



**L E S O T H O
C O M M U N I C A T I O N S
A U T H O R I T Y**

REQUEST FOR PROPOSALS (RFP)

**FOR Provision and Installation of Network Equipment for Institutions of Higher Learning –
NUL PILOT**

1. INTRODUCTION

The Kingdom of Lesotho has 23 institutions or campuses (for the purpose of this document they are referred to as institutions) of higher learning identified as potential beneficiaries of this project. Together, these institutions have a population of close to 24,500. The National University of Lesotho (NUL) accounts for about 50% of the student population. It is followed by Limkokwing University of Creative Technology (LUCT) at 14%. The other bigger institutions are the Lerotholi Polytechnic (LP) and the Lesotho College of Education (LCE), each accounting for 10% of the student population. The rest of the institutions account for the remaining 16%.

LCA has established that the majority of institutions are not able to provide Internet access for students to use for learning and research. In some of the institutions, the service is available but it is too overloaded as to be usable. Main reason cited by all the institutions for this state of affairs was that the cost of bandwidth is prohibitive and/or infrastructure required were prohibitive. It is against this background that the Authority decided to put on trial a free Wi-Fi access programme for institutions of higher learning over a three-year period. The programme is means to supplement, and not replace, internet services that the institutions have contracted or plan to contract in the future. The programme will be continuously evaluated for effectiveness, and the need for refinement or continuation after the initial period.

The separate RFPs will be issued for the other institutions in the near future.

The Lesotho Telecommunications Authority (LCA) invites proposals from suitably qualified local service providers to bid for the opportunity to provide and install network equipment for Institutions of Higher Learning – NUL PILOT.

2. TENDER SPECIFICATIONS

2.1. NETWORK EQUIPMENT SPECIFICATION

Please use the template below to cost your items. List the item numbers and items exactly in the same order in which they are listed below in order to facilitate ease of the evaluation process. ***In the event that you wish to specify any other item that you think needs to be included in order to complete the work, please include it at the bottom of the list without disturbing the order of items as listed by LCA.***

ITEM NUMBER	ITEM DESCRIPTION	PART NUMBER	QUANTITY	UNIT PRICE	COST PRICE
	Switches and Transceiver Modules				
1	Cisco Catalyst 3560-CX, 6 x GE PoE+, 2 x MultiGE PoE+, and 2 x 10GE SFP+ uplink ports, IP Base	WS-C3560CX-8XPD-S	12		
2	Cisco 19-inch Rack Mounting Bracket for 3560-CX and 2960-CX Switches	RCKMNT-19-CMPCT=	12		
3	Cisco Catalyst 9300 24-port Multigigabit Ethernet, UPOE, Network Advantage	C9300-24UX-A	2		
4	Cisco Catalyst 9300 8 x 10GE Network Module	C9300-NM-8X	2		
5	Cisco Catalyst 9500 Series 650W AC Power Supply, Redundant	C9K-PWR-650WAC-R/2	1		
6	Cisco Catalyst 9500 Series high performance 24-port 1/10/25G switch, NW Adv. License	C9500-24Y4C-A	1		
7	Accessory Kit for Cisco Catalyst 9500 Series – High-End - 19" rack mount	C9500-ACCKITH-19I=	1		

8	Cisco 1000BASE-SX SFP Transceiver Module for Multimode Fiber; with DOM	GLC-SX-MMD	20		
9	Cisco 10GBASE-SR SFP+ Transceiver Module for Multimode Fiber, S-Class	SFP-10G-SR-S	12		
	Wireless Access Points and Accessories				
10	Cisco Aironet 3800i Access Point, indoor environments, with internal antennas	AIR-AP3802I-E-K9	30		
11	Cisco Aironet 3800e Access Point, indoor, challenging environments, with external antennas	AIR-AP3802e-E-K9	6		
12	Cisco White Dualband dipole antenna, with RP-TNC connector	AIR-ANT2524DW-R	24		
13	Oberon 18 Inch Hi-Bar Plastic Wi-Fi Access Point Lock Box with Translucent Door	1016-C	5		
	Fiber Optic Cable and Accessories				
14	ST-to-LC Duplex Fiber Patch Cable, PC, Multimode 50/125 micron, OM4, 3 meters		20		
15	LC-to-LC Duplex Fiber Patch Cable, PC, Multimode		18		

