

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: Supply of video, audio and IT equipment for strengthening the capacity of the Internal Affairs Sector (IAS) of the Ministry of Interior

Publication reference: EuropeAid/138989/DH/SUP/RS

LOT 2 – Supply of IT equipment

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

Tenderers are required to demonstrate that offered specifications are responsive to the Tender Dossier requirements identifying model and manufacturer of each individual item in their Technical Offer.

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.

Unless otherwise specified, the requirements in these Technical Specifications are presented as a minimum standard which the offered goods must meet in order to be compliant. Tenderers may not submit a variant solution for the items required in these Technical Specifications. The tenderer is expected to submit documentary evidence (brochures, technical data sheets etc.) of the technical compliance of his offer.

Provided documentation must be tidy organized, and all items in respective documentation must be clearly identified (highlighted and indicated by "Item Number").

The documentation's page numbers where the information could be found must be clearly stated in the "Notes, remarks, ref to documentation" column of the offer.

EU Visibility: All supplies shall comply with the visibility Manual for EU External Actions (https://ec.europa.eu/europeaid/communication-and-visibility-manual-eu-external-actions_en) as well as the EU Visibility Manual produced by the EU Delegation to Serbia.

Stickers should be placed on the supplies with a clearly visible EU flag and the phrase "Provided with the support of the EU" in the operational language of the EU programme and in the Serbian language.

A visibility event should be foreseen and financed by the contractor and organised in conjunction with the Contracting Authority.

Abbreviations

AC Power	Alternating current power
CCD	charge-coupled device
CIS	Contact image sensors
CPU	Central Processing Unit
DDR4 RAM	Double data rate fourth-generation synchronous dynamic random-access memory
DVD	Digital Video Codec (currently Digital Versatile Disk)
DVI	Digital Visual Interface
GB	Giga Byte
HDD	Hard Disk Drive
HDMI	High Definition Multimedia Interface
ISIS	Image and Scanner Interface Specification
KVM	Keyboard - Video - Mouse
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LTO	Linear Tape-Open
MAC	Media Access Control
PassMark	See at https://www.passmark.com/
PCIe	Peripheral Component Interconnect Express
PDU	Power Distribution Unit
RAID	Redundant Array of Independent Disks
RAM	Random Access Memory
RPM	Rotations Per Minute
RW	Read Write



SAN	Storage Area Network
SAS	Serial-Attached SCSI (Small Computer System Interface)
SATA	Serial Advanced Technology Attachment
SFP	Small form-factor pluggable
TB	Tera Byte
TWAIN	Technology without an important name. See at http://www.twain.org working group
URL	Uniform Resource Locator
USB	Universal Serial Bus
VGA	Video Graphics Adapter
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
WXGA	Wide Extended Graphics Array



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Delivery summary

Lot 2: Supply of IT equipment		
No.	Item(s)	Quantity
1.	Tower Server	3
2.	Tower Server with LTO Tape Drive	3
3.	Rack Server Type I	6
4.	Rack Server Type II	4
5.	Data Storage	2
6.	Fiber Channel Switch 24 port	4
7.	Rack 24U	2
8.	Rack 42U	2
9.	Rack UPS 10000VA	3
10.	Gigabit L2 Switch 16 port	6
11.	Gigabit L2 Switch 24 port	4
12.	Gigabit L2 Switch 48 port	5
13.	Gigabit L3 Switch 24 port	6
14.	Gigabit L3 Switch 48 port	6
15.	Application Firewall Type I	8

16.	Application Firewall Type II	4
17.	Personal Computers, Type I	60
18.	Personal Computers, Type II	5
19.	Laptop Type I	65
20.	Laptop Type II	5
21.	Laser Printer B&W A4	20
22.	Laser Printer Color A4	10
23.	Laser Printer Color A3	5
24.	Sheet-feed Scanner A4	10
25.	Sheet-feed Scanner A3	3
26.	External Hard drive 2TB	20
27.	Endpoint Security	200
28.	Networking Courses	2

General requirements for hardware and system software:

Regarding safety requirements, equipment must have necessary operational warnings as well as mechanical interlocks on the equipment operating/generating more than 30 Volts AC or DC, in accordance with current IEC and EU standards.

Software must be licensed to the Beneficiary in order to allow trained personnel of the Beneficiary to perform software installation, update/upgrade, repair/debug and/or diagnosis/report activities without Tenderer assistance.

Equipment allowing capacity upgrading must be provided in a way that upgrades can be performed by installing additional capacity, without discarding the already installed capacities.

Equipment delivery, including final installation must include all miscellaneous but needed items for equipment delivery and installation in order that the supplies are left in place fully operational and ready for use. Consumables used during delivery, installation and during testing time before provisional acceptance, must be anticipated and calculated in the offer. It shall be the sole responsibility of the Tenderer to check all site dimensions for completeness of equipment delivery before the commencement of delivery.

The Tenderer must provide necessary measures to prevent any damage during any/all delivery and installation stage(s). If damage occurs it must be rectified in an appropriate way by the Tenderer, which must keep the work site clean and safe against fire and/or other hazards during any/all delivery and installation stage(s) until formal acceptance.

