

# **REQUEST FOR PROPOSALS FOR SUPPLY AND INSTALLATION OF COMPUTER, NETWORKING AND TELECOMMUNICATION EQUIPMENT AND SOFTWARE**

The OHR is requesting proposals from qualified professional company for supply, installation, commissioning and after-sales service of the following equipment for the Office of the High Representative in Sarajevo:

**LOT 1:** Servers with storage space, including installation, virtualization, integration in existing system and migration of services and data.

**LOT 2:** Firewalls

**LOT 3:** Telephone Switchboards

The tender information is given in the following order:

- I) Submission Conditions**
- II) Selection and Award**
- III) Proposal Submission and Deadline**
- IV) Additional Information Request**
- V) Statement of Work**

## **I – Submission Conditions**

1. The proposal must be in English.
2. Tenderer may submit proposals for one or for all of the Tender sections (LOT). Under no circumstances must tenders for part of lot be taken into consideration. Separate contracts will be signed for each lot. If tenderer is awarded for more than one lot, a single

contract may be concluded covering all those lots.

3. Subcontracting is permitted form of collaboration only on condition that the tenderer explicitly states that it is the sole party that will be contractually liable. If the tenderer intends to subcontract one or more parts of the contracted services, this must be clearly stated in the Tender. For this purpose, individual experts recruited for the project as key or non-key experts are not regarded as subcontractors. Tenderer must intend to provide the majority of the services itself.

**Tender shall contain the following information for each LOT, as applicable:**

#### **A Documentation**

1. **Name and address of the company**, contact phone number, e-mail and name of the contact person.

2. **Professional capacity**

The professional capacity required from the tenderer to perform the contract. The tenderer should provide, as applicable, the following documentation:

- **2.1 Partner Statuses**

The company should provide business letters from equipment manufacturers. Manufacturer Authorization Form (MAF), licenses or links to the manufacturer's website where partner status can be verified.

- **2.2 Business Standards** – ISO standards as defined per lot.

- **2.3 CVs of Key Experts who** will be engaged in installation/implementation including proof of professional certificates.

3. **Financial capacity**

- **3.1 References** with references contact details of at least three similar projects in the period 2018-2021. The tenderer has delivered supplies

under at least 1 (one) contract, with a cumulative budget as defined per lot, in the field related to this contract which were implemented at any moment during the reference period.

## **B Technical Offer**

1. **Detailed description** of the supplies tendered in conformity with the technical specifications, including any documentation required.

Technical documentation must be prepared by the manufacturer in English. The documentation is submitted in an unchanged form and available through the official website (provide a link to the documentation). It is also possible to submit it in electronic form on CD/DVD or USB media. If it is delivered in hard copy, it is necessary to mark parts of documentation confirming compliancy with the conditions.

2. **Organisation and Methodology** – Detailed project plan with implementation schedule including information on proposed number of project staff and back up functions.
3. **Delivery time** to OHR Sarajevo in calendar days.
4. **Installation time** in working days/weeks.
5. **Warranty** time and conditions.

## **C Financial Offer**

1. **Detailed break down of costs and terms of payment in KM or EUR, excluding VAT.** The price shall include all costs related to the work such as delivery, installation, insurance and other costs. OHR standard payment terms are by bank transfer 30 days after delivery of the/final report and upon receipt of an invoice. Please note that should you request an advance payment you will need to provide irrevocable advance bank guarantee
2. The proposal must be valid for acceptance for 90 days, and the price fixed for the duration of the contract.

3. OHR will pay VAT in accordance with the Law on VAT.

## **II – Selection and Award**

1. The Evaluation Committee will rule on technical admissibility of each tender, classifying it as technically compliant or technically non-compliant. The minimum technical qualification as stated in Statement of Work will be evaluated at this stage.
2. The sole award criterion will be the price. The contract will be awarded to the lowest compliant tender.
3. OHR reserves the right to end the Tender without awarding the contract for all or any lot.
4. OHR will not bear any costs of bidders related the preparation of tender.

## **III – Proposal Submission and Deadline:**

1. The technical and financial offers must be placed together in a sealed envelope.
2. All tenders, including all supporting documents, must be submitted in a sealed envelope bearing:
  - name of the tenderer
  - the number of the lot tendered for. There should be a separate envelope for each lot.
  - reference “REQUEST FOR PROPOSALS – COMPUTER AND SWITCHBOARD EQUIPMENT”
3. Tender should be delivered **NO LATER than 30 July 2021 by 12:00 hours to the following address:**

OHR  
Head of Logistics  
Emerika Bluma 1  
71000 Sarajevo, Bosnia and Herzegovina

## **IV – Additional Information Request**

1. We believe you have all the information necessary to prepare your proposal, but any questions or requirements for clarification, should be in writing only to the Head of Logistics on e-mail: [tender@ohr.int](mailto:tender@ohr.int) , and not to other officers of OHR.
2. Questions and answers will be published on the OHR Tender web page.
3. Additional information can be requested 15 days before the deadline for submission of tenders. OHR has no obligation to provide clarifications after this date.

