

HARDWARE SPECIFICATIONS FOR THE SERVER OF THE NATIONAL UNION OF ENFORCEMENT AGENTS

SECTION A. Technical specifications server type equipment

Characteristic	Minimum technical specifications
Server Type	High-performance and cost-effective server with a high computing density, suitable for server virtualization tasks. Rack mountable server. Designed with two sockets for Intel® Xeon® Scalable class processors. It will be used as a virtualization host within the Bank's server virtualization platform.
Processors	Two installed Intel® Xeon® Gold processors, 2nd or 3rd generation, on 16 physical cores, with a working frequency of at least 2.9 GHz, with the possibility of expanding up to 32 cores per socket. Processors support HT, VT-x, VT-d, EPT capabilities.
Memory	The server offers minimum 16 slots for RAM memory. Allows installation of up to at least 1TB of RAM memory. Supports DDR4-3200 RAM memory modules. 256GB of RAM memory installed, with the possibility of expanding up to at least 512GB without replacing the existing memory modules. Dual Rank DDR4-3200 Memory with error correction code (ECC).
Network	The server configuration will provide 4x Gigabit Ethernet (GbE) ports with integrated adapter and/or secondary network card, PCIe. Copper connectivity, twisted cable.
Storage Controller	RAID controller with 8 SAS/SATA ports, 2GB of Cache memory, capable of executing arrays of RAID disks in 0, 1, 5, 6, 10 schemes. Integrated drive or as a PCIe extension module. Cache persistence provided by the backup battery (secondary cell). Cache executed for read and write operations. Supports SAS, SATA, NL-SAS, SSD disks.
Hard Drive	Pre-installed server with 2 SSD disk drives with a capacity of at least 480 GB minimum 3 DWPD. Disks for the installation of the operating system or virtualization system.
Storage Standard	The proposed server model should provide a chassis to allow the installation of at least 8 disks, in compartments for SFF (2.5-inch) type storage units.
PCI-Express slots	The server model and configuration provide at least 3 PCIe Gen4 slots, for future applications.
Power Supply	Server equipped with two hot plug type power supplies (redundant configuration), with Platinum class efficiency certification. Power supplies of sufficient power to ensure operation at peak load conditions. The offer will include power cables, with 2m long C13-C14, 10A connectors. The equipment supplied shall be capable of operating normally with single phase AC power, within the range of 220-240V, with the corresponding frequency of 50 Hz, inclusive, and should be protected from over-voltage, overheating and out-of-tolerance current surges.
Management	BMC integrated management module with management functions for server status monitoring, service alerts, and remote support to enable server provisioning without the use of CD/DVD. Management software should be licensed indefinitely. remark: It is not mandatory to include the CD/DVD-R/RW optical disc drive in the server kit

Fans	Server equipped up to seven fans with hot plug type redundant fans (N+1) .
Form Factor	Rack mountable equipment , of 1U or 2U size. The front mask should allow locking by key and include LED display with server status actual information.
Rail Kit	Rack mountable equipment, retractable, on sliding rails . The offer will include the necessary rack mounting kit, along with all the accessories needed for rack mounting.
OS Compatibility	Server solution supported on Linux, Windows Server 2012/16/19, VMware 6.5 / 7, Citrix XenServer operating systems. It is interoperable with storage platforms from HPE, NetApp, etc. manufacturers.
Fibre Channel	The server configuration will include a 2 Fiber Channel ports with 32Gbps bandwidth each will be proposed, including the required SFP+ modules. Connections made via OM4 multi-mode fibre optic circuits. remark: fibre optic cables are included in the offer for the SAN storage system.
Required warranty	Minimum 3 years

* The technical specifications of the server type equipment are estimated exclusively for UNEJ IS and other systems such as AD, Antivirus Server, SIEM, DNS Server, Mail Exchange, SharePoint, Web Server, or other third party servers that are/can be interconnected with the IS, have not been taken into account.

