



**RFQ DOCUMENTS**

**For The**

**PROVISION OF CACHE FILL AND CDN MANAGEMENT AT THE MIX**

**For The**

**MALAWI INTERNET SERVICE PROVIDERS ASSOCIATION (MISPA)**

**Subject of Procurement: Provision of Cache Fill and CDN Management at the Mix**

**Submission Date: 15<sup>th</sup> JANUARY 2022**

**SUBMITTED BY:**

**MALAWI TELECOMMUNICATIONS LIMITED (MTL)**

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# Malawi Telecommunications Limited

## HEAD OFFICE

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MALAWI



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E-mail : [info@mtl.mw](mailto:info@mtl.mw)  
Website : [www.mtl.mw](http://www.mtl.mw)  
Customer care : 80 000 211

The Chairman

Malawi Internet Service Providers Association (MISPA)

c/o Malawi SDNP, Room 21, Polytechnic Road

P.O Box 31762

Chichiri, Blantyre 3

Malawi

Dear Sir,

## **RE: PROPOSAL FOR THE PROVISION OF CACHE FILL AND CDN MANAGEMENT AT THE MIX**

Malawi Telecommunications Limited (MTL) would like to express our sincere gratitude to Malawi Internet Service Providers Association (MISPA) for inviting us to submit our proposal for the provision of the above captioned service.

Having examined the requirements of your organization we have compiled an offer set forth in the technical and financial proposal.

We shall supply the services to your organization within thirty days from the date the contract is signed.

Should you require more information please do not hesitate to contact the undersigned.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'H. Gombachika', is written over a circular stamp or seal.

HARRY GOMBACHIKA

**CHIEF EXECUTIVE OFFICER**

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Customer care : 80 000 211

## Qualification Form

Date: 11<sup>th</sup> January, 2022

Submitted By: **Malawi Telecommunications Limited**

1. The work performed providing Services of a similar nature and value over recent years is:

No	Name of Client	Type of Work Performed	Duration and Dates of Contract	Value of contract (Per Annum) MWK
1	National Bank of Malawi	Provision of Internet services and VPN Data Links	2019- Current	1.2 billion
	Directorate of Road Traffic and Safety Services	Provision of Internet and VPN Data Links	2021- Current	336 million
2	Reserve Bank of Malawi (RBM)	Provision of Internet services and VPN Data Links	2014-Current	220 million
3	Standard Bank Malawi	Provision of Internet services and VPN Data Links	2017-Current	336 million
4	My Bucks bank Corporation	Provision of Internet services and VPN Data Links	2018-Current	216 million
5	Malawi Revenue Authority	Provision of internet services and VPN Data Links	2010-Current	180 million

2. The qualifications and experience of key personnel proposed for administration and execution of the Contract are:

Position	Name	Years of Experience (general)	Year of Experience in proposed position
Regional Business Manager	Gift Chapuma	15years	4 years
Senior IP Engineer	Thokozani Peter Kangunga	15 years	10years
Project Management	Fredrick Mswayo	25 years	18 years

4. Banks that may provide references if contacted by the Procuring Entity are: *National Bank of Malawi and Standard Bank*

5. Additional qualification information is attached, as required.

We, the undersigned, declare that

(a) The information contained in and attached to this form is true and accurate as of the date of bid submission.

(b) The originally submitted pre-qualification information remains essentially correct as of the date of bid submission.

Signed:

Name: Dr Harry Gombachika,

In the capacity of Chief Executive Officer Duly authorised to sign the Qualification Form for and on behalf of Malawi Telecommunications Limited

Dated on 13 day of JANUARY 2022



# Malawi Telecommunications Limited

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Website : [www.mtl.mw](http://www.mtl.mw)  
Customer care : 80 000 211