	50/125 micron, OM4, 3 meters				
16	ST-to-ST Duplex Fiber Patch Cable, PC, Multimode 50/125 micron, OM4, 3 meters		6		
17	One 8-core 850 nm Multimode Fiber Cable, 50 Micron, 4700 MHz*Km, OM4		400Meters		
18	Fusion Splice		32		
19	1U Fiber Patch Panel with 12 LC Duplex Flush Mount Adapter Panel		4		
20	LC Duplex Fiber Coupler		16		
21	LC/PC Multimode OM4 Fiber Optic Pigtail, 1 meter		32		
	Copper Cable and Accessories				
22	PowerCat 24 Port DataGate Patch Panel, Unloaded Shielded, 1U	PID-00258	13		
23	Molex PowerCat 6A Jack RJ45, 568A/B, Shielded (For Loading Patch Panel)	KSJ-00062-02	106		
24	Molex PowerCat 6A Shielded Twisted Pair Data Points		40		

25	Molex PowerCat 6A Shielded Patch Cord, 1 meter	PCD-07000-0W	43		
26	Molex PowerCat 6A Shielded Patch Cord, 3 meter	PCD-07002-0W	43		
27	Cat 6A Shielded Twisted Pair UV Rated Waterproof Outdoor Cable				
28	Brush Panel		34		
29	Cisco Aironet 1562E Access Point, outdoor environments with external antennas	AIR-AP1562E-E-K9	4		
30	Software for Cisco Aironet 1560 Series Access Point: Unified Local	SWAP1560-LOCAL-K9	4		
31	2.4 GHz, 6dBi and 5 GHz 8 dBi dual-band omnidirectional antenna with N-type connector	AIR-ANT2568VG-N	6		
32	Pole/Wall Pivoted Mounting Kit for 1530/1560 Series Access Points	AIR-ACC1530-PMK2	3		
33	Standard Pole/Wall Mount Kit for AP1530/1560 Series	AIR-ACC1530-PMK1	1		
34	2.4 GHz, 6dBi and 5 GHz 8 dBi dual-band directional	AIR-ANT2588P3M-N=	1		

	antenna with three N-type connectors				
35	Power Injector, 60W, Outdoor unconnectorised	AIR-PWRINJ-60RGD2	1		
36	Paintable cover and solar shield for Cisco Aironet 1560 series access points	AIR-ACC1560-CVR	4		
37	Spare Accessory Kit for Cisco Aironet 1560 series access points	AIR-ACC1530-KIT1=	1		

2.2. TECHNICAL REQUIREMENTS AND WORK INSTRUCTION

2.2.1. SCOPE OF WORK

- 2.2.1.1. Supply and installation of an 8-core OM4 multimode fiber optic cable.
- 2.2.1.2. Testing of the installed fiber optic cable.
- 2.2.1.3. Supply and installation of Cat 6A STP copper cable.
- 2.2.1.4. Supply and installation of Cat 6A UV rated waterproof outdoor STP copper cable.
- 2.2.1.5. Supply and installation of Cat 6A Shielded Twisted Pair (STP) data points.
- 2.2.1.6. Testing of installed STP copper cabling and data points.
- 2.2.1.7. Supply and installation of Cisco wireless access points.
- 2.2.1.8. Supply and installation of Cisco Aironet antennas and associated accessories.
- 2.2.1.9. Supply of Cisco wireless controller access point adder licenses.
- 2.2.1.10. Supply of Cisco SFP and SFP+ fiber transceiver modules.
- 2.2.1.11. Supply and installation of Cisco Switches and other equipment listed under the "Network Equipment Specification" section of this document.
- 2.2.1.12. Supply and installation of a UPS.
- 2.2.1.13. Supply and installation of a data network equipment cabinet.
- 2.2.1.14. Supply and installation of other equipment that is not listed in this document but is essential to complete the specified installation.
- 2.2.1.15. Labelling of the installed network.
- 2.2.1.16. Documentation of the installed network.

