



TERMS OF REFERENCE

PROCUREMENT OF SERVICES FOR
INTERNET CONNECTIVITY AT MARINA-
CENTRAL OFFICE

I. INTRODUCTION

The Maritime Industry Authority (MARINA) was created on 01 June 1974 as an attached Agency to the Office of the President (OP) with the issuance of Presidential Decree No. 474, otherwise known as the Maritime Industry Decree of 1974, to integrate the development, promotion and regulation of the maritime industry in the country. With the creation of the Ministry (now Department) of Transportation (DOTr) by virtue of Executive Order No. 546, the MARINA was attached to the DOTr for policy and program coordination on 23 July 1979. By virtue of Republic Act No. 10635, the Maritime Industry Authority (MARINA) is established as the "Single Maritime Administration" responsible for the implementation and enforcement of the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, as amended, and International Agreements or Covenants related thereto.

One of the major requirements of the information system being used by the MARINA Office is the availability of internet facility that has efficient capability to access electronic data and information from different sources and share electronic data and information to the MARINA Central Office to the regions for the processing and issuances of various certificates and online registration and viewing of records by the seafarers.

II. RATIONALE

GPPB Guidelines on the Procurement of Water, Electricity, Telecommunications and Internet Service Providers (ISPs), states that:

"3.3.1.2 At the end of each year, however, the procuring entity must assess the quality of service provided by its ISP. For instance, it must compare the cost charged by its ISP and the range of service it offers as against other service providers in the area. It may also consider new technologies that may prove less costly. In assessing the quality of service provided by its ISP, procuring entities are encourage to consult the National Telecommunications Commission, or the Information and Communication Technology Office, or other relevant government agencies regarding any new policy or directive in the implementation or use of new technology."

Considering the above premise, upon verification of the current market prices and the quality of service for internet connectivity, as well as, its internal policies, the MARINA can acquire an internet connection viz the allocated budget for the implementation. Thus, this Terms of Reference (TOR).

III. OBJECTIVE

The objective of this procurement is to provide a fast and reliable internet connectivity to MARINA Central Office.

IV. APPROVED BUDGET FOR THE CONTRACT

The Approved Budget for the Contract (ABC) for the project is **ONE MILLION PESOS (P1,000,000.00)** inclusive of all applicable government taxes and charges.

V. DEFINITION OF TERMS AND ACRONYMS

1. IP – Internet Protocol is a communication protocol for network interconnection boundaries.
2. CIR (1:1) – Committed Information Rate, one is to one – a guaranteed equal internet bandwidth and data rate for both downstream and upstream at all times.
3. Mbps–Stands for millions of bits per second or megabits per second. It is a total information flow over a given period of time over a telecommunication medium.
4. ISP – Refers to the Internet Service Provider authorized and capable in providing high quality and reliability internet connectivity.
5. Datacom – Data Communication facility of the Maritime Industry Authority (MARINA) Central Office.
6. TCP/IP – Refers to Transfer Control Protocol/Internet Protocol, is a networking model protocol used for the internet and similar network.
7. SIP – Session Initiation Protocol, a signaling communication protocol widely used for controlling multimedia communication session such as the Voice over Internet Protocol (VoIP).
8. MRTG – Multi Router Traffic Grapher is a data usage monitoring software application for internet connectivity.
9. DNS – Domain Name Server, a hierarchical distributed naming system or a private network.
10. CPE – Customer Premises Equipment, generally refers to devices to be provided and installed by the ISP to end-user that enable to access internet service.
11. TCBH – refers to the Time Consistent Busy Hours, the period by which the average traffic of the resource group concerned is greatest over the day under consideration.
12. PACKET LOSS – the percentage of data “packets” sent to a server that never arrived.
13. PING – is the measure of how long it takes a “packet” of data to travel from computer terminal to the server and back.
14. JITTER – is the variance in successive ping measurements.
15. MARINA – Maritime Industry Authority
16. STCW – Standards of Training, Certification and Watchkeeping