## Price Schedule

Date: 11<sup>th</sup> January 2022

Submitted by: **Malawi Telecommunications Limited**

### a. 100Mbps Transit

Item No.	Description	Quantity	Unit Price	Total Price
1	Cache Fill and CDN Management at Mix	100Mbps	MWK 35,062.50	MWK 3,506,250
			<b>Sub Total</b>	MWK 3,506,250.00
			<b>Excise Duty (10%)</b>	MWK 350,625.00
			<b>Sub Total</b>	MWK 3,856,875.00
			<b>VAT (16.5%)</b>	MWK 636,384.38
			<b>Total (Monthly Recurring)</b>	<b>MWK 4,493,259.38</b>
		Free-Installation		
			<b>Grand Total (Monthly RFQ Price)</b>	<b>MWK 4,493,259.38</b>

b. 200Mbps

Item No.	Description	Quantity	Unit Price	Total Price
1	Cache Fill and CDN Management at Mix	200Mbps	MWK 33,000.00	MWK 6,600,000.00
			<b>Sub Total</b>	MWK 6,600,000.00
			<b>Excise Duty (10%)</b>	MWK 660,000.00
			<b>Sub Total</b>	MWK 7,260,000
			<b>VAT (16.5%)</b>	MWK 1,197,900,00
			<b>Total (Monthly Recurring)</b>	<b>MWK 8,457,900.00</b>
		Free-Installation		
			<b>Grand Total (Monthly RFQ Price)</b>	<b>MWK 8,457,900.00</b>

c. 250Mbps

Item No.	Description	Quantity	Unit Price	Total Price
1	Cache Fill and CDN Management at Mix	250Mbps	MWK 30,937.50	MWK 7,734,375.00
			Sub Total	MWK 7,734,375.00
			Excise Duty (10%)	MWK 773,437.50
			Sub Total	MWK 8,507,812.50
			VAT (16.5%)	MWK 1,403,789.06
			Total (Monthly Recurring)	MWK 9,911,601.56
		Free-Installation		
			Grand Total (Monthly RFQ Price)	MWK 9,911,601.56

Signed.....

Name: Dr Harry Gombachika

In the capacity of **Chief Executive officer**

Duly authorised to sign the bid for and on behalf of **Malawi Telecommunications Limited**

Dated on 13 day of JANUARY, 2022





**TECHNICAL PROPOSAL FOR PROVISION OF CACHE FILL AND CDN MANAGEMENT AT THE MIX**

**TO**

**MALAWI INTERNET SERVICE PROVIDERS ASSOCIATION (MISPA)**

**11<sup>TH</sup> JANUARY 2022**

Abbreviation/Acronyms	Description
IXP	Internet Exchange Point
ISOC	Internet Society
CDN	Content Delivery Network
NOC	Network Operation Centre
MISPA	Malawi Internet Service Providers Association
ASN	Autonomous System
IP	Internet Protocol
SNMP	Simple Network Management Protocol

### 2.1. Project Background

Malawi Internet Service Providers Association operates the Malawi Internet Exchange (MIX) located at College of Medicine in Blantyre. MISPA, with funding from ISOC has a 36 months project effective March 2021 for the transit connection to MISPA CDNs.

MISPA is requesting for eligible Service Providers in Malawi to provide IP transit connection to fill, update the cache and manage transit capacity to CDN's at MIX

Successful service provider will provide a dedicated IP transit from the global internet to CDN's at MIX.

### 2.2. Project Focus

Overall aim of the project is to improve latency and speed of content delivery to internet users in Malawi through the service providers who participate and subscribe at MIX.

This brings many benefits to participating service providers, Internet users and the nation by having content served locally. The project will assist to improve connectivity, efficiency and conserve individual service providers upstream bandwidth. Currently MISPA through MIX is managing the following CDNs currently operational at the MIX; Google Global Cache (GGC), Akamai and Facebook. And the proposed dedicated IP transit will ensure all these CDNs are constantly updated through a reliable internet link.

### 2.2. Project Scope

- Physical connectivity, both locally and physically.
- IP Addressing, Peering and Routing

- Network interface and technical specifications
- Technical requirements
- Testing and acceptance procedures
- Delivery Schedule
- Maintenance, support, fault management and service restoration
- Service level monitoring and reporting

### **2.3. Project Focus**

MTL proposal is under the following assumptions:

- MTL will present an IP interface with IP traffic to the MISPA., who will in turn be responsible for setting up their own internal connectivity.
- Equipment power and cabinet will be provided by MISPA at MIX equipment room.
- IP routing, Security and control measures to service providers will be setup by MISPA.
- The new connectivity will perform within the service level agreements agreed between MISPA and MTL.
- MTL will provide point to point public IP addresses both IPV4 and IPV6 to MISPA. Any extra IP address will be shared upon MISPA request.
- MTL will be responsible for connectivity between MIX towards the internet.

