

• ***ANNEX II + III:*** **TECHNICAL SPECIFICATIONS + TECHNICAL OFFER**

Contract title: Supply for Data Center

05.05.2022

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Columns 1-2 should be completed by the contracting authority

Columns 3-4 should be completed by the tenderer

Column 5 is reserved for the evaluation committee

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

- Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
- Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words 'compliant' or 'yes' are not sufficient)
- Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offered specifications.

1. Item number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.1	2U Cabinet Type Server (5 pieces)	LOT 1		
	• The server shall be 2U high. • 4 of 5 servers shall have 2 physical processors. • 4 of 5 servers shall have 2 AMD brand EPYC 7763 series processors or equivalent with a speed of 2.45 GHz, and for each processor, at least 64 (sixty-four) cores, and at least total L3 Cache 256 (two-hundred-sixty-five) MB cache on it. • There shall be at least 8 (eight) DIMM memory slots on the server for each server. • 4 of 5 servers must have at least 512 (five-hundred-twelve) GB memory and at least 8x64= 512 (five-hundred-twelve) GB should be offered with DDR4 ECC memory modules. • 4 of 5 servers shall at least have the following hardware specifications: 4 x 3.84TB 2.5-inch SATA III Server SSD and 4 x 3.84TB 2.5-inch SATA III Server SSD for raid. In total, 4 server systems shall have 8 x 3.84TB 2.5-inch SATA III server SSDs should be installed. • 1 of 5 servers shall have 1 AMD brand R9 series processor or equivalent with a speed of 3.7 GHz, at least 24 (twenty-four) cores, and at least 64 (sixty-four) MB cache on it. • 1 of 5 servers must have at least 64 (sixty-four) GB memory and at least 2x32= 64 (sixty-four) GB should be offered with DDR4 memory modules.			

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	• 1 of 5 servers shall at least have the following hardware specifications: 1 x 960GB 2.5-inch SATA III Server SSD and 1 x 960GB 2.5-inch SATA III Server SSD for raid. In total 1 server system and 2 x 960GB 2.5-inch SATA III Server SSD should be installed. • All disks on the server must be hot-swap/hot-plug (pluggable and unpluggable without shutting down the system). • The server shall support at least 6 SSD disk drives in the recommended chassis. • The server's motherboard must support RAID levels 0, 1 and 10 to prevent data loss. • For 2 servers that will operate at high load, 2 RAID Cards must be installed and cards shall have 0, 1, 5 and 10 options on them. • There shall be at least 1 x 10 (ten) Gbps and at least 1 x 2.5 (two and a half) Gbps ethernet access point on the server. Ethernet ports must be capable of balancing the load. • All drivers, updates, etc. of server components and management software shall be accessible from the relevant manufacturer's web page at least during the warranty period and relevant software shall be free to download. • The server shall have at least 5 (five) expansion slots of PCIe type supported when two processors are installed.			

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	• The server shall have a remote management module with its own 1 Gbps physical port that will provide access with HTTPS and SSLv2 certificates. • One of the USB ports located on the front panel of the server shall be accessed by the remote management port and firmware update or provisioning can be implemented with a USB memory that can be inserted through this port while the server is off. When the remote management network is not installed or not functioning properly, it shall be able to access the remote management web interface by connecting it to a computer with a USB cable. • The remote management module shall support HTML5 and modern web servers should be managed without installing any agents or plugins, remote KVM access shall be possible and by remote media connection, operating systems/drivers could be installed and updated. • Server shall be able to check the security and authenticity of files such as BIOS, firmware to be installed on it, by means of a certificate, and there should be a secure non-volatile memory area on the server that ensures that the security certificates are protected against attacks. • Each server shall have 1 power supply with at least 500W Gold Certificate. • 2 redundant 500W power supplies shall be installed on 2 servers that will operate at high power. • A sliding rail cabinet mounting kit shall be provided with the server.			