VI. TECHNICAL REQUIREMENTS

1. System Configuration

- The network must be in mesh configuration to ensure the seamless high quality of connectivity.
- Should have a Committed Information Rate of 1:1 unlimited internet connection to/from MARINA – STCW Office with at least 99.5% uptime service availability and both download and upload stream is the same as specified at all times.
- The internet connection must be a dedicated telecommunication link from the ISP to MARINA Central Office with following Quality of Service (QoS) parameters:

Parameters	Minimum QoS
1. Bandwidth Utilization/Throughput	<ul style="list-style-type: none">• 95% link(s) / route bandwidth utilization during peak hours (TCBH). If on any link(s)/route bandwidth utilization exceeds 90%, then network is considered to have congestion.
2. Broadband Connection Speed	<ul style="list-style-type: none">• At least 80% (non-dedicated) and 95% (dedicated lines) speed of connection (up/down stream) from ISPs server to the subscriber shall be achieved fulltime (24/7). Connection speed must be measured from the ISP Provider's ONT (Optical Network Terminal) or CPE.
3. Network Latency	<ul style="list-style-type: none">• The round trip delay for traffic within the local broadband network from end-user to ISP/IX should be less than 150 ms for 95% peak time
4. Service Availability	<ul style="list-style-type: none">• Greater than 99% of the time, network shall be available to the subscribers.
5. Service Delivery / Setup	<ul style="list-style-type: none">• Service delivery should be in less than Fifteen (15) days from the release date of the purchase order.
6. Provide Value-Added Services	<ul style="list-style-type: none">• Provider should be able to offer IP telephony services such as intranet and local voice communication system.• Provide and install 24 pcs. Wifi Access Points from GF to 12th Floor.

- All static IP addresses for MARINA must be provided with primary and alternate IP address as well as all Domain Name (DNS) of the ISP.

- All significant settings and configurations of all devices such as CPEs (modems, routers, network adaptor, network access gateways, and the like) must be provided by the ISP to MARINA including settings and configurations for back-up devices.
- ISP must submit a detailed work plan specifying installation design, detailed activities with timeline, connectivity diagram from end user premise up to the last mile in order to determine compatibility with the existing systems and/or building electrical power requirements.
- Install last mile cabling and termination block/box with lightning protection unit outside and within MARINA – STCW Office and premises necessary in establishing connectivity between ISPs network and the Network Terminal of the MARINA – STCW Office without extra cost to the MARINA.
- Provide 24/7 basis hotline technical support assistance in troubleshooting issues affecting the internet connection.
- Provide 24/7 monitoring tool available online that would show historical and real-time performance of the Internet service (MRTG).

2 Technical Requirements and evaluation parameters

Direct Internet Connection Parameter	Evaluation Parameter
Setup dedicated direct internet connection with a minimum 200 Mbps at MARINA – STCW Office	At least CIR full bandwidth (1:1) 200 Mbps for MARINA Central Office
Provide and install CPE and Router at both ends of the internet connection	Conduct Configure/Testing and commissioning per Channel Service Unit (CSU)/Data Service Unit (DSU) Modem/Router
Configure backup router in case of breakdown	Conduct Configure Testing and Commissioning of back-up router (stand-by)
Assign Public Internet Protocol (IP) Addresses to MARINA – STCW Office	Provide at least a minimum of 10 usable public IP Addresses for the first 6 months. Hence, additional 10 usable IP will be provided.
Provide Domain Name Server (DNS) reverse lookup for entries with the assigned classless network	Fast and Reliable DNS reverse-look up
Provide reliable forwarding and secondary DNS	Fast and Reliable Forward and Secondary DNS
Provide the termination block/box from end-user to last mile connection	Install and terminate cable of block/box with lighting protection unit at MARINA Central Office
Availability and Quality of Connection	Not less than 99.7% link uptime per month