### **2.4. Connectivity Proposal**

MTL has four internet upstream providers in total, two are terrestrial links connecting through Tanzania and Mozambique. And remaining two are aerial links through Zambia. Connectivity through to Zambia boarder is through resilient Escom fiber through electricity power lines. This cable runs direct to our IGW POPs both in Lilongwe City Centre exchange and Blantyre exchange. Terrestrial links through Tanzania and Mozambique links are through OCL.

Tanzania network feeds into the EASSy Indian Ocean submarine cable at Dar-es-Salaam, then on to Europe and currently has 465Mbps of bandwidth. For high availability of services Mozambique link is fed through two legs into MTL, through the Mulanje and Mwanza border. This link has bandwidth of 310Mbps. The third link is through Zambia connecting to Telecom Namibia at bandwidth of 465Mbps this link is connected through Zesco cable. And finally, connection to Cogent which is also through

Zambia route is at bandwidth of 465Mbps. This is connected through Zamtel in Zambia, this cable interconnects with Escom from Chipata through to Zimbabwe boarder to Teraco.

All links through Zambia are through two different backhaul service providers which provides high availability of services.

Combination of four international internet upstream links provides high availability of internet services into MTL. In the pipeline MTL is also working on upgrading internet capacity through Zambia side to 2Gbps within February 2022 through Liquid Telecom.

MTL solution, proposes connecting MISPA to Western Coast of Africa Submarine Cable through either Cogent, Telecom Namibia or Liquid Telecom Teraco datacentre. This being a primary link it will be protected by Mozambique or Tanzania in case all western side connections fails.

Below table contains the physical and data link connectivity for MISPA to MTL POP.

Customer Site	Connects to	Medium	Subscribed Capacity	Link Capacity	MISPA Interface
MISPA – MIX College of Medicine	MTL Chichiri exchange	Fiber	100Mbps – 250Mbps	1G	1GBASE-SR
MISPA – MIX College of Medicine	MTL Stadium exchange	Wireless	100Mbps – 250Mbps	500Mbps	1GBASE-SR

## **2.5. Physical Connectivity**

Proposed solution is designed with focus to not only deliver quality services but also deliver high availability of services.