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	- Servers will have a 2-year onsite warranty. Hardware malfunctions will be resolved by replacing parts on site, with rapid intervention on the next business day. - If the discs on the system to be installed fail during the warranty period, the defective product will be sent to the distributor and replaced with a new one. - Servers shall support Windows Server 2012/2016 and Redhat Enterprise Linux operating systems. - Servers will be hosted in a data centre with Tier 3+ standards.			
1.2	Ethernet Switch (2 pieces) - To manage and run the servers, at least 2 Ethernet Switches with 24 ports should be installed. - Power consumption shall be (without PoE): 33 W at maximum power. - Input voltage shall be 100-127 VAC / 200-240 VAC. - Ports shall include; 24 x ports, 10/100/1000 BASE-T ports, 4x 1G/10G SFP ports. - Latency shall be 1 Gbps: 1.5 msec , 10 Gbps: 1.8 msec. - Switching capacity shall be 128 Gbps. - Production amount should be 95.2 Mp/sec. - Memory and processor shall be Dual Core ARM Cortex A9 4 GB DDR3 at 1016 MHz, maximum, 16 GB eMMC depending on model.	LOT 1		

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	- PoE capability shall be a maximum of 370 W depending on the model. - Ethernet Switches' warranty shall be 2 years.			
1.3	Graphical Processing Unit	LOT 1		
	- GPU memory must be at least 8 Gb and 256 Bit. - It shall have 3D support. - Memory speed shall be 19 Gbps, memory type should be GDDR6X. - Bit value shall be 256 Bit. - Chipset shall be NVIDIA or equivalent. - Core speed shall be 1575Mhz -1770Mhz. - It shall have 3 display outputs. - Video card memory shall be 8GB. - Power consumption shall be 290W. - GPU shall have PCI-Express 4.0 slot. - It shall be cooled by fans. - The warranty period shall be 2 years.			

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1.4	Data Center Hosting	LOT 2		
	• Service should include the hosting of the setups specified in the items 1.1, 1.2 and 1.3 and should be provided for 30 months in a non-shareable, exclusive cabinet. • 99.999% uptime shall be guaranteed. • The Internet speed should be at least 300 Mbps • It shall support network and power monitoring. • IP cam with a night vision shall be in use. • Card Pass System & Identity Card Systems shall be in use. • It shall have a card reader and a fingerprint biometric access system as security measures. • There shall be 2 (two) security doors and security personnel. • There shall be bulletproof glasses. • 24/7 meeting rooms, IT installation rooms shall be available. • 24/7 operation management center shall be available.			

1.1 Conditions and Technical Scope (only for Lot 1)

- 1.1.1 In case the equipment cannot be delivered within the specified time or if different model/quality than the offered and approved goods is provided, the financial and moral compensations to be incurred by the Contracting Authority due to the damage will be accepted unconditionally by the Tenderer.
- 1.1.2 Taxes, fees and similar expenses will be undertaken by the Tenderer. (Excluding VAT)
- 1.1.3 The goods shall be delivered in their original packaging bearing the name, type, model, serial numbers and the name of the manufacturer.
- 1.1.4 Delivery time is 4 weeks from the date of the commencement of the contract signed. The extension of the delivery time consists of FORCE MAJEURE REASONS specified in the laws.
- 1.1.5 In case of delay in the delivery of the goods, the Tenderer agrees and undertakes to pay a penalty of 0.4% (four per thousand) of the total price of the ordered product for each day of the delay.
- 1.1.6 All equipment shall be supplied with the necessary accessories and/or parts in order to guarantee that the goods will operate at the required technical and quality conditions.
- 1.1.7 The tenderer shall submit brochures or catalogs showing the characteristics of the goods. Original document and manuals (in English and/or Turkish) of all equipment to be purchased will be delivered to the Contracting Authority in full.
- 1.1.8 All parts constituting all products to be purchased shall be new and never used, mass production must continue for at least 1 year. Otherwise, an upper model product that the Contracting Authority will approve shall be provided.
- 1.1.9 All parts should be free of fractures, cracks and deformation errors.
- 1.1.10 Equipment to be purchased; shall preferably be the product of the same brand due to compatibility and ease of management.
- 1.1.11 All systems and equipment shall operate safely at 220 (two hundred and twenty) VAC +10% (ten), 50 (fifty) Hz 5% (five) electrical power.