Latency (Delay)	Not more than 80 milliseconds average round trip from end-user to ISP port Not more than 200 milliseconds average round trip from ISP to outside or international ISP port.
Packet Loss	Must be within 0 to 1%
Jitter	Must be lower than 80 milliseconds
Measured Network Quality	Grade equivalent to A
Provide available single point of contact for customer support for Marina-STCW Office	Provided account manager/officer as a single point of contact for local customer support
Install monitoring tool for access/usage report of monthly utilization graphs (MRTG) to desktop computer to provided by MARINA	24/7 operational desktop computer with MRTG at MARINA-STCW Server Room facility with full network administration access
Provide proactive notice of scheduled downtimes or service interruption	Not less than 7 days
ISP shall notify the MARINA – STCW ICTMD in writing prior to the required inspection/ testing of internet service	Must be received seven (7) days prior to testing
Render customer service support	24 hours x 7 days
Provide “Performance Credit” or rebate in the Service Level Agreement (SLA)	Performance Credit
Provide detailed work plan	Detailed work plan timeline

VII. GENERAL GUIDELINES FOR EVALUATION AND SELECTION OF PROPOSAL

1. Commercial Availability of the Service

The ISP's proposed system solution must be commercially available at MARINA – STCW Office with location/address:

No	Office/Unit	Min BW Required	Graphical Coordinates (Latitude / Longitude)		Physical Address
1	MARINA Central Office	200 Mbps			Port Area, Manila

2. ISP Qualification Requirements

It is important that the ISP of the proposed system solution have sufficient experience and resources required to support the Marina's current and future communications needs. The ISP must provide the following information:

- Must be a ISP/Telco Company that has its own core data network running over its own domestic fiber optic backbone network.
- Must have the capacity and ability to provide maintenance services and technical support.
- ISP must have at least 95% existing fiber optic connection from their central terminal switch to MARINA Office.
- Should submit copies of Client Satisfactory Certificates from at least three (3) clients each for the last three (3) years for similar contracts. Similar contract refers to the minimum bandwidth service specified in this project.

3. Technical Requirements

- The bidder shall submit a certification issued by The National Telecommunications Commission (NTC) supporting that the company is a certified ISP/Telco.
- Shall submit undertaking that the company has the capability and ability to provide maintenance service during the period of subscription.
- Shall provide technical personnel to service the communication link and equipment.
- Shall provide Help Desk (on-call and on-site support) 24x7 including holidays.
- Provide technician and service units in case of pull-out within 24 hrs after a problem has been reported for sites within Metro Manila and its resolution time without additional cost to MARINA.
- Shall submit Certificate of Employment with respective valid professional certificates of at least two (2) Certified Network Associates.
- Shall submit network layout labeled as EE Plan 1-1 showing connectivity from end-user's data terminal facility up to the last mile duly signed by Licensed Electronics Engineer (EE) with his/her valid Professional Tax Receipt (PTR) and PRC ID.
- Shall provide detailed work plan specifying installation design, detailed activities and timelines must be duly signed and sealed with Licensed Electronics Engineer (EE) with his Professional Tax Receipt and valid PRC ID.
- Shall submit an undertaking to have complied with Technical Requirements/Evaluation Parameters specified at Section VI of this TOR.

VIII. SCOPE OF WORK

The project covers the delivery, installation, testing, maintenance, documentation and support of Wide Area Network (WAN) Services – Internet Connectivity for a period of 10 months (Internet connectivity at MARINA Central Office) It involves the following:

1. Engagement of secondary ISP from MARINA Server Room facility.
2. Integration of the proposed internet connections to existing MARINA network infrastructure. The winning ISP bidder/s shall provide necessary hardware, terminations and other services required to setup the internet connection. Details of the technical requirements are indicated in Section IX of this TOR.
3. Provision of diagnostic reports and updates in case of connection failure.
4. Provision of monthly utilization graphs and/or MRTG tool for monitoring of link quality and bandwidth utilization to be installed at agency's provided PC at MARINA server room.
5. Delivery of an IPV6 ready and/or compliant connection.
6. Provision of 24/7 support service.
7. Entering into a Service Level Agreement which defined parameters of rebates for non-performance and other conditions set in this TOR.