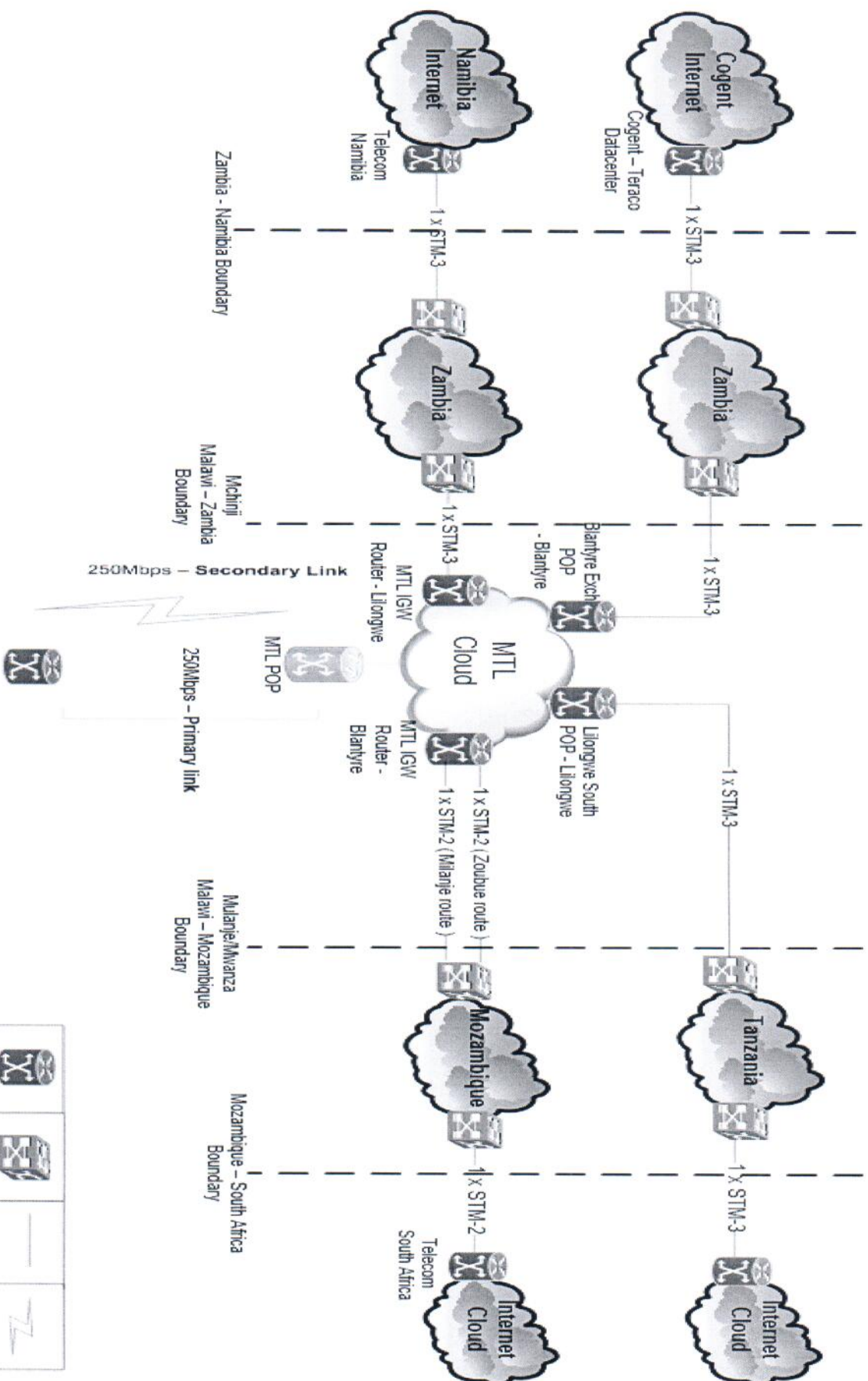
For high availability of services between MTL IP core to MISPA connection, the design is to have two last mile links installed towards MIX which will be terminating from different POPs on MTL side. Primary link will be on fibre from Chichiri MTL POP to MIX and secondary link will be wireless from Stadium Complex POP through to MIX. Proposal of using wireless link from Stadium exchange and fibre from Chichiri exchange will enable protection both connectivity and IP node level.

MTL has MPLS network within Blantyre which is protected in a ring and guarantees high availability of services.

Below diagram shows proposed topology.



# Malawi Telecommunications Limited MSPA IP connectivity



MSPA - MIX

## **2.6. IP Addressing, Peering and Routing**

The assumption is that MISPA does have own ASN and public IP address block from Afrinic.

With the assumption MTL will provide MISPA point to point public IPV4 and IPV6 address to enable point to point connectivity to MISPA.

MTL already has a BGP peering session with all upstream service providers, this enable MISPA traffic to immediately reach all global networks once it lands in MTL network.

## **2.7. Technical Requirements, Network Interface and Technical Specification**

- MTL will handover optic connection to MISPA through 1G Interface and can be upgraded to 10G upon request. MTL will also provide wireless link as a redundant link.
- Quality of service mechanisms will be deployed to support differentiated data services with clearly defined guaranteed bandwidth requirements.
- Traffic profile and network structure will be engineered to meet MISPA requirements.
- MTL will provide dedicated symmetrical bandwidth to MISPA.
- The network will perform within the service level agreements agreed between MISPA and MTL
- Quality of service mechanisms will be deployed to support differentiated data services with clearly defined guaranteed bandwidth requirements.
- IP transit link will have no limitation and will be capable of conveying voice, images, sounds, video, data and all other IP-based telecommunications
- MTL will manage IP transit services.
- All MTL equipment and software will employ and support the IPv4 and IPv6 standards.

## **2.8. Testing and Acceptance Procedures**

MTL, upon completion of services will conduct joint test with MISPA technical experts. Both teams will go through deliverables checklists prior to final service acceptance tests.


















MTL has a procedure of signoff forms upon completion of works, both MTL and MISPA will have to sign form upon satisfaction of delivered services.