2.2.2. TECHNICAL REQUIREMENTS

2.2.2.1. Copper Cabling

- 2.2.2.1.1. Molex PowerCat™ 6A Shielded Twisted Pair (STP) solution should be used for copper cabling.
- 2.2.2.1.2. On completion of STP cable installation all STP cabling should be tested for standards compliance and test results should be submitted to LCA.
- 2.2.2.1.3. Prospective installers are expected to specify a warranty period for installed STP cabling.
- 2.2.2.1.4. LCA may appoint a cable installation certifier to ensure standards compliance on installed cabling.
- 2.2.2.1.5. STP cabling installation will be deemed complete only if it passes the standards compliance tests.
- 2.2.2.1.6. Refer to “Network Equipment Specifications” table for item quantities and product numbers.

2.2.2.2. Fiber Optic Cabling

- 2.2.2.2.1. OM4 Multimode fiber optic cable installation is required in this project: a 50 micron multimode fiber, 850 nm wavelength, 4700MHz*Km modal bandwidth cable.
- 2.2.2.2.2. Fusion splicing should be the only method used for fiber splicing.
- 2.2.2.2.3. LC connectors are to be used on fiber termination.
- 2.2.2.2.4. On completion of fiber cable installation all fiber cabling should be tested for standards compliance and test results should be submitted to LCA.
- 2.2.2.2.5. LCA may appoint a fiber cable installation certifier to ensure standards compliance on installed cabling.
- 2.2.2.2.6. fiber cabling installation will be deemed complete only if it passes the standards compliance tests.
- 2.2.2.2.7. Prospective installers are expected to specify a warranty period for installed fiber cabling.

2.2.2.3. Cabinets and UPS

- 2.2.2.3.1. 25-U IP53 floor-standing active equipment data cabinet should be supplied.
- 2.2.2.3.2. The cabinets should be supplied with the number of cage nuts and screws that is enough to populate the number of rack units of the supplied cabinet.
- 2.2.2.3.3. Cabinets should be around 1 meter deep.
- 2.2.2.3.4. Cabinets should be supplied with 10-way Type M power sockets with integrated Type C sockets.
- 2.2.2.3.5. APC Smart UPS RT1000VA RM 230V.
- 2.2.2.3.6. Refer to “Network Equipment Specifications” table for item quantities and product numbers.

2.2.2.4. Switches and Transceivers

- 2.2.2.4.1. Cisco Catalyst 9500 series high performance 24-port 1/10/25G switch, Network Advantage License
- 2.2.2.4.2. Cisco Catalyst 9500 series 650W AC power Supply Redundant
- 2.2.2.4.3. Accessory kit for Cisco Catalyst 9500 series – High-end 19 inch rack mount
- 2.2.2.4.4. Cisco Catalyst 9300 24-port Multigigabit Ethernet, UPOE, Network Advantage.
- 2.2.2.4.5. Cisco Catalyst 9300 8 x 10GE Network Module.
- 2.2.2.4.6. Cisco Catalyst 3560-CX, 6 x GE PoE+, 2 x MultiGE PoE+, and 2 x 10GE SFP+ uplink ports, IP Base.
- 2.2.2.4.7. Cisco 19-inch rack mounting bracket for 3560CX-8XPD-S switch.
- 2.2.2.4.8. Cisco 10GBASE-SR SFP+ Transceiver Module for Multimode Fiber, S-Class.
- 2.2.2.4.9. Cisco 1000BASE-SX SFP Transceiver Module for Multimode Fiber; with DOM.