IX. DUTIES AND RESPONSIBILITIES OF THE ISP

1. Pre-Installation

Provide detailed work plan with timeline specifying installation design, detailed activities, network diagram showing connectivity from end users Network Terminal Cabinet MARINA Central Office up to the last mile.

2. Actual Installation

- a. Set-up Internet Connection with the Committed Information Rate (CIR1:1) of 200 Mbps for MARINA Central Office both upstream and downstream network traffic flows at MARINA Server Room facility.
- b. Provide and install a CPE devices (CSU/DSU and Router) at both ends of the Internet connections.
- c. Provide internet connectivity directly to end user's data network terminal facility, including materials needed for the purpose. This provision for the installation of lighting protection system and cables/insulations using industry standards and materials.

- d. Complete the delivery, installation, configuration, commissioning and testing in less than 15 calendar days from the receipt of the Notice to Proceed (NTP). Any extension shall be requested in writing to MARINA-BAC through the TWG for ICT.

3. Configuration

- a. Configure CPE for dedicated direct internet speed connection.
- b. Assign at least 20 usable hosts public Internet Protocol (IP) address to the MARINA Central Office.
- c. Configure backup router, if any.
- d. Provide DNS reverse lookup for entries with the assigned classless network.
- e. Provide reliable Forwarding and Secondary DNS.
- f. Provide/install MRTG monitoring tool with full network administration access for monthly usage report graphs, link quality and bandwidth utilization to Desktop PC which will be provided by MARINA Central Office at its Server Room facility.
- g. Router Specifications:
- Wire-speed performance for concurrent services such as security and voice, and advanced services to multiple 100/1000BT rates.
 - Enhanced investment protection through increased performance and modularity
 - Increased density through Gigabit WAN Interface Card Slots (four)
 - Enhanced Network Module Slot
 - Support for majority of existing AIMs, NMs, WICs, VWICs, and VICs
 - Two Integrated 100/1000 Fast Ethernet ports
 - Optional Layer 2 switching support with Power over Ethernet (PoE) (as an option)
- h. Security
- On-board encryption
 - Support of up to 1500 VPN tunnels with the AIM-EPII-PLUS Module
 - Antivirus defense support through Network Admission Control (NAC)
 - Intrusion Prevention as well as stateful IOS Firewall support and many more essential security features
- i. Wireless Access Point Specifications:
- Locations of Wireless Access Points (WAPs) in all buildings and offices must be optimal to achieve total performance desired throughput.
 - WAPs have to be small, lightweight and can be securely deployed in a variety of locations such as on walls, cubicles, desktops, and in the ceiling.
 - The WAP antenna diversity should allow for the best possible signal processing using dual, Omni-directional antennas and directional antennas and other type of antennas that will assure signal strength in all areas.

- WAPs should work with centralized wireless controllers to provide a high performance, centrally managed, wireless mobility solution for MARINA's network. WAPs should have an extended lifespan and can be configured manually or automatically across any L2/L3 network, allowing easy upgrades when new features, capabilities, or standards emerge.
- WAPs should function as "thin" WAPs which would provide 802.11n with backward compatibility to a/b/g user access. Functions should also include but not limited to wireless user authentication, link layer encryption, VPN termination. Support roaming and low-latency handoffs between APs, ideal for handling delay-sensitive applications such as voice over wireless.
- WAP 802.11 services must be controllable
- WAPs must supports operation in the radio frequency bands that will take advantage of higher density AP deployment, better overlapping coverage and reduced interference from other technologies (medical equipment, microwave ovens, cordless phones, Bluetooth devices)
- WAPs activity must be coordinated by a wireless centralized controller
- RF Management software must be available to automatically support channel selection, power levels, load balancing and failover
- WAPs minimum and maximum power level must be configurable
- WAPs must support Power-over-Ethernet standard 802.3af
- WAPs must supports 802.11e and Quality of Service (QoS)
- WAPs must support access via Ethernet
- All WAP must include mounting kits

