



ZICTA

Model Interconnection Offer

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Background

The Zambia Information and Communications Technology Authority has developed the Model Interconnection Offer in consultation with the industry stakeholders. The purpose of the Model Interconnection Offer is to guide the ICT market players as they engage in matters relating to interconnection.

1 Objectives

Introduction

In the absence of established and approved Reference Interconnect Offers (RIOs) from the main electronic communications operators in Zambia this document sets out a composite, Model Interconnection Offer (MIO) considered by the Zambia Information and Communications Authority to include the elements essential to promote a competitive and developing electronic communications market and to stimulate appropriate investment in networks and services.

The document includes a wider range of interconnection services than most operators would be able, or expected, to offer. It is intended as an example, from which the appropriate services would be selected to create an example with which an actual offer and agreement can be compared. The existence of the model is intended to help the industry understand what is expected of them under the Authority's Regulations, and to help new and recent entrants understand the range of services that are, or could be, available to help them develop their business, together with a view of the terms, conditions and tariffs that could be expected at an early stage in the development of their business plans.

The document is presented as an offer made by one operator to the other. In practice an offer would typically be converted into an agreement by selecting the appropriate services offered by each party from their respective offers, adapting the procedures to suit the two parties, modifying the legal terms and conditions through negotiation, and adding schedules setting out details of the numbers, locations and capacities etc of the initial services to be provided. This would then be brought together as a single legal document forming the agreement between the parties. It would also be possible to form individual agreements for the services provided by each party to the other.

Typically each of the descriptions of the services would be presented as an annex, with separate schedules clearly listing which services are to be taken/provided at which points in each party's network and the applicable tariffs to the services provided by each party. The schedules would be subject to revision as the needs of the parties develop with the market reflecting changes in capacity and extensions to networks. New annexes may be added as new services are developed.

The initial forecasts of demand and the initial orders for service form part of the agreement and would be included as schedules. As forecasts, service descriptions and tariffs are updated and as orders for new services, new points of interconnection and additional/changed capacity are added the agreement will evolve. The agreement together with the various annexes and schedules need to be brought under tight change control so that each party is aware at all times of the details of the agreement in force.

The remainder of this document consists of:

- An example of Agreement Terms;
- Annex 1 Outlines of the key processes;
- Annex 2 Location of the available points of interconnect;
- Annex 3 Technical Standards
- Annex 4 Model service definitions

Each of these sections should be taken as being strongly indicative of the content that the Authority may consider acceptable in the event that the parties are unable to reach agreement and refer to the Authority for resolution.

2 Example template for Agreement Terms

This interconnection agreement (this “Agreement”) is entered into thisday of20..... between [Operator 1] (“Operator 1”) and [Operator 2] (“Operator 2”).

2.1 Recitals

Whereas, the Operator 1 is licensed under the Information and Communications technologies Act 2009 (the “Act”) and the Regulations promulgated thereunder from time to time by the Zambia Information and Communications Authority (“Authority”) to establish, install, operate and use a electronic communications System for the provision of Electronic communications Services in Zambia;

Whereas, the Operator 2 is licensed under Section 34 of the Act and the Authority Regulations promulgated thereunder to establish, install, operate and use a electronic communications System for the provision of Electronic communications Services in Zambia;

Whereas, in order for Operator 1 and Operator 2 to use their respective Electronic communications Systems to provide the broadest range of services to the largest number of people in Zambia and as required by their respective licences in accordance with the principles of neutrality, non discrimination and equality of access, Operator 1 and Operator 2 have elected to interconnect their respective systems.

Now, therefore, in consideration of the foregoing and of the mutual covenants and agreements contained in this Agreement, and intending to be legally bound thereby, the Parties hereby agree as follows:

2.1.1 Article 1: Scope

The purpose of interconnecting the systems of Operator 1 and Operator 2 is to allow the parties each or jointly to provide a range of services to end users and to other operators.

