

TENDER SUMMARY

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| Tender Title: | TENDER FOR THE PLAN, DESIGN, SUPPLY, DELIVERY, INSTALLATION, TESTING, COMMISSIONING, INTEGRATION AND COMPREHENSIVE MAINTENANCE SUPPORT SERVICES OF ENHANCED COPPER TECHNOLOGY AND ITS ELEMENT MANAGEMENT SYSTEM FOR TELEKOM MALAYSIA BERHAD (“TM”) |
| Tender Ref: | CATX/2019/T/5/ENHANCED COPPER |
| Closing Date: | 9 th January 2020 (Thursday) |

1. This Tender defines the requirement of Telekom Malaysia Berhad (hereinafter refers to “TM”) for The Plan, Design, Supply, Delivery, Installation, Testing, Commissioning, Integration And Comprehensive Maintenance Support Services of Enhanced Copper Technology and Its Element Management System for the purpose of providing a complete, high quality and reliable solution which would fulfil current and future TM business requirement.
2. Under Fiber deployment, there are 2 technologies that TM will focus on namely FTTH and Enhanced Copper.
3. Enhanced Copper shall be deployed in situation where TM have difficulty in obtaining building owner’s approval to lay internal fiber cable from basement of the building to building’s floors.
4. The scope of this tender are as follow:-

| No | Item | Item Description |
|----|--|--|
| 1. | Equipment | Supply and delivery of Network Equipment (NE) for Model (1+1) G uplink with <ul style="list-style-type: none"> • 24 subscriber ports • 48 subscriber ports • 96 subscriber ports (optional) |
| 2. | CPE | Supply and delivery of Wireless CPE, LAN cable (1.5m, minimum CAT 5e), RJ 11, Power adaptor, and quick reference guide on warranty/support information card |
| 3. | Element Management System (EMS) | <ul style="list-style-type: none"> • License, software, database (complete package to support Element Management System & Network Management System). • Documentation for EMS Operation and Maintenance and EMS Installation and Configuration. • Installation Materials/Cable and Ethernet Cable • EMS Comprehensive Maintenance & Support Services 5 Years |
| 4. | Training | <ul style="list-style-type: none"> • Operation and Maintenance for NE & CPE • Train the Trainer • EMS (User) • EMS (Administrator) • On-site training for NE & CPE |
| 5. | Comprehensive Maintenance & Support Services | 5-year Post-Warranty On Comprehensive Maintenance & Support Services for NE and EMS. |

5. Tenderer is required to **fully comply with the clauses marked as “Critical Clause (CRQ)”** in the Technical Specifications failing which, the Tenderer shall be disqualified from the tender exercise and their tender submission shall be rejected. The CRQ clauses are as below:

| No | Clause No | Clause Description |
|-----|--|---|
| 1. | B1.1 | The proposed solution (NE and CPE) shall be from technology beyond VDSL2 frequency that capable of delivering at least 100M download and 50M upload with additional 15% for buffer at 300m distance. |
| 2. | C1.1 | The NE shall maintain its guaranteed performance when operated continuously with an ambient temperature up to 55°C and relative humidity up to 95% non-condensing. The Tenderer shall submit data sheet or test report upon tender submission |
| 3. | C2.1 | The NE shall be designed to have primary and secondary lightning and surge protection requirement with 6kV and 3kA in accordance to ITU-T K.21 or equivalent. The Tenderer shall submit test report as prove of compliance issued by accredited lab upon LOI issuance for FAT. |
| 4. | C3.2 C3.2.1 C3.2.2 C3.2.3 C3.2.4 C3.2.5 | The Proposed System shall be compatible and interwork without any problem or require any adjustment of the hardware and software to the existing TM's telecommunication network: Metro Ethernet Network IMS for Voice Service IPTV Headend for IPTV service BNG for Internet service ACS for CPE Management |
| 5. | C4.2 C4.2.1 | The NE shall support redundancy for the following components: Uplink Port |
| 6. | C5.1 | NE shall have minimum capacity of 8 ports and shall be mountable to 19 inch rack. |
| 7. | C5.2 C5.2.1 | The Proposed System shall support the below interface for uplink connectivity to Metro Ethernet network: 2x1GE |
| 8. | C5.5 | All supported uplink interface of the system shall support real-time optical power measurement and can be retrieved via CLI and EMS. |
| 9. | C7.1 | For Voice service, the NE shall transparently be able to support SIP protocol to deliver Voice over IP (VOIP). |
| 10. | C8.1 C8.1.1 C8.1.2 | The NE shall support below listed multicast routing protocol: IGMP v3 SSM (as per RFC 3376) : Specific-source multicast IGMP proxy |
| 11. | C13.1 | The solution shall come together with power backup that can support min of 2hours backup up time. |
| 12. | D2.1 | The Element Management System shall be in Graphical User Interface (GUI) which comprises of Fault, Configuration, Performance and Security functions (FCPS). |
| 13. | D2.2.17 | The offered system shall be able to integrate with TM Centralized Authentication System for authentication and authorization services using NetIQ eDirectory 9.0.1 (TM LDAP Directory) with secured LDAPS protocol. The Tenderer shall submit the supporting evidence in the tender submission. |
| 14. | D2.3.2 D2.3.2.1 | The EMS shall be deployed on TM Private Cloud environment with the following specifications: Operating system: i. Red Hat Enterprise Linux (RHEL) 7.2 and above; OR ii. Microsoft Windows Server 2016 and above; OR iii. SUSE Linux - 12 SP1 and above;OR iv. CentOS Linux 7.5 and above The tenderer shall submit the supporting evidence in the tender submission |
| 15. | D5.5 | The offered system shall provide the required northbound interface of any of the followings for the integration to TM OSS/BSS systems: a) SNMP v3 b) REST / RESTful c) FTP / SFTP d) XML Webservices (REST and SOAP) e) CORBA or TL1 f) JMS |

| No | Clause No | Clause Description |
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| 16. | D7.5 | Alarm colour coded. The alarms shall have severity classification and real time updates. These shall be configurable according to TM's requirement as per following: a. Critical - Red b. Major - Amber c. Minor – Yellow The Tenderer shall submit the supporting evidence in the tender submission. |
| 17. | E1.3 | The operation of the offered CPE shall have no impact to the performance of the CPE, its connected devices, TM network and its components. |
| 18. | E2.1.1 | The offered CPE unit shall comply with i) IEC 60950-1,ED.2:2006 (+A1:2009 & +A2:2013) or ii) IEC 62368-1:2018 according to CB Scheme/CE/CSA test procedure. Tenderer shall submit test report as proof of compliance issued by accredited lab upon Statement of Compliance (SoC) submission. |
| 19. | E2.1.2 E2.1.2.1 | The offered CPE's power adapter shall comply with following: Comply to IEC 60950-1, ED.2:2006 (+A1:2009 & +A2:2013) or IEC 62368-1:2018 according to CB Scheme test procedure. The Tenderer shall submit test report as prove of compliance issued by accredited lab upon Statement of Compliance (SoC) submission. |
| 20. | E2.1.2.2 | The Tenderer shall ensure commitment in getting Certificate of Approval (COA) from Malaysia Energy Commission (EC) before Letter of award (LOA) issuance |
| 21. | E2.1.3 | The Tenderer shall affix ST-SIRIM label on power adaptor body or embossed type SIRIM certification mark upon delivery the offered CPE to TM. |
| 22. | E2.3.1 | The performances of the offered CPE shall comply with the EMC standards as stated in Clause E2.3.2 below. The Tenderer shall submit EMC test report as proof of compliance issued by EMC accredited lab upon Statement of Compliance (SOC) submission. |
| 23. | E2.3.3 | The offered CPE shall comply with the over voltage and over current of the ITU-T K.21 requirement. The sample that comprise of CPE WAN port, power adapter and splitter shall be tested with 6kV and 3kA as accordance to ITU-T recommendation. The Tenderer shall submit test report as prove of compliance issued by accredited lab upon LOI issuance for FAT. |
| 24. | E3.1.1 E3.1.1.1 E3.1.1.2 | The offered CPE shall support the following IP connection type: Point to Point Protocol over Ethernet (PPPoE) as defined in IETF RFC 2516 Ethernet Bridge as defined in IETF RFC 2684 |
| 25. | E3.1.2 E3.1.2.1 | The offered CPE shall support the following IP assignment via Dynamic Host Configuration Protocol (DHCP): Dynamic IP |
| 26. | E3.2.1 E3.2.1.1 E3.2.1.2 E3.2.1.3 | The offered CPE shall support the following services simultaneously without degrading the service quality: High Speed Internet (HSI) IPTV services in High Definition (HD), Standard Definition (SD) and 4K format via multicast and unicast network. Voice over broadband |
| 27. | E3.2.6 | The offered CPE shall support IGMPv3 as defined in IETF RFC 3376. |
| 28. | E3.3.1 | The offered CPE shall support IP version 4 and IP version 6 in dual-stack mode. |
| 29. | E3.3.3 E3.3.3.1 | The implementation of IPV6 shall follow the below sequences: Stateless Address Auto configuration (SLAAC) (RFC 4862) or stateless DHCPv6 (RFC5736) for LAN interface. |
| 30. | E3.4.1 E3.4.1.1 E3.4.1.2 E3.4.1.3 E3.4.1.4 E3.4.1.5 E3.4.1.6 | The offered CPE shall have minimum the following physical interfaces: Four (4) RJ45 Gigabit Ethernet (GE) LAN port One (1) RJ11 WAN port Two (2) RJ11 FXS ports - for VoBB ON/OFF power button Hard reset button Power port |

