

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: Supply of equipment "*Technical support for fight against organised crime, financial investigation and cyber-crime*"

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Abbreviations

No	Acronym	Description
	AAA	Authentication, Authorization and Accounting
1.	AC	Alternating current
2.	ACL	Access Control List
3.	AD	Active Directory
4.	AES	Advanced Encryption Standard
5.	ARP	Address Resolution Protocol
6.	BGP	Border Gateway Protocol
7.	CD	Compact Disk
8.	CE	Conformité Européenne
9.	CIFS	Common Internet File System
10.	CLI	Command-line interface

11.	CPU	Central Processing Unit
12.	DDR	Double Data Rate (memory)
13.	DHCP	Dynamic Host Configuration Protocol
14.	DIMM	Dual In-line Memory Module
15.	DIN	Deutsches Institut für Normung
16.	DVD	Digital Video Disc or Digital Versatile Disc
17.	DVI	Digital Visual Interface
18.	DViT	Digital Vision Touch
19.	DWH	Data warehouse system
20.	ECC	Error-correcting code (memory)
21.	EU	European Union
22.	EUD	Delegation of the European Commission to the Republic of Serbia
23.	FC	Fiber Channel
24.	FCoE	Fiber Channel Over Ethernet
25.	FHD	Full High Definition
26.	GB	Gigabyte
27.	Gbps	Gigabits Per Second
28.	GDDR	Graphics Double Data Rate (memory)

29.	GHz	Gigahertz
30.	GPS	Global Positioning System
31.	GUI	Graphical User Interface
32.	HA	High availability
33.	HD	High-definition
34.	HBA	Host Bus Adapter
35.	HDD	Hard Disk Drive
36.	HDMI	High-Definition Multimedia Interface
37.	HTTP	Hypertext Transfer Protocol
38.	IGMP	Internet Group Management Protocol
39.	I/O	Input/Output
40.	IPA	Instrument for Pre-Accession Assistance
41.	IPsec	Internet Protocol Security
42.	iSCSI	Internet Small Computer Systems Interface
43.	IT	Information Technology
44.	KMV	Keyboard, Mouse, Video
45.	LACP	Link Aggregation Control Protocol
46.	LAN	Local Area Network

47.	LC	Lucent Connector
48.	LCD	Liquid Crystal Display
49.	LDAP	Lightweight Directory Access Protocol
50.	LED	Light Emitting Diode
51.	LLDP	Link Layer Discovery Protocol
52.	LTE	Long Term Evolution – 4G Mobile Network
53.	LUN	Logical unit number
54.	MAC	Media Access Control (address)
55.	MB	Megabyte
56.	Mbps	Megabits Per Second
57.	MoI	Ministry of Interior
58.	MP	Megapixel
59.	MPDU	Media access control Protocol Data Unit
60.	Mpps	Million packets per second
61.	MSDU	Media access control Service Data Unit
62.	MSTP	Multiple Spanning Tree Protocol
63.	NAS	Network-Attached Storage
64.	NAT	Network address translation

65.	NBD	Next Business Day
66.	NFS	Network File System
67.	NL-SAS	Nearline Serial-Attached SCSI
68.	NTP	Network Time Protocol
69.	OS	Operating System
70.	OSPF	Open Shortest Path First
71.	PCI	Peripheral Component Interconnect
72.	PCIe	Peripheral Component Interconnect Express
73.	PDU	Power Distribution Unit
74.	PIM	Protocol-Independent Multicast
75.	PoE	Power-Over-Ethernet
76.	PVST+	Per-VLAN Spanning Tree Plus
77.	QoS	Quality of service
78.	RADIUS	Remote Authentication Dial In User Service
79.	RAID	Redundant Array of Independent Disks
80.	RAM	Random Access Memory
81.	RBAC	Role-based access control
82.	RIP	Routing Information Protocol

83.	RJ	Registered Jack
84.	RMON	The Remote Network MONitoring
85.	RoHS	Restriction of Hazardous Substances
86.	RS-232	Recommended Standard 232
87.	RSTP	Rapid Spanning Tree Protocol
88.	RU	Rack Unit
89.	SAN	Storage Area Network
90.	SAS	Serial-Attached SCSI
91.	SATA	Serial Advanced Technology Attachment
92.	SFP	Small form-factor pluggable
93.	SIM	Subscriber Identity Module
94.	SLA	Service Level Agreement
95.	SLR	Service Level Requirement
96.	SNMP	Simple Network Management Protocol
97.	SSD	Solid State Drive
98.	SSH	Secure Shell
99.	STP	Spanning Tree Protocol
100.	TACACS	Terminal Access Controller Access-Control System

101.	TB	Terabyte
102.	TCP/IP	Transmission Control Protocol/Internet Protocol
103.	TF	Time to Fix
104.	TNB	Time until the new build
105.	TPM	Trusted Platform Module
106.	TRT	Time to React or Response Time
107.	UPS	Uninterruptible Power Supply
108.	URL	Uniform Resource Locator
109.	USB	Universal Serial Bus
110.	VESA	Video Electronics Standards Association
111.	VGA	Video Graphics Array
112.	VLAN	Virtual Local Area Network
113.	VM	Virtual Machine
114.	vNIC	Virtual Network Interface Card
115.	VPN	Virtual Private Network
116.	WAN	Wide Area Network
117.	W3C	World Wide Web Consortium
118.	WEEE	Waste Electrical and Electronic Equipment

119.	WQXGA	Wide Quad Extended Graphics Array
120.	WPA	Wi-Fi Protected Access
121.	WRED	Weighted random early detection
122.	WSDL	Web Services Description Language
123.	WWAN	Wireless Wide Area Network
124.	XML	Extensible Markup Language

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
	HARDWARE REQUIREMENTS			
1	Hardware requirements			
[R1]	The Tenderer must include in their offer a complete set of required cables, patch cords, power cords, Ethernet cables, appropriate FC cables, accessories and other physical modules required for the proposed equipment/system to operate in accordance with specifications.			
[R2]	The equipment must be suited for operation under Central European land climate and weather conditions without requiring a special preparation process.			
	LOT 1 – IT EQUIPMENT			
1.1	Desktop type 1 (Typical office workstation + monitor) – quantity: 500 pieces			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
[R3]	<ul style="list-style-type: none"> • Mini/Micro/Tiny form factor • Support for mounting on monitor • Processor: minimum two cores, Passmark¹ CPU Mark 3600 or higher • RAM: minimum 4GB DDR4 • RAM upgradeable to minimum 16 GB • Hard drive: minimum 500 GB SATA • Integrated HD Graphics controller • Integrated audio controller • Minimum 2 x M.2 slots • Minimum available ports: 1x DVI or HDMI, 1x Display Port, 4x USB 3.1, 1 x RJ45 (Gigabit Ethernet), 1 audio jack • Integrated Gigabit Ethernet • Keyboard – USB, wired, • Optical USB wired mouse, 2 buttons with scroll button, • Power Supply: external, minimum 65W <p>Monitor:</p> <ul style="list-style-type: none"> • Display type: LED – antiglare • Display size: minimum 21.5” • Supported resolution: 1920 x 1080 • Aspect ratio: 16:9 • Contrast ratio: minimum 1000:1 (static, without software adjustments) • Response time: maximum 5 ms (without software adjustments) 			

¹ Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Brightness: minimum 250cd/m2 • Display viewing angle: minimum 178° horizontal/178° vertical • Ports: minimum 1 x analogue, 2 x digital • Speakers: integrated or sound bar capable of connecting directly to the monitor, minimum 2W • Mounting kit for attaching desktop to the monitor included • At least one digital connector on Monitor and Desktop computer has to be directly compatible to provide connectivity without any adapters or signal convertors. Appropriate digital cable connecting Desktop with Monitor included. 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.2.	Desktop type 2 (Workstation for IT professionals + monitor) – quantity: 13 pieces			
[R4]	<ul style="list-style-type: none"> • Small Form or Tower Factor • Processor: minimum six cores, Passmark² CPU Mark 9400 or higher • RAM: minimum 8GB DDR4 • RAM upgradeable to minimum 64 GB • Hard drive: minimum 1 TB SSD • Optical drive: DVD+-RW • Integrated HD Graphics controller • Integrated audio controller with internal speaker • Minimum 2 x M.2 slots • Minimum available expansion slots and ports: minimum 2x PCIe, 2 x DisplayPort, 1x VGA or DVI or HDMI, 4x USB 2.0, 5 x USB 3.1, 1 x RJ45 (1Gigabit Ethernet), 1x RS-232 • Integrated Gigabit Ethernet • Keyboard – USB, wired • Optical USB wired mouse, 2 buttons with scroll button, • Power Supply: internal, minimum 180W <p>Monitor:</p> <ul style="list-style-type: none"> • Display type: LED – antiglare • Display size: minimum 23.8" • Supported resolution: 1920 x 1080 			

² Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Aspect ratio: 16:9 Contrast ratio: minimum 1000:1 (static, without software adjustments) Response time: maximum 5 ms (without software adjustments) Brightness: minimum 250cd/m2 Display viewing angle: minimum 178° horizontal/178° vertical Ports: minimum 1 x analogue, 1 x digital Speakers: integrated or sound bar capable of connecting directly to the monitor, minimum 2W VESA mounting interface or equivalent At least one digital connector on Monitor and Desktop computer has to be directly compatible to provide connectivity without any adapters or signal convertors. Appropriate digital cable connecting Desktop with Monitor included. 			
1.3.	Desktop type 3 (Multimedia & Graphics processing station + monitor) – quantity: 12 pieces			
[R5]	<ul style="list-style-type: none"> Tower form factor Processor: minimum six cores, Passmark³ CPU Mark 13100 or higher RAM: minimum 16GB DDR4 RAM upgradeable to minimum 64 GB 			

³ Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Hard drive 1: minimum 1 TB SATA • Hard drive 2: minimum 500 GB SSD • Optical drive: DVD+-RW • Integrated HD Graphics controller • Additional Graphics controller 4GB GDDR5, memory interface 128-bit • Integrated audio controller (2.1 system, input 1x3.5mm, output 1x3.5mm) • Separate speakers – minimum power 25W • Minimum 2 x M.2 slots • Minimum available expansion slots and ports: minimum 2x PCIe, 1x DisplayPort, 1x VGA or DVI or HDMI, 2 x USB 2.0, 6 x USB 3.0 or 3.1, 1 x RJ45 (1Gigabit Ethernet) • Integrated Gigabit Ethernet • Keyboard – USB, wired, • Optical USB wired mouse, 2 buttons with scroll button, • Power Supply: internal, minimum 400W <p>Monitor:</p> <ul style="list-style-type: none"> • Display type: LED – antiglare • Display size: minimum 27" • Supported resolution: 1920 x 1080 • Aspect ratio: 16:9 • Contrast ratio: minimum 1000:1 (static, without software adjustments) • Response time: maximum 5 ms (without software adjustments) • Brightness: minimum 250cd/m2 • Display viewing angle: minimum 178° 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	horizontal/178° vertical <ul style="list-style-type: none"> • Ports: minimum 1 x analog, 1 x digital • Speakers: integrated or sound bar capable of connecting directly to the monitor, minimum 2W • VESA mounting interface or equivalent • At least one digital connector on Monitor and Desktop computer has to be directly compatible to provide connectivity without any adapters or signal convertors. Appropriate digital cable connecting Desktop with Monitor included. 			
1.4.	Desktop type 4 (Office higher performance & capacity workstation + monitor) – quantity: 22 pieces			
[R6]	<ul style="list-style-type: none"> • Small Form or Tower factor • Support for mounting on monitor • Processor: minimum two cores, Passmark⁴ CPU Mark 3600 or higher • RAM: minimum 8GB DDR4 • RAM upgradeable to minimum 16 GB • Hard drive: minimum 1TB SATA • Integrated HD Graphics controller • Additional Graphics controller 2GB, minimum DDR4 • Integrated audio controller • Minimum 2 x M.2 slots 			

⁴ Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Minimum available ports: 1x DVI or HDMI, 1x Display Port, 4x USB 3.1, 1 x RJ45 (Gigabit Ethernet), 1 audio jack • Integrated Gigabit Ethernet • Keyboard – USB, wired • Optical USB wired mouse, 2 buttons with scroll button, • Power Supply: minimum 180W <p>Monitor:</p> <ul style="list-style-type: none"> • Display type: LED – antiglare • Display size: minimum 21.5” • Supported resolution: 1920 x 1080 • Aspect ratio: 16:9 • Contrast ratio: minimum 1000:1 (static, without software adjustments) • Response time: maximum 5 ms (without software adjustments) • Brightness: minimum 250cd/m2 • Display viewing angle: minimum 178° horizontal/178° vertical • Ports: minimum 1 x analogue, 2 x digital • Speakers: integrated or sound bar capable of connecting directly to the monitor, minimum 2W • At least one digital connector on Monitor and Desktop computer has to be directly compatible to provide connectivity without any adapters or signal convertors. Appropriate digital cable connecting Desktop with Monitor included. 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.5.	Additional monitor (24") – quantity: 16 pieces			
[R7]	<ul style="list-style-type: none"> • Display type: LED – antiglare • Display size: minimum 23.8" • Supported resolution: 1920 x 1080 • Aspect ratio: 16:9 • Contrast ratio: minimum 1000:1 (static, without software adjustments) • Response time: maximum 5 ms (without software adjustments) • Brightness: minimum 250cd/m2 • Display viewing angle: minimum 178° horizontal/178° vertical • Ports: minimum 1 x analogue, 1 x digital • Speakers: integrated or sound bar capable of connecting directly to the monitor, minimum 2W • VESA mounting interface 			
1.6.	Laptop type 1 (Business laptop for field work) – quantity: 6 pieces			
[R8]	<ul style="list-style-type: none"> • Minimal display characteristics: 14", FHD, anti-glare • Processor: minimum four cores, Passmark⁵ CPU Mark 6250 or higher • RAM: minimum 8GB DDR4 • RAM upgradeable to minimum 32 GB 			

⁵ Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Hard drive: minimum 512 GB SSD • Integrated HD Graphics controller • Integrated audio controller + stereo speakers + microphone • 720p HD Camera • Minimum available ports and slots: minimum 1 x HDMI, 1 x USB minimum 3.0, microSD card reader, headphone / microphone combo jack • Gigabit Ethernet • Wireless adapter + Bluetooth support • Battery • External AC power adapter with power cord included • Security Chip: Hardware TPM enabled • Carrying case and optical USB mouse included 			
1.7.	Laptop type 2 (Mobile workstation for Multimedia & Graphics processing or IT professionals) – quantity: 9 pieces			
[R9]	<ul style="list-style-type: none"> • Minimal display characteristics: 17.3", FHD, anti-glare • Processor: minimum six cores, Passmark⁶ CPU Mark 11480 or higher • RAM: minimum 16GB DDR4 • RAM upgradeable to minimum 64GB 			

⁶ Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Hard drive: minimum 1TB SSD • Optical DVD +-RW Drive included (integrated or connected to laptop via appropriate port) • Integrated HD Graphics controller • Additional Graphics controller 4GB GDDR5 or GDDR6 • Integrated audio controller + stereo speakers + microphone • Minimum 720p HD Camera • Minimum available ports and slots: minimum 1 x HDMI or DisplayPort, 2 x USB minimum 3.0, 1x RJ-45 (Gigabit Ethernet), microSD or smart card reader, headphone / microphone combo jack • Wireless adapter + Bluetooth support • Battery • External AC power adapter with power cord included • Security Chip: Hardware TPM enabled • Carrying case and optical USB mouse included 			
1.8.	Laptop type 3 (Rugged) – quantity: 6 pieces			
[R10]	<ul style="list-style-type: none"> • Minimal display characteristics: 14”, FHD, anti-glare • Processor: minimum four cores, Passmark⁷ CPU Mark 6250 or higher 			