This agreement establishes the conditions under which the Operator 1 system and the Operator 2 system may be interconnected to provide electronic communications services. This agreement establishes how the parties will provide, serve and invoice a range of services to each other.

2.1.2 Article 2: Definitions

Terms and expressions defined in the Act or the [Access Regulations] promulgated thereunder shall have the same meanings when used in this Agreement.

Additional definitions used by the Parties to be included here.

2.1.3 Article 3: Interconnection

The parties will connect their networks as set out in the schedules to this agreement. Other than by mutual written agreement or with the written agreement of the Authority the networks will be kept connected at all times

The cost of the interconnection infrastructure will be borne by the parties as set out in this agreement.

The parties may interconnect with any other licensed operator in Zambia. Neither party shall require the other to interconnect to its facilities on an exclusive basis.

Either party may interconnect using network infrastructure provided by a third party, or may deliver traffic originated or to be terminated on networks other than those of the parties. (To facilitate transit services)

Interconnection pursuant to this Agreement shall conform with local and international standards and operating guidelines which have been adopted or issued by the Authority as applying to Electronic communications Services in Zambia.

It shall be the responsibility of each Party to implement, maintain and update as appropriate its own network to recognise and correctly route or switch in accordance with the national numbering plan administered by the Authority.

2.1.4 Article 4: Payment

The Parties shall pay each other the amounts due for the services provided as set out in the annexes to the extent that the service has been provided in accordance with the billing process set out in the Annexes.

2.1.5 Article 5: Traffic forecasts, capacity orders

The Parties will each provide forecasts of expected traffic and/or capacity required in accordance with the process set out in the Annexes.

The Parties will use their best efforts to provide accurate forecasts. Such forecasts shall not be legally binding, except to the extent provided for in this agreement and the annexes including the relationship between forecast traffic, actual traffic and the Quality of Service level that applies.

The Parties will place orders for new points of interconnection, for additional services and for additional capacity as applicable following the process set out in the schedules.

2.1.6 Article 6: Fraud

The Parties will cooperate with one another and with third parties to investigate, minimise and take corrective action in cases where fraud has occurred, is occurring or is suspected of occurring. The Parties' fraud minimisation processes are to be cost effective and implemented so as not to unreasonably burden or harm any one Party as compared to the other. As a minimum, such cooperation shall include the process set out in the annexes.

2.1.7 Article 7: Number portability

The Parties may agree to support the transfer of numbers between their networks to the extent that that this is possible under the National Numbering Plan and shall so agree where required under any applicable Regulations issued by the Authority .

Where the Parties have agreed to support transferring a number from one Party's network to the other then the donor Party may decline to allow a particular number to be ported if there are unpaid

charges associated with that number, until such unpaid charges are settled, or it is agreed that such charges are waived, or were incorrect.

2.1.8 Article 8: Limitation of Liability, indemnification

Neither party has an obligation of any kind to the other Party beyond the obligation to exercise reasonable skill and care in operating according to the provisions of this Agreement. Neither party undertakes any liability for the acts or omissions of a third party provider to Electronic communications Services, except to the extent the third party was an agent of a Party with respect to any act or omission that gives rise to liability hereunder.

Each of the Parties agrees to release, indemnify, defend and hold harmless the other Party from all losses, claims, demands, damages, expenses, suits or other actions, or any liability whatsoever, including, but not limited to, costs and attorneys' fees, whether suffered, made, instituted, or asserted by any other party or person, for invasion of privacy, personal injury to or death of any person or persons, or for loss, damage to, or destruction of property, whether or not owned by others, resulting from the indemnifying Party's performance or failure to perform under this Agreement, regardless of the form of action.

The indemnification provided for above shall be subject to the following:

The indemnified Party shall promptly notify the indemnifying Party of any action taken against the indemnified Party relating to the indemnification.

The indemnified Party shall have sole authority to defend any such action, including the selection of legal counsel, and the indemnified Party may engage separate legal counsel only at its sole cost and expense.