1.2. General Software Specifications (only for Lot 1)

- 1.2.1 Languages used in software can be Turkish or English.
- 1.2.2 Beta versions are not an option for any software in this Tender, regardless of the circumstances.
- 1.2.3 All software licenses shall include software updates for at least the duration of the project (36 months) at no additional cost.
- 1.2.4 The software (drivers etc.) to be determined by the Contracting Authority shall be installed and delivered in working condition.

1.3. Technical Documents to be Included (only for Lot 1)

- 1.3.1 The hardware and software manuals shall also be supplied in English and/or in Turkish (if commercially available) as electronic copy.

1.4. Warranty and Product Support Services (only for Lot 1)

- 1.4.1 The Tenderer will be expected to provide the warranty services for all equipment for two (2) years after the acceptance.
- 1.4.2 Intervention shall take place on the first business day after the fault notification is made.

- 1.4.3 The Tenderer is responsible for the provision of “maintenance” and “repair” of the supplies within the warranty period without any charge. The warranty services shall include maintenance, troubleshooting, and spare parts backed up with technical hardware and software support.
- 1.4.4 All repairs and maintenance conducted under the warranty period shall be undertaken by service personnel authorized by the relevant manufacturer for these tasks.
- 1.4.5 The start date of the warranty period is the date when the installation and control processes of the products are completed. The period of failure and troubleshooting that may occur during the warranty period will be added to the warranty period.

1.5. Delivery and Installation of the Equipment (only for Lot 1)

- 1.5.1 The Tenderer shall transport, unload, unpack, assemble, install, start-up, and configure the equipment, and also install the necessary data and electrical cabling in order to deliver the equipment in fully operational condition.
- 1.5.2 All kinds of connection cables, power cables, sockets, connectors and similar hardware and software necessary for the basic operation of the systems will be provided by the Tenderer.
- 1.5.3 The Tenderer shall provide adequate training programme for the Beneficiary.
- 1.5.4 The Tenderer shall provide training materials. The language of the training and the training documents will be Turkish.

1.6. Special Conditions about No 1.4 Data Center Hosting (only for Lot 2)

- 1.6.1 There shall be electronic security: Fully equipped electronic security is provided in the data center. Multi-controlled door access systems | Quarantine doors | Image ID database | 24/7 monitoring and recording cameras | There should be 24/7 private security guards.
- 1.6.2 There shall be an alternative energy infrastructure. Data Center Redundant Energy Infrastructure: Redundant grid energy (450 KVA) | 2N+1 backup generator | redundant electricity via 2 different UPS groups | Max. It should be 4,976 kW electricity/server.
- 1.6.3 There shall be air conditioning: High-tech cooling systems work in the data center. 2N+1 redundant cooling systems | Constant 22 °C (±2) temperature, 48% (±15%) humidity | hot/cold corridors | It should be a raised floor.
- 1.6.4 There shall be fire safety. Data Center Fire Detection and Extinguishing: FM200 gas fire suppression | Early detection systems sensitive to heat and humidity | Sensitive smoke detectors | Full control in all areas | It should be 100% device security.
- 1.6.5 System/Data Security: System and data security of data center customers is ensured. Firewall | IDS/IPS intrusion detection | DDOS attack prevention | It shall be ISO/IEC 27001 Information security management system.
- 1.6.6 ISO Documents shall proof provided ISO Standards. Data Center providing ISO Standards: ISO 9001:2015; Quality Management System | ISO 14001:2015; Environmental Management System | It should be ISO 27001:2013 Information Security Management System.