⁷ Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • RAM: minimum 8GB DDR4 • RAM upgradeable to minimum 32GB • Hard drive: minimum 256 SSD • Integrated HD Graphics controller • Integrated audio controller + stereo speakers + microphone • Minimum FHD Camera • Minimum available ports and slots: minimum 1 x HDMI or DisplayPort, 1 x USB minimum 3.0, 1x RJ-45 (Gigabit Ethernet), microSD or smart card reader, headphone / microphone combo jack • Wireless adapter • Battery • External AC power adapter with power cord included • Security Chip: Hardware TPM enabled • Carrying case and optical USB mouse included 			
1.9.	Smart board – quantity: 5 pieces			
[R11]	<ul style="list-style-type: none"> • Interactive whiteboard diagonal: minimum 80" • Interactive surface compatible with dry-erase markers • Minimum two pens included • Possibility to write, erase by touching the interactive whiteboard with finger or a pen. • Support for minimum two simultaneous touches for interaction with the interactive whiteboard by using fingers and the included 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>pens to write and to perform gestures.</p> <ul style="list-style-type: none"> • Hardware to integrate with compatible projectors included • Digitizing technology: DViT or Infrared • Connection to computer or laptop: minimum USB 2.0 (minimum 5m USB cable included) • Appropriate collaborative learning software and drivers compatible with Windows and MacOS operating systems included • Power: 100V to 240 VAC, 50/60 Hz, power cable included or USB powered 			
1.10.	Access layer switch - 24 port - quantity: 24 pieces			
[R12]	<ul style="list-style-type: none"> • Chassis type: Rack mountable, including rack mounting kit • Available downlink and uplink ports: <ul style="list-style-type: none"> - Minimum 24 10/100/1000BASE-T PoE+ downlink ports - Minimum 4 1/10G SFP+ uplink ports • Stacking support: minimum 8 switches in stack • Stacking bandwidth support: minimum 80Gbps stack throughput • PoE power: minimum 370W PoE+ • Switching capacity: minimum 125Gbps • Throughput: minimum 95 Mpps • Memory installed: minimum 2 GB RAM • Minimum 4 GB Flash • IPv4 unicast routes supported: minimum 2.500 routes 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • IPv6 unicast routes supported: minimum 1.000 routes • MAC address table size: minimum 16.000 entries • Layer 2 features supported: <ul style="list-style-type: none"> - Jumbo frames support: minimum 9100 bytes - IEEE 802.1Q - IEEE 802.1w - PVST+ compatible • IPv4 routing support: <ul style="list-style-type: none"> - static routing - RIP v1 and v2 - OSPF • QoS support: IEEE 802.1p: QoS Prioritization • General protocols supported: <ul style="list-style-type: none"> - IEEE 802.1s: MST - IEEE 802.1x: Port Access Control - IEEE 802.3ad: Link Aggregation Control Protocol (LACP) - IEEE 802.3x Flow control - IEEE 802.3af: Power over Ethernet - IEEE 802.3at: PoE+ - IEEE 802.1D: STP - RMON - Simple Network Management Protocol (SNMP): v1, v2c, v3 • Management: <ul style="list-style-type: none"> - Web User Interface - Command line interface • Management ports: <ul style="list-style-type: none"> - RJ-45 Ethernet management port 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> - Console port • Power: <ul style="list-style-type: none"> - Input voltage range: 100-240 VAC - Frequency: 50/60 Hz • Operating temperature: 0°C to 40°C • Warranty: support from hardware manufacturer 8x5xNBD • Commercial warranty: support from hardware manufacturer 8x5xNBD • Switch needs to be installed in the rack and configured on-premise at the location of end-user. Configuration encompasses setting of IP management, switch port types, assignment of VLANs to switch ports, STP and port security functions. All relevant information for switches configuration such as VLAN numbers, names, function etc. will be provided by SATIT. 			
1.11.	Access layer switch - 48 port - quantity: 20 piece			
[R13]	<ul style="list-style-type: none"> • Chassis type: Rack mountable, including rack mounting kit • Available downlink and uplink ports: <ul style="list-style-type: none"> - Minimum 48 10/100/1000BASE-T PoE+ downlink ports - Minimum 4 1/10G SFP+ uplink ports • Stacking support: minimum 8 switches in stack • Stacking bandwidth support: minimum 80Gbps stack throughput • PoE power: minimum 740W PoE+ 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Switching capacity: minimum 170 Gbps • Throughput: minimum 120 Mpps • Memory installed: minimum 2 GB RAM • Minimum 4 GB Flash • IPv4 unicast routes supported: minimum 2.500 routes • IPv6 unicast routes supported: minimum 1.000 routes • MAC address table size: minimum 16.000 entries • Layer 2 features: <ul style="list-style-type: none"> - Jumbo frames support: minimum 9100 bytes - IEEE 802.1Q - IEEE 802.1w - PVST+ compatible • IPv4 routing support: <ul style="list-style-type: none"> - static routing - RIP v1 and v2 - OSPF • QoS support: IEEE 802.1p: QoS Prioritization • General protocols supported: <ul style="list-style-type: none"> - IEEE 802.1s: MST - IEEE 802.1x: Port Access Control - IEEE 802.3ad: Link Aggregation Control Protocol (LACP) - IEEE 802.3x Flow control - IEEE 802.3af: Power over Ethernet - IEEE 802.3at: PoE+ - IEEE 802.1D: STP - RMON 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> - Simple Network Management Protocol (SNMP): v1, v2c, v3 • Management: <ul style="list-style-type: none"> - Web User Interface - Command line interface • Management ports: <ul style="list-style-type: none"> - RJ-45 Ethernet management port - Console port • Acoustic noise: Maximum 52dB • Power: <ul style="list-style-type: none"> - Input voltage range: 100-240 VAC - Frequency: 50/60 Hz • Operating temperature: 0°C to 40°C • Warranty: support from hardware manufacturer 8x5xNBD • Commercial warranty: support from hardware manufacturer 8x5xNBD • Switch needs to be installed in the rack and configured on-premise at the location of end-user. Configuration encompasses setting of IP management, switch port types, assignment of VLANs to switch ports, STP and port security functions. All relevant information for switches configuration such as VLAN numbers, names, function etc. will be provided by SATIT. 			
1.12.	WAN router/firewall with 4G (LTE) & Wi-Fi support - quantity: 4 pieces			
[R14]	<ul style="list-style-type: none"> • Chassis type: Rack mountable, including rack mounting kit • Integrated WAN ports: minimum 1 Gigabit 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>Ethernet port</p> <ul style="list-style-type: none"> • Integrated LAN ports: minimum 3 Gigabit Ethernet ports, minimum 1 of these ports should be PoE enabled • Wi-Fi: minimum compliance with 802.11a/g/n/ac or higher • Support for dual radio and dual band: 2.4 GHz and 5 GHz • Support for Maximal ratio combining (MRC) mechanism • Support for 802.11 Dynamic Frequency Selection (DFS) • Support for Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Rx) • LTE: support for Generic Europe 4G/LTE • Memory installed: minimum 1GB RAM • Minimum 256 MB Flash • Routing protocols support: RIP, OSPF, BGP • Multicast support: PIM, IGMPv3 • Supported Wi-Fi Security features: <ul style="list-style-type: none"> - Advanced Encryption Standard (AES) for WPA3, WPA2, WPA - 802.11r • Supported Security functionalities: <ul style="list-style-type: none"> - IPSec VPN - ACLs - AAA - RADIUS - NAT • Supported Layer 2 functionalities: <ul style="list-style-type: none"> - 802.1q VLAN 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Supported traffic management functionalities: <ul style="list-style-type: none"> - QoS - WRED Management ports: <ul style="list-style-type: none"> - Console port Device management: <ul style="list-style-type: none"> - Command Line Interface - Web based UI Power: AC 100V to 240V, 50 Hz/60 Hz Operating temperature: 0°C to 40°C Equipped with integrated antennas with omnidirectional radiation diagram Warranty: support from hardware manufacturer 8x5xNBD Commercial warranty: support from hardware manufacturer 8x5xNBD Router/firewall needs to be installed in the rack and configured on-premise at the location of end-user. Configuration encompasses setting of IP addresses on interfaces, Wi-Fi access point and security, LTE connectivity, routing functions, NAT, VPN tunnels, access lists and firewall rules. Contractor will receive all relevant parameters for router/firewall configuration from SATIT. 			
1.13	Wireless Access Point - quantity: 1 piece			
[R15]	<ul style="list-style-type: none"> Mounting/Placement: Ceiling/Wall Data rate: maximum 867 Mbps Support for dual radio and dual band: 2.4 GHz and 5 GHz 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Antennas streams: 2x2:2SS-80MHz Interface: 1x 1 GbE, PoE, RJ-45 Supported Wi-Fi Security features: <ul style="list-style-type: none"> Advanced Encryption Standard (AES) for WPA3, WPA2, WPA RADIUS Server Memory: 256MB Flash, 1GB DRAM Warranty: support from hardware manufacturer 8x5xNBD Commercial warranty: support from hardware manufacturer 8x5xNBD 			
1.14.	UPS 10.000VA rack mountable - quantity: 2 piece			
[R16]	<ul style="list-style-type: none"> Rack mountable, including rack mounting kit On-line double conversion technology Output Power capacity: minimum 10000VA Input voltage tolerance range: minimum 170-270 VAC Terminal board for connecting PDUs Nominal input voltage: minimum 230V Nominal output voltage: minimum 230V Battery type: Lead-Acid battery, maintenance free Interface ports: minimum RS232 or USB, Ethernet Status display with On Line, On Battery, Replace Battery and Overload indicators Autonomy: minimum 10 minutes when loaded 50% Smart shutdown support 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> UPS needs to be installed in the rack and configured on-premise at the location of end-user. Installation assumes connection of the existing equipment and items 1.16 to UPS. Contractor must test operation of the UPS on batteries with all above mentioned equipment connected to UPS. 			
1.15.	UPS 6.000VA rack mountable - quantity: 1 piece			
[R17]	<ul style="list-style-type: none"> Rack mountable, including rack mounting kit On-line double conversion technology Output Power capacity: minimum 10000VA Input voltage tolerance range: minimum 170-270 VAC Terminal board for connecting PDUs Nominal input voltage: minimum 230V Nominal output voltage: minimum 230V Battery type: Lead-Acid battery, maintenance free Interface ports: minimum RS232 or USB, Ethernet Status display with On Line, On Battery, Replace Battery and Overload indicators Autonomy: minimum 10 minutes when loaded 50% Smart shutdown support UPS needs to be installed in the rack and configured on-premise at the location of end-user. Installation assumes connection of the existing equipment and items 1.16 to UPS. Contractor must test operation of the UPS on 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	batteries with all above mentioned equipment connected to UPS.			
1.16.	Rack mountable server - quantity: 13 pieces			
[R18]	<ul style="list-style-type: none"> Case type: rack mountable, maximum 2RU size; Server management and monitoring: <ul style="list-style-type: none"> Integrated module for monitoring and management of server and its components Support for local and remote access via Graphic Web Interface (GUI). A remote access license included in the offer. Processor sockets: minimum two processor sockets supported Processor: included 2 x physical CPU (new generation), minimum 10 cores, minimum 2.2 GHz, Passmark⁸ score of minimum 14.000; RAM installed: minimum 128 GB DDR4 (minimum 2.400 MHz). Usage of 16 GB and 32 GB memory modules is acceptable RAID controller: included 12G RAID controller with 2GB Cache and support for at least RAID 1 Hard disks included/installed to ensure total usable capacity of 4TB by using SSD disks Network: minimum 4 port Ethernet 1/10G for 			

