

ANNEX II + III: TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

Contract title: Supply contract for general ICT network

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Columns 1-2 should be completed by the Contracting Authority

Columns 3-4 should be completed by the tenderer

Column 5 is reserved for the evaluation committee

Annex III - the Contractor's technical offer

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

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

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

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

Unless otherwise specified, the requirements in these Technical Specifications are presented as a minimum standard which the offered goods must meet.

Short Technical Description:

The current core switches on Customs Central Location (ERC) are two Cisco Catalyst 6509-E Chassis with redundant SUP720 supervisor engine cards (WS-SUP720-3B), one 8-port 10 Gigabit Ethernet fiber module (WS-X6708-10GE), one 48-port 10/100/1000 Ethernet line card (WS-X6748-GE-TX) and one 24-port SFP-based Gigabit Ethernet Module (WS-X6724-SFP) on primary 6509-E switch. Core switches in Customs network are in active/standby mode using L3 redundancy protocols, interconnecting Internet segment, WAN segment and Data Center segment on Customs Central Location. As a modular L3 switch, current platform provides enough capacity for future growth and feature upgrade by supplying only Supervisor Engine Card and appropriate interface fiber linecard, providing at the same time relevant vendor support for this key element in Beneficiary's network.

It is important to offer better utilization of existing hardware redundancy on the Core Switch position in Beneficiary's network, providing network system virtualization technology multiple switches into one single logical switch.

For interconnecting more than 90 remote sites Beneficiary already implemented Dynamic Multipoint VPN (DMVPN) solution, dynamic virtual tunneling capability for creating dynamic-mesh VPN network without having to pre-configure (static) all possible tunnel end-point peers. This feature significantly decreases the complexity of configuration and management large-scale VPN hub&spoke implementations. The scope of the network consolidation project is also replacing Wan Aggregation Routers and certain amount of Branch routers, and it is particularly important to remain and preserve the current technical design and configuration on the routers which are not affected by replacement. Partially changing any device with VPN functionality not supporting DMVPN will create technical problems and force to solutions which will not be optimal.

Branch routers must also be able to process voice traffic and serve as ip-to-ip gateways for PSTN (public switched telephone network) connection via SIP trunking service. IP telephony system at Customs network is based on Cisco Unified Communications Manager (CUCM) and it is necessary for branch routers to be capable for integration with CUCM via SIP, H.323, or MGCP protocol.

Most of distribution Layer switches are EoS, and having in mind their important role in the network they are also subject to change due to EoS status. In order to preserve current design and configuration, it is important that all switches in the network support VTP protocol and DTP protocol (already configured on all other L2 switches in the network) and also to support TACACS+ protocol for AAA, already configured in the network.

Beneficiary have also implemented CiscoWorks LMS (LAN Management Solution) v3.1, licensed for 1500 network devices, which in terms of network service monitoring, provisioning, administration and troubleshooting has full support for Cisco network devices in existing Customs network.

All offered equipment required below must be compliant with existing solutions and protocols described above. It is not expected to change any configuration or introduce any new protocols on devices in the network not affected by this supply.

Offered equipment need to support the same (or better) level of flexibility and ease of configuration currently supported and described above.

1. Item Number	2. Specifications Required		3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
1	Routing&Switching Supervisor Card	Quantity: 2			
	Technical specifications:				

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"> • Delivering up to 80Gbps per slot switching capacity • Control plane policing support • Minimum 4.000 VLAN support • Minimum 16.000 bridge domain support • Minimum 128.000 MAC entries • Minimum 256.000 IPv4 routes/128.000 IPv6 routes • QoS support per port, per VLAN • MAC ACL per port/per vlan support • Minimum 128k Logical interfaces • VSS (Virtual switching system) support • VRF lite support • CoPP for multicast L2&L3 support • CPU HW rate limiters by bps and pps 				
2	16 port 10G Multirate Interface Fiber Module	Qty:2			
	Technical specifications:				