## **V – Statement of Work**

### **LOT 1**

#### **1. Background**

The current system in use is reaching its end of life. We are using VMware virtualisation technology for hardware virtualisation and Microsoft products for servers and services.

In addition to the installation and configuration of the equipment that is subject of this tender, it is required to integrate new and the old system and migrate virtual data centre and user data to the new system.

#### **2. Equipment**

Item	Equipment	Quantity
1.	Storage	1 set
2.	Server	2 sets
3.	Expand existing Cisco Catalyst 3850 Switches	2 sets
4.	Solution Implementation Services	1 set

##### **2.1 Storage**

## **Quantity: 1 (one) set**

### **General functionality:**

- Dual controller, redundant architecture, with active-active data processing mechanism
- Unified SAN and NAS services offered from the same system, without additional external hardware and software components
- Support up to a minimum of 500 disks at the system level
- Support up to a minimum of 2.4PB RAW capacity
- Support for 12Gbps SAS, 2.5" (25- or 80-disk) chassis and 3.5" 15-disk extension modules
- Support for the following types of disks: 800GB, 1.92TB, 3.84TB, 7.86TB and 15.36TB SSD, 1.2 TB and 1.8 TB 10k SAS, and 6 TB and 12 TB 7.2 NL-SAS, all of which can participate in the formation of unique useful disk space allocation units, using an automated data relocation mechanism (tiering)
- RAID 5, 6, 1/0 support
- Support for online non-destructive upgrade procedures, as well as parts replacement procedures
- Support for diverse redundant I/O module configurations that allow high availability of I/O trajectories through both storage processors, up to a total of 24 I/O ports at the system level
- Support for dynamic space expansion
- Provided hot sparring mechanism for discs of the same capacity and performance
- Size of individual created LUN: up to 256TB
- Maximum size of one file system: up to 256TB

### **Hardware characteristics:**

- 19" rackmount 2U disc processing chassis for mounting set in 19" server cabinet
- Redundant storage controllers with 1xCPU socket and CPU with 12 cores

- Redundant SAS paths to additional disk chassis
- Redundant power supply
- Redundant fans
- Minimum 128GB primary read/write cache per system, with battery protection and the ability to transfer cache content to system disks (cache vaulting)
- Initial configuration with disks: 10 x 1.8TB 10k SAS
- 4 x 16Gbps FibreChannel ports- with- system-wide SFP MM modules
- 4 x 1/10Gbps Ethernet Base-T ports (RJ-45) system level

#### Software functionality:

- A comprehensive license package that offers the following data services and functionality and does not require additional licensing:
  - Integrated HTML5-based GUI Control Console, CLI or REST API Management and Integration Capability
  - System analytics through cloud-based service
  - Thin provisioning
  - Quality of Service
  - Point-in-time copies of production data (snapshots, thin clones)
  - Mechanisms for automated repurposing and multiplication of production data
  - Antivirus data agent
  - Native asynchronous replication for block and file data
  - Native synchronous replication for block data
  - Replication support using point-in-time mechanisms for block data and virtual machines
  - Support for compression and data deduplication
- Integration into VMware vSphere and VMware SRM virtualization and control platforms without the need to obtain additional licenses
- VMware VAAI and VASA support
- Support for a large number of OS and application

platforms: Microsoft Windows Server 2012 R2/2016, RedHat Linux, SUSE Linux, Oracle Linux, Solaris, HP-UX, AIX; Oracle, Exchange, SQL Server, SharePoint, SAP

## Supported protocols:

- Supported block protocols:
  - FibreChannel (4/8/16Gbps, SFP)
  - iSCSI (1/10/25Gbps, Base-T, SFP+, TwinAX)
  - VVOLs 2.0
- Supported file protocols:
  - NFS v3/4/4.1 (Secure)
  - CIFS/SMB1-3.11
  - FTP/SFTP
- Support for additional protocols and functionality:
  - Access-based Enumeration (ABE) for SMB
  - Address Resolution Protocol (ARP)
  - DFS Distributed File System (Microsoft)
  - Dynamic Access Control (DAC) with claims support
  - Internet Control Message Protocol (ICMP)
  - Kerberos Authentication
  - Lightweight Directory Access Protocol (LDAP), LDAP SSL
  - Link Aggregation (IEEE 802.3ad)
  - Lock Manager (NLM) v1, v2, v3, and v4
  - Network Data Management Protocol (NDMP) v1-v4
  - Network Information Service (NIS) Client
  - Network Status Monitor (NSM) v1
  - Network Time Protocol (NTP) client
  - REST API
  - RSVD v1 for Microsoft Hyper-V
  - Simple Home Directory access for SMB
  - SMI-S v1.6.0
  - Simple Mail Transfer Protocol (SMTP)
  - Simple Network Management Protocol v3 (SNMP)
  - Virtual LAN (IEEE 802.1q)
  - Native SHA2 Certificate

- IPv6 and dual stack (IPv4) modes of operation
- Security Technical Implementation Guide /Security Requirements Guide (STIG/SRG)
- TLS 1.2 Support and TLS 1.0 Disablement
- File-Level Retention: Enterprise FLR-E and Compliance FLR-C with requirements for SEC rule 17a-4(f)