⁸ Contractor must submit documented test results from third party providers (i.e. <https://www.cpubenchmark.net>).

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>RJ-45</p> <ul style="list-style-type: none"> • SAN: Included 2-port 16G FC HBA with the associated Short Ranges LC SFP+ modules and multimode LC-LC patch cables (minimum 5m length) to connect to SAN or direct-attached storage. • Power: 220/230V AC, dual, redundant, hot swappable • Fans: Hot swappable fans • Operating system compatibility: Linux, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), VMware virtualization • All necessary mounting kit and power cables included • Warranty: support from hardware manufacturer • Commercial warranty: support from hardware manufacturer • Servers need to be installed in the rack and configured on-premise at the location of end-user. Contractor must install and configure server hardware components, configure servers and their management components and physically connect two of them to the disk storage system, install virtualization software on servers and create virtual machine as per beneficiary instructions. All configuration parameters for the servers and storage such as allocation of virtual CPUs, RAM, disk space, vNIC to each virtual machine, configuration of storage logical volumes, their size and type, 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	will be provided by CAS IT staff.			
1.17.	Network-attached storage - quantity: 1 piece			
[R19]	<ul style="list-style-type: none"> General purpose: „NAS storage system“ – support for SSD and HDD CPU: <ul style="list-style-type: none"> Architecture 64-bit Minimum 4-core 1.4GHz Hardware Encryption Engine System Memory: minimum 2GB installed Storage: <ul style="list-style-type: none"> Drive Bays: minimum 4 x SATA3 6Gb/s; 3.5"/2.5" HDD/SSD Support for up to minimum 8 Drive Bays with expansion unit Bidder must include minimum of 3TB of usable capacity on SSDs (not larger than 1TB) in RAID5 scheme External ports: <ul style="list-style-type: none"> Minimum 2 x RJ-45 Gigabit Ethernet LAN Port Minimum 2 x USB 3.0 ports Input Power Voltage: 100V to 240V AC 			
1.18.	Portable SSD - 2 TB - quantity: 32 pieces			
[R20]	<ul style="list-style-type: none"> External Portable Disk Drive Connection to host: via minimum USB 3.0 Capacity: minimum 2 TB Drive read speed: up to 300 MB/s Appropriate USB cable for connecting to host included 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Compatible with Windows and MacOS operating systems 			
1.19.	Portable HDD - 5 TB - quantity: 10 pieces			
[R21]	<ul style="list-style-type: none"> External Portable Hard Disk Drive Connection to host: via minimum USB 3.0 Capacity: minimum 5 TB Drive read speed: minimum 110 MB/s Appropriate USB cable for connecting to host included Compatible with Windows and MacOS operating systems 			
1.20.	USB flash drive 512 GB with hardware encryption - quantity: 14 pieces			
[R22]	<ul style="list-style-type: none"> USB Flash Drive Connection to host: via minimum USB 3.0 Capacity: minimum 510 GB AES 256-bit Hardware encryption supported Compatible with Windows and MacOS operating systems 			
1.21.	USB flash drive 128 GB with hardware encryption - quantity: 20 pieces			
[R23]	<ul style="list-style-type: none"> USB Flash Drive Connection to host: via minimum USB 3.0 Capacity: minimum 120 GB 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> AES 256-bit Hardware encryption supported Compatible with Windows and MacOS operating systems 			
1.22.	Portable SSD - 4 TB - quantity: 11 pieces			
[R24]	<ul style="list-style-type: none"> External Portable Disk Drive Connection to host: via minimum USB 3.1 Capacity: minimum 4 TB Drive read speed: up to 400 MB/s Appropriate USB cable for connecting to host included Compatible with Windows and MacOS operating systems 			
1.23.	Individual printer type 2 (Office-Colour) – quantity: 30 pieces			
[R25]	<ul style="list-style-type: none"> Print technology: Colour Laser Print Speed (A4/Letter, simplex): minimum 25 ppm Print time of the first A4 page colour: maximum 14 seconds Media Sizes/Formats Supported: minimum A4, A5, A6, Envelope Print resolution, colour, minimum 600 x 600 dpi Automatic duplex printing LCD/LED Control Display Minimum memory installed: 256 MB Number of paper trays: minimum 2 Input paper tray capacity: minimum 250 sheets 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Output paper tray capacity: minimum 100 sheets • Supported Paper Weight Range: Standard tray: 60 - 163 g/m2 • Supported connectivity ports: USB 2.0 port, Fast Ethernet port • Printer Languages: PCL 6, PCL 5 • Compatible network operating systems: MS Windows 7/10 or equivalent, MS Windows Server, Apple/Mac OS, • Input voltage 220 to 240 VAC, 50/60 Hz (+/- 3 Hz) • One or more additional ISO/IEC 19798 certified toners included, to enable printing of minimum 5.000 A4 monochrome and 3.000 colour pages • Other spare material/consumables (maintenance kits, image units, pc units, photoconductors) must be delivered and included to enable printing of minimum 100.000 pages with no additional costs • Standard USB cable (A-B) included, minimum length 3m 			
1.24.	Network printer type 1 (A4/Black & White) – quantity: 40 pieces			
[R26]	<ul style="list-style-type: none"> • Print technology: Monochrome (Black/White) Laser • Print Speed (A4, simplex): minimum 45 ppm • Print time of the first A4 page: maximum 6 seconds 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Media Sizes/Formats Supported: minimum A4, A5, A6, Envelope Print resolution, minimum 1200 x 1200 dpi Automatic duplex printing LCD/LED Control Display Minimum memory installed : 512 MB Number of paper trays: minimum 2 Input paper tray capacity: minimum 600 sheets Output paper tray capacity: minimum 250 sheets Supported Paper Weight Range: Standard tray: 60 - 120 g/m2, Multipurpose tray/feeder: 60 to 200 g/m2 Supported connectivity ports: USB 2.0 port, Fast Ethernet port Printer Languages: PCL 6, PCL 5 Compatible network operating systems: MS Windows 7/10 or equivalent, MS Windows Server, Apple/Mac OS, Input voltage 220 to 240 VAC, 50/60 Hz (+/- 3 Hz) One or more additional ISO/IEC 19752 certified toners included, to enable printing of minimum 15.000 A4 monochrome pages Other spare material/consumables (maintenance kits, image units, pc units, photoconductors) must be delivered and included to enable printing of minimum 250.000 pages with no additional costs Standard USB cable (A-B) included, 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	minimum length 3m			
1.25.	Network printer type 2 (A3/Black & White) – quantity: 12 pieces			
[R27]	<ul style="list-style-type: none"> • Print technology: Monochrome (Black/White) Laser • Print Speed (A4, simplex): minimum 30 ppm • Print Speed (A3, simplex): minimum 20 ppm • Print time of the first A4 page: maximum 10 seconds • Media Sizes/Formats Supported: minimum A3, A4, A5, A6, B4, B5 • Print resolution, minimum 1200 x 1200 dpi • Automatic duplex printing • LCD/LED Control Display • Minimum memory installed : 256 MB • Number of paper trays: minimum 2 • Input paper tray capacity: minimum 400 sheets • Output paper tray capacity: minimum 150 sheets • Supported Paper Weight Range: Standard tray: 60 - 120 g/m2 • Supported connectivity ports: USB 2.0 port, Fast Ethernet port • Printer Languages: PCL 6, PCL 5 • Compatible network operating systems: MS Windows 7/10 or equivalent, MS Windows Server, Apple/Mac OS, • Input voltage 220 to 240 VAC, 50/60 Hz (+/- 3 Hz) 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> One or more additional ISO/IEC 19752 certified toners included, to enable printing of minimum 15.000 A3 monochrome pages Other spare material/consumables (maintenance kits, image units, pc units, photoconductors) must be delivered and included to enable printing of minimum 250.000 pages with no additional costs Standard USB cable (A-B) included, minimum length 3m 			
1.26.	Multifunctional device type 1 (A4/Black & White) – quantity: 40 pieces			
[R28]	<ul style="list-style-type: none"> Minimum functions included: Print, Copy, Scan, Fax Print technology: Monochrome (Black/White) Laser Print Speed (A4/letter, simplex): minimum 43 ppm Print time of the first A4 page: maximum 6 seconds Media Sizes/Formats Supported: minimum A4, A5, A6, Envelope Print resolution, minimum 1200 x 1200 dpi Automatic duplex printing LCD/LED Control Display Minimum memory installed : 1 GB Number of paper trays: minimum 2 Input paper tray capacity: minimum 600 sheets Output paper tray capacity: minimum 150 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>sheets</p> <ul style="list-style-type: none"> • Supported Paper Weight Range: Standard tray: 60 - 120 g/m2 • Copy speed: 43 cpm/ppm • Copy time of the first A4 page: maximum 7 seconds • Copy resolution: minimum 600 x 600 dpi • Copy reduction/enlargement: 25-400% • Scanner type: Automatic Document Feeder • Scan speed (A4/BW/simplex): minimum 38 ipm • Scanning resolution, minimum 600 x 600 dpi • Supported Scanning file formats: PDF, PDF/A, JPEG, JPG, TIFF, XPS • Supported Scanning destination: scan to e-mail, scan to network (SMB & FTP), scan to USB • ADF Input Capacity: minimum 50 sheets • Duplex scanning: supported • Fax modem speed: minimum 33.6 Kbps • Fax address book (broadcast) locations: minimum 200 entries • Supported connectivity ports: USB 2.0 port, Fast Ethernet port • Printer Languages: PCL 6, PCL 5 • Compatible network operating systems: MS Windows 7/10 or equivalent, MS Windows Server, Apple/Mac OS, • Input voltage 220 to 240 VAC, 50/60 Hz (+/- 3 Hz) • One or more additional ISO/IEC 19752 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>certified toners included, to enable printing of minimum 35.000 A4 monochrome pages</p> <ul style="list-style-type: none"> Other spare material/consumables (maintenance kits, image units, pc units, photoconductors) must be delivered and included to enable printing of minimum 500,000 pages with no additional costs Standard USB cable (A-B) included, minimum length 3m 			