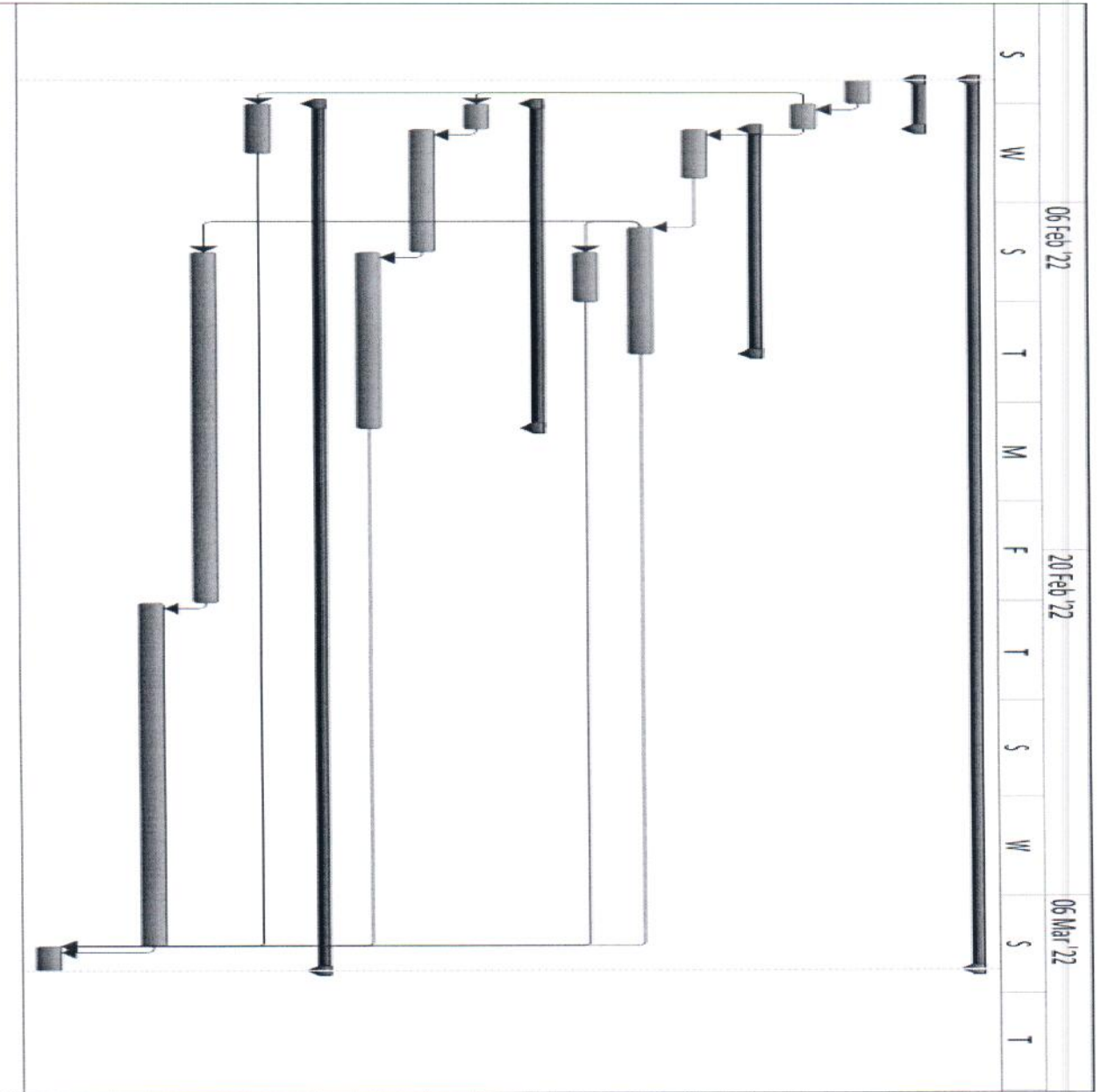
## **2.9. Delivery Schedule**

Upon signing the contract IP transit implementation will take 30 days to be executed. The works are split into 3 phases namely

- Fibre installation
  - This is the primary link to MISPA
- Radio Installation
  - This is a redundant link to MISPA hub
- Routing and IP setup
  - This includes monitoring and fine tuning all emerging issues in the setup.