| No | Clause No | Clause Description | | | | |
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| 31. | E3.5.1 E3.5.1.1 E3.5.1.2 E3.5.1.3 E3.5.1.4 | The offered CPE shall be compatible and interwork without any problem or require any adjustment of the hardware and software to the existing TM's telecommunication network: IMS for Voice Service IPTV Headend for IPTV service BNG for Internet service ACS for CPE Management | | | | |
| 32. | E3.7.2 E3.7.2.1 E3.7.2.2 E3.7.2.3 | The offered CPE shall have the capability to be managed by any Auto Configuration Server (ACS) as accordance to the below Broadband Forum compliance: TR-069 TR-181 TR-143 | | | | |
| 33. | E3.7.6 | The offered CPE shall verify its conformance to the requirements defined in TR-069 specification and various data-models and shall pass the TM ACS TR-069 Interoperability Test to be accepted in TM's network. | | | | |
| 34. | E3.7.9 | The offered CPE shall verify its conformance to the requirements defined in TR-181 specification. | | | | |
| 35. | E3.7.10 | The offered CPE shall support TR-143 to support multi-thread upload and download diagnostics. | | | | |
| 36. | E3.8.1 | The offered CPE shall support dual band Wi-Fi 2.4GHz and 5GHz frequency band concurrently and comply with the IEEE 802.11a/b/g/n/ac Wi-Fi Standard. | | | | |
| 37. | E3.8.2 | The offered CPE shall obtained Wi-Fi Alliance latest Wi-Fi CERTIFIED™ certificate. The Tenderer shall submit the Wi-Fi CERTIFIED™ certificate before Letter of Award (LOA) issuance. | | | | |
| 38. | E3.8.3 E3.8.3.1 E3.8.3.2 | The offered CPE shall support minimum 2x2 MIMO with the following minimum Phy rate based on IEEE 802.11: 300 Mbps minimum Phy rate for 2.4 GHz 867 Mbps minimum Phy rate for 5 GHz | | | | |
| 39. | E3.8.4 | The offered CPE shall comply with the max EIRP for Wi-Fi interface for all relevant bands on 2.4GHz (up to 500mW) and 5GHz (up to 1W) as per defined in MCMC spectrum management document (Guideline on the Provisioning of WLAN Service). The Tenderer shall declare the maximum transmit power of the Effective Isotropic Radiated Power (EIRP) and provide the datasheet or test report document upon SoC submission. | | | | |
| 40. | E3.8.5 E3.8.5.1 E3.8.5.2 E3.8.5.3 E3.8.5.4 | The offered CPE's Wi-Fi shall operate in the below frequency bands: 2400 MHz to 2500 MHz 5150 MHz to 5350 MHz 5470 MHz to 5650 MHz 5725 MHz to 5875 MHz | | | | |
| 41. | E3.9.1 E3.9.1.1 | The offered CPE shall interwork with TM IMS with the following baseline standards: IETF RFC 3261 (SIP: Session Initiation Protocol) | | | | |
| 42. | G1.3.2 G1.3.2.1 | Restoration time as required in the table below: Requirement and turnaround for fault categorize under critical Table G1: Requirement for Critical Alarm <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Description/Examples</th> <th style="width: 30%;">Requirements</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> • The fault directly affects the services provided and/or significantly restricts TM's ability to operate the network and/or the subscriber is affected immediately. • All revenue impacting faults are 'Critical' but not all 'Critical' faults are revenue impacting • Examples (including but not limited to): <ul style="list-style-type: none"> • Complete or partial failure of Network Element or throughout the network, all services totally down • Network Element offline or Loss Communications, all services totally down • Network Element faulty, traffic doesn't switch to protection • Network modules/interface cards faulty, critical impact to customer services • Complete or partial failure of overall on-line /off-line network performance and data collection capability (EMS) </td> <td> <p><u>For NE</u></p> <ul style="list-style-type: none"> • Within 2 hours after notification from TM for Klang Valley and State Capital. • Within 8 hours after notification from TM for area other than Klang Valley and State Capital <p><u>For EMS/NMS</u></p> <ul style="list-style-type: none"> • Within 2 hours after notification from TM </td> </tr> </tbody> </table> | Description/Examples | Requirements | <ul style="list-style-type: none"> • The fault directly affects the services provided and/or significantly restricts TM's ability to operate the network and/or the subscriber is affected immediately. • All revenue impacting faults are 'Critical' but not all 'Critical' faults are revenue