1.27.	Multifunctional device type 2 (A3/Colour) – quantity: 5 pieces			
[R29]	<ul style="list-style-type: none"> Minimum functions included: Print, Copy, Scan, Fax Print technology: Colour Laser Print Speed (A4, BW simplex): minimum 30 ppm Print Speed (A4, Colour simplex): minimum 30 ppm Print Speed (A3, BW, simplex): minimum 15 ppm Print Speed (A3, Colour simplex): minimum 15 ppm Print time of the first A4 page: maximum 8 seconds BW, maximum 9 seconds colours Media Sizes/Formats Supported: minimum A3, A4, A5, A6, B5, Envelope Print resolution, minimum 1200 x 1200 dpi Automatic duplex printing LCD/LED Touch Control Display Minimum memory installed : 1.5 GB 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Number of paper trays: minimum 2 • Input paper tray capacity: minimum 600 sheets • Output paper tray capacity: minimum 250 sheets • Supported Paper Weight Range: Standard tray: 60 - 220 g/m2 • Copy speed: 30 cpm/ppm • Copy time of the first A4 page: maximum 9 seconds • Copy resolution: minimum 600 x 600 dpi • Copy reduction/enlargement: 25-400% • Scanner type: Automatic Document Feeder • Scan speed (A4/BW/simplex): minimum 50 ipm • Scanning resolution, minimum 600 x 600 dpi • Supported Scanning file formats: PDF, PDF/A, JPEG, JPG, TIFF, XPS • Supported Scanning destination: scan to e-mail, scan to network (SMB & FTP), scan to USB • ADF Input Capacity: minimum 50 sheets • Duplex scanning: supported • Fax modem speed: minimum 33.6 Kbps • Fax address book (broadcast) locations: minimum 200 entries • Supported connectivity ports: 2 x USB minimum 2.0 port, Fast Ethernet port • Printer Languages: PCL 6, PCL 5 • Compatible network operating systems: MS Windows 7/10 or equivalent, MS Windows 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	Server, Apple/Mac OS, <ul style="list-style-type: none"> • Input voltage 220 to 240 VAC, 50/60 Hz (+/- 3 Hz) • One or more additional ISO/IEC 19798 certified toners included, to enable printing of minimum 15.000 monochrome and minimum 7.500 colour pages • Other spare material/consumables (maintenance kits, image units, pc units, photoconductors) must be delivered and included to enable printing of minimum 200.000 pages with no additional costs • Stand with wheels included • Standard USB cable (A-B) and power cord included, minimum length 3 			
1.28.	Copy machine type 1 – quantity: 3 pieces			
[R30]	<ul style="list-style-type: none"> • Minimum functions included: Print, Copy, Scan • Print technology: Laser • Print Speed (A4, BW simplex): minimum 30 ppm • Print Speed (A3, BW, simplex): minimum 15 ppm • Print time of the first A4 page: maximum 8 seconds BW • Media Sizes/Formats Supported: minimum A3, A4, A5, A6, B5, Envelope • Print resolution, minimum 1200 x 1200 dpi • Automatic duplex printing • LCD/LED Touch Control Display 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Minimum memory installed: 1 GB • Number of paper trays: minimum 3 • Input paper tray capacity: minimum 1100 sheets • Output paper tray capacity: minimum 250 sheets • Supported Paper Weight Range: Standard tray: 60 - 220 g/m2 • Copy speed: minimum 30 cpm • Copy time of the first A4 page: maximum 9 seconds • Copy resolution: minimum 600 x 600 dpi • Copy reduction/enlargement: 25-400% • Scanner type: Automatic Document Feeder • Scan speed (A4/BW/simplex): minimum 50 ppm • Scanning resolution, minimum 600 x 600 dpi • Supported Scanning file formats: PDF, PDF/A, JPEG, JPG, TIFF, XPS • Supported Scanning destination: scan to e-mail, scan to network (SMB & FTP), scan to USB • ADF Input Capacity: minimum 50 sheets • Duplex scanning: supported • Supported connectivity ports: 2 x USB minimum 2.0 port, Fast Ethernet port • Printer Languages: PCL 6, PCL 5 • Compatible network operating systems: MS Windows 7/10 or equivalent, MS Windows Server, Apple/Mac OS, • Input voltage 220 to 240 VAC, 50/60 Hz (+/- 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	3 Hz) <ul style="list-style-type: none"> One or more additional ISO/IEC 19798 certified toners included, to enable printing of minimum 15.000 monochrome and minimum 7.500 colour pages Other spare material/consumables (maintenance kits, image units, pc units, photoconductors) must be delivered and included to enable printing of minimum 300.000 pages with no additional costs Stand with wheels included Standard USB cable (A-B) and power cord included, minimum length 3m 			
1.29.	Copy machine type 2 – quantity: 3 pieces			
[R31]	<ul style="list-style-type: none"> Minimum functions included: Print, Copy, Scan Print technology: Colour Laser Print Speed (A4, BW simplex): minimum 30 ppm Print Speed (A4, Colour simplex): minimum 30 ppm Print Speed (A3, BW, simplex): minimum 15 ppm Print Speed (A3, Colour simplex): minimum 15 ppm Print time of the first A4 page: maximum 8 seconds BW, maximum 9 seconds colours Media Sizes/Formats Supported: minimum A3, A4, A5, A6, B5, Envelope Print resolution, minimum 1200 x 1200 dpi 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Automatic duplex printing • LCD/LED Touch Control Display • Minimum memory installed: 1.5 GB • Number of paper trays: minimum 3 • Input paper tray capacity: minimum 1100 sheets • Output paper tray capacity: minimum 250 sheets • Supported Paper Weight Range: Standard tray: 60 - 220 g/m2 • Copy speed: minimum 30 cpm • Copy time of the first A4 page: maximum 9 seconds • Copy resolution: minimum 600 x 600 dpi • Copy reduction/enlargement: 25-400% • Scanner type: Automatic Document Feeder • Scan speed (A4/BW/simplex): minimum 50 ipm • Scanning resolution, minimum 600 x 600 dpi • Supported Scanning file formats: PDF, PDF/A, JPEG, JPG, TIFF, XPS • Supported Scanning destination: scan to e-mail, scan to network (SMB & FTP), scan to USB • ADF Input Capacity: minimum 50 sheets • Duplex scanning: supported • Supported connectivity ports: 2 x USB minimum 2.0 port, Fast Ethernet port • Printer Languages: PCL 6, PCL 5 • Compatible network operating systems: MS Windows 7/10 or equivalent, MS Windows 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	Server, Apple/Mac OS, <ul style="list-style-type: none"> • Input voltage 220 to 240 VAC, 50/60 Hz (+/- 3 Hz) • One or more additional ISO/IEC 19798 certified toners included, to enable printing of minimum 15.000 monochrome and minimum 7.500 colour pages • Other spare material/consumables (maintenance kits, image units, pc units, photoconductors) must be delivered and included to enable printing of minimum 200.000 pages with no additional costs • Stand with wheels included • Standard USB cable (A-B) and power cord included, minimum length 3m 			
1.30.	Scanner type 1 (A4 - high capacity) – quantity: 1 piece			
[R32]	<ul style="list-style-type: none"> • Scanner type: Document scanner with automatic document feeder • Monochrome & Colour scanning supported • Light source: LED • Scanning resolution: minimum 600 dpi • Scanning speed (monochrome) at 200 or 300 dpi: minimum 40 ppm / 80 ipm • Scanning speed (colour) at 200 or 300 dpi: minimum 40 ppm or 80 ipm • Scanning side: simplex and duplex • Long page scanning supports documents with a length of up to 3000 mm • ADF capacity: minimum 50 sheets 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Supported document sizes: <ul style="list-style-type: none"> Width: from minimum 50,8 to 210 mm Length: from minimum 50,8 to 297 mm Weight: from minimum 27 to 209 g/m2 Scanning software included with supported scanning file formats: JPEG, TIFF, multi-TIFF, PDF, searchable PDF, secure PDF, PDF/A Driver: TWAIN, ISIS Interface: minimum USB 2.0 Compatible network operating systems: MS Windows 7/10 or equivalent Power supply: 100 – 240 V AC (50/60 Hz) 			
1.31.	Scanner type 2 (A4 - low capacity) – quantity: 11 pieces			
[R33]	<ul style="list-style-type: none"> Scanner type: Document scanner with automatic document feeder Monochrome & Colour scanning supported Light source: LED Scanning resolution: minimum 600 dpi Scanning speed (monochrome) at 200 or 300 dpi: minimum 30 ppm / 60 ipm Scanning speed (colour) at 200 or 300 dpi: minimum 30 ppm or 60 ipm Scanning side: simplex and duplex Long page scanning supports documents with a length of up to 3000 mm ADF capacity: minimum 50 sheets Supported document sizes: 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> - Width: from minimum 50,8 to 210 mm - Length: from minimum 50,8 to 297 mm - Weight: from minimum 27 to 200 g/m2 • Scanning software included with supported scanning file formats: JPEG, TIFF, multi-TIFF, PDF, searchable PDF, secure PDF, PDF/A • Driver: TWAIN, ISIS • Interface: minimum USB 2.0 • Compatible network operating systems: MS Windows 7/10 or equivalent • Power supply: 100 – 240 V AC (50/60 Hz) 			