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"> • 16 x 10G Multi -bitrate Fiber interfaces • Integrated DFC4 • IPv4 throughput: up to 60Mpps • IPv6 thoroughput: up to 30Mpps • Minimum 256.000 IPv4 forwarding entries • Minimum 64.000 IPv4 multicast routes • Minimum 64.000 ACL entries • Minimum 128.000 MAC address support • Minimum 4k VLAN support • Icmpv3 snooping in hardware • Hierarchical QoS support • CoS based queue mapping • DSCP based queue mapping • VSS Virtual Link support 				
3	10GBASE-SR SFP Module	Qty:8			
	Technical specification: <ul style="list-style-type: none"> • Compliant with item 2 				
4	WAN Aggregation router	Quantity: 2			
	Technical Specifications:				
	<ul style="list-style-type: none"> • Minimum 6x1 Gbps SFP slots • Included 5 SFP Cat 5 copper transceiver modules (per router) • Minimum 2 x10Gbps SFP+ slots • 2,5Gbps throughput, license upgradable to 20Gbps • Dual AC Power Supply • DMVPN support or equivalent to • IPsec 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"> • 1 RU height • HA design supported (active/standby aconfiguration) • Statefull interchassis redundancy • In-service software upgrade support • Hardware-based QoS processing • Hardware-based ACL processing • Minimum up to 8Gbps encrypted traffic throughput • Support for modular QoS CLI policies on VLANs or tunnels • Support for ospf routing protocol • Support for AAA (Authentication, Authorization, Accounting), compliant with Technical Description • Support for VTP protocol or equivalent • Support for DTP protocol or equivalent 				
5	Stackable 48-port GigabitEthernet distribution layer switch with 4 10GE SFP+ uplink ports	Quantity: 10			
	Technical Specifications:				
	<ul style="list-style-type: none"> • Minimum 48 x 10/100/1000 Mbps ports • Minimum 4 x 10Gbps SFP+ slots capable for supporting Cisco SFP-10G-SR (currently used in Cisco 3750X switches which are to be replaced), or must be equipped with minimum 2 x SFP-10G-SR modules. 				
	<ul style="list-style-type: none"> • Dual redundant AC power supplies 				
	<ul style="list-style-type: none"> • Stacking bandwidth: 480 Gbps or higher 				
	<ul style="list-style-type: none"> • Capable of stacking of minimum nine switches • Security Features: 				

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"> • Port security • DHCP snooping • IP source guard • IGMP filtering • VLAN and port-based ACLs • SSHv2 for secure remote connection • SNMPv3 • BPDU Guard • Spanning Tree Root Guard • Switching capacity: minimum 176 Gbps • Forwarding rate: minimum 130 Mpps • Total number of MAC addresses: minimum 32.000 • VLAN IDs: minimum 4.000 • Support for VLAN Trunking Protocol (VTP) • Support for modular QoS CLI policies • Support for AAA (Authentication, Authorization, Accounting), compliant with Technical Description • Support for VTP protocol or equivalent • Support for DTP protocol or equivalent 				
6	High-performance modular WAN router with security and voice feature licenses	Quantity: 10			
	Technical Specifications:				
	<ul style="list-style-type: none"> • WAN ports: minimum 2 combo GE / SFP and 4 x 1Gbps ports 				
	<ul style="list-style-type: none"> • Minimum 3 NIM slots for further upgrade • Minimum 4 PVDM (Packet Voice DSP Module) slots • Aggregate throughput min. 500 Mbps, upgradable to 1 Gbps 				

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"> • Dedicated management port • Minimum 1 USB ports (type A) • 1 RU height • Dual AC Power Supply • DMVPN support or equivalent IPsec support with minimum 85 Mbps of crypto bandwidth • ACLs and zone-based firewall support • Support for OSPF routing protocol • Support for Policy-Based Routing (PBR) • Traffic management: • QoS • Class-Based Weighted Fair Queuing (CBWFQ) • Weighted Random Early Detection (WRED) • Hierarchical QoS • Policy-Based Routing (PBR) • Support for SSHv2 			

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"> • Support for SNMPv3 • Support for AAA (Authentication, Authorization, Accounting), compliant with Technical Description • Support for integration with existing IP PBX via SIP, H.323 or MGCP signaling protocol compliant with technical description • Support for integration with other VoIP systems via SIP or H.323 protocol (licensed for minimum 25 concurrent sessions) • Minimum one 64-channel packet voice DSP (Digital Signal Processor) module • Support for G.711, G.722 and G.729 codec • Support for media resource services: conference-bridge, transcoder, MTP (Media Termination Point) • Support for VTP protocol or equivalent • Support for DTP protocol or equivalent 				
7	Modular WAN router with security and voice feature licenses	Quantity: 23			
	Technical Specifications:				
	<ul style="list-style-type: none"> • WAN ports: minimum 1 GE and 1 combo GE/SFP • Minimum 2 NIM slots for future upgrade • Minimum 1 PVDM (Packet Voice DSP Module) slot • Aggregate throughput: min. 50 Mbps, upgradable to 100 Mbps • Dedicated management port • Minimum 1 USB port (type A) • 1 RU height • DMVPN support or equivalent IPSec support (minimum 85 Mbps of crypto bandwidth) 				