Equipment must conform and/or be compatible with any standards, or with the commonly accepted best production practices currently in force, including any ISO, IEC or other relevant standards that may apply to each specific category of equipment. The Tenderer must deliver a certificate of conformity (issued by a quality control independent regulatory agency of recognized competence) for each equipment item or group of items.

Equipment must conform to the relevant CE regulation; all equipment must be CE compliant and fully authorised for use in Europe.

Mains power supply should operate on $220V \pm 20V$, 50Hz - 60Hz, and be suitable for direct connection to the standard power outlets in Beneficiary country.

All equipment in this tender shall be capable of operating under following temperature, humidity and protection level (as defined in EN 60529): Operating temperature: $10^{\circ}C$ - $40^{\circ}C$; Relative Humidity (non-condensing): 20% - 80%;

Migration

The contractor shall migrate all of applications and systems used in IAS without loss of data and with minimum downtime. This work contains shifting of two virtual machines that works under VMWare vSphere 4.0 to the new servers that will work under VMWare vSphere 5.5. Virtual machines work under 64-bit Oracle Linux operating system which hosts Oracle 10g (10.2.0.3) database servers. Size one of the database that work under virtual machine is approximately 60GB, and the other database that work under second virtual machine is about 5GB. Delivery of licenses is not requested. The required licenses will be provided by the Beneficiary together with data.

Completeness of the supply

Supply delivery, including installation must include all needed parts and accessories required for the supplies to be presented for provisional acceptance fully installed, operational and ready for use.

Accessories, fixing, fittings, connections, joints, links, extensions, modules, parts, software and legal licenses as well as documentation used during delivery, installation, integration and customization before provisional acceptance must therefore be anticipated and calculated into the offer.

It shall be the sole responsibility of the Tenderer to ensure that all pre-requisites for the completeness of the supply delivery are met before its commencement.

Technical documents to be delivered during implementation period

Each item set of equipment shall be provided with an original set of user's manuals (printed and/or on a CD/DVD or download from Internet) for all parts of the equipment. These manuals shall be supplied in Serbian and/or English languages.

The obligatory documents for the provisional acceptance:

- Original certificate of origin,
- Warranty document, signed and stamped by the Manufacturer,
- Conformity and quality control documents,

No provisional acceptance can be pronounced without the presence of the complete set of documents.

Warranty

Tenderers must provide local reliable warranty service agent providing maintenance and the rapid supply of equipment spare parts and consumables for the Warranty duration of one year.

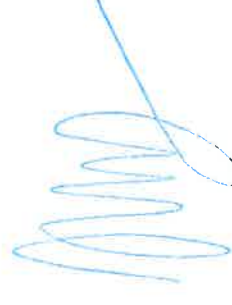
Offer must include warranty service description including:

- Service organisation contact data including name, postal address, telephone number, fax number and e-mail address,
- Help Desk (phone) support, which must be available during working hours, 8AM – 5PM,
- Guaranteed maximum response time to submitted maintenance support request (fax or e-mail) of 1 (one) working day,
- Guaranteed that any requests for services will be attended to within 24 hours,
- Guarantee that all items can be repaired or alternatively replaced within a maximum of 72 hours,
- Guarantee that genuine spare parts and consumables will be available for a period of minimum 3 years from the date of final acceptance of the equipment.

Commercial warranty

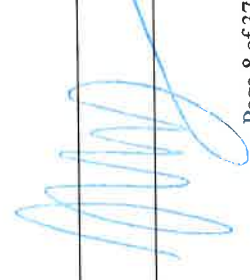
In addition to the 12 months' warranty period, for each item the Tenderer will provide Beneficiaries with the commercial warranty usually issued by each Manufacturer. :

A description of the Manufacturer's commercial warranty shall be included in the offer.




1. LOT 2 – Supply of IT equipment

1.	Tower Server	Quantity: 3			
	Manufacturer's name:				
	Product type, model:				
1.1.	Format of housing: Tower server				
1.2.	Processor: minimum 2 installed processors, PassMark CPU Mark for each processor 15900 or higher				
1.3.	Operational memory: minimum 16GB DDR4 installed, upgradeable to minimum 384 GB				
1.4.	Hard disks: minimum 2 3 TB 10K RPM Hot-plug Hard Drives in RAID 1 (mirror)				
1.5.	Raid controller: support for RAID levels 0, 1, 10, 5, 50, 6, 60 and at least 512MB of backed cache				
1.6.	Disk space: The model must support the ability to upgrade space for up to minimum 10 TB				
1.7.	Optical disk: DVD RW				
1.8.	Network on board: Ethernet adapter 2 x 1 Gbit LAN ports				
1.9.	Additional network card: Ethernet adapter 2 x 10 Gbit LAN ports				
1.10.	Interfaces: min 3 USB, 1 VGA ports				