2.2.2.4.10. Refer to “Network Equipment Specifications” table for item quantities and product numbers.

2.2.2.5. Wireless Access Points

2.2.2.5.1. Cisco Aironet 1560 Series Access Point, outdoor environments, with external antennas.

2.2.2.5.2. Cisco Aironet 1560 Series Access Point, outdoor environments, with internal antennas.

2.2.2.5.3. Software for Cisco Aironet 1560 Series Access Point: Unified Local.

2.2.2.5.4. Cisco Aironet 3800 Series Access Point, indoor environments, with internal antennas.

2.2.2.5.5. Standard pole/wall mount kit for AP1530/1560 series access points.

2.2.2.5.6. 2.4 GHz, 8 dBi and 5 GHz 8 dBi dual-band directional antenna with three N-type connectors.

2.2.2.5.7. 5-ft low-loss cable, one straight N connector, one 90-degree N connector.

2.2.2.5.8. Refer to “Network Equipment Specifications” table for item quantities and product numbers.

2.2.3. WORK INSTRUCTIONS

2.2.3.1. Fiber Optic and STP Cable Installation

2.2.3.1.1. Install one 8-core multimode fiber optic cable inside an existing route that runs between two locations that will be indicated.

2.2.3.1.2. When installing fiber optic cables, observe proper fiber optic cable bend radius and, where necessary, use a fiber optic cable bend radius restrictor.

- 2.2.3.1.3. Use fusion splicing at both ends of the 8-core multimode fiber cable to splice the cable into LC connectors on 1U fiber patch panels with 12 LC duplex flush mount adapter panels.
- 2.2.3.1.4. Install STP cabling from cabinets to marked data point locations.
- 2.2.3.1.5. Ensure proper grounding on all systems.
- 2.2.3.1.6. Install appropriate trunking for STP cable routes where necessary.
- 2.2.3.1.7. Fiber optic and STP cables should enter cabinets from the bottom.
- 2.2.3.1.8. Compliance standards permitting, all fiber optic and STP cables should be measured against the top U of cabinets for installation and termination inside cabinets. An additional 50cm of cable length should be provided inside floor-standing cabinets to facilitate ease of maintenance.
- 2.2.3.1.9. Where cables are being dropped from the top of the ceiling, an additional 2m of cable length should be provided on top of the ceiling.

2.2.3.2. Inside Equipment Cabinets

- 2.2.3.2.1. Before installing any equipment in a cabinet, ensure that the rack mounting frames of the cabinets are moved far back enough inside the cabinets to allow proper bend radius of fiber optic and STP patch cables.
- 2.2.3.2.2. Install each Cisco Catalyst switch in cabinets that will be indicated.
- 2.2.3.2.3. Install each patch and brush panel in cabinets that will be indicated.
- 2.2.3.2.4. Install one APC UPS in a cabinet that will be indicated.
- 2.2.3.2.5. There is no configuration of equipment required.

2.2.3.2.6. Wireless Access Points Installation

- 2.2.3.2.7. Install each Cisco Aironet 3800I access points at marked data point locations.
- 2.2.3.2.8. Connect specific Cisco Aironet antennas to Cisco Aironet 3800e access points.
- 2.2.3.2.9. Install each Cisco Aironet 3800e access points at marked data point locations.
- 2.2.3.2.10. Install Cisco Aironet 1562E access points at marked data point locations.
- 2.2.3.2.11. Connect lightning arrestors to each external Cisco Aironet antenna.
- 2.2.3.2.12. Install each Cisco Aironet external antenna with the associated Cisco Aironet 1560E access point.
- 2.2.3.2.13. Each installed lightning arrestor must be properly grounded.
- 2.2.3.2.14. Ensure proper grounding on all systems.

2.2.3.3. Labelling

- 2.2.3.3.1. Inside cabinets, fiber cables should be clearly labelled using appropriate labels. The cables should stick to cables and patch panels, and not fall off over time. The labels should indicate the number of cores of terminated cable and the location at which the other end of the cable terminates.
- 2.2.3.3.2. Inside cabinets, fibre patch cables should be clearly labelled using labels that are specifically designed for fibre patch cables. The labels should stick to cables and not fall off over time. The labels should not make flaps on the cable but rather run along the length of the cable. On fiber patch cables, the label on the fibre patch panel end should indicate the switch port number, and on the switch end the label should indicate the fibre patch panel number.
- 2.2.3.3.3. The same labelling specification as the one described in 2 above should be used for STP patch cables.

