1. All proposed solutions should utilize hardware that will mount in existing IU data center racks without any modification to the existing racks. Specific details on the existing racks can be found in "Appendix X - Data Center Rack & Power". Solutions that require alternative racks will be considered (alternative racks must be provided with solution data center standards strongly prefer APC AR3357 or AR3357B2).
2. All proposed solutions must utilize power supplies and power cabling that will fully integrate into our existing rack PDU design. Specific details on the existing PDU components can be found in "Appendix X - Data Center Rack & Power".
3. Specify proposed the maximum number of servers that can be installed and operating at full capacity within our existing rack and PDU design. Specific details on the existing racks and PDU components can be found in Appendix X.

4. Describe any capabilities for power utilization monitoring and reporting capabilities for the proposed solution.
5. The proposed solution must be configured to install in a maximum of 12 total racks (6 per site).
6. Specify the height, in number of rack units, for the proposed solution.
7. Specify the maximum power consumption of the entire proposed design as indicated in section F.3.
8. Specify the maximum BTU output of the entire proposed design as indicated in section F.3

G8 If a Participant lists a feature or hardware that is not in production at the time of proposal submission, the Participant must describe how they will verify the feature is in production code or that hardware will be available no later than 06/16/2025. This verification must include notation of the added feature in software release notes and possible demonstration of the feature on the proposed equipment using production code. Hardware must be customer orderable on or before 06/16/2025. The Participant is responsible for any costs associated with feature verification.

G9 The submission must be signed by a legally authorized agent of the firm.