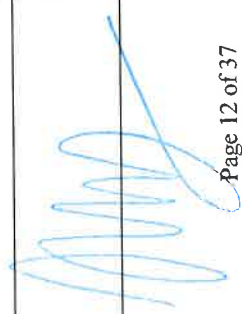
1.11.	Expansion slots: minimum 5 PCIe slots				
1.12.	Power supply: minimum two redundant hot plug power supplies				
2.	Tower Server with LTO Tape Drive	Quantity: 3			
	Manufacturer's name:				
	Product type, model:				
2.1.	Format of housing: Tower server				
2.2.	Processor: minimum 2 installed processors, PassMark CPU Mark for each processor 15900 or higher				
2.3.	Operational memory: minimum 16GB DDR4 installed, upgradeable to minimum 384 GB				
2.4.	Hard disks: minimum 2 3 TB 10K RPM Hot-plug Hard Drives in RAID 1 (mirror)				
2.5.	Raid controller: support for RAID levels 0, 1, 10, 5, 50, 6, 60 and at least 512 MB of backed cache				
2.6.	Disk space: The model must support the ability to upgrade capacity to minimum 10 TB				
2.7.	Optical disk: DVD RW				
2.8.	Internal Tape Drive: Minimum LTO6				

2.9.	Network on board: Ethernet adapter 2 x 1 Gbit LAN ports			
2.10.	Additional network card: Ethernet adapter 2 x 10 Gbit LAN ports			
2.11.	Interfaces: min 3 USB, 1 VGA ports			
2.12.	Expansion slots: minimum 5 PCIe slots			
2.13.	Power supply: minimum two redundant hot plug power supplies			
3.	Rack Server Type I	Quantity: 6		
	Manufacturer's name:			
	Product type, model:			
3.1	Format of housing: 2U Rack server			
3.2	Processor: minimum 2 installed processors, PassMark CPU Mark for each processor 21700 or higher			
3.3	Operational memory: minimum 128GB DDR4 installed, upgradeable to minimum 384GB			
3.4	Hard disks: minimum 2 3 TB 10K RPM Hot-plug Hard Drives in RAID 1 (mirror)			
3.5	Raid controller: support for RAID levels 0, 1, 10, 5, 50, 6, 60 and at least 512 MB of backed cache			

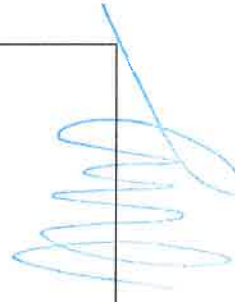


3.6	Disk space: The model must support the ability to upgrade space for up to minimum 16 x 2.5 "HDD			
3.7	Optical disk: DVD RW			
3.8	Network on board: Ethernet adapter 4 x 1 Gbit LAN ports			
3.9	Additional network card: Ethernet adapter 2 x 10 Gbit LAN ports			
3.10	Connections: minimum 3 USB ports, 1xVGA			
3.11	Expansion slots: minimum 5 PCIe slots			
3.12	Power supply: minimum two redundant hot plug power supplies			
3.13	Sliding rack rails			
4.	Rack Server Type II	Quantity: 4		
	Manufacturer's name:			
	Product type, model:			
4.1	Processor: minimum 2 installed RISC architecture processors, each with minimum 4.2GHz frequency and 8 cores			

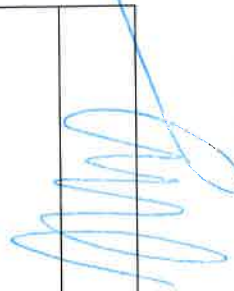
4.2	Server need to have minimum 64GB of RAM DDR4			
4.3	Server need to have at least 2 3TB SAS 10k HDD in RAID 1 (mirror)			
4.4	Server need to have minimum 2 x 2 ports 8Gbps SAN fiber channel ports with LC SFP+ SR modules			
4.5	Server need to have minimum 4x10Gbps T-Base and 2x10Gbps with Dual Rate SFP+ SR optical LAN adapters			
4.6	Server need to have redundant power supply			
4.7	Offered server, operating system and virtualization need to have 24x7 Support offered for period of one year			
5.	Data Storage	Quantity: 2		
	Manufacturer's name:			
	Product type, model:			
5.1.	Minimum raw capacity supported: 200TB			
5.2.	Drive configuration requested: minimum 100 TB raw capacity, SAS, 10K rpm			
5.3.	Controllers: dual controllers with min 4 core and 8GB memory per controller			
5.4.	Network/server connectivity (front-end): 4 x 8Gbps FC ports per controller			



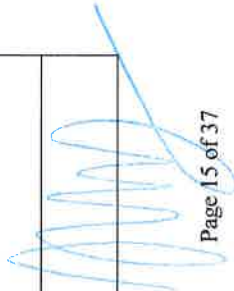
5.5.	Internal drive connectivity (back-end): 6Gb SAS ports (2 per controller)				
5.6.	RAID: Supports RAID 5, 6 and RAID 10				
5.7.	Provides virtualization software drivers and licenses for integration with at least VMware and Microsoft Hyper-V. Provides licenses for Snapshots and Thin provisioning				
6.	Fiber Channel Switch 24 port	Quantity: 4			
	Manufacturer's name:				
	Product type, model:				
6.1.	Fibre Channel ports: Switch mode minimum 16 licenced Ports under on Demand licenses				
6.2.	Performance: min 8 Gbps port speeds				
6.3.	ISL trunking: Frame-based trunking with up to eight 8 Gbps ports per ISL trunk; up to 68 Gbps per ISL trunk.				
6.4.	Aggregate bandwidth: 384 Gbps end-to-end full duplex				
6.5.	Frame buffers: 700 dynamically allocated				
6.6.	Security: HTTPS, IPsec, IP filtering, LDAP, Port Binding, RADIUS, Role-Based Access Control , Secure Copy (SCP), Secure RPC, SSH v2, SSL, Switch Binding, Trusted Switch				