impacting • Examples (including but not limited to): <ul style="list-style-type: none"> • Complete or partial failure of Network Element or throughout the network, all services totally down • Network Element offline or Loss Communications, all services totally down • Network Element faulty, traffic doesn't switch to protection • Network modules/interface cards faulty, critical impact to customer services • Complete or partial failure of overall on-line /off-line network performance and data collection capability (EMS) | <p><u>For NE</u></p> <ul style="list-style-type: none"> • Within 2 hours after notification from TM for Klang Valley and State Capital. • Within 8 hours after notification from TM for area other than Klang Valley and State Capital <p><u>For EMS/NMS</u></p> <ul style="list-style-type: none"> • Within 2 hours after notification from TM |
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|--|--|---|----------------------|--------------|--|--|
| | G1.3.2.2 | <p>Requirement and turnaround for fault categorize under major</p> <p>Table G21: Requirement for Major Alarm</p> <table border="1"> <thead> <tr> <th>Description/Examples</th> <th>Requirements</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> A software or hardware problem that produces operation, service and network degradation affecting the main functions of the system and/or the fault threatens to become Critical if not corrected A 'Major' fault is non-revenue impacting Examples (including but not limited to): <ul style="list-style-type: none"> Network Element faulty, causing service or network degradation Network Element processor faulty, service resume via protection Power supply module faulty Cooling fan faulty Major or severe degradation of overall on-line /off-line network performance and data collection capability (EMS) </td> <td> <p><u>For NE</u></p> <ul style="list-style-type: none"> Within 6 hours after notification from TM Klang Valley and State Capital. Within 12 hours after notification from TM for areas other than Klang Valley and State Capital <p><u>For EMS/NMS</u></p> <ul style="list-style-type: none"> Within 4 hours after notification from TM </td> </tr> </tbody> </table> | Description/Examples | Requirements | <ul style="list-style-type: none"> A software or hardware problem that produces operation, service and network degradation affecting the main functions of the system and/or the fault threatens to become Critical if not corrected A 'Major' fault is non-revenue impacting Examples (including but not limited to): <ul style="list-style-type: none"> Network Element faulty, causing service or network degradation Network Element processor faulty, service resume via protection Power supply module faulty Cooling fan faulty Major or severe degradation of overall on-line /off-line network performance and data collection capability (EMS) | <p><u>For NE</u></p> <ul style="list-style-type: none"> Within 6 hours after notification from TM Klang Valley and State Capital. Within 12 hours after notification from TM for areas other than Klang Valley and State Capital <p><u>For EMS/NMS</u></p> <ul style="list-style-type: none"> Within 4 hours after notification from TM |
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6. All Tender submissions must reach the above address on the Tender Closing Date and time as detailed out in the Tender Advertisement.
7. The Tenderer shall deposit a sum of **RINGGIT MALAYSIA Twenty Thousand Only (RM20,000.00)** as a Tender Deposit and to be submitted in the Tender Proposal during Tender Closing Date.
8. Mandatory Tender Requirements
 - i) The Tender is open to any Principal / System Integrator (SI) or Authorized Distributor of Copper Technology with experience in copper deployment in telecommunication companies.
 - ii) The Principal is allowed to submit a maximum of one (1) proposal only, if the Principal participates directly OR;
 - iii) For participation through the SI / Authorized Distributor, the Principal is allowed to submit a maximum of two (2) proposals only.
 - iv) Only Tenderer who purchases the Tender Document shall be allowed to participate in this Tender.
 - v) If the award is made to the non-local company ["Successful Company"], such Successful Company shall either set up their local office in Malaysia, or to select their local partner / local distributor for the purpose of this project.