## **2.2 Server**

**Quantity: 2 (two) sets**

**It is necessary for compatibility to have the server and storage manufacturer the same.**

- Orientation/Height: Adapted for mounting in a rack cabinet with a height of 1U, the mounting set should also contain a “hand” for stacking cables
- Processor: 2 x Intel Xeon Silver 4208
- Memory: min. 12 slots, equipped with 8 x 32 GB DDR4 tiles
- Disk: 2 x 64GB SD card in RAID1 configuration for VMware ESXi hypervisor instion
- Power unit: Redundant, platinum efficiency
- Network and FC connection: 2 x 1 GbE Base-T, 2 x 10 GbE SFP+ slot, 2 x 16Gb FC MM
- Additional ports: min 3 x USB, 1 x video, 1 x serial, and network port for device management
- Device Management:Included license that provides Remote KVM access (Remote Console, Remote Media)
- Hot-swap components Of power units and fans

## **2.3 Expand existing Cisco Catalyst 3850 Switches**

**Quantity: 2 (two) sets**

- C3850-NM-2-10G module, pcs 2
- Cisco SFP+ Copper Twinax Cable 10m, pcs 4

## **2.4 Solution Implementation Services**

Implementation services should include the following:

- Equipment delivery;
- Mounting and connecting newly supplied equipment to the existing servers racks;
- Installation of components on existing Cisco Catalyst 3850 Switches;
- Update system software on servers, Storage device, and two Cisco Catalyst 3850s;
- Configuring devices and existing servers and network equipment in order to establish management communication and presentation of disk space to servers;
- Configuration of highly availability VMware virtualization infrastructure;
- Test device performance and high availability;
- Migration of virtual machines from existing VMware infrastructure;
- Reconfiguration of existing Veeam Backup solution;
- Preparation of the implementation documentation;

### **3. Testing and Adjustment**

The first testing is to be performed by the Bidder, after which the teams of OHR and the Bidder shall perform joint testing. The Bidder shall make all necessary adjustments to the delivered units until the new system is fully functional and in accordance with the project task.

### **4. Organisation and Methodology**

Detailed project plan with implementation schedule including information on proposed number of project staff and back up functions.

Proposed methodology aims to progressively reduce the risk of failure, primarily from the risks defined as critical. (e.g. misunderstanding the request, absence of key staff, etc.).

### **5. Partner Statuses**

The tenderer should provide business letters from equipment manufacturers or links to the manufacturer's website where partner status can be verified as follows:

- Manufacturer Authorization Form (MAF) as proof that equipment is new and assigned for this project with name of buyer – Office of the High Representative;
- status above the “registered partner” level with competencies for “Storage” and “Server”;
- “Leaders” quadrant of the last Gartner Magic Quadrant report for the Storage area;
- VMware partnership status with Server Virtualization competence;
- Veeam Silver or Gold partnership status;
- Cisco Premier Partnership Status;

## **6. Business Standards**

The tenderer should have the following certificates:

- certified quality management system according to ISO 9001:2015
- information security management system according to ISO 27001:2013

**7. CVs of Key Experts** who will be engaged in installation of equipment and/or software should include:

- a. Signed statements of exclusivity and availability (using the template included with the tender as Annex 1) and undertake to be available, able and willing to work for the whole period scheduled for his/her input to implement the tasks set out in the Scope of Work and/or in the Organisation and Methodology.

Copies of certificates or web links to verify professional qualifications:

- a. VMware VCP v6 or v7
- b. CCIE Routing & Switching / Enterprise

c. Veeam Certified Engineer

## 8. References

1. The bidder should submit a list of references with contact details of at least three similar projects in the period 2018-2021.
2. End-user certificates from the list submitted in the previous paragraph, so that the following areas are covered (minimum one certificate for each area and minimum one project must be more than EUR 40,000.00) which were implemented at any moment during the reference period:
  - a) Delivery and implementation of IT equipment for data centres;
  - b) VMware Virtualization Infrastructure;
  - c) Veeam backup solutions.

## LOT 2

### 1. Background

The current system in use is reaching its end of life. New equipment should be supplied.

### 2. Equipment

The company should supply firewalls, as follows:

Part Number	Description	Qty
MX84-HW	Meraki MX84 Security Appliance	2
LIC-MX84-SEC-3YR	Meraki MX84 Advanced Security License and Support, 3YR	1
MA-PWR-CORD-EU	Meraki AC Power Cord for MX and MS (EU Plug)	2
MX64-HW	Meraki MX64 Security Appliance	1
LIC-MX64-SEC-3YR	Meraki MX64 Advanced Security License and Support, 3YR	1

<b>MA-PWR-CORD-EU</b>	Meraki AC Power Cord for MX and MS (EU Plug)	1
<b>Z3-HW</b>	Meraki Z3 Cloud Managed Teleworker Gateway	1
<b>LIC-Z3-ENT-3YR</b>	Meraki Z3 Enterprise License and Support, 3YR	1
<b>MA-PWR-CORD-EU</b>	Meraki AC Power Cord for MX and MS (EU Plug)	1

## **2. References**

The bidder should submit a list of references with contact details of at least three similar projects in the period 2018-2021.