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"> • ACLs and zone-based firewall support • Support for OSPF routing protocol • Support for Policy-Based Routing (PBR) • Traffic management: • QoS • Class-Based Weighted Fair Queuing (CBWFQ) • Weighted Random Early Detection (WRED) • Hierarchical QoS • Policy-Based Routing (PBR) • Support for SSHv2 • Support for SNMPv3 • Support for AAA (Authentication, Authorization, Accounting), compliant with Technical Description • Support for integration with existing IP PBX via SIP, H.323 or MGCP signaling protocol compliant with technical description • Support for integration with other VoIP systems via SIP or H.323 protocol (licensed for minimum 10 concurrent sessions) • Support for G.711, G.722 and G.729 codec • Support for VTP protocol or equivalent • Support for DTP protocol or equivalent 			
8	Trainings Training must be delivered in last week of Instalation&Configuration period			
8.1	Supervisor Engine Card - Training for minimum 4 employees (minimum duration – 5 working days of onsite trainings).			
8.2	WAN Aggregation router - Training for minimum 4 employees (minimum duration – 5 working days of onsite trainings).			

1. Item Number	2. Specifications Required	3. Specifications Offered	4. Notes, remarks, ref to documentation	5. Evaluation Committee's notes
8.3	DMVPN implementations update, best practices - Training for minimum 4 employees (minimum duration – 5 working days of onsite trainings).			
8.4	Security hardening – best practices - Training for minimum 4 employees (minimum duration – 5 working days of onsite trainings).			

Specifications Required		Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes YES/NO
Delivery period of the Items	All Items (1-7) must be delivered within, but no longer than 45 days from commencement date.			
Installation and Configuration and Integration	All delivered equipment need to be installed, setup configured and integrated in Customs network. All Items (1-7) must be installed, setup and configured within, but no longer than 45 days upon the delivery of the equipment. All power cables and UTP/STP cables should be included.			

Specifications Required		Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes YES/NO
Warranty	One year warranty after provisional acceptance in accordance with the conditions laid down in Article 32 of the General Conditions.			
During the Warranty period, the Contractor shall provide the following:				
Response time	<p>Response time in case of critical issues must be within 1 hour and in case of less severe problems within 4 hours, during 1 year after provisional acceptance.</p> <p>Technical support must be available continuously 24 hour per day/7 days a week, 365 days a year, via e-mail or phone.</p> <p>Tenderer must provide a detailed description of the organisation of the proposed service (e.g. name of the authorised service provider)</p>			
Repair time	<p>Repair time: next working day (NWD) during 1 year after provisional acceptance.</p> <p>If Customer requires onsite engineer need to be provided.</p> <p>Tenderer must provide a detailed description of the organisation of the proposed service (e.g. name of the authorised service provider)</p>			

Specifications Required		Specifications Offered	Notes, remarks, ref to documentation	Evaluation Committee's notes YES/NO
Commercial warranty	2 years (after the end of 1 year standard warranty) in accordance with the conditions laid down in Article 32 of the General Conditions and Article 33 of the Special Conditions.			

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

Item	ARTICLE	Name of person responsible for provisional and final acceptance	Place of acceptance
Lot 1 - NETWORK AND SECURITY CONSOLIDATION			
Item 1-8	All Items	Ms. Aleksandra Mihailov Mr. Milan Kupresanin Mr. Dejan Garic	Serbian Customs Administration, ICT Department - Belgrade 63, Narodnih heroja Street 11 070 Belgrade – SERBIA

Authorised Contact Person (members of Beneficiary's Committee for Acceptance of the equipment are stated below)¹	Delivery address
<p>Name: Ms. Aleksandra Mihailov</p> <p>Phone: +381 11 20 15 915</p> <p>Fax: +381 11 21 43 834</p> <p>E-mail: mihailova@carina.rs</p> <p>Working hours: 7.30-15.30 (Monday to Friday)</p>	<p>Serbian Customs Administration, ICT Department - Belgrade 63, Narodnih heroja Street 11 070 Belgrade – SERBIA</p>
<p>Name: Mr. Milan Kuprešanin</p> <p>Phone: +381 11 20 15 905</p> <p>Fax: +381 11 21 43 834</p> <p>E-mail: kupresaninm@carina.rs</p> <p>Working hours: 7.30-15.30 (Monday to Friday)</p>	<p>Serbian Customs Administration, ICT Department - Belgrade 63, Narodnih heroja Street 11 070 Belgrade – SERBIA</p>
<p>Name: Mr. Dejan Garić</p> <p>Phone: +381 11 20 15 914</p> <p>Fax: +381 11 21 43 834</p> <p>E-mail: garicd@carina.rs</p> <p>Working hours: 7.30-15.30 (Monday to Friday)</p>	<p>Serbian Customs Administration, ICT Department - Belgrade 63, Narodnih heroja Street 11 070 Belgrade – SERBIA</p>

¹ Based on Beneficiary's internal procedures, the Committee for Acceptance of the equipment is comprised of three people. Any of three persons listed in the table can be contacted with respect to this particular supply delivery.