In no event shall the indemnifying Party settle or consent to any judgement pertaining to any such action without the prior written consent of the indemnified Party.

Each party shall provide directory information giving customer name, address and phone number information in an agreed format at intervals of three months or less, or will provide real time access to a suitable directory system that provides such information in an agreed format.

2.1.9 Article 9: Provision of information

Each Party shall provide appropriate information including, but not limited to, information regarding network control and management, as is reasonably required by the other Party for interconnection and the provision of Electronic communications Services and facilities. Additionally, detailed operating performance and quality standard information will be exchanged between the Parties.

Pursuant to the Authority regulations, the Parties shall file a copy of this Agreement with the Authority for the Authority's approval prior to this Agreement coming into effect. Following the filing of this Agreement each Party shall provide the Authority with such information as the Authority may request from the Parties individually, and shall share the costs of providing any such information that as the Authority may request of them jointly.

2.1.10 Article 10: Confidentiality

Either Party may disclose to the other proprietary or confidential Customer, technical, or business information in written, graphic, oral or other tangible or intangible forms ("Confidential Information"). In order for information to be considered Confidential Information under this Agreement, it must be marked "Confidential" or "Proprietary", or bear a marking of similar import. Orally disclosed information shall be deemed Confidential Information only if contemporaneously identified as such and reduced to writing and delivered to the other Party with a statement or marking of confidentiality within twenty (20) calendar days after oral disclosure.

In order to protect such Confidential Information from improper disclosure, each Party agree:

That all Confidential Information shall be and shall remain the exclusive property of the source;

To limit access to such Confidential Information to authorised employees who have a need to know the Confidential Information for the performance of this Agreement;

To keep such Confidential Information confidential and to use the same level of care to prevent disclosure or unauthorised use of the received Confidential Information as it exercises in protecting its own Confidential Information of a similar nature;

Not to copy, publish or disclose such Confidential Information to others, or to authorise anyone else to copy, publish, or disclose such Confidential Information to others without prior written approval of the source;

To return promptly any copies of such Confidential Information to the source at its request; and

To use such Confidential Information only for the purposes of fulfilling work or services performed hereunder and for other purposes only upon such terms as may be agreed upon between the Parties in writing.

These obligations shall not apply to any Confidential Information that was legally in the recipient's possession prior to receipt from the source, was received in good faith from a third party not subject to a confidential obligation to the source, now is or later becomes publicly known through no breach of confidential obligation by the recipient, was developed by the recipient without the developing persons having access to any of the Confidential Information received in confidence from the source, or that is required to be disclosed pursuant to judicial process or by the Authority or another governmental agency having appropriate jurisdiction, provided, however, that the recipient shall give prior notice to the source and shall reasonably cooperate if the source deems it necessary to seek protective arrangements.

The obligation of confidentiality and use with respect to Confidential Information disclosed by one Party to the other shall survive any termination of this Agreement.

2.1.11 Article 11: Intellectual Property

Nothing in this Agreement shall grant, suggest, or imply any authority for one Party to use the name, trademarks, service marks, or trade names of the other for any purpose whatsoever.

Neither Party shall have any obligation to defend, indemnify or hold harmless, or to acquire any licence or right for the benefit of, or owe any other obligation to have any liability to, any other based on or arising from any claim, demand or proceeding by any third party alleging or asserting that the use of any circuit, apparatus, or system, or for the use of any software, or the performance of any service or method, or the provision of use of any facilities by either Party under this Agreement

constitutes direct or contributory infringement, or misuse or misappropriation of any patent, copyright, trademark, trade secret, or any other proprietary or intellectual property right of any third party.

2.1.12 Article 12: Force Majeure

Each Party shall be excused from its performance under this Agreement only to the extent, and for so long as, such performance is hindered or prevented by an Act of God, fire, flood or other natural disaster, act of government or state, war, civil commotion or insurrection, riots, embargo, prevention from or hindrance in obtaining any materials, energy or other supplies, unlawful labour strikes outside the control of either Party and any other cause beyond the control of either Party.