ID	Task Mode	Task Name	Duration	Start	Finish	23 Jan '22	
						F	T
1		<b>MISPA IP TRANSIT CONNECTIVITY</b>	<b>26 days</b>	<b>Tue 01/02/22</b>	<b>Tue 08/03/22</b>		
2		<b>Contract</b>	<b>2 days</b>	<b>Tue 01/02/22</b>	<b>Wed 02/02/22</b>		
3		Contract awarded	1 day	Tue 01/02/22	Tue 01/02/22		
4		Contract Signed	1 day	Wed 02/02/22	Wed 02/02/22		
5		<b>MISPA - Fiber Installation Activity</b>	<b>7 days</b>	<b>Thu 03/02/22</b>	<b>Fri 11/02/22</b>		
6		Ground works preparations	2 days	Thu 03/02/22	Fri 04/02/22		
7		Cable laying & termination	5 days	Mon 07/02/22	Fri 11/02/22		
8		Switch Installation and testing	2 days	Tue 08/02/22	Wed 09/02/22		
9		<b>MISPA - RADIO Installation</b>	<b>9 days</b>	<b>Wed 02/02/22</b>	<b>Mon 14/02/22</b>		
10		Radio Installation Preparations	1 day	Wed 02/02/22	Wed 02/02/22		
11		Installation of radios both MTL tower and MIX	3 days	Thu 03/02/22	Mon 07/02/22		
12		Radio monitoring testing and commissioning	5 days	Tue 08/02/22	Mon 14/02/22		
13		<b>Routing and IP setup</b>	<b>25 days</b>	<b>Wed 02/02/22</b>	<b>Tue 08/03/22</b>		
14		Peering agreements between MTL and MISPA	2 days	Wed 02/02/22	Thu 03/02/22		
15		Peering configurations with MTL and MISPA and testing	10 days	Tue 08/02/22	Mon 21/02/22		
16		Testing monitoring end to end between MTL and MISPA logical connectivity	10 days	Tue 22/02/22	Mon 07/03/22		
17		Signoff services after successful tests	1 day	Tue 08/03/22	Tue 08/03/22		





### **2.11. Quality of service**

Quality of Service (QoS) mechanisms is employed in the core network to guarantee the contracted bandwidth and contention ratios for MISPA link. MTL will deploy rate limiting mechanisms to ensure that MISPA traffic does not exceed the agreed contractual rate.

### **2.12. Network Management and Monitoring**

MTL has a Network Operations Centre (NOC) located in Blantyre that monitors the MTL infrastructure on a 24x7 basis. In addition, the NOC has network management experts who are available during working hours and on stand-by during non-working hours, holidays and weekends.

MTL shall provide a web interface where MISPA personnel will have access and monitor utilization of the link. This interface will show the graphical utilization of the customer interface for up to one year.



















