Section 6: Schedule of Supply

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| 1. List of Goods and Related Services |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item No. | Name of Goods or Related Services | Description | Unit of Measurement | Quantity |
| 1 | Procurement of 48 Port Network Switches | 48 Port Network Switches | Nos | 20 |
| 2 | Procurement of 24 Port Network Switches | 24 Port Network Switches | Nos | 100 |
| 3 | Firewall for atolls Hospitals | Firewall for Atolls Hospitals | Nos | 5 |
| 4 | Firewall for Islands (SD Wan connectivity) | Firewall for Islands (SD Wan connectivity) | Nos | 15 |

1. Delivery and Completion Schedule

Delivery shall take place in compliance with the dates, duration, and locations indicated below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item No. | Description  of Goods  or  Related Services | Delivery Schedule  (Duration) | Location | Required Arrival Date of Goods or  Completion Date for Related Services |
| 1 | Procurement of 48 Port Network Switches - Quantity 20 | 180 days | Ministry of Health, Male’, Rep. of Maldives | October 2024 |
| 2 | Procurement of 24 Port Network Switches - Quantity 100 | 180 days | Ministry of Health, Male’, Rep. of Maldives | October 2024 |
| 3 | Firewall for atolls Hospitals – Quantity 5 | 90 days | Ministry of Health, Male’, Rep. of Maldives | July 2024 |
| 4 | Firewall for Islands (SD Wan connectivity) – Quantity 15 | 90 days | Ministry of Health, Male’, Rep. of Maldives | July 2024 |

1. Technical Specifications
2. **TECHNICAL REQUIREMENT AND SCOPE OF WORKS FIREWALLS**

**48 Port Network Switches**

Quantity: 20 Nos

|  |  |
| --- | --- |
| Description | General: 48x ports 10/100/1000BASE-T Class 4 PoE Ports  Uplinks: 4x 1/10G SFP Ports |
| PoE Support | Supports PoE Standards IEEE 802.3af, 802.3at |
| Power Supply | Fixed - Up to 740W of Class 4 PoE Power |
| Switching Capacity | Minimum 170 Gbps |
| Throughput Capacity | Minimum 90 Mpps |
| Packet Buffer | Minimum 1 MB |
|  | Cloud Management License – 3 Years   * Network Health, Summary Dashboards * UI- and template-based group configuration * Network Topology View * Client List and Details * Audit Trail * Alerts and Events |
| Layer 2 | Layer 2 Services should be supported:   * VLAN Tagging Support. * Rapid Per-VLAN Spanning Tree (RPVST+) * Jumbo Packet Support |
| Layer 3 | Layer 3 Services should be supported:   * Static IP Routing * Dual stack static IPv4 and IPv6 routing |
| Multicast | IP Multicast Snooping and IGMP Snooping |
| Security | ACL, TACACS+, RADIUS and MAC-based client authentication |
|  |  |
| Quality of Service (QoS) | Strict priority (SP) queuing, Traffic prioritization (IEEE 802.1p) |
| Transceivers | 1 x (1G) Transceiver Module (MM) |
| Installation | Vendors should provide installation and configuration services. |
| Power Cable | Power cable (UK Plug) |
| Manufacturer Authorization | Manufacturer Authorization Letter for the project |
| Warranty | Limited Lifetime Warranty for Hardware |
| * Switch should not require a license for functionality. Should not require any licensing for http, ssh and telnet management. * Installation and provisioning support must be provided. 2-year local technical support must be provided | |

**24 Port Network Switches**

Quantity: 100 Nos

|  |  |
| --- | --- |
| Description | General: 24x ports 10/100/1000BASE-T Ports  Uplinks: 4x 1G/10G SFP ports |
| PoE Support | Supports PoE Standards IEEE 802.3af, 802.3at |
| Power Supply | Fixed - Up to 370W of Class 4 PoE Power |
| Switching Capacity | Minimum 120 Gbps |
| Throughput Capacity | Minimum 90 Mpps |
| Memory and Flash | Minimum 4 GB DDR3 16GB eMMC |
| Packet Buffer | Minimum 1 MB |
|  | Cloud Management License – 3 Years   * Network Health, Summary Dashboards * UI- and template-based group configuration * Network Topology View * Client List and Details * Audit Trail * Alerts and Events |
| Layer 2 | Layer 2 Services should be supported:   * VLAN Tagging Support. * Internet Group Management Protocol (IGMP) * Bridge Protocol Data Unit (BPDU) * Rapid Per-VLAN Spanning Tree (RPVST+) * Jumbo Packet Support * Port Mirroring ((ingress and egress) |
| Layer 3 | Layer 3 Services should be supported:   * Static IP Routing * Dual stack static IPv4 and IPv6 routing * Multicast Listener Discovery (MLD) * Dynamic Host Configuration Protocol (DHCP) |
| Multicast | IP Multicast Snooping and IGMP Snooping |
| Security | ACL, TACACS+, RADIUS and MAC-based client authentication |
|  |  |
| Quality of Service (QoS) | Strict priority (SP) queuing, Traffic prioritization (IEEE 802.1p) |
| Transceivers | 1 x (1G) Transceiver Module (MM) |
| Deployment | Simple deployment with Zero Touch Provisioning |
| Installation | Vendors should provide installation and configuration services. |
| Power Cable | Power cable (UK Plug) |
| Manufacturer Authorization | Manufacturer Authorization Letter for the project |
| Warranty | Limited Lifetime Warranty for Hardware |
| * Switch should not require a license for functionality. Should not require any licensing for http, ssh and telnet management. * Installation and provisioning support must be provided. 2-year local technical support must be provided | |