Neither Party shall be liable to the other for any default arising from force majeure.

Term and termination

This Agreement shall continue indefinitely unless:

- either Party ceases to hold a licence under the Act and the Authority Regulations;
- an order is entered by a court of competent jurisdiction mandating the winding up or dissolution of a Party, or appointing a receiver or liquidator for such Party or having a comparable effect; or
- it is replaced by mutual agreement of the Parties or by order of the Authority in accordance with the provisions of Article 63 of the Act,

in which case this Agreement shall immediately be terminated.

Subject to the Parties obtaining the prior written approval of the Authority to any disconnection of systems and equipment, this Agreement also may be terminated by either Party giving six months notice to the other in the event that either Party:

- is in material and/or repeated breach of any provision of this Agreement; provided, however, that the breaching party has been notified in writing of its failure by the non-breaching party and the breaching party has not remedied its failure within twenty (20) working days; or,
- Ceases to carry on business.

Upon termination of this Agreement each Party shall take such steps and provide such facilities as are necessary for recovery by the other Party of any equipment supplied by that other Party.

Termination of this Agreement shall be without prejudice to a Party's rights, liabilities or obligations that may have accrued prior to such termination.

2.1.13 Article 13: Governing Law

This Agreement, the legal relations between the Parties and any claim instituted by any Party with respect to matters arising under or in connection with or in respect of this Agreement, including but not limited to the negotiation, execution, interpretation, coverage, scope, performance, breach, termination, validity, or enforceability of this Agreement, shall be governed by and construed in accordance with the laws of the Zambia without regard to conflict of law rules.

2.1.14 Article 14: Assignability

This Agreement and all of the provisions hereof shall be binding upon the Parties and their respective successors and assigns. Neither this Agreement nor any of the rights, interest or obligations hereunder shall be assigned by any Party without the prior written consent of the other Party hereto.

2.1.15 Article 15: English Language

This Agreement has been executed in the English Language which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Agreement.

2.1.16 Article 16: Headings; Plural and Singular

The headings contained in this Agreement are for descriptive purposes only and shall not be considered a part hereof for purposes of determining the Parties' rights and obligations hereunder. Any of the terms defined herein may, unless the context otherwise requires, be used in the singular or the plural, depending on the reference.

2.1.17 Article 17: Entire Agreement

This Agreement represents the entire understanding between the Parties in relation to interconnection and supersedes all previous understandings, agreements or commitments whatsoever, whether oral or written. All references to articles, sections, clauses, annexes shall be deemed references to such part of this Agreement, unless the context shall otherwise require.

2.1.18 Article 18: Notices

Unless otherwise provided in the Agreement, any notifications, service of process, petitions, claims and other Communications requested or permitted pursuant to this Agreement, shall be made in writing and shall be considered validly made when delivered by hand or by courier, facsimile once receipt is verified at the following addresses.

If to (Operator 1) Attention	Address
With a copy to Attention	Address
If to (Operator 2) Attention	Address
With a copy to Attention	Address

2.1.19 Article 19: Third Parties

Nothing in this Agreement express or implied is intended to confer or shall confer upon any other person or entity other than the Parties any rights, benefits or remedies of any nature whatsoever under or by reason of this Agreement.

2.1.20 Article 20: Waivers

The waiver of the rights derived from this Agreement shall only be effective if made in writing duly sent to the other Party. No failure of the part of any party to exercise, no delay in exercising, no partial exercise of, and no course of dealing with respect to any right, power or privilege under this Agreement shall operate as a waiver hereof.

2.1.21 Article 21: Partial Invalidity

If any provision in or obligation under this Agreement is considered invalid, illegal or unenforceable by a court of competent jurisdiction, such judicial decision must, as regards such invalidity, be strictly interpreted and shall not affect or impair the validity, legality or enforceability of any other provision in or obligation under this Agreement.