## **3. Installation**

**No installation is required.**

# **LOT 3**

## **1. Background**

There are two existing Ericsson MD110 PBXs at Sarajevo and Banja Luka locations. The replacement shall be unified communications system (UC) in accordance with the current needs of the Office of the High Representative organization.

Systems at both locations shall provide the following functionalities:

- Audio and video communication within the organization,
- Direct extension calling between two sites,
- Local, national and international phone calls to PSTN using SIP trunk,
- Presence and instant messaging within the organization,
- Use of the business phone number with the laptop or smartphone,
- Screen sharing and file transfer withing the

- organization,
- Voice mail,
- Telephony features such as call forwarding, DND, call pickup...
- WebRTC application,
- Web user and administrative control panel.

UC appliance shall provide auto provisioning for the IP phones using PnP (multicast discovery) or DHCP option 66. This process allows the phone to auto-discover and register with the system by connecting its Ethernet cable to the network.

UC appliance at Sarajevo site shall work in active/standby mode. First unit is the active primary unit while the secondary is the standby one. Standby unit shall be automatically synchronized minimum twice a day with the active unit. In case of the system failure of the primary unit, standby unit will take over until the active unit is fully restored.

In the case of the failure of the UC appliance at Banja Luka site, UC appliance at Sarajevo site shall have enough resources to adopt all client devices from Banja Luka. Employees shall be able to call extensions between Sarajevo and Banja Luka sites. If the SIP trunk between two sites is down, calling over PSTN should be used.

## 2. Equipment

The company should supply the following equipment:

Item	Name and description	Quantity
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1	<p style="text-align: center;"><b>Unified Communications (UC) appliance – active unit</b></p> <ol style="list-style-type: none"> <li>1. <b>Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. Quad core processor</li> <li>1.2. 4 GB of RAM</li> <li>1.3. 240 GB solid state drive</li> <li>1.4. 3 Gigabit Ethernet ports</li> </ol> </li> <li>1.5. 2 PCI Express slots for future expansion cards</li> <li>1.6. 1 RJ45 serial console port</li> <li>1.7. 1 VGA interface</li> <li>1.8. 2 USB interfaces</li> <li>2. <b>Unified Communications (UC) requirements</b> <ol style="list-style-type: none"> <li>2.1. User management</li> <li>2.2. Presence status</li> <li>2.3. Audio / Video call</li> <li>2.4. File transfer</li> <li>2.5. iOS and Android support</li> <li>2.6. Desktop softphone client</li> <li>2.7. Mobile softphone client</li> </ol> </li> <li>2.8. User Control Panel with the following features: <ol style="list-style-type: none"> <li>2.8.1. WebRTC phone application with chat support</li> <li>2.8.2. IP phone customization</li> <li>2.8.3. Voicemail control</li> <li>2.8.4. Conference rooms</li> <li>2.8.5. Call management (forwarding, DND...)</li> </ol> </li> <li>3. <b>Telephony requirements</b> <ol style="list-style-type: none"> <li>3.1. IP phones auto provisioning using DHCP option 66</li> <li>3.2. Voicemail</li> <li>3.3. Class of service</li> <li>3.4. Interactive voice response</li> <li>3.5. Auto-attendant</li> <li>3.6. Hunt groups</li> <li>3.7. Ring groups</li> <li>3.8. Music on hold</li> <li>3.9. Conference bridge</li> <li>3.10. Call recording</li> <li>3.11. Call detail record</li> <li>3.12. Call queueing</li> <li>3.13. Automatic call distribution</li> <li>3.14. Ring strategies</li> <li>3.15. Follow me calling</li> <li>3.16. Intercom</li> <li>3.17. Hot desking</li> <li>3.18. Call parking/Call pickup</li> <li>3.19. DND – Do not disturb</li> <li>3.20. Call forwarding</li> <li>3.21. Call waiting</li> <li>3.22. Caller blacklisting</li> <li>3.23. Speed dialing</li> <li>3.24. Secure communication (TLS)</li> </ol> </li> <li>4. <b>Licensing requirements</b> <ol style="list-style-type: none"> <li>4.1. 100 user licenses</li> <li>4.2. 50 simultaneous calls</li> <li>4.3. Expandable licensing</li> </ol> </li> <li>5. <b>Network protocols and standards requirements</b> <ol style="list-style-type: none"> <li>5.1. SIP v2 RFC3261</li> <li>5.2. RTP</li> <li>5.3. SRTP/TLS</li> </ol> </li> <li>6. <b>Codec support</b> <ol style="list-style-type: none"> <li>6.1. G.711 alaw, µlaw</li> <li>6.2. G.722</li> <li>6.3. G.729</li> <li>6.4. iLBC</li> <li>6.5. T.38</li> </ol> </li> <li>7. <b>Management</b> <ol style="list-style-type: none"> <li>7.1. Web user interface</li> </ol> </li> </ol>	1
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<b>2</b>	<b>Unified Communications (UC) appliance – standby unit</b> All of the requirements remain the same as for the active unit. Standby unit must be automatically synchronized minimum twice a day with the active unit. This means that all system and user configuration is the same on both units so in the case of the failure standby unit will take over until the active unit is fully restored.	<b>1</b>
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3	<p><b>Unified Communications (UC) appliance – unit at remote location</b></p> <ol style="list-style-type: none"> <li><b>1. Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. Quad core processor</li> <li>1.2. 2 GB of RAM</li> <li>1.3. 120 GB solid state drive</li> <li>1.4. 3 Gigabit Ethernet ports</li> <li>1.5. 1 RJ45 serial console port</li> <li>1.6. 1 VGA interface</li> <li>1.7. 2 USB interfaces</li> </ol> </li> <li><b>2. Unified Communications (UC) requirements</b> <ol style="list-style-type: none"> <li>2.1. User management</li> <li>2.2. Presence status</li> <li>2.3. Audio / Video call</li> <li>2.4. File transfer</li> <li>2.5. iOS and Android support</li> <li>2.6. Desktop softphone client</li> <li>2.7. Mobile softphone client</li> <li>2.8. User Control Panel with the following features:               <ol style="list-style-type: none"> <li>2.8.1. WebRTC phone application with chat support</li> <li>2.8.2. IP phone customization</li> <li>2.8.3. Voicemail control</li> <li>2.8.4. Conference rooms</li> <li>2.8.5. Call management (forwarding, DND...)</li> </ol> </li> </ol> </li> <li><b>3. Telephony requirements</b> <ol style="list-style-type: none"> <li>3.1. IP phones auto provisioning using DHCP option 66               <ol style="list-style-type: none"> <li>3.2. Voicemail</li> <li>3.3. Class of service</li> </ol> </li> <li>3.4. Interactive voice response               <ol style="list-style-type: none"> <li>3.5. Auto-attendant</li> <li>3.6. Hunt groups</li> <li>3.7. Ring groups</li> <li>3.8. Music on hold</li> <li>3.9. Conference bridge</li> <li>3.10. Call recording</li> <li>3.11. Call detail record</li> <li>3.12. Call queueing</li> </ol> </li> <li>3.13. Automatic call distribution               <ol style="list-style-type: none"> <li>3.14. Ring strategies</li> <li>3.15. Follow me calling</li> <li>3.16. Intercom</li> <li>3.17. Hot desking</li> </ol> </li> <li>3.18. Call parking / Call pickup</li> <li>3.19. DND – Do not disturb</li> <li>3.20. Call forwarding</li> <li>3.21. Call waiting</li> <li>3.22. Caller blacklisting</li> <li>3.23. Speed dialing</li> <li>3.24. Secure communication (TLS)</li> </ol> </li> <li><b>4. Licensing requirements</b> <ol style="list-style-type: none"> <li>4.1. 