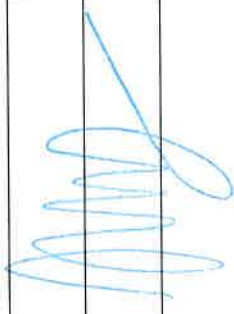
6.7.	Management access port, 1 USB port				
6.8.	Enclosure: Rack, 1U				
7.	Rack 24U	Quantity: 2			
	Manufacturer's name:				
	Product type, model:				
7.1	24U Rack cabinet				
7.2	Standard equipment: minimum Rack casters kit, rack levelling feet, side panels, front door, adjustable vertical mounting rails, roof, keys, split perforated rear door				
7.3	Features: Adjustable depth, integrated cable management, roof fans installed				
7.4	PDU: minimum 2 x Rack PDU with 24 Power supply output Connector(s) compatible with Serbian standard				
8.	Rack 42U	Quantity: 2			
	Manufacturer's name:				
	Product type, model:				
8.1	42U Rack cabinet				




8.2	Standard equipment: minimum Rack casters kit, rack levelling feet, side panels, front door, adjustable vertical mounting rails, roof, keys, split perforated rear door			
8.3	Features: Adjustable depth, integrated cable management, roof fans installed			
8.4	PDU: minimum 2 x Rack PDU with 24 Output Connector(s)			
8.5	KVM Switch with minimum 8 ports, Support for 1 local and 1 IP User			
8.6	KVM console: minimum LED 18.5" 1366 x 768 WXGA screen, Dual USB 3.0 Ports, 1U, International English Keyboard			
9.	Rack UPS 10000VA	Quantity: 3		
	Manufacturer's name:			
	Product type, model:			
9.1	Rack mountable			
9.2	On-line double conversion			
9.3	10000VA/9000W			
9.4	Pure sinewave			
9.5	Minimum 8 power supply output connections, compatible			



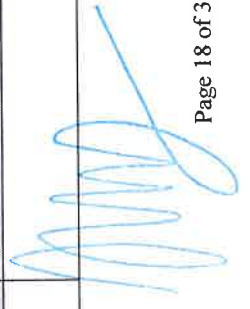
	with Serbian standard				
9.6	Hot swappable batteries. Must allow safe automated shutdown of all rack equipment, working at full load.				
9.7	Connection ports: 1x USB, 1x RS-232, 1x SNMP				
9.8	LCD panel, with status indication				
9.9	Management software for monitoring and control must be delivered for remote management of UPS				
10.	Gigabit L2 Switch 16 port	Quantity: 6			
	Manufacturer's name:				
	Product type, model:				
10.1	Type: Rackmount				
10.2	No. of ports: min. 16x 10/100/1000Base-T + 2xSFP				
10.3	Switching Capacity: minimum 35 Gbps				
10.4	Forwarding rate: minimum 25 Mpps				
10.5	Priority queues: minimum 4 per port				
10.6	No of MAC address: minimum 16K				
10.7	Management: Web based management interface				



11.	Gigabit L2 Switch 24 port	Quantity: 4				
	Manufacturer's name:					
	Product type, model:					
11.1	Type: Rackmount					
11.2	No. of ports: min. 24x 10/100/1000Base-T (auto-sensing), 2x SFP+ uplink ports					
11.3	Capacity: minimum 128 Gbps					
11.4	Forwarding rate: minimum 95 Mpps					
11.5	Priority queues: minimum 4 per port					
11.6	No of MAC address: minimum 16K					
11.7	VLANs supported: 512					
11.8	802.1x authentication support					
11.9	IPv6 ready					
11.10	802.3ad compliant					
11.11	802.1x support					

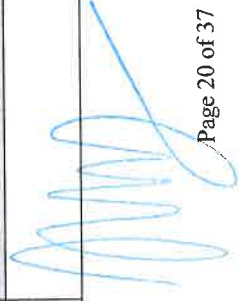


12.	Gigabit L2 Switch 48 port	Quantity: 5			
	Manufacturer's name:				
	Product type, model:				
12.1	Type: Rackmount				
12.2	No. of ports: min. 48x 10/100/1000Base-T (auto-sensing), minimum 2x SFP+ 10GE uplink ports				
12.3	Capacity: minimum 175 Gbps				
12.4	Forwarding rate: minimum 130 Mpps				
12.5	Priority queues: minimum 4 per port				
12.6	No of MAC address: minimum 16K				
12.7	VLANs supported: 512				
12.8	802.1x authentication support				
12.9	IPv6 ready				
12.10	802.3ad compliant				
12.11	802.1x support				
13.	Gigabit L3 Switch 24 port	Quantity: 6			