1.32.	Projector - quantity: 16 pieces			
[R34]	<ul style="list-style-type: none"> • Native resolution: 1.280 x 800 • Resolution format: WXGA • Contrast: 16.000:1 • Connector: USB 2.0; Audio input 3.5mm; HDMI; VGA; • Other: Speakers; Remote control 			
1.33.	Projector screen- quantity: 16 pieces			
[R35]	<ul style="list-style-type: none"> • Tripod canvas • Canvas dimension: 200cm x 200cm • Image size: 196cm x 196cm • Page ratio: 1:1 (square) 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
1.34.	Telepresence-videoconferencing system- quantity: 2 pieces			
[R36]	<ul style="list-style-type: none"> • Ultra-HD imaging system supports: • 4 K, 1440 p, 1080 p, 900 p, 720 p, and SD at 30 fps • 1080 p, 720 p at 30 fps and 60 fps • Smooth motorized pan, tilt and zoom • Pan: $\pm 90^\circ$ • Tilt: $+50^\circ / -90^\circ$ • 15x HD zoom • Field of View: • Diagonal: 90° • Horizontal: 82.1° • Autofocus • 3 camera presets • Up to 16 seats • Video mute/unmute LED indicator • Standard tripod thread • Lens parks at -90° in sleep mode for assured privacy • Pickup range: 4.5 m diameter • Four omnidirectional microphones forming eight acoustic beams • Background noise suppression • Mute button with LED status indicator • Captive 2.95 m 12-pin cable • Daisy chain up to 7 Rally Mic Pods • RF remote control (line of sight not required) • Compatibility and certifications: • Plug-and-play USB connectivity 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> • Certified for Skype for Business and Microsoft Teams • Zoom Certified • Fuze Certified • Certified for Google Hangouts Meet Hardware • Microsoft Cortana® certified • Cisco Jabber® and WebEx Compatible • Compatible with BlueJeans, BroadSoft, GoToMeeting, Vidy, and other video conferencing, recording, and broadcasting applications that support USB cameras 			
1.35.	Web camera - quantity: 4 pieces			
[R37]	<ul style="list-style-type: none"> • Sensor resolution: 2 Mpix • Native resolution: Full HD 1080p • Frame rate: 30fps • Supported format: H264 • Microphone • Connection USB 2.0 • Universal gripper for LCD • Compatible network operating systems: MS Windows 7/10 or equivalent 			
1.36.	External DVD Writer- quantity: 11 pieces			
[R38]	<ul style="list-style-type: none"> • Optical drive • DVD Writer • Interface: USB 2.0 			
1.37.	TV 85" - quantity: 1 pieces			
[R39]	<ul style="list-style-type: none"> • Display: 4K Ultra HD LED • Diagonal screen size: 85" 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Ports: 2 USB, 2 HDMI, Bluetooth 4.2, Wi-Fi 802.11ac, Ethernet-LAN RJ-45, Headphone out Video formats: Containers: AVI, MKV, H264/MPEG-4 AVC, MPEG-1, MPEG-2, MPEG-4, HEVC (H.265) Power: AC 220 - 240 V 50/60 Hz 			
1.38.	Movable TV Stand Mount- quantity: 2 pieces			
[R40]	<ul style="list-style-type: none"> Diagonal TV: to 85" Weight TV: to 70Kg VESA: maximum to 600x400 Height adjustment TV: 1250-1600mm Basa stand: with silicone wheels, wheel brakes, metal shelf Other: cable concealment (cable management system) 			
1.39.	TV 55" - quantity: 10 pieces			
[R41]	<ul style="list-style-type: none"> Display: 4K Ultra HD LED Diagonal screen size: 55" Ports: 1 USB, 2 HDMI, Bluetooth 4.2, Wi-Fi 802.11ac, Ethernet-LAN RJ-45, Headphone out Video formats: Containers: AVI, MKV, H264/MPEG-4 AVC, MPEG-1, MPEG-2, MPEG-4, HEVC (H.265) Power: AC 220 - 240 V 50/60 Hz 			
1.40.	Wireless keyboard & mouse - quantity: 54 pieces			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
[R42]	<ul style="list-style-type: none"> Wireless keyboard & mouse combo Interface: USB nano receiver 2.4GHz Other: range to 10m, minimum 6 multifunction keys, LCD Display, palm rest Power: 1xAA keyboard, 1xAA mouse Support: Windows 7/8/10 or later 			
1.41.	Speaker System type 1- quantity: 14 pieces			
[R43]	<ul style="list-style-type: none"> Device type: 2.0 Channel Connectivity: 3.5mm headphones, 3.5mm AUX Control: volume control 			
1.42.	Speaker System type 2 - quantity: 1 piece			
[R44]	<ul style="list-style-type: none"> Device type: Soundbar 5.1 Connectivity: 1x Optical, Bluetooth Input/Output: 2xHDMI/1xHDMI 			
1.43.	Office suite - quantity: 35 pieces			
[R45]	<ul style="list-style-type: none"> Office package: Word, Excel, PowerPoint, Outlook, OneNote Language: Serbian Subscription: one-time purchase Purpose: commercial use Platform: Windows10/macOS Architecture: 32/64bit 			
2	Installation, configuration and commissioning			
[R46]	<ul style="list-style-type: none"> The Contractor will be responsible for delivery, installation, configuration and start- 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>up of the supplies delivered.</p> <ul style="list-style-type: none"> • The Contractor will be also responsible for integration of the supplies delivered with the existing infrastructure, if required by the nature of the supplies provided. The Beneficiary reserves the right to delegate minimum 2 of its employees to actively participate in the installation and configuration phase together with the Contractor's implementation team. • Contractor will also perform specific installation and configuration tasks as stated in the requirements of specific items of this Lot. 			
3	Documentation			
[R47]	<p>The equipment/software shall be delivered with the following:</p> <ul style="list-style-type: none"> • List of equipment; • Certificate of Warranty; • Certificate of Origin; • Licenses (if applicable); • Project documentation, detailed technical documentation describing installation, configuration, integration, customization etc.; • User manuals, Administrator manuals, Maintenance manuals; • Backup and Disaster Recovery Procedures (if applicable); 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> Procedures for system software installation, configuration, integration, customization; CD / DVD or USB media with: equipment drivers, restore operating systems, installation kits for software. <p>All above mentioned documents will be delivered to the Beneficiary in Serbian and English languages, except the documents which are provided by the manufacturers. Exempted documents will be delivered in English language.</p> <p>All the documents shall be delivered in electronic format and hard-copy (if not available in electronic form).</p>			
4	Warranty			
[R48]	<ul style="list-style-type: none"> Duration of warranty is 1 (one) year for each item of this Lot Warranty starts from the date of issuance of Provisional Acceptance Certificate. The Tenderer shall submit the Certificate of Warranty for equipment/system to the Contracting Authority stating the commencement date as the date of issuance of Provisional Acceptance Certificate. Tenderers must provide local reliable warranty service agent providing 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>maintenance and the rapid supply of equipment for the Warranty duration.</p> <ul style="list-style-type: none"> Detailed description of the organisation of the proposed service and description of the warranty shall be included in the offer. 			
5	Commercial warranty			
[R49]	<ul style="list-style-type: none"> Duration of commercial warranty is minimum 1 (one) year for each item of this Lot. Commercial warranty starts from the date of issuance of Final Acceptance Certificate. Detailed description of the organisation of the proposed service and description of the commercial warranty shall be included in the offer. 			
6	Support & maintenance requirements during warranty and commercial warranty period			
[R50]	<p>The following activities/operations shall be assured during the warranty and commercial period:</p> <ul style="list-style-type: none"> Maintenance regarding the supplied equipment/software in the agreed parameters (performance, availability and data integrity etc.); Improvements to the technical performances if the case; Solving bugs that have not been identified during the implementation and which occur during the production stage. The Tenderer shall provide Help Desk 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<p>support (phone & e-mail), available minimum during working hours (8h–17h local time) during the warranty and commercial warranty period.</p> <ul style="list-style-type: none"> • The Tenderer shall repair defects or damages at his own cost during the warranty and commercial warranty period. • Registering and tracking problems shall take place using a dedicated software application for incident and problem management provided by the Tenderer. • The application for the registration and tracking of problems shall be also used for the management of issues and events that occur in the implementation stage of the project. • During warranty and commercial warranty period, the Tenderer shall repair or alternatively replace the defective equipment within a maximum of 48 hours from officially submitted warranty support request. • During warranty and commercial warranty period, the Tenderer shall replace equipment for the period of time needed for repairs in case the defect or damage cannot be repaired within the solution time requested. • During warranty and commercial warranty period, the Tenderer shall fully replace equipment in case the defect or damage that cannot be repaired. 			

