

## APPENDIX 3

### LOT 3: WIRELESS NETWORK

#### **A. TECHNICAL SPECIFICATIONS**

##### MAIN PURPOSE

The Wi-Fi system should be capable of providing Internet access directly to a user using a smart phone, tablet PC, iPad or Laptop with Wi-Fi capability. Guests and visitors should have access only to Internet with the provided credentials.

##### **Data Network environment:**

1 server; MS Small Business Server

2 multi-functional printers

Cisco ASA 5500 router, 2 Cisco Switches

Gigabit LAN

One server room

Number of users: 35

##### **Compatibility**

Compatibility with existing network infrastructure containing most of the Cisco switches should be provided.

The proposed Wi-Fi system should provide wireless Internet access via IEEE 802.11a/b/g/n standard-based technologies to BEREC Office premises. BEREC Office prefers that tenderers propose a system that supports all IEEE 802.11 a/b/g/n standards.

Devices should support QoS, VLAN, VPN, LDAP, and Firewall authentication.

##### **Restrictions**

Provision should be provided to allow Intranet access only in BEREC Office area.

The installation of Wi-Fi infrastructure should not affect/degrade performance of existing wired infrastructure and existing security measures. The Wi-Fi Vendor/Vendor Partner must have prior similar experience of implementing Wi-Fi setup.

## **Control Management**

Centralized deployment of Access point manager must be in data centre, providing configuration, fault detection, audit, performance management, optimization of control, and security for all installed access points. It should have ability to separate control and data traffic in order to improve network efficiency, since data can be routed via Ethernet switches instead of through the wireless controller.

Customizable network dashboard should exist to provide overview of events, devices, and clients, automatically discovering deployed devices.

Access Point Management at least for 30 access points must be possible.

The network must have the capability to record the number of users at any given time and the length of use per connection. It may be necessary to monitor other parameters of use such as intensity of bandwidth usage per person.

Security Features: MAC address based Access Control List ( ACL ),IEEE 802.1x, AES 128 bit encryption, WEP based encryption ( 64 / 128 / 152 bits), WPA & WPA2

Network Support: NAT Support, DHCP Server Support, Multiple SSID and BSSID Support, VLAN pass-through Support, Dynamic VLAN,

Authentication, Authorization & Accounting (AAA): Authentication based on user name and password, MAC address and IP address-based authentication, Accounting based on hours, days and usages-basis, through MAC address, Built-in Radius server, Subscriber redirection on login, Supports PPPOE, RADIUS, SOAP protocol based authentication, Web based authentication redirection for unauthenticated users

## **Security**

Access Points are required to operate a stateful firewall with fully customizable access control list per user policy. Access Points need to offer IPSEC DMZ tunnels for guest or other Wi-Fi access. BEREC Office also requires the provision for securing access to BEREC Office's internal network from Wi-Fi connectivity done outside BEREC Office technical area.

System should provide the ability for guests and visitors to access internet, via the Wi-Fi system's "walled garden" page. WPA2 protocol authentication is preferred. Additionally, the user name and password given to each guests and visitors must be registered only for a MAC address corresponding to his laptop. BEREC Office should be able to provide restricted access to internet using Wi-Fi by users (e.g. blocking access to some of the websites, per user download restrictions etc.). Features like SSID broadcast enable/disable, Firewall services for MAC/IP/Protocol/Port-based filtering,

support for 64-bit and 128-bit WEP encryption, WPA, WPA2, 802.11i, 802.x, AES, TKIP etc. is preferred.

## **Support and Maintenance**

The vendor should provide necessary onsite maintenance and training to the BEREK Office technical persons so that they can carry out the routine maintenance tasks of the system independently afterwards.

The vendor should provide three years comprehensive onsite warranty and support for all installed (hardware and software both) components as part of Wi-Fi infrastructure along with 24x7 phone/email support.

If any component fails then it must be replaced within 2 days in case when repair of that device may take more than 2 days. The Wi-Fi Vendor/Vendor Partner must guarantee the onsite replacement/repair for all the offered equipment and software during the warranty period.

The Wi-Fi Vendor/ Vendor Partner must provide all documents in English Language. The Vendor/ Vendor Partner must provide a soft copy in DVD/CD ROM (Soft copy shall be without password Protection) and hard Copies one original and one spare copy of the complete document. In case of discrepancy between hard copy and soft Copy, hard copy shall prevail.

## **Access Points**

2.4 GHz and 5 GHz, 802.11a/b/g/n compatible, Access Point with at least one 10/100/1000 Ethernet port, both POE and external power adapter input support, Plug and Play deployment, Data rate not less than 54 Mbps, supporting Content Filtering, advanced security features, Better load handling capacity, Easy to manage by user friendly web-based interface, with integrated/ external detachable Antennas to get better coverage, Desktop, Wall /Ceiling Mountable.