2.2.3.3.4. STP data points should be clearly labelled using appropriate labels. STP data point labels should indicate the patch panel number and the patch panel port number on which the STP cable of the data point is terminated.

3. TIME FRAMES AND OTHER CONDITIONS

Submissions of bids should be at the LCA premises on or before the set deadline at the address stated only. **No electronic submissions will be allowed.**

Submissions must meet all the conditions indicated below:

- 3.1. The technical proposal shall indicate the full details of what will be supplied, with at least four (4) references where a similar assignment was undertaken, including contact persons, telephone numbers and physical address and other salient details pertaining to the delivery;
- 3.2. Company profile – the firm must submit its profile;
- 3.3. Certified copy of current Tax Certificate;
- 3.4. Certified copy of Valid Traders License;
- 3.5. Certified copies must be certified by the issuing Authority;
- 3.6. In the case of supply of Cisco equipment
 - 3.6.1. A letter (dated not earlier than 30th August 2018) from Cisco as proof of the bidder's "Lesotho based authorized Cisco Partner" Status;
 - 3.6.2. A letter from Cisco confirming receipt of an order purchase request (emanating from this tender's specified Cisco equipment) from the bidder on behalf of NUL
- 3.7. For Cisco Devices, cost should be inclusive of one year valid Smartnet contract;
- 3.8. The Authority reserves the right to cancel or withdraw this request for proposals as a whole or in part without furnishing any reasons and without attracting any liability;
- 3.9. The Authority shall not be bound to accept the lowest bidder;
- 3.10. Lesotho Tax Laws SHALL be applicable;
- 3.11. The financial proposal shall clearly state the total bid price in Lesotho Loti (LSL). All prices shall include VAT if applicable;

- 3.12. All bidders must note that payment is done upon completion of the entire project. However, the bidder may propose a payment schedule that is accompanied by securities.
- 3.13. A retention of 10% of the total project cost will apply, which will be payable after expiry of the standard defect liability period of one year.
- 3.14. A compulsory pre-bid/clarification meeting with representative of NUL will take place at the Roma Campus (next to Maintenance Building) on 5th November 2018 at 9:00 a.m. Responses to the queries raised at the pre-bid meeting and clarifications will be provided in writing to all bidders who attended the pre-bid meeting within 3 days after the pre-bid meeting.
- 3.15. The proposal must be valid for 60 working days from the submission date;
- 3.16. Late submissions shall not be accepted.

4. SUBMISSION FORMAT

- 4.1. The bidder must submit the original and four copies, clearly marked **“ORIGINAL”** and **“COPIES”**.
- 4.2. Both envelopes must be placed in one outer envelope clearly marked **“Provision and Installation of Network Equipment for Institutions of Higher Learning – NUL PILOT”**. Envelopes should not bear any identification of the bidder;

5. TIME FRAMES AND OTHER DETAILS

- 5.1. Any requests for clarification on the RFP must be addressed in writing to the Executive Secretary Universal Service Fund at usf@lca.org.ls and copy admin@lca.org.ls at least five days prior to the deadline. The Authority will respond to written inquiries or queries only.
- 5.2. The bids must be submitted at LCA Offices at 30 Princess Margaret Road, Old Europa on or before 12:00hrs on the 30th November 2018. No proposals will be received after the closing time.
- 5.3. The selected company will be notified in writing and invited for contract negotiations.

6. DISCLAIMER

This RFP does not commit the Authority to pay any expenses incurred by the bidder in the preparation of responses to this invitation or for attending meetings, if any at all. The Authority reserves the right to cancel this RFP anytime.

7. All submissions must be addressed to:

Lesotho Communications Authority

30 Princess Margaret Road

Old Europa

P. O. Box 15896

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