2.1.22 Article 22: Counterparts

This Agreement and any amendment hereto or any other agreement (or document) delivered pursuant hereto may be executed by telecopy, in one or more counterparts, and by different Parties in separate counterparts. All of such counterparts shall constitute one and the same agreement (or other document) and shall become effective (unless otherwise provided therein) when one or more counterparts have been signed by each Party and delivered to the other Party. Any execution by telecopy shall be followed promptly by the delivery of signed original counterparts to the Party or Parties receiving the telecopy.

In witness whereof, the parties (Operators) have executed this Agreement the day and year first before written.

For (Operator 1)

By

Name Title

Witnessed

For (Operator 2)

By

Name Title

Witnessed

3 Annex 1: Outline of Key Processes

3.1 Annex 1.1: Forecasting

Before concluding the Agreement and every three months while the Agreement is in force the Party receiving the service will provide a three year forecast of traffic, broken down onto quarters, by service, by point of interconnect, or, where appropriate, by location. The forecast will be presented in terms agreed between the parties and appropriate for the service. For example: for Time Division Multiplex based services, forecasts will be presented in terms of busy hour call attempts and busy hour Erlangs, for IP traffic the forecast will include the required capacity by class of service to allow for appropriate dimensioning.

Forecasts will be discussed and agreed between the parties. For conveyance services traffic offered within 120% of the forecast level will be handled within the quality of service levels set out in section 5. Variation between successive forecasts for the first two quarters of the forecast is limited to 20% unless the parties agree otherwise.

Where the actual demand for any service falls more than 20% below the forecast demand for two successive quarters, the whole forecast for that service will be reviewed and may be reduced proportionately by the provider.

(Note – The intention of this provision is to encourage realistic forecasting of traffic. If actual demand exceeds 120% of demand the service is still provided, but there may be a degradation in the service quality. The seeker may be encouraged by this to forecast above demand, which may cause the provider to invest in capacity that is not needed. To balance this effect, sustained over forecasting will lead to a proportionate reduction in the forecast by the provider back to an appropriate level.)

3.2 Annex 1.2: Ordering

Requests for services, including network joining link capacity, within the levels included in the agreed forecast will be provided within the timescales set out in the quality of service parameters for the particular service.

Where a request for capacity included in an existing agreed forecast cannot be fulfilled within the timescales set out in the quality of service parameters, the provider will supply a statement clearly stating the current capacity and the requested capacity, setting out the current agreed forecast provided by the seeker for the service, explaining the delay, and setting a series of dates by which the capacity will be provided, where appropriate, in stages, to the full required capacity. A copy of this statement will be sent to the Authority.

Requests for services in excess of the forecast will be provided within (X), or, where capacity is not available, the provider will supply an explanation of the reasons why the full amount of capacity requested cannot be provided by the requested date, including, where appropriate, a statement of when the full requested capacity could be provided, and a statement of how much capacity could be provided by the requested date. A copy of this statement will be sent to the Authority.

3.3 Annex 1.3: Implementation and testing

The parties will work together to agree an implementation plan for any new service or service upgrade. Once developed the parties will keep each other regularly informed of progress, and of any expected delays, giving reasons. Where delays are unacceptable and considered unjustified, either party may refer the matter to the Authority for consideration.

The parties will cooperate in agreeing a test schedule and in carrying out appropriate testing to verify the service has been provided and configured and is operating as expected, in accordance with the relevant standards and specifications. Testing may involve load testing, and/or may involve operation for a defined period to show system stability etc.

Once the service has been jointly tested and found to meet the specification, the service will be formally accepted and will then be ready to be introduced to live service.