WIRELESS LAN modes 11b/g mixed,11b Only,11g Only,11 b/g/n mixed,11n Only and 11 g/n mixed mode Security WEP Encryption, WPA/WPA2-PSK, WPA/WPA2 Enterprise(802.1x) and Wi-Fi, Protected Setup(WPS) Device Management, Web server, Telnet/SSH, SNMP, Software Management Remote firmware up gradation through Telnet/SSH

Wireless Configuration: Bridge (AP), Router and WISP

Diagnostics Wireless Scanning

Should include ceiling mounting clips, Fixing of AP in Wall jacket is included.

Detachable antennas, Omni-directional or directional should be used as per the requirements of particular area in order to provide good bandwidth, more coverage and fair capacity.

All the manuals in soft copy and hard copy form, documents specification, Wi-Fi network layout plans, passwords should be submitted to BEREK Office by the vendor.

Locks for theft protection are needed.

Should support both controller based and standalone deployment options.

All equipment should have proper LED/other indicators and interfaces.

### **Existing Infrastructure Limitation**

If some of the parts of existing wired infrastructure do not allow expandability, then necessary components/extra 16/24/48 of GbE ports switches (along with extra racks if required else it can be wall mountable) should be added by vendor. Patch panel patching, Rack Fixing & Dressing is included.

Switches-should have support for Gigabit Ethernet 10/100/1000 desktop connectivity, 1 GbE SFP uplinks, USB, IP Address management, fully manageable, enhance troubleshooting, PoE, Rack-mountable.

All UTP cat-6/electric power/any other cabling, wiring, fixing with respect to wired backbone, power facilities, proper casing, capping of important equipment should be done by vendor. Patch Cords, Power cord, RJ-45 Connectors and all other required accessories for complete Wi-Fi installation should be provided by the vendor.

Access to the existing infrastructure will be granted at any time when needed to carry out the required task on the condition that no damage should be incurred to existing infrastructure. If such case, vendor will be responsible for replacing/repairing the damaged component.

All required configuration should be done by vendor.

Vendor will be responsible for whole installation, commissioning and configuration of Wi-Fi.

### **Quality of Service**

The Wi-Fi system should provide a minimum of 99% availability over the entire area of coverage. MIMO technology will be preferred. Good signal strength for given locations. Signal strength level of -75dBm or better is required. SNR should be 25dB and above in the required coverage area. At least 30 concurrent users must be supported by each AP. All products must be highly reliable and branded.

Security of existing wired system should not be disturbed.

Scalability and Redundancy. The Wi-Fi network implemented should be scalable for future additional area coverage and for increased number of users easily. PoE enabled devices will be preferred.

Manageability. The Wi-Fi network design should allow easy and modular management of it. Sufficient number of APs providing same coverage with good Receiver sensitivity/signal strength will be preferred.

Quantity. As Total Number of indoor APs required depends on each model, but it should be sufficient to cover whole BEREC Office area. Number of wireless Controllers required is 1 (supporting at least 50 access points management). Access point manager should have 30 user licenses (if required).

Rapid and cost effective Deployment

### **Software and Hardware requirements**

Software/Hardware/drivers/patches required supporting and maintaining Wi-Fi activities must be included / provided by default. All updates to the software must be provided during warranty period.

### **Protection and safety**

There should be adequate provision for protecting the access to the access points/switches e.g. using locking facility. All devices should conform to safety standards.

All devices should be able to work in existing BEREC Office environment conditions.

### **The scope of the tender**

In short, the Scope of Work for the vendor includes everything which is required to develop BEREC Office wide secure, scalable, manageable Wi-Fi network.

The solution will be rented.

## **B. FINANCIAL OFFER**

The maximum budget available for the entire duration of the contract is **EUR 10 000**.

- Prices must be based on proposed discounts from your official price lists. Prices proposed shall include all types of costs to be borne for the performance of the framework contract. Tenderers are requested to provide prices for all services and supplies they tender for.
- Amounts must be quoted **in EUR and LVL**. Prices must be fixed amounts and be calculated exclusive of all duties and taxes, with separate indication of VAT.
- Prices in the financial proposal will be considered as future reference for contract prices.
- Tenderers are requested to complete the cost table below:

<b>Service</b>	<b>Unit</b>	<b>Price in LVL</b>	<b>Price in EUR</b>
Installation fee	1		
Hard- and software	month		
Fees for Support and Maintenance	month		