4. Testing Period

- a. The selected ISP shall notify the MARINA in writing seven (7) days prior to the required inspection/testing of the internet service connection.
- b. The acceptance test procedure shall be in accordance with the following:
 - The acceptance testing will be undertaken for a period of seven (7) days.
 - Direct internet leased line / will have no service interruption during the agreed test period.
 - The guaranteed Internet bandwidth with its defined CIR at MARINA – STCW Office should be attained during working hours (6:00 AM to 9:00PM).
 - Average latency should not exceed more than 80 milliseconds average round trip from subscriber to ISP port and not more than 200 milliseconds average round trip from ISP to its international port.
 - MRTG should be in place and operational.
 - Assignment of at least 20 minimum usable public IP Addresses
 - Provider must conduct an Optical Power Meter Test and deliver a result of not more than 30 db.

If any of the foregoing conditions are not met, the count of the testing period shall be restarted until all of these conditions have been duly satisfied continuously for a specified period.

- c. The start of contractors billing shall be based on the date of issuance of "Certificate of Acceptance"
- d. During the testing period, the contractor shall not be held liable for performance degradation / interruption that are beyond its control such as power outages, fluctuations or failure or malfunction of MARINA's own equipment, and/or international/regional wide backbone problem, and Acts of God.
- e. The MARINA shall issue immediately the Certificate of Inspection and Acceptance to the Service Provider upon successful completion of the test and conforms to Section VI and IX.4.b, respectively.

5. Implementation

- a. Shall maintain all equipment in proper working order.
- b. Provide an escalation list and procedure in reporting fault and outages.
- c. Providers must notify MARINA prior to any downtime occurrence or if any case the internet rerouted to a back up link.
- d. Providers must have standby equipment to replace immediately the existing equipment once found defective.

6. Rebates

- a. Provide industry standard Service Level Agreement (SLA) which shall carry a corresponding "Performance Credit" or rebate in favor of MARINA should any of the committed parameters mentioned below is not met.
- b. The ISP provider should be able to render the following services:
 - Availability – Provide 99.7% link uptime per month
 - Latency
 - Provide not more than 80 millisecond average round trip latency from subscriber to ISP provider port; and
 - Provide not more than 200 millisecond average round trip latency from local ISP to International provider port.
 - Customer Service Support – renders 24/7 service support as follows:
 - 30 minutes for emergency tickets for the following categories:
 - Link connection is down

- Packet loss, variation in latency
 - Routing issue
- Three (3) hours response time for technical problem that requires on-site services. For problem reported after 5:00 PM, services shall be rendered 8:00AM of the following day
- c. Rebate schedule for downtime connection interruption/outage – If the interruption is attributed to ISP, as acknowledge by the ISPs Fault Management Center, the ISP shall voluntarily make the appropriate “Performance Credit” or rebate to the MARINA without the need to report or claim on the outage. The credit allowance / rebate shall be applied to the next billing month.

Following are the allowable Credit for Interruptions to service.

1. Interruption of 24 hours or less

Length of Interruption	Credit
Less than 30 minutes (<30 minutes)	None
30 – 179 minutes (30 minutes to 2.9833 hrs)	3/10 day or 0.3 day
180 – 359 minutes (3 hrs to 5.9833 hrs)	3/5 day or 0.6 day
360 – 539 minutes (6 hrs to 8.9933 hrs)	1 1/5 days or 1.2 days
540 – 718 minutes (9 hrs to 11.9833 hrs)	1 4/5 days or 1.8 days
720 – 899 minutes (12 hrs to 14.9833 hrs)	2 2/5 days or 2.4 days
900 – 1440 minutes (15 hrs to 24 hrs)	3 days

2. For interruption over 24 hours, credit will be allowed in 3/5 day multiplied for each 3-hour period of interruption or a fraction thereof over 24hours.