1. Item Number	2. Specifications required	3. Specifications offered	4. Notes, remarks, ref to documentation	5. Evaluation committee's notes
	<ul style="list-style-type: none"> In case of media failure, replacement will take place without returning the original media, due to security constraints. Diagnostics of the failed storage media must also be performed in the beneficiary institution under the supervision of its competent staff member. Minimum Service level requirements (SLR) are stated in the table below: 			

Service level agreements (SLA)

Severity Level	Definition	TRT	TF	TNB
Priority 1 – major operational impact	<p>Critical functions are not available.</p> <p>Critical service (application mode) is not available.</p> <p>General activity is significantly disturbed.</p>	8 hour	3 days	1 week
Priority 2 – significant operational impact	Significant operational impact on the activity of many users.	2 days	5 days	1 weeks
Priority 3 - minor operational impact	<p>Medium/Minor operational impact on the activities. It affects a user or computer service (function) with little impact.</p> <p>Activity can take place almost normally.</p>	3 days	1 week	2 weeks
Priority 4 - Information request	<p>Information request.</p> <p>There is no operational impact.</p> <p>The production activity is not affected.</p>	1 week	2 weeks	1 month

NOTE:

- **TRT = Time to React or Response Time (Acknowledge Time):**

Time expressed in working hours between the time support provider received notification of the error and the time client was informed on notification being received.