1. **TECHNICAL REQUIREMENT AND SCOPE OF WORKS FIREWALLS**

Firewall for atolls Hospitals – Quantity 5

|  |  |
| --- | --- |
| **Ports** | 2x 10 GE SFP+,  18x GE RJ45,  8x 1GE SFP |
| **IPS Throughput** | 2.6 Gbps |
| **Power Supplies** | Dual AC PS |
| **NGFW Throughput** | 1.6 Gbps |
| **Threat Protection Throughput** | 1 Gbps |
| **IPv4 Firewall throughput** | 20 / 18 / 10 Gbps |
| **Concurrent Sessions (TCP)** | 1.5 Million |
| **New Sessions/second (TCP)** | 56,000 |
| **Firewall Throughput (Packet per Second)** | 15 Mpps |
| **Firewall Policies** | 10,000 |
| **Client-toGateway Ipsec VPN Tunnels** | 16,000 |
| **Gateway-toGateway IpPsec Tunnels** | 2,500 |
| **SSL-VPN Throughput** | 1 Gbps |
| **Virtual Domains (Default / Maximum)** | 10 /10 |
| **Concurrent SSL-VPN Users** | 500 |
| **Warranty** | 2 Year |
| **License** | - 2 Year License must be included covering hardware support and software support (antivirus, web filtering, email filtering, IPS)  - The proposed firewall should support intercepting SSL traffic for Security Filtering. |
|  | * Vendor must have experience in supplying similar products. Supplier must aid in initial provisioning. * Where Virtual Domains are not available (in firewall), equivalent isolation feature/service must be available allowing 10 virtual firewalls. |

Firewall for Islands (SD Wan connectivity) – Quantity 15

|  |  |
| --- | --- |
| **Ports** | 1x USB Port  1x Console Port  1x GE RJ45 WAN Port  3x GE RJ45 Ports |
| **IPS Throughput** | 1 Gbps |
| **Cellular Model** | 3G4G / LTE |
| **SIM Slots** | SIM Slots (Nano SIM) |
| **NGFW Throughput** | 800 Mbps |
| **Threat Protection Throughput** | 600 Mbps |
| **IPv4 Firewall throughput** | 5 / 5 / 5 Gbps |
| **Concurrent Sessions (TCP)** | 700,000 |
| **New Sessions/second (TCP)** | 35,000 |
| **Firewall Throughput (Packet per Second)** | 7.5 Mpps |
| **Firewall Policies** | 5000 |
| **Client-toGateway Ipsec VPN Tunnels** | 250 |
| **Gateway-toGateway IpPsec Tunnels** | 200 |
| **SSL-VPN Throughput** | 490 Mbps |
| **Virtual Domains (Default / Maximum)** | 10 /10 |
| **Concurrent SSL-VPN Users** | 200 |
| **Warranty** | 2 Year |
|  | * Vendor must have experience in supplying similar products. Supplier must aid in initial provisioning. * Where Virtual Domains are not available (in firewall), |
|  | equivalent isolation feature/service must be available allowing 10 virtual firewalls |

* Cloud Management Platform Must be provided for the devices.
* The proposed centralized management appliance should be supplied with 3-Year 24 x 7 On-site Local Technical Support Services and Labor by OEM certified engineer(s).
* Vendors must provide support in provisioning the devices with necessary configuration including adding devices to cloud management. This includes Hardware installation including mounting, management cabling and power up.
* Vendors must have OEM certified professionals in the team for deployment of items and to provide support.
* On the job training on basic management, operation, and maintenance. Instructor-led classroom training for at least one technical engineer shall be included.
* The support service vendor should provide the contact number of a single point of contact to facilitate immediate contact by client’s representative and he or she shall be responsible to liaise with all vendors for rectification of faults within the Next Business Day.
* Defective equipment shall be replaced by the bidder at his own cost including the cost of transport if any.
* System maintenance and support services will include the following activities.
  + 24 x 7 on-line Support.
  + Patch updating and major / minor software version upgrading support.
  + Phone/Email TAC support must be provided during the support period.
  + Issue resolution / Onsite Visits within 1 hour of hardware failures reported.
* The bidder shall provide reference letter / documents of successful completion of similar system (Firewall implementations, network security, data center networking, network security licensing)