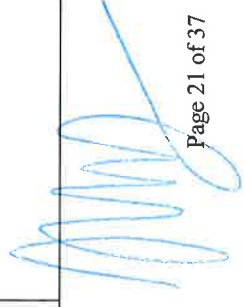


	Manufacturer's name:			
	Product type, model:			
13.1	Type: Rackmount			
13.2	Port type: 24 x 1/10G SFP+ ports			
13.3	Stack bandwidth: minimum 180Gbps			
13.4	Capacity bandwidth minimum 640Gbps			
13.5	Forwarding rate: minimum 454 Mpps			
13.6	Priority queues: minimum 4 per port			
13.7	Ipv4 routes: minimum 1024			
13.8	MAC addresses: minimum 32k			
13.9	IPv6 ready			
13.10	OSPF, BGP support			
13.11	VRF-Lite support			
13.12	802.3ad compliant			
13.13	802.1x support			
13.14	Secondary AC Power Supply			

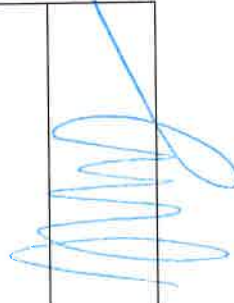
14.	Gigabit L3 Switch 48 port	Quantity: 6			
	Manufacturer's name:				
	Product type, model:				
14.1	Type: Rackmount				
14.2	Port type: 48 x 10/100/1000Mb auto-sensing ports, minimum 2x SFP+ 10GE uplink ports				
14.3	Capacity bandwidth minimum 175Gbps				
14.4	Forwarding rate: minimum 130 Mpps				
14.5	IPv4 routes: minimum 256				
14.6	MAC addresses: minimum 16k				
14.7	IPv4 ACLs minimum 1000				
14.8	IPv6 ready				
14.9	OSPF, RIPv1, RIPv2 support				
14.10	802.3ad compliant				
14.11	802.1x support				
15.	Application Firewall Type I	Quantity: 8			



	Manufacturer's name:			
	Product type, model:			
15.1	Firewall appliance, enclosure 2 RU maximum			
15.2	Minimum 250 Mbps of application control throughput			
15.3	Minimum 750 Mbps of stateful inspection throughput			
15.4	Minimum 10.000 concurrent connections			
15.5	Minimum 1.000 new connections per second			
15.6	3DES/AES VPN Throughput minimum 100Mbps			
15.7	Minimum 4 x 1GE ports supported, dedicated Management port			
15.8	IPSec site-to-site VPN peers minimum 50			
15.9	URL filtering – included minimum one year subscription			
15.10	IPS (Intrusion Prevention System) – included one year subscription			
15.11	Anti-Malware protection – included one year subscription			
15.12	SSL VPN support			
15.13	High availability active/standby configuration support			

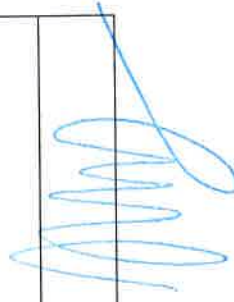


15.14	Support for minimum 30 VLAN interfaces				
16.	Application Firewall Type II	Quantity: 4			
	Manufacturer's name:				
	Product type, model:				
16.1	Firewall appliance, enclosure 2RU maximum				
16.2	Minimum 1100 Mbps of application control throughput				
16.3	Minimum 1Gbps of stateful inspection throughput (multiprotocol traffic)				
16.4	Minimum 50.000 concurrent connections				
16.5	Minimum 2.000 new connections per second				
16.6	3DES/AES VPN Throughput minimum 300Mbps				
16.7	Minimum 4x1GE integrated ports supported, dedicated Management port				
16.8	IPSec site-to-site VPN peers minimum 25				
16.9	URL filtering – included minimum one year subscription				
16.10	IPS (Intrusion Prevention System) – included one year subscription				

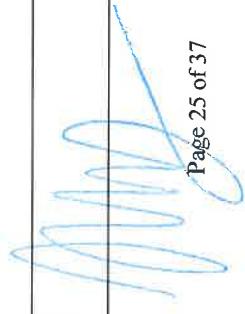


16.11	Anti-malware protection – included one year subscription			
16.12	SSL VPN support			
16.13	High availability active/standby configuration support			
16.14	Support for minimum 30 VLAN interfaces			
17.	Personal Computers, Type I	Quantity: 60		
	Manufacturer's name:			
	Product type, model:			
17.1	Case: Small Form Factor			
17.2	Processor: PassMark CPU Mark minimum 7900			
17.3	RAM memory: minimum 8 GB DDR4 2133MHz			
17.4	Hard disk drive: minimum 500GB Hard Disk Drive			
17.5	Optical data drive: internal DVD-RW			
17.6	Graphic adapter: Discrete, minimum 2GB memory			
17.7	Sound card: integrated, on-board			
17.8	Network adapter: 10/100/1000Mbps on-board			
17.9	Mainboard interfaces, minimum: 4 x USB 2.0 and 4 x USB			