25 User licenses</li> <li>4.2. 15 Simultaneous calls</li> <li>4.3. Expandable licensing</li> </ol> </li> <li><b>5. Network protocols and standards requirements</b> <ol style="list-style-type: none"> <li>5.1. SIP v2 RFC3261</li> <li>5.2. RTP</li> <li>5.3. SRTP/TLS</li> </ol> </li> <li><b>6. Codec support</b> <ol style="list-style-type: none"> <li>6.1. G.711 alaw, µlaw</li> <li>6.2. G.722</li> <li>6.3. G.729</li> <li>6.4. iLBC</li> </ol> </li> <li><b>7. Management</b> <ol style="list-style-type: none"> <li>7.1. Web user interface</li> </ol> </li> </ol>	1
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4	<p style="text-align: center;"><b>IP phone type 1</b></p> <ol style="list-style-type: none"> <li><b>1. Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. 4.3" Colour screen</li> <li>1.2. 10 Programmable line keys</li> <li>1.3. Feature keys for:               <ol style="list-style-type: none"> <li>1.3.1. Voice mail</li> <li>1.3.2. Headset</li> <li>1.3.3. Speaker</li> <li>1.3.4. Hold</li> <li>1.3.5. Mute</li> <li>1.3.6. Transfer</li> <li>1.3.7. Conference</li> </ol> </li> <li>1.4. WiFi built-in</li> <li>1.5. Bluetooth built-in</li> <li>1.6. 2 Gigabit Ethernet ports</li> <li>1.7. PoE IEEE 802.3af</li> <li>1.8. Support for 5 expansion modules</li> </ol> </li> <li><b>2. Network protocols and standards network requirements</b> <ol style="list-style-type: none"> <li>2.1. SIP v2 RFC3261</li> <li>2.2. SIP server redundancy</li> <li>2.3. 802.1p support</li> <li>2.4. SRTP</li> <li>2.5. TLS</li> <li>2.6. WPA2-PSK</li> </ol> </li> <li><b>3. Telephony requirements</b> <ol style="list-style-type: none"> <li>3.1. 6 Extensions/SIP accounts</li> <li>3.2. Busy lamp field</li> <li>3.3. 5-way conferencing</li> <li>3.4. Message waiting indicator</li> <li>3.5. Voice mail</li> <li>3.6. Intercom</li> <li>3.7. Dial plan per SIP account</li> </ol> </li> <li><b>4. Codec support</b> <ol style="list-style-type: none"> <li>4.1. G.711 alaw, µlaw</li> <li>4.2. G.722</li> <li>4.3. iLBC</li> <li>4.4. Opus</li> <li>4.5. DTMF:               <ol style="list-style-type: none"> <li>4.5.1. In-band</li> <li>4.5.2. RFC 2833</li> <li>4.5.3. SIP INFO</li> </ol> </li> </ol> </li> <li><b>5. Management</b> <ol style="list-style-type: none"> <li>5.1. Provision via HTTP/HTTPS</li> <li>5.2. Web user interface</li> <li>5.3. Privacy protection phone lock</li> </ol> </li> </ol>	7
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5	<p style="text-align: center;"><b>IP phone type 2</b></p> <ol style="list-style-type: none"> <li><b>1. Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. 2.7" Screen</li> <li>1.2. 6 Programmable line keys</li> <li>1.3. Feature keys for:               <ol style="list-style-type: none"> <li>1.1.1. Voice mail</li> <li>1.1.2. Headset</li> <li>1.1.3. Speaker</li> <li>1.1.4. Mute</li> <li>1.1.5. Menu</li> </ol> </li> <li>1.4. 2 Gigabit Ethernet ports</li> <li>1.5. PoE IEEE 802.3af</li> </ol> </li> <li><b>2. Network protocols and standards network requirements</b> <ol style="list-style-type: none"> <li>2.1. SIP v2 RFC3261</li> <li>2.2. SIP server redundancy</li> <li>2.3. 802.1p /Q support</li> <li>2.4. SRTP</li> <li>2.5. TLS</li> </ol> </li> <li><b>3. Telephony requirements</b> <ol style="list-style-type: none"> <li>3.1. 3 Extensions/SIP accounts</li> <li>3.2. Busy lamp field</li> <li>3.3. 5-way conferencing</li> <li>3.4. Message waiting indicator</li> <li>3.5. Voice mail</li> <li>3.6. Intercom</li> <li>3.7. Dial plan per SIP account</li> </ol> </li> <li><b>4. Codec support</b> <ol style="list-style-type: none"> <li>4.1. G.711 alaw, µlaw</li> <li>4.2. G.722</li> <li>4.3. iLBC</li> <li>4.4. DTMF:               <ol style="list-style-type: none"> <li>4.4.1. In-band</li> <li>4.4.2. RFC 2833</li> <li>4.4.3. SIP INFO</li> </ol> </li> </ol> </li> <li><b>5. Management</b> <ol style="list-style-type: none"> <li>5.1. Privacy protection phone lock</li> <li>5.2.</li> </ol> </li> </ol>	78
6	<p style="text-align: center;"><b>Expansion module</b></p> <ol style="list-style-type: none"> <li><b>1. Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. LCD backlight display with 2 pages</li> <li>1.2. 20 Programmable buttons with a dual-color LED</li> <li>1.3. 40 Programmable features               <ol style="list-style-type: none"> <li>1.4. 2 Control keys</li> <li>1.5. 2 RJ45 ports</li> <li>1.6. Power via phone</li> </ol> </li> </ol> </li> <li>1.7. Compatibility with IP phone type 1 from these technical requirements</li> <li>1.8. Daisy chaining support for up to minimum 5 modules</li> </ol>	7