### **2.13. Fault Management**

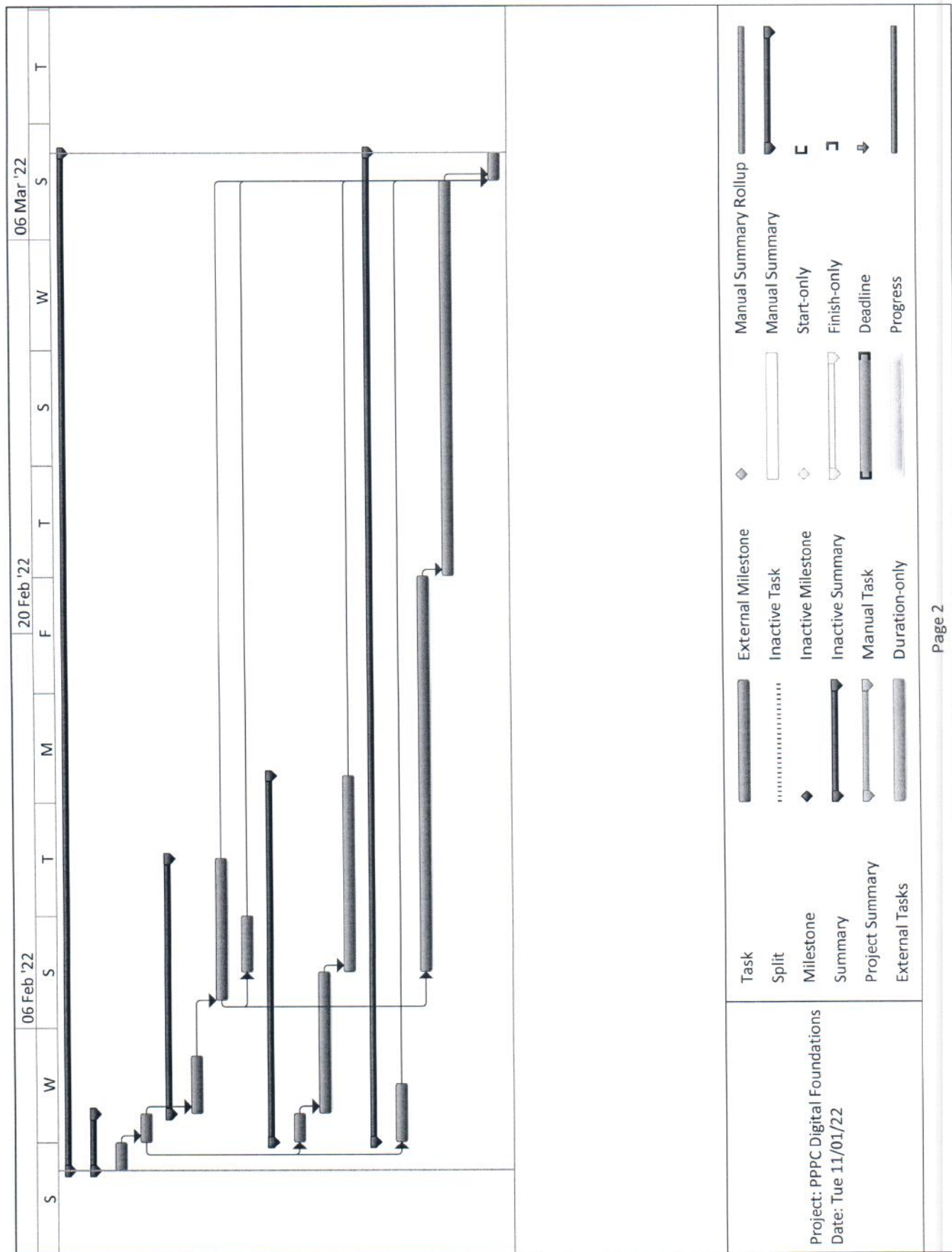
MTL has extensive experience in installing last mile networks. It therefore has a ready pool of resources and experts that work on these links whenever a fault occurs. Teams of experts from our Regional Maintenance Centres work together with the NOC to clear any faults as soon as they occur.

### **2.14. Availability and uptime**

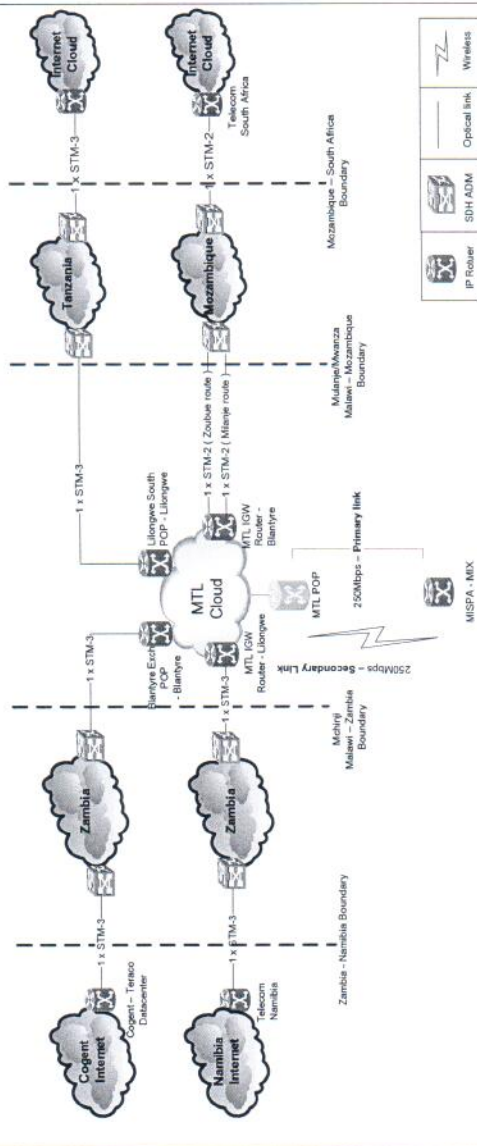
MTL guarantees a service availability of 99.5%. MTL does not make any availability guarantees for network outside it's network or control.