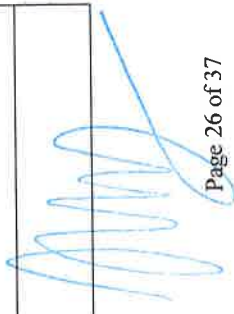
	3.0 (of those minimum 4 USB located on front side of the workstation case), 1xDisplay Port and 1x DVI or HDMI, 1xRJ-45			
17.10	Expansion slots: minimum 1xPCIe x16, 1x PCIe x1			
17.11	Input devices: Keyboard, Optical mouse with scroll function (both USB or PS/2 type)			
17.12	Monitor: Size: minimum 21.5"; Resolution: minimum 1920x1080, Response time: maximum 5ms; Contrast: minimum 1000:1; Brightness: minimum 250cd/m2; Connectivity: VGA and Digital port compatible with PC digital output			
17.13	Compliant standards: CE and/or TUVGS, RoHS, EPEAT, WEEE, EnergyStar			
18.	Personal Computers, Type II	Quantity: 5		
	Manufacturer's name:			
	Product type, model:			
18.1	Case: Tower			
18.2	Processor: PassMark CPU Mark minimum 7900			
18.3	RAM memory: minimum 8 GB DDR4 2133MHz			
18.4	Hard disk drive: minimum 500GB Hard Disk Drive			



18.5	Optical data drive: internal DVD-RW			
18.6	Graphic adapter: Discrete, minimum 4GB memory			
18.7	Sound card: integrated, on-board			
18.8	Network adapter: 10/100/1000Mbps on-board			
18.9	Mainboard interfaces, minimum: 4 x USB 2.0 and 4 x USB 3.0 (of those minimum 4 USB located on front side of the workstation case), 1xDisplay Port and 1x HDMI, 1xRJ-45			
18.10	Expansion slots: minimum 1xPCIe x16, 1x PCIe x1			
18.11	Input devices: Keyboard, Optical mouse with scroll function (both USB or PS/2 type)			
18.12	Monitor: Size: minimum 23.8"; Resolution: minimum 3840x2160, Response time: maximum 6ms; Contrast: minimum 1000:1; Brightness: minimum 300cd/m2; Connectivity: HDMI and Display port			
18.13	Compliant standards: CE and/or TUVGS, RoHS, EPEAT, WEEE, EnergyStar			
19.	Laptop Type I	Quantity: 65		
	Manufacturer's name:			
	Product type, model:			
19.1	Processor: PassMark CPU Mark minimum 4600			



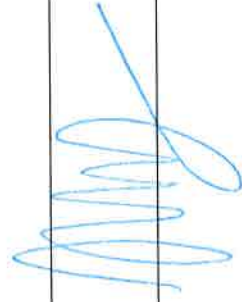
19.2	3D graphic card: Discrete, minimum 2GB Memory			
19.3	Display: 15.6", minimum resolution 1366x768, Antiglare			
19.4	Memory: min. 8GB DDR4			
19.5	HDD: min. 500GB SATA			
19.6	DVD-RW			
19.7	Camera: min. HD webcam			
19.8	Connectivity: Gigabit LAN, Wireless LAN, Bluetooth			
19.9	Ports & Expansions: min. 2xUSB 3.0, 1xUSB 2.0, VGA, HDMI, RJ-45, memory card slot			
20.	Laptop Type II	Quantity: 5		
	Manufacturer's name:			
	Product type, model:			
20.1	Processor: PassMark CPU Mark minimum 7500			
20.2	3D graphic card: minimum 4GB Memory			
20.3	Display: minimum 15.6" (3840x2160)			
20.4	Memory: minimum 8GB DDR4			



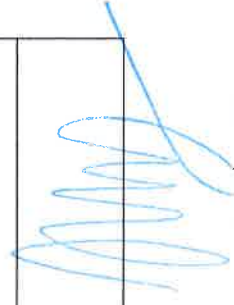
20.5	HDD: min. 1TB SATA			
20.6	Internal or external Blu-Ray DVD Combo			
20.7	Camera: minimum HD webcam			
20.8	Connectivity: Gigabit LAN, Wireless LAN, Bluetooth 4.0			
20.9	Ports & Expansions: minimum 4xUSB 3.0, HDMI, RJ-45, Memory card reader			
21.	Laser Printer B&W A4	Quantity: 20		
	Manufacturer's name:			
	Product type, model:			
21.1	Functions: Printing			
21.2	Print technology: Monochrome Laser			
21.3	Print Resolution hardware: 1200 x 1200 dpi			
21.4	Print Speed A4: Minimum 40 pages/min			
21.5	Time to first page: Maximum 7 seconds			
21.6	Memory: Minimum 256 MB			
21.7	Maximum Monthly Duty Cycle: Minimum 100,000 pages per month			



