

National Center for Mental Health
Nueve de Pebrero St., Mauway, Mandaluyong City

**Integrated Hospital Operations Management Program /
Information Technology Unit**

Terms Of Reference

**Delivery, Configuration, Deployment, Commissioning and Subscription of 300
MBPS Fiber Optic Leased Line Internet Service for Hospital-wide Operations**

I. BACKGROUND

The National Center for Mental Health needs and is inclined in becoming an adaptive, modernized, and innovative health institution to sustain and exceed the requirement of being the mental health reference center of the Philippines, and to fulfill its mandate, through Republic Act No. 11036, also known as the Mental Health Act, to become the premiere training and research center development of interventions on mental and neurological services in the country.

In our current age, digital solutions helped and enabled our institution's existing processes and health services to become much more accessible thus promoting inclusivity to all Filipinos who need mental health interventions. Telehealth programs also enabled an increase in healthcare delivery by utilizing more advanced communication tools that provide expected benefits such as faster access to health professionals, increased time savings for service users, improved access to care ranging from primary to tertiary, and improved opportunity to access healthcare (N M Hjelm 2005). Telehealth programs established in a healthcare facility will not only tackle accessibility to health services but also faster, reliable, and more efficient feedback systems for medical providers and service users (Matusitz, J., & Breen, G.-M. 2007). National Center for Mental Health, at the peak of the COVID19 pandemic, launched remote services called e-Konsultasyon that deliver necessary mental health interventions to our service users when physical and onsite services were shut down. NCMH Telemedicine Programs served its main purpose to bridge the gaps among service users by giving them the convenience to access mental health service providers and mitigating the issues of geolocation of logistics, health facilities, and medical

professionals thus increasing the access to health communication and service on geographically disadvantaged and secluded areas, and indigent service users.

Strengthened digital communication tools can also increase the productivity of the institution through open collaborations in accomplishing hospital projects, tasks, and operations and will help establish better information sharing among NCMH employees. According to Baldwin and Clark, collaborations among employees promote modularity on a certain goal by dividing workloads and partitioning the project into subcomponents and will, later on, provide an improved workplace by making all necessary proprietary information available yet secured to all thus resulting in higher and more efficient business outcomes. Collaborations do not only happen among internal employees through on-premise deployments and internal setups; Remote information sharing with other institutions, government agencies, stakeholders, and branch locations is enabled and strengthened through the cloud and/or online collaboration applications.

Due to the exponential increase in utilization, workstations, and digital solutions, the existing connection bandwidth and speed were not enough to sustain the growing hospital's digital needs and requirements. Moreover, the existing ISP, being the only external connection available to cater to digital communication needs in NCMH exposes a single point of failure in its communication architecture. To empower NCMH's hospital operations, services, and processes through online digital solutions, the hospital needs an additional ISP that will be utilized together with the existing ISP to further improve its bandwidth, reliability, and availability connectivity.

II. OBJECTIVES

This project aims to provide NCMH with existing internet connectivity with the following:

1. High Availability on Internet Connection - Currently, NCMH utilizes only a single internet connection for its daily digital operations so when the existing ISP has internal problems e.g. power loss, data center problems, cybersecurity incidents, maintenance activities, Fiber Optic Connection (FOC) issues and network

operation issues, NCMH will suffer business disruptions. The current network architecture has no secondary or backup connection in place in this kind of emergency incident and exhibits a single point of failure. Through this project, NCMH will be utilizing a secondary internet connection that will serve as the backup connection in case of incidents resulting in improved and strengthened availability of external connection.

2. Seamless, Reliable, and Faster Connections - Through this project, NCMH will utilize two ISPs that will serve as primary and secondary connections with an active-passive redundancy design connectivity. This will provide higher bandwidth and performance as it divides the traffic into two separated external connections.
3. Improve Institution Collaboration – Utilizing reliable and faster internet connectivity enable the ability to have an effective and efficient way of communication in NCMH, whether internally or externally. This paved the way to utilize online digital tools such as video conferencing platforms, cloud office productivity tools, messaging applications, learning portals, and online government-mandated sites resulting in higher efficiency in business functions and productivity. This also results in a wider reach of health care services for instance the NCMH telemedicine programs.
4. Sustainability of External Connections – NCMH as mandated by Mental Health Law to become a premier research and training center in the Philippines requires the institution to become innovative and modernized in its services. This results in the utilization of digital processes and solutions, electronic hospital applications, and online portals that NCMH currently/will offer to its service users.

III. SCOPE OF WORK

1. Provision of Internet Services of Telco Lease line for nationwide coverage.
2. Subscription of Internet connection will be from January to December 2023.
3. Provision of Internet Connection with a CIR of 300 Mbps bandwidth, capable of connecting the whole NCMH network to the Internet, 24 hours x 7 days a week unlimited access to the Internet.
4. Deploy the connection from NCMH data center to the ISP network operations center.