7. Maintenance

- a. Provide a single point of contact for customer support of network connectivity and internet access;
- b. Shall respond to request for maintenance at no cost to MARINA;
- c. Provide not less than 7 days proactive notice of scheduled downtimes, service interruption, upgrades or preventive maintenance, if any; subject to the approval of MARINA and
- d. Submit month access/usage reports to attest compliance to the SLA.

X. DUTIES AND RESPONSIBILITIES OF MARINA

- a. Grant the ISP's authorized representative access to its premises, equipment and facilities located therein to perform its obligations, provided that such representative shall be accompanied by the duly assigned MARINA personnel;
- b. Responsible for the safe custody and use of the equipment installed by the ISP provider.

- c. Monitor the provided services and verify if the equipment under the Service Level Agreement are met and performed by the ISP provider.
- d. Issue Certificate of Inspection and Acceptance as stipulated in Section IX.4.
- e. Pursuant to General Procurement Policy Board (GPPB) Resolution No. 019–2006 dated 06 December 2006, at the end of each year, MARINA will conduct an assessment of the quality of service provided particularly the cost charged by the ISP provider and the range of services it offers against other service providers in the area; and
- f. Conducts assessment/evaluation of the ISP 60 days before the end of the contract. The MARINA may renew the contract for another year depending on the ISP performance.

XI. ACCEPTANCE

Certificate of Acceptance shall be issued after fifteen (15) working days upon completion of the Test and Evaluation, provided all requirements and conditions are met.

XII. DELIVERABLES

ITEM/PARTICULAR	QUANTITIES
a. 200 Mbps CIR 1:1 Internet connection for MARINA– Central Office; IPV6ready	1 lot
b. Usable Static Public IP for MARINA –STCW Office	10 static public IPs
c. Cabling/wiring and connectors	1 lot
d. Modem	1 Unit
e. Router	1 unit
f. Wireless Access Point	24 units

XIII. OTHER REQUIREMENTS

1. ISPs shall provide 1 unit of CPE (modem or its equivalent) to be installed/configured at MARINA Central Office.
2. ISPs shall provide 1unit of Router (VPN ready or its equivalent) to be installed/configured at MARINA Central Office.
3. ISPs shall provide 24units of Wireless Access Point to be installed/configured at MARINA Central Office.

4. Support response time shall not be more than 30 minutes for emergency tickets for following categories, such as, Link Connection, Packet Loss, Variation of Latency and Routing Issue downtimes.
5. Support response time shall not be more than (2) hours for technical problem that requires on-site services upon receipt of the report.
6. Rebate schedules for downtime connection interruption/outage. If the interruption is attributed to ISP and acknowledge by the ISP fault management center, the ISP shall voluntarily make the appropriate "Performance Credit" or rebate which shall be applied to the next billing month without the need to report or claim application on the failure.

XIV. TERMS OF PAYMENTS

Payment shall be made on a monthly basis effective March 2019 to December 2019, subject to submission of billing statement and other supporting documents by the ISP and the issuance of certificate of satisfactory service by the Maritime Industry Authority (MARINA).

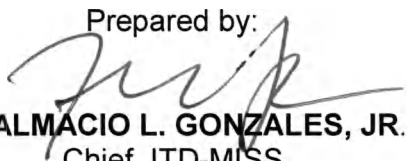
XV. APPLICABILITY

This Terms of Reference shall form part of the contract documents pertaining to the procurement of Internet Service for MARINA.

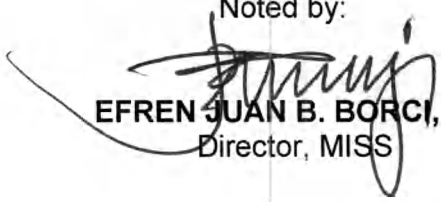
XVI. DELIVERY PERIOD

Fifteen (15) Calendar Days from the receipt of Notice to Proceed (NTP).

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☐ APPROVED

☐ DISAPPROVED


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