SECTION B. Technical specifications of the SAN storage system¹

Characteristic	Minimum technical specifications
General description	<p>The solution features a small & medium business class SAN storage system.</p> <p>Centralized storage system with at least 2x active-active redundant controllers, with automatic failover. The equipment will be used as a storage system for the server virtualization platform in the Bank.</p> <p>Each controller must be equipped with a cache memory not least than a 16 Gb.</p>
Administration, staff qualification.	It is simple to install, easy to use and manage. It can be implemented with own resources, without specific expertise in the field of SAN storage systems.
Management tools.	It can be managed from the graphical management interface (preferably WEB GUI) and CLI command line. It can be integrated with third party management and monitoring solutions through SMI-S, SNMP protocols. The management interface should allow the visualization of the information on the status of the system, to support the monitoring of system performance and auditing logs in a historical manner.
Housing.	Rack mountable equipment. The offer will include the required rack mounting kit.
Allocable storage space.	The solution will ensure a total allocable capacity of at least 14 TB . By allocable capacity we mean the useful disk space obtained after the complete configuration of the system. Does not include the space reserved in RAID schemes, hot-spare disks, etc.
IOPS performance and access time.	The solution offers a performance of at least 5,000 IOPS operations , under typical load conditions for virtualized environments (read/write operation ratio - 70/30; random/sequential access - 70/30; block size: 4KB). The response time at peak load should not exceed 15 ms.
Scale-in expandability.	<p>The solution will be supplemented so as to provide unused disk positions, reserved for scale-in extension of the system capacity, on the existing disk shelf/ves. The number of free disk positions should provide a space increase of 25% compared to the current capacity.</p> <p>The solution allows to expand the current capacity by attaching additional disc shelves.</p>
Availability to expand capacity.	The solution can be extended by scale-in expansion, without data loss or service interruption.
Disk data protection.	<p>The solution can implement logical volumes in RAID array configurations of 0, 1, 5, 6, 10 or superior level; some schemes specific to the solution manufacturer. Allows the allocation of disk drives for hot-spare reservation.</p> <p>The equipment should ensure the connection to each hard disk drive via two redundant access paths with automatic failover.</p>

¹ Sections B and C are integrant parts of the present tender and shall be delivered in conjunction with the delivery of the server (Section A).

Access protocols and ports.	Host connectivity via Fiber Channel interface. The solution will provide a number of at least 4 Fiber Channel ports, required to connect 2 hosts (two ports for each host, one on each controller). Hosts will be connected directly.
Host connectivity.	At least 4 Fiber Channel ports with 32Gbps bandwidth each will be proposed. The offer will include the required number of SFP+ modules for the SAN storage system, as well as fibre optic cables for host connectivity, with a length of 2 m.
System redundancy.	Solution accomplished on a completely redundant architecture. Includes redundant SAN storage controllers (A-A), redundant power supplies, dual-port disks, etc. Redundant components can be hot-replaced without interruption of services - their extraction, completion or replacement can be conducted online.
Disk drives.	SAS class HDD disks are used, of LFF or SFF format. SAN storage configurations on NL/MDL-SAS, SATA disks will be considered unacceptable.
Performance acceleration.	SSD type disk drives are used to speed up performance, used as caching and/or automatic tiering. The offer includes the related software licenses, in case they are required. An SSD capacity of 5-10% will be ensured of the total space allocable on the SAN storage system.
Software functionalities for increasing efficiency.	The equipment should allow virtual allocation mechanisms for storage capacity (Thin Provisioning). The system should provide support for optimizing performance by automatically moving data between different types of disks corresponding to the need for performance, transparently for host servers (Automated Storage Tiering). The system should support expanding the cache memory on SSD disks for performance acceleration.
Operating systems supported and certified.	The solution supports Windows Server 2012/2016/2019, Linux, VMware, Citrix XenServer operating systems. It is interoperable with server platforms from HPE, DELL, Fujitsu, etc. manufacturers
Required warranty	Minimum 3 years

SOFTWARE SPECIFICATIONS FOR THE SERVER OF THE NATIONAL UNION OF ENFORCEMENT AGENTS

SECTION C. Technical specifications software licenses for virtualization

Virtualization system	
A product for server virtualization and consolidation and ensuring business continuity, using a reduced infrastructure that offers the following characteristics:	
Characteristic	Minimum technical requirements
Manufacturer	VMware vSphere Essentials Kit, or equivalent, 1 unit
Description	<ol style="list-style-type: none"> 1. Provides centralized management and performance monitoring for all virtual machines 2. Elimination of the failure of applications related to the planned maintenance of nodes (physical servers) in connection with the migration of virtual machines (VM) to other nodes, without interrupting their activity 3. Ensuring high VM availability by restarting them on other nodes in the cluster - in the event of a hardware failure of the server or a VM crash. 4. Availability of the backup solution and recovery of the VM at the image level without the use of agents. Availability of technologies for data deduplication and protection of critical Microsoft applications (Exchange, SQL Server, SharePoint) taking into account their specificity. 5. Possibility of VM replication on a remote site. 6. Use of the efficient memory deduplication technology, which allows RAM saving when using the same type of VM. 7. Basic support for 3 years.