COMPANY INFORMATION

Tender Title:

TENDER FOR THE PLAN, DESIGN, SUPPLY, DELIVERY, INSTALLATION, TESTING, COMMISSIONING, INTEGRATION AND COMPREHENSIVE MAINTENANCE SUPPORT SERVICES OF ENHANCED COPPER TECHNOLOGY AND ITS ELEMENT MANAGEMENT SYSTEM FOR TELEKOM MALAYSIA BERHAD (“TM”)

Tender Ref:

CATX/2019/T/5/ENHANCED COPPER

| | |
|---------------------------------|--|
| Company Name and Address | |
| Officer Name: | |
| Tel. No (Office): | |
| Hand phone No: | |
| Email: | |
| Date: | |
| Time: | |

.....
Signature of Contractor/Supplier
Name in Full:
I/C No:
Designation:

NON-SOLICITATION UNDERTAKING LETTER

Date:

TELEKOM MALAYSIA BHD
LEVEL 51, NORTH WING,
MENARA TM,
JALAN PANTAI BAHARU,
50672 KUALA LUMPUR.

Dear Sirs,

TENDER TITLE: TENDER FOR THE PLAN, DESIGN, SUPPLY, DELIVERY, INSTALLATION, TESTING, COMMISSIONING, INTEGRATION AND COMPREHENSIVE MAINTENANCE SUPPORT SERVICES OF ENHANCED COPPER TECHNOLOGY AND ITS ELEMENT MANAGEMENT SYSTEM FOR TELEKOM MALAYSIA BERHAD (“TM”)

TENDER REF : CATX/2019/T/5/ENHANCED COPPER

With reference to the abovementioned tender, we (including our employees, agents, sub-contractors and representatives) hereby unconditionally and fully agree that we will not offer, promise or make any gift, payment, loan, reward, inducement, benefit, or other advantage to any of TM’s employee, members of the Board of Directors, representatives and agents, for purposes of illicit gratification, reward, benefit or advantage in connection to or arising out of the abovementioned tender.

Further, we recognize that such practice is in violation of TM’s policies and the Anti-Corruption Act 1997 (Act 575) and hereby warrant and undertake not to utilize and/or solicit any information or assistance offered by any persons or companies or allow the existence or the continuation of such practice for purposes of any TM’s Tender and/or Contract.

And Further, we hereby acknowledge and agree that any contravention of this undertaking, may result in the rejection or disqualification of the abovementioned tender submission and/or termination of Contract by TM, which TM has the sole rights and prerogative to make such decision.

.....
Signature of Contractor/Supplier
Name in Full:
I/C No:
Designation:
Company’s Name:

In the capacity of duly authorized
To sign for and on behalf of
Company’s seal or stamp

(The signatory must be an authorized person with written authorization from the Company)