ID	Task Mode	Task Name	Duration	Start	Finish	23 Jan '22	T
1		<b>MISPA IP TRANSIT CONNECTIVITY</b>	<b>26 days</b>	<b>Tue 01/02/22</b>	<b>Tue 08/03/22</b>	F	T
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17		Signoff services after succesful tets	1 day	Tue 08/03/22	Tue 08/03/22		

Project: pPPC Digital Foundations Date: Tue 11/01/22	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	



Malawi Telecommunications Limited  
MISP A IP connectivity





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Website : [www.mtl.mw](http://www.mtl.mw)  
Customer care : 80 000 211

## Escalation Table & Contact Details

Date: 11<sup>th</sup> January 2022

FAULT WITHIN 15 MINUTES	FAULT WITHIN 1 HR	FAULT WITHIN 1 HR 30 MINUTES	FAULT MORE THAN 2 HRS
Corporate Relationship Executive, NOC	HSO, Regional Head, Regional Business Manager, HIS, NOC Manager, HP&I	CCO, COO	CCO, COO, CEO, HIS, HSO, All Regional Heads

CCO : Chief Commercial Officer  
COO : Chief Operations Officer  
HIS : Head of Information Services  
HSSE : Head of Service Strategy and Engineering  
HSO : Head of Service Operations

## Commercial

	Tel No	Mobile No	Email Address
Corporate Relationship Executive	01874111	0882967863	Nyasha.chidoola@mtl.mw
Regional Business Manager	01878533	0882967841	Gift.chapuma@mtl.mw
Head of Customer Relationship	01876458	0882967853	Elias.kaunda@mtl.mw
Chief Commercial Officer	01875720	0882967658	Gladson.kuyeri@mtl.mw
Chief Executive Officer	01875724	0882967655	Harry.gombachika@mtl.mw



### Technical

	Tel No	Mobile No	Email Address
NOC	01873993	0882967796	noc@mtl.mw
NOC Manager	01873652	0882967715	Edward.nkhata@mtl.mw
Head of Service Operations and Network Maintenance	01880435	0882967680	Fredrick.mswayo@mtl.mw
Chief Operating Officer	01875651	0882967660	Patrick.magawa@mtl.mw
Chief Executive Officer	01875724	0882967655	Harry.gombachika@mtl.mw



GOVERNMENT OF MALAWI

COMPANIES ACT  
(No. 19 OF 1984)

COMPANY REGISTRATION No. 5601

**CERTIFICATE OF INCORPORATION**

(SECTION 15)

of MALAWI TELECOMMUNICATIONS LIMITED  
(Private/Public Company)

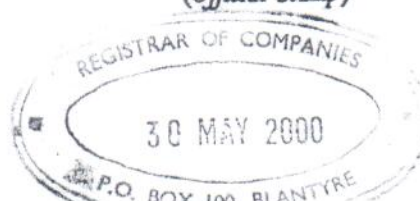
I hereby certify that the above-named company has this day been incorporated under the Companies Act, 1984, and that the company is limited.

Given under my hand at Blantyre, Malawi, this THIRTIETH  
day of MAY, nineteen hundred and TWO THOUSAND

F.E. CHIBISA

Signed: \_\_\_\_\_  
FOR: *Registrar of Companies*  
(Official Stamp)

R.G.





MALAWI REVENUE AUTHORITY

## WITHHOLDING TAX EXEMPTION CERTIFICATE

WTEC No: 39603

Valid only for payments made between 01/07/21 to 31/03/22

Name of holder : MALAWI TELECOMMUNICATIONS LTD

Postal Address : P.O. Box 537  
BLANTYRE

Taxpayer Id. No. : 20160230

Nature of income in respect of which this exemption is issued

- (a) FIXED & MOBILE VOICE SERVICES & CO-SITING <sup>KGS</sup> <sup>SCV</sup>
- (b) DATA COMMUNICATION SERVICES INCLUDING INTERNET
- (c) INTERNATIONAL CONNECTION SERVICES, IMPORTS
- (d) VALUE ADDED SERVICES, SALE OF PREPAID CARDS
- (e) SALE OF DATA & VOICE ACCESS EQUIPMENT

Designation of Issuing Officer : Station Manager Commissioner General

Signatures :  



### NOTES:

- (1) This Certificate authorizes payment to the holder of the full amount of payment to which section 102A of the Act applies without deduction there from of withholding tax.