5. Testing of high availability of active-passive redundancy link.
6. ISP must provide 24x7 customer service platforms for reporting if any technical incidents occurred in NCMH internet connectivity.
7. Provision of diagnostic reports and updates in case of connection failure.
8. Provision of monthly utilization graphs and/or MRTG tool for monitoring of link quality and bandwidth utilization.
9. Provision of redundant router/s (any brand, however it must be an active / passive redundancy, leased line modem/s, media converter/s, or similar devices that has a physical connection from NCMH to the Internet.
10. Provision of at least thirteen (13) static public Internet Protocol (IP) addresses.
11. Installation and configuration of internet router with integration to NCMH firewall.
12. Delivery of an IPv6-ready and/or compliant connection.
13. Entering into a Service Level Agreement) which defines parameters of rebates for non-performance, etc.
14. In the events of accidental incidents such as disconnection, loose connections or snapped fiber optic cables that need splicing of cables, the ISP must fix or transfer the connection immediately with no cost.

IV. TECHNICAL REQUIREMENTS

1. Bidders must submit a detailed work plan specifying installation design, detailed activities, connectivity diagram from NCMH premise up to the last mile, and timelines. Service Providers/Bidders are required to conduct site surveys.
2. ISP must be different from the existing ISP of NCMH to ensure redundancy and high availability of NCMH Internet Connectivity.
3. Provide a primary and secondary forwarding DNS.
4. Prospective telco/ISP must not be an existing provider of NCMH to ensure high availability thus preventing single point of failure on its network architecture.
5. ISP must setup and deploy a dedicated direct internet connection at NCMH with at least 300 Mbps Committed Information Rate (CIR) burstable to 320 Mbps bandwidth using Fiber Optic Leased Line Connection.

6. ISP must implement and configure the redundant routers using an active-passive redundancy link for 300 Mbps Direct Internet Connection to provide high availability and prevent business disruptions due to loss of internet connectivity.
7. Provide 13 useable Public IP Addresses.
8. ISP must ensure at least 99% link uptime in a month to provide availability and quality of connection.
9. Ensure the Latency/Delay is not more than 80 ms average round trip from NCMH to ISP port and not more than 200 ms average round trip from ISP port to US/international ports.
10. Provide a single point of contact for customer support in areas of connectivity and internet access that will submit monthly access/usage reports through MRTG.
11. Providers must have proactive notice of scheduled downtimes or service interruptions not less than 5 days.
12. Providers must have a 24x7 customer service/call center to ensure customer support during incidents.
13. ISP must provide rebates and refunds when it did not meet the Service Level Requirements (SLA).
14. Contractors must present detailed work plans including network architecture, and physical layouts prior to project implementation.

V. EXPECTED DELIVERABLES

1. Plan of activities that include inception plan and work plan;
2. 300 MBPS, that can be boosted to 320 MBPS, digital leased line connections;
3. Unlimited Full internet access;
4. 13 useable public IP Addresses;
5. Active-Passive Redundant Internet Link with fully functional Routers; Provide at least one standby router in case of failure;
6. Testing results such as high availability, failure/redundancy, and connection/speed must be provided; and
7. Monthly reports such as traffic and usage through MRTG must be provided to NCMH.

VI. DUTIES AND RESPONSIBILITIES OF THE INTERNET SERVICE PROVIDER (ISP)

1. Pre-Installation:

- a. Provide a detailed work plan specifying installation design, detailed activities, a network diagram showing connectivity from NCMH up to the last mile, and timelines that will be presented and approved during the kickoff meeting.
- b. Provide the list of technical staff that will be working in NCMH.

2. Actual Installation

- a. Set up Internet Connection with the Committed Information Rate (CIR) connection bandwidth for both upstream and downstream network traffic flows at NCMH Server Room;
- b. Provide and install redundant routers at NCMH Data Center for active-passive internet connectivity;
- c. Provide internet connectivity directly to NCMH data center, including all the necessary materials, equipment, and tools needed for the purpose. This includes provision for the installation of cables/insulation using industry standards and materials; and
- d. Complete the delivery, installation, and configuration within forty-five (45) calendar days from the receipt of the Notice to Proceed. Otherwise, the winning Service Provider/Bidder shall pay the corresponding penalties/liquidated damages in the amount of one-tenth of one percent (1/10 of 1%) of the total contract price for every calendar day of delay.

3. Configuration

- a. Configure the routers to have active-passive redundant link;
- b. Configure routers to the equivalent direct Internet connection speed;
- c. Assign at least 13 usable hosts public Internet Protocol (IP) Addresses or one classless (/28) network to NCMH;
- d. Provide DNS reverse lookup for entries with the assigned classless network;
- e. Provide reliable Forwarding and Secondary DNS; and

- f. Configure all necessary tools, and equipment necessary to the provided design.