7	<p><b>Voice gateway with analog FXS ports</b></p> <ol style="list-style-type: none"> <li><b>1. Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. 4 FXS RJ11 ports</li> <li>1.2. Line impedance:               <ol style="list-style-type: none"> <li>1.2.1. 600R</li> <li>1.2.2. 900R</li> <li>1.2.3. CTR-21</li> </ol> </li> <li>1.3. FXS line length up to 8 km</li> <li>1.4. 1 Gigabit Ethernet port</li> <li>1.5. 1 RJ45 serial console port</li> <li>1.6. 1 USB interfaces</li> </ol> </li> <li><b>2. Network protocols and standards requirements</b> <ol style="list-style-type: none"> <li>2.1. SIP v2 RFC3261</li> <li>2.2. 802.1p /Q support</li> <li>2.3. SRTP</li> <li>2.4. TLS</li> <li>2.5. RADIUS accounting</li> </ol> </li> <li><b>3. Codec support</b> <ol style="list-style-type: none"> <li>3.1. G.711 alaw, µlaw</li> <li>3.2. T.38</li> </ol> </li> <li><b>4. Management</b> <ol style="list-style-type: none"> <li>4.1. Built-in HTTP/HTTPS server for browser-based device configuration</li> </ol> </li> <li><b>5. Additional features</b> <ol style="list-style-type: none"> <li>5.1. Comfort noise generation – CNG</li> <li>5.2. Acoustic echo cancellation – AEC</li> </ol> </li> </ol>	2
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8	<p><b>28-port PoE+ gigabit Ethernet network switch</b></p> <ol style="list-style-type: none"> <li><b>1. Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. 800 MHz CPU</li> <li>1.2. 512 of DRAM</li> <li>1.3. 256 MB of flash memory</li> <li>1.4. Packet buffer size 1.5 MB</li> </ol> </li> <li>1.5. 24 gigabit Ethernet ports with PoE support           <ol style="list-style-type: none"> <li>1.6. 4 SFP Module sockets</li> <li>1.7. Overall PoE output 370 W</li> </ol> </li> <li>1.8. 1 Mini USB type-B console port           <ol style="list-style-type: none"> <li>1.9. 1 USB interface</li> <li>1.10. MTB &gt; 680,000 hours</li> </ol> </li> <li><b>2. Layer 3 switching requirements</b> <ol style="list-style-type: none"> <li>2.1. Layer 3 packet routing</li> <li>2.2. 16 IP interfaces</li> <li>2.3. Layer 3 interface on:               <ol style="list-style-type: none"> <li>2.3.1. Physical port</li> <li>2.3.2. VLAN</li> <li>2.3.3. LAG</li> <li>2.3.4. Loopback</li> </ol> </li> <li>2.4. CIDR support</li> <li>2.5. 32 static routes</li> <li>2.6. DHCP relaying</li> </ol> </li> <li><b>3. Layer 2 switching requirements</b> <ol style="list-style-type: none"> <li>3.1. 55 Gbps of switching capacity</li> <li>3.2. Forwarding rate of 40 Mpps (64 B packet size)               <ol style="list-style-type: none"> <li>3.3. Support for:                   <ol style="list-style-type: none"> <li>3.3.1. 802.1d</li> <li>3.3.2. 802.1w</li> <li>3.3.3. 802.1s</li> <li>3.3.4. 802.3ad</li> <li>3.3.5. 802.1Q support</li> </ol> </li> </ol> </li> <li>3.4. Support for up to 250 VLAN's               <ol style="list-style-type: none"> <li>3.5. IGM support</li> </ol> </li> <li>3.6. Support for up to 250 multicast groups</li> </ol> </li> <li><b>4. Security requirements</b> <ol style="list-style-type: none"> <li>4.1. Support for the following standards:               <ol style="list-style-type: none"> <li>4.1.1. SSL</li> <li>4.1.2. SSH</li> <li>4.1.3. IEEE 802.1X</li> <li>4.1.4. Port security</li> <li>4.1.5. DoS prevention</li> </ol> </li> <li>4.2. Up to 512 access control lists</li> </ol> </li> <li><b>5. Other networking requirements</b> <ol style="list-style-type: none"> <li>5.1. MAC table 8000 addresses</li> <li>5.2. Support for jumbo frames</li> <li>5.3. 8 hardware queues for priority levels               <ol style="list-style-type: none"> <li>5.3.1. Class of service support 802.1p, DSCP, DiffServ,                   <ol style="list-style-type: none"> <li>5.4. IPv6 support:                       <ol style="list-style-type: none"> <li>5.4.1. Dual IPv6/IPv4 stack</li> <li>5.4.2. IPv6 Neighbor Discovery</li> <li>5.4.3. Duplicate Address Detection</li> <li>5.4.4. ICMP v6</li> </ol> </li> </ol> </li> <li>5.4.5. Hardware IPv6 packets prioritization</li> <li>5.5. VLAN mirroring</li> <li>5.6. SNMP v3 support</li> </ol> </li> </ol> </li> </ol>	4
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9	<p><b>18-port PoE+ gigabit Ethernet network switch</b></p> <ol style="list-style-type: none"> <li><b>1. Minimum Hardware requirements</b> <ol style="list-style-type: none"> <li>1.1. 800 MHz CPU</li> <li>1.2. 512 of DRAM</li> <li>1.3. 256 MB of flash memory</li> <li>1.4. Packet buffer size 1.5 MB</li> </ol> </li> <li>1.5. 16 gigabit Ethernet ports with PoE support           <ol style="list-style-type: none"> <li>1.6. 2 SFP Module sockets</li> <li>1.7. Overall PoE output 120 W</li> </ol> </li> <li>1.8. 1 Mini USB type-B console port           <ol style="list-style-type: none"> <li>1.9. 1 USB interface</li> <li>1.10. Fanless</li> <li>1.11. MTB &gt; 700,000 hours</li> </ol> </li> <li><b>2. Layer 3 switching requirements</b> <ol style="list-style-type: none"> <li>2.1. Layer 3 packet routing</li> <li>2.2. 16 IP interfaces</li> <li>2.3. Layer 3 interface on:               <ol style="list-style-type: none"> <li>2.3.1. Physical port</li> <li>2.3.2. VLAN</li> <li>2.3.3. LAG</li> <li>2.3.4. Loopback</li> </ol> </li> <li>2.4. CIDR support</li> <li>2.5. 32 static routes</li> <li>2.6. DHCP relaying</li> </ol> </li> <li><b>3. Layer 2 switching requirements</b> <ol style="list-style-type: none"> <li>3.1. 35 Gbps of switching capacity</li> <li>3.2. Forwarding rate of 25 Mpps (64 B packet size)               <ol style="list-style-type: none"> <li>3.3. Support for:                   <ol style="list-style-type: none"> <li>3.3.1. 802.1d</li> <li>3.3.2. 802.1w</li> <li>3.3.3. 802.1s</li> <li>3.3.4. 802.3ad</li> <li>3.3.5. 802.1Q support</li> </ol> </li> </ol> </li> <li>3.4. Support for up to 250 VLAN's</li> <li>3.5. IGM support</li> </ol> </li> <li>3.6. Support for up to 250 multicast groups</li> <li><b>4. Security requirements</b> <ol style="list-style-type: none"> <li>4.1. Support for the following standards:               <ol style="list-style-type: none"> <li>4.1.1. SSL</li> <li>4.1.2. SSH</li> <li>4.1.3. IEEE 802.1X</li> <li>4.1.4. Port security</li> <li>4.1.5. DoS prevention</li> </ol> </li> <li>4.2. Up to 512 access control lists</li> </ol> </li> <li><b>5. Other networking requirements</b> <ol style="list-style-type: none"> <li>5.1. MAC table 8000 addresses</li> <li>5.2. Support for jumbo frames</li> <li>5.3. 8 hardware queues for priority levels               <ol style="list-style-type: none"> <li>5.3.1. Class of service support :802.1p, DSCP, DiffServ</li> </ol> </li> <li>5.4. IPv6 support:               <ol style="list-style-type: none"> <li>5.4.1. Dual IPv6/IPv4 stack</li> <li>5.4.2. IPv6 Neighbor Discovery</li> <li>5.4.3. Duplicate Address Detection</li> <li>5.4.4. ICMP v6</li> <li>5.4.5. Hardware IPv6 packets prioritization</li> </ol> </li> <li>5.5. VLAN mirroring</li> <li>5.6. SNMP v3 support</li> </ol> </li> </ol>	5
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2.2 The tenderer should submit project documentation in hard copy or digital form:

- Technical specification and configuration of installed

telephone system

- Technical specification and configuration of IP phones
- Physical LAN connectivity schematics

### **3. Installation**

3.1 Installation and configuration shall be performed at two locations: OHR Sarajevo and OHR Banja Luka. Installation should be completed during OHR non-working hours (from Friday at 15:00 until Sunday at 24:00) and interruption of telephony services is acceptable only in that period.

3.2 Installation work should include:

- Delivery, physical installation and configuration of new Unified Communications System
- Delivery, installation and configuration of new IP phones
- Re-cabling and switching from new Unified Communications System to new IP phones
- Migrating all data from existing PBXs in Sarajevo and Banja Luka offices (Ericsson MD110) to the new Unified Communications System

### **4. Testing and Adjustment**

The first testing is to be performed by the Bidder, after which the teams of OHR and the Bidder shall perform joint testing. The Bidder shall make all necessary adjustments to the delivered units until the new system is fully functional and in accordance with the project task.

### **5. Organisation and Methodology**

Detailed project plan with implementation schedule including information on proposed number of project staff and back up functions.

Proposed methodology aims to progressively reduce the risk of failure, primarily from the risks defined as critical. (e.g.

misunderstanding the request, absence of key staff, etc.).

## **6. Training**

One day training on maintenance and configuration services shall be provided to the OHR team.

## **7. Partner Statuses**

The tenderer should provide business letters, Manufacturer Authorization Form (MAF) as proof that equipment is new and assigned for this project with name of buyer – Office of the High Representative.

## **8. CVs of Key Experts**

CVs of Key Experts who will be engaged in installation of equipment and staff training should include proof of relevant education/training and experience in installation of Unified Communications Systems.

## **9. References**

The tenderer should provide references with references contact details of at least three similar projects in the period 2018-2021. The tenderer has delivered supplies under at least 1 (one) contract, with a cumulative budget of at least EUR 20,000.00 in the field related to this contract which were implemented at any moment during the reference period.

## **Annex 1**

### **Statement of exclusivity and availability**

I declare that I am able and willing to work for the period(s) set for the position for which my CV has been included if this tender is successful, namely:

<b>From</b>	<b>To</b>	<b>Availability</b>
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< start of period 1 >	< end of period 1 >	< full time/part time >
< start of period 2 >	< end of period 2 >	< full time/part time >
< etc. >		

I also declare that I am not in a situation of conflict of interest or unavailability and commit to inform the tenderer(s) of any change in my situation.

I acknowledge that I have no contractual relations with the Contracting Authority and in case of dispute concerning my contract with the Contractor I shall address myself to the latter and/or to the competent jurisdictions.

Should I receive a confirmed engagement I declare that I will accept the first engagement offered to me chronologically. Furthermore I will notify the tenderer immediately of my unavailability.

<b>Name</b>	
<b>Signature</b>	
<b>Date</b>	
<b>Name</b>	
<b>Signature</b>	
<b>Date</b>	