- **TF = Time to Fix (workaround or final solution) or Resolution time:**

Time expressed in working hours or days between the time support provider receives validated Service Request and the time response on the resolution is sent to the beneficiary Priority or Severity Level – How important the reported incidents are in relation to the system based on the affected functionality and business impact.

- **TNB = Time until the new build:**

Amount of time required for Contractor to provide a new patch or build that implement a resolution for the incident.

DISTRIBUTION LIST:

No	Item	Special Prosecution Office for the fight against cybercrime	SCUC	UFAC	THB	SPBOK CID OPA	JFI	Crime Analysis Service (CAS)	DDIM CID Belgrade City Police	SSIM CID Belgrade	Regional Police Department Nis	Regional Police Department Novi Sad	Regional Police Department Kraljevo	SKOR	NCKF	SATIT	Total
	LOT 1																
1.	Desktop type 1 (Typical office workstation + monitor)		50	70	30	40	30	40	20	60	10	10	10	70	60		500
2.	Desktop type 2 (Workstation for IT professionals +	5	6			2											13

	monitor)																
3.	Desktop type 3 (Multimedia & Graphics processing station + monitor)	9						3									12
4.	Desktop type 4 (Office higher performance & capacity workstation + monitor)		5					10		5				1	1		22
5.	Additional monitor (24")	7							5						4		16
6.	Laptop type 1 (Business laptop for field work)	6															6
7.	Laptop type 2 (Mobile workstation for Multimedia & Graphics processing or IT professionals)	9															9
8.	Laptop type 3 (Rugged)				1				3	2							6
9.	Smart board		1	1	1	1	1										5

10.	Access layer Switches – 24 ports	5	3	2		1	1	1	4	3				1	3		24
11.	Access layer Switches – 48 ports		5							15							20
12.	WAN router/firewall with 4G (LTE) & Wi-Fi support	4															4
13.	Wireless Access Point	1															1
14.	UPS Smart-UPS 10.000VA Rack mount								2								2
15.	UPS Smart-UPS 6.000VA Rack mount	1															1
16.	Rack mountable server	1	2					5	5								13
17.	Network-attached storage															1	1
18.	External SSD disks 2 TB	20						10							2		32
19.	Portable HDD 5 TB															10	10

20.	USB flash drive 512 GB	11						1	2								14
21.	USB flash drive 128 GB							20									20
22.	External SSD disks 4TB	11															11
23.	Individual printer type 2 (Office- Color)		2	3	2	3	2	2	1	2	1	1	1	5	5		30
24.	Network printer type 1 (A4/Black White)		1	2	2	3	12	2	3	6				4	5		40
25.	Network printer type 2 (A4/Color)	12															12
26.	MFD type 1 (A4/Black White)		20						20								40
27.	MFD type 2 (A3/Color)		1	2	1				1								5
28.	Copy machine type 1	3															3
29.	Copy machine type 2	3															3
30.	Scanner type 1 (A4-higher capacity)	1															1

31.	Scanner type 2 (A4-lower capacity)	11															11
32.	Projector (without mounting holder)	1	1	5	1	1	1	1	1	1				1	2		16
33.	Projector screen	1	1	5	1	1	1	1	1	1				1	2		16
34.	Telepresence- videoconferencing system	1			1												2
35.	Web cameras	4															4
36.	External DVD Writer	11															11
37.	LED TV 85"	1															1
38.	Movable TV Stand Mount	2															2
39.	TV 55"	2	2						1		1	1	2		1		10
40.	Wireless keyboard & mouse	14	20						20								54
41.	Speaker System type 1	14															14
42.	Speaker System type 2	1															1

43.	Office suite	35															35
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ADDRESSES OF THE BENEFICIARIES

Beneficiary abbreviation	Beneficiary (organizational unit within Ministry of Interior of the Republic of Serbia)	Address
SPO	Special Prosecution Office for the fight against cybercrime	Nemanjina 22-26, Belgrade
SCOC-SUCC	Special Unit responsible for Combating Cyber-crime within the Service for Combating Organised Crime (SCOC)	Stari obrenovački put bb, Belgrade
UFAC	Unit for Fight Against Corruption (Anti-Corruption Department)	Bulevar Zorana Đinđića 104, Belgrade
THB	Trafficking in Human Beings (THB) Unit	Stari obrenovački put bb, Belgrade
SCOC-SAD	Special Action Department within the Service for Combating Organised Crime SCOC	Kneza Miloša 101, Belgrade
FIU	Financial Investigation Unit	Kneza Miloša 101, Belgrade
CAS	Crime Analysis Service	Bulevar Mihajla Pupina 2a
SSIM CID Belgrade City Police	Service for Special Investigative Methods (SSIM) CID Belgrade City Police Administration	Bulevar Despota Stefana 107, Palilula, Belgrade
SSIM Belgrade	Service for Special Investigative Methods (SSIM) CID Belgrade	Kneza Miloša 101, Belgrade
SSIM Niš	Service for Special Investigative Methods (SSIM) Regional Police Department Niš	Bul. 12. Februar 89, Niš
SSIM Novi Sad	Service for Special Investigative Methods (SSIM) Regional Police Department Novi Sad	Pavla Papa 46, Novi Sad
SSIM Kraljevo	Service for Special Investigative Methods (SSIM) Regional Police Department Kraljevo	Izletnička bb, naselje Ribnica,

		Kraljevo
SKOR	Criminal Intelligence Service	Bulevar Zorana Đinđića 104, Belgrade
NCKF	National Centar for Criminalistic Forensic	Kneza Miloša 103, Belgrade
SATIT	Sector for Analytic, Telecommunication and Information Technology	Kneza Miloša 101, Belgrade

Annex II + III: Technical Specifications + Technical Offer - part II – Place of delivery/Acceptance

Item	ARTICLE	Place of acceptance
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No 1.1	All items	Central Warehouse of the Ministry of Interior, Milorada Jovanovica 7, Belgrade
No 1.2	8 items	
No 1.3	3 items	
No 1.4	All items	
No 1.5	9 items	
No 1.8	All items	
No 1.9	All items	
No 1.10	19 items	
No 1.11	All items	
No 1.14	All items	
No 1.16	12 items	
No 1.17	All items	
No 1.18	12 items	
No 1.19	All items	
No 1.20	3 items	
No 1.21	All items	
No 1.23	All items	
No 1.24	All items	

No 1.26	All items	
No 1.27	All items	
No 1.32	15 items	
No 1.33	15 items	
No 1.34	1 item	
No 1.39	8 items	
No 1.40	40 items	

Item	ARTICLE	Place of acceptance
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No 1.2	5 Items	Republic Public Prosecutor's Office, Nemanjina 22-26, Belgrade
No 1.3	9 Items	
No 1.5	7 Items	
No 1.6	All items	
No 1.7	All items	
No 1.10	5 Items	
No 1.12	All items	
No 1.13	All items	
No 1.15	All items	
No 1.16	1 Item	
No 1.18	20 Items	
No 1.20	11 Items	
No 1.22	All items	
No 1.25	All items	
No 1.28	All items	
No 1.29	All items	
No 1.30	All items	
No 1.31	All items	

No 1.32	1 Item	
No 1.33	1 Item	
No 1.34	1 Item	
No 1.35	All items	
No 1.36	All items	
No 1.37	All items	
No 1.38	All items	
No 1.39	2 Items	
No 1.40	14 Items	
No 1.41	All items	
No 1.42	All items	
No 1.43	All items	