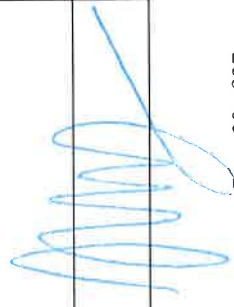
21.8	Paper input capacity: Minimum input 350-sheet			
21.9	Paper output capacity: Minimum 150 pages			
21.10	Duplex (two-sided) printing: Integrated Duplex			
21.11	Connectivity: USB 2.0, Ethernet (10/100)			
21.12	Toner: Initial toner capacity of at least 5000 pages			
22.	Laser Printer Color A4	Quantity: 10		
	Manufacturer's name:			
	Product type, model:			
22.1	Functions: Printing			
22.2	Print technology: Color Laser			
22.3	Print Resolution hardware: 1200 x 1200 dpi			
22.4	Print Speed A4 (Color, B&W): Minimum 35 pages/min			
22.5	Time to first page: Maximum 7 seconds			
22.6	Memory: Minimum 1024 MB			
22.7	Maximum Monthly Duty Cycle: Minimum 100,000 pages per month			



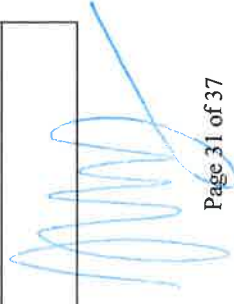
22.8	Paper input capacity: Minimum input 650-sheet			
22.9	Paper output capacity: Minimum 250 pages			
22.10	Duplex (two-sided) printing: Integrated Duplex			
22.11	Connectivity: USB 2.0, Ethernet (10/100)			
22.12	Toner: Initial Set of cartridges for at least 3000 pages			
23.	Laser Printer Color A3	Quantity: 5		
	Manufacturer's name:			
	Product type, model:			
23.1	Functions: Printing			
23.2	Print technology: Color Laser			
23.3	Print Resolution hardware: 1200 x 1200 dpi			
23.4	Print Speed A4 (Color, B&W): Minimum 45 pages/min			
23.5	Time to first page: Maximum 10 seconds			
23.6	Memory: Minimum 1024 MB			
23.7	Maximum Monthly Duty Cycle: Minimum 150,000 pages per month			



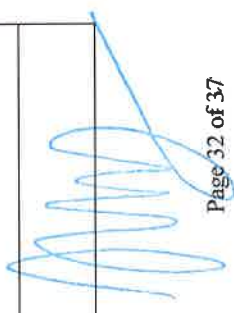
23.8	Paper input capacity: Minimum input 600-sheet			
23.9	Paper output capacity: Minimum 250 pages			
23.10	Duplex (two-sided) printing: Integrated Duplex			
23.11	Connectivity: USB 2.0, Ethernet (10/100)			
23.12	Toner: Initial Set of cartridges for at least 10000 pages			
24.	Sheet-feed Scanner A4	Quantity: 10		
	Manufacturer's name:			
	Product type, model:			
24.1	Scanner type: Sheet-feed, one pass duplex			
24.2	Image Sensor Type: Color CCDs or CIS			
24.3	Optical Resolution: 600 dpi			
24.4	Output Color Depth: Color: 24-bit, Grayscale: 8-bit			
24.5	Scanning speed (A4, portrait): minimum 30 ppm / 60 ipm (200 dpi/300 dpi)			
24.6	Automatic Document Feeder (ADF) Capacity: minimum 50 Sheets (A4)			
24.7	Daily Duty Cycle: minimum 3,000 pages			



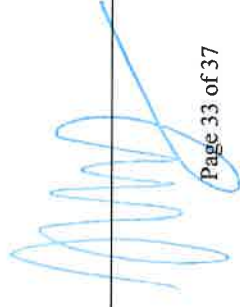
24.8	Interface: USB 2.0			
24.9	Operating System Support: minimum Windows 7, 8/8.1, 10			
24.10	Supported driver type: ISIS, TWAIN			
25.	Sheet-feed Scanner A3	Quantity: 3		
	Manufacturer's name:			
	Product type, model:			
25.1	Scanner type: Sheet-feed, one pass duplex			
25.2	Image Sensor Type: Color CCDs or CIS			
25.3	Optical Resolution: 600 dpi			
25.4	Output Color Depth: Color: 24-bit, Grayscale: 8-bit			
25.5	Scanning speed (A4, portrait): minimum 60 ppm / 120 ipm (200 dpi/300 dpi)			
25.6	Automatic Document Feeder (ADF) Capacity: minimum 100 Sheets (A4)			
25.7	Daily Duty Cycle: minimum 10,000 pages			
25.8	Interface: USB 2.0			



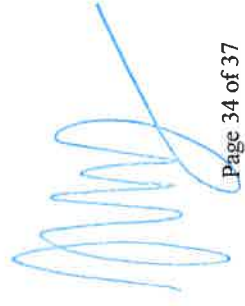
25.9	Operating System Support: minimum Windows 7, 8/8.1, 10					
25.10	Supported driver type: ISIS, TWAIN					
26.	External Hard drive 2TB	Quantity: 20				
	Manufacturer's name:					
	Product type, model:					
26.1	Type: 3.5" External HDD					
26.2	Interface: USB 3.0					
26.3	Capacity: 2TB					
27.	Endpoint Security	Quantity: 200				
	Manufacturer's name:					
	Product type, model:					
27.1	On-premises Console With Granular Setup					
27.2	Advanced Protection for Workstations and File Servers					
27.3	Device and Web Controls					