4. Testing Period

- a. The selected ISP shall notify NCMH in writing five (5) days before the required inspection/testing of the internet service connection.
- b. Providers must conduct failover testing of the active-passive redundancy link.
- c. The acceptance test procedure shall be by the following:
 - i. The acceptance testing will be undertaken for a period of seven (7) days.
 - ii. Direct Internet leased line/ will have no service interruption during the agreed test period.
 - iii. The guaranteed Internet bandwidth of 300 Mbps Committed Information Rate (CIR) as the primary connection is attained 24/7.
 - iv. Average latency should not exceed more than 60 milliseconds average round trip from NCMH to ISP port and not more than 150 milliseconds average round trip from ISP port to US/International port.
 - v. MRTG should be in place.
 - vi. Assignment of at least 13 usable Public IP Addresses.
 - vii. The provider must conduct a Bit Error Rate (BER) test during the testing period to eliminate cyclic redundancy check (CRC) errors. 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 7 working days.
- d. NCMH shall issue immediately the Certificate of Inspection and Acceptance to the Provider upon successful completion of the testing certifying that the Service Provider conforms to Section V.
- e. Start of Contractor's billing shall be based on the date of issuance of Certificate of Acceptance.
- f. During the testing period, the Contractor shall not be held liable for performance degradation/interruptions that are beyond its control such as power outages, fluctuations or failure or malfunction of NCMH's equipment, and regional/international Internet backbone problems.

5. Implementation

- a. Shall maintain all equipment in proper working order.
- b. Provide an escalation list and procedure for reporting faults and outages.
- c. Provider must immediately advise NCMH of any downtime occurrence or if in any case the internet is rerouted to a backup link.
- d. Provider must have at least one (1) 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 NCMH should any of the committed parameters mentioned below is not met.
- b. The selected ISP Provider should be able to render the following services:
 - i. Availability - Provide 95% link uptime in a month.
 - ii. Latency – Provide not more than 80 ms average round trip from NCMH to ISP port. Provide not more than 200 ms average round trip from ISP port to US/international ports.
 - iii. Render 24 hours x 7 days customer service support.
Support response time
 - 30 minutes for emergency tickets for the following:
 - Link connection is down
 - Packet loss, variation in latency
 - Routing issue
 - Two (2) hours of response time for a technical problem that requires onsite services. For problems reported after 4:00 PM, services shall be rendered at 8:00 in the morning of the following business day.
 - Twenty-four (24) hours response time for DNS technical support requests.

c. Rebate Schedule for Downtime Connection Interruption/Outage

If the interruption is attributed to the ISP, as acknowledged by the ISP's Fault Management Center, the ISP shall voluntarily make the appropriate "Performance

Credit" or rebate to NCMH without the need to report or claim the outage. The credit allowance/rebate shall be applied to the next billing month.

Credit for interruptions to service will be allowed as follows:

Length of interruption	Credit
Less than 30 minutes	None
30 – 179 minutes	3/10 day
180 – 359 minutes	3/5 day
360 – 539 minutes	1 & 1/5 days
540 – 719 minutes	1 & 4/5 days
720 – 899 minutes	2 & 2/5 days
900 – 1440 minutes	3 days

For interruptions over 24 hours, a credit will be allowed in 3/5 day multiples for every 3 hours of interruption or fraction thereof over 24 hours.

7. Maintenance

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

VI. DUTIES AND RESPONSIBILITIES OF NCMH

1. Grant the ISP's authorized representative/s access to its premises, equipment, and facilities therein to perform its obligations, provided that such representative/s shall be accompanied by the IT staff of NCMH.
2. Responsible for the safe custody and use of the equipment installed by the Service Provider.

3. Monitor the provided services and verify if the parameters under the SLA are met and performed by the ISP.
4. Issue Certificate of Inspection and Acceptance.
5. Conduct an assessment on the quality of service provided particularly the cost charged by the ISP and the range of services it offers against other service providers in the area.
6. Conduct assessment/evaluation of the ISP 60 days before the end of the contract. NCMH may renew the contract for another year depending on the ISP's performance.

VII. QUALIFICATION REQUIREMENTS

1. Service Providers/Bidders should be a telecommunications company or owner of a network and have the expertise and five (5) years of experience in Internet service provisioning.
2. Service Providers/Bidders must be able to provide maintenance services and technical support.
3. Service Providers/Bidders must submit copies of Client Satisfactory Certificates from at least three (3) clients each for the last three (3) years for similar contracts. Similar contracts shall refer to 300 Mbps Leased Line Internet connection.

VIII. TERMS OF PAYMENT

1. One-time payment of service charge shall be made after full/complete delivery, installation, configuration, and activation of Internet services within the prescribed period and upon issuance of Certificate of Inspection and Acceptance by NCMH.
2. Succeeding payment shall be made every month for 12 months and subjected to submission of billing statements and other supporting documents by the ISP.

Prepared by:

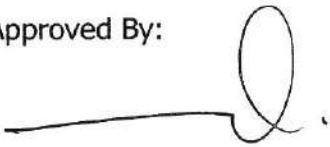


ENGR. WILLIAM WALLACE L. ARIAS, ECE

OIC, IHOMP/IT Unit


CLODUALDO MAGA-AN, JR
Computer Maintenance Technologist II
IHOMP/IT Unit

Approved By:



DR. NOEL V. REYES, MD, FPPA, MMHoA
Medical Center Chief II
National Center for Mental Health