27.4	Application Control				
27.5	Security for Mobile				
27.6	Mobile Device Management				
27.7	Encryption				
28.	Networking Courses	Quantity: 2			
	Manufacturer's name:				
	Product type, model:				
28.1	Routing and Switching - Network Administrators Associate Course Venue: at Bidder's venue, in Serbia Curriculum: Network Fundamentals LAN Switching Fundamentals Routing Fundamentals Infrastructure Services Infrastructure Maintenance LAN Switching Technologies Routing Technologies WAN Technologies Infrastructure Services Infrastructure Maintenance				
28.2	Routing and Switching - Network System Integrators Professional Course Venue: at Bidder's venue, in Serbia				

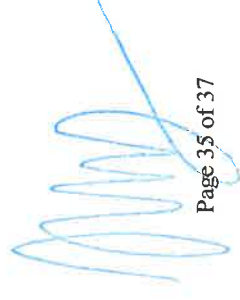


	Curriculum: Implementing Secure Routers with Advanced IP Addressing Planning, configuring, and verifying the implementation of complex switching solutions Maintenance of complex routed and switched networks Network troubleshooting using technology-based practices			
28.3	Security - Network Security Associate Course Venue: at Bidder's venue, in Serbia Curriculum: Secure Network Infrastructure Core Security Concepts VPN Encryption, Firewalls, and Intrusion Prevention Web and Email Content Security and Endpoint Security			



1 Annex 1 - Delivery Locations

No.	Location	Address	Contact person	Contact e-mail	Contact phone
1	MoI – Internal affairs sector, IAS	Bulevar Zorana Đinđića 104, 11070 Novi Beograd	Darko Milovanović, Ljiljana Kržanović	darko.milovanovic@mup.gov.rs , ljiljana.krzanovic@mup.gov.rs	+381(64)8921-452, +381(64)8921-446
2	Internal affairs sector, IAS – Division Center Belgrade	Bulevar Despota Stefana 107, 11000 Beograd	Željko Vortić	zeljko.vortic@mup.gov.rs	+381(64)8921-431
3	Internal affairs sector, IAS – Division Center Novi Sad	Pap Pavla 46, 21000 Novi Sad	Milorad Ćulum	milorad.culum@mup.gov.rs	+381(64)8922-704
4	Internal affairs sector, IAS – Division Center Kragujevac	Svetozara Markovića 41, 34000 Kragujevac	Gojko Barijaktarević	gojko.barijaktarevic@mup.gov.rs	+381(64)8922-609
5	Internal affairs sector, IAS – Division Center Niš	Nade Tomić 14, 18000 Niš	Jovica Stojimenović	jovica.stojimenovic@mup.gov.rs	+381(64)8920-219
6	Internal affairs sector, IAS – Sector for analytics, telecommunication and IT	Kneza Miloša 101, 11000 Beograd	Darko Milovanović, Ljiljana Kržanović	darko.milovanovic@mup.gov.rs , ljiljana.krzanovic@mup.gov.rs	+381(64)8921-452, +381(64)8921-446



2 Annex 2: Distribution of items per location

Item	Item name	Location 1	Location 2	Location 3	Location 4	Location 5	Location 6	Total
1.	Tower Server	2	0	0	0	0	1	3
2.	Tower Server with LTO Tape Drive	2	0	0	0	0	1	3
3.	Rack Server Type I	2	0	4	0	0	0	6
4.	Rack Server Type II	0	0	0	0	0	4	4
5.	Data Storage	0	0	1	0	0	1	2
6.	Fiber Channel Switch 24 port	0	0	2	0	0	2	4
7.	Rack 24U	0	0	1	0	0	1	2
8.	Rack 42U	0	0	1	0	0	1	2
9.	Rack UPS 10000VA	1	0	2	0	0	0	3
10.	Gigabit L2 Switch 16 port	5	0	1	0	0	0	6
11.	Gigabit L2 Switch 24 port	4	0	0	0	0	0	4
12.	Gigabit L2 Switch 48 port	5	0	0	0	0	0	5
13.	Gigabit L3 Switch 24 port	0	0	0	0	0	6	6

Item	Item name	Location 1	Location 2	Location 3	Location 4	Location 5	Location 6	Total
14.	Gigabit L3 Switch 48 port	0	0	0	0	0	6	6
15.	Application Firewall Type I	4	1	1	1	1	0	8
16.	Application Firewall Type II	4	0	0	0	0	0	4
17.	Personal Computers, Type I	60	0	0	0	0	0	60
18.	Personal Computers, Type II	5	0	0	0	0	0	5
19.	Laptop Type I	65	0	0	0	0	0	65
20.	Laptop Type II	5	0	0	0	0	0	5
21.	Laser Printer B&W A4	20	0	0	0	0	0	20
22.	Laser Printer Color A4	10	0	0	0	0	0	10
23.	Laser Printer Color A3	5	0	0	0	0	0	5
24.	Sheet-feed Scanner A4	10	0	0	0	0	0	10
25.	Sheet-feed Scanner A3	3	0	0	0	0	0	3
26.	External Hard drive 2TB	20	0	0	0	0	0	20
27.	Endpoint Security	200	0	0	0	0	0	200
28.	Networking Courses	2	0	0	0	0	0	2