3.4 Annex 1.4: Operation and management

Periodically at the instance of any party, the interconnected operators will meet to review the performance of each of the interconnect services being provided. Prompt and appropriate action will be taken in situations where the provider fails to meet the agreed Quality of Service levels, particularly where there is a repeating pattern of failure. Where there is evidence of repeated failure to meet Quality of Service levels, or of ineffective action being taken to assure Quality of Service levels will be met, the seeker may inform the Authority of the circumstances and ask for an intervention.

3.5 Annex 1.5: Billing and billing disputes

The operator providing the service will be responsible for determining the extent of the service used, and for preparing a bill for the services. The service seeker is responsible for checking and settling the bill within the agreed settlement period.

The parties may agree to net bills between their organisations.

Where a dispute arises over all or part of a sum a dispute will be raised. Where the individual sum in dispute is less than ZMW X and the total of all sums in dispute that have not been settled is under ZMW Y, then the disputed sum will be paid in full pending investigation and settlement. Where a disputed sum exceeds ZMW X or where the total of all sums in dispute that have not been settled exceed ZMW Y then the disputed sum will not be paid until agreement has been reached to settle the sum, and either party may provide evidence to the Authority requesting intervention to reach a binding settlement within 45 days. Where the Authority has investigated and reached a conclusion, the Authority conclusion will be binding, and the parties will settle the dispute within 15 working days of the Authority decision.

Where the total of unpaid or disputed sums in a period exceeds 10% of the total billed and due for payment in the same period then the provider may refer the matter to the Authority for investigation including proposals for appropriate action. The Authority will investigate within 20 working days providing a binding conclusion to both parties. In extreme cases where it can be shown that the default will lead to significant and unacceptable financial exposure for either party, the Authority may authorise disconnection of the operators within 30 days and will publicise this intention accordingly. Under no circumstances will the parties degrade connection between their networks, or disconnect their networks, without either prior agreement between the parties, or, in the absence of such agreement, with the agreement of the Authority and following appropriate public notice.

3.6 Annex 1.6: Network changes

Where one Operator identifies a need to make a change to its network which will, or may, affect the other operator, then the Operator must give as much notice as possible and in any case no less than six months notice of the intended change, identifying the likely impact of the proposed change. The Operator will provide a plan of how the Operators may work together to effect the change with minimal effect on the services provided to end users. The Operator requiring the change will pay any actual costs the affected Operator incurs as a direct consequence of the change.

3.7 Annex 1.7: Fault handling

A process will be agreed between the parties for reporting faults or suspected faults. Where possible the process should be automated (eg based on exchange of reports using email or other electronic means) to ensure that a full and accurate record of the report is kept. The process will include appropriate acknowledgements including timestamps on all key exchanges.

Once a fault report is passed between operators the receiving operator is responsible for investigating the report and, where appropriate, taking action to restore service if a fault is found within their network, or in the network of third parties on which the service relies, within the timescales set out in the quality of service parameters. The operator receiving the fault report will provide regular updates on the progress of the investigation and steps being taken to restore service. Once the operator investigating the fault believes that it has been cleared the reporting operator will be informed and the reporting operator will then verify and acknowledge the fault has been cleared.

Where a fault has a significant impact on either Operator, and where practical, the Operators will work together to take appropriate action to restore as much service as possible within the shortest of time, including temporary rerouting of traffic. Where appropriate and where agreed, call shedding and call blocking actions may be taken to localise the effects of serious network faults.

Where the same or a similar fault recurs frequently the investigating operator will carry out a more detailed investigation into the cause of the fault, and take appropriate action. Where the same or similar faults are detected more than X times in Y months a report will be prepared and submitted to the Authority for collation and further investigation by the Authority as is deemed appropriate.

3.8 Annex 1.8: Fraud investigation

The parties will cooperate on request to investigate and identify sources of actual or suspected activity leading to fraud whether against either of the parties or against third parties. Each party will promptly and efficiently take all reasonable action to assist the other in investigating such activity on request and will alert the other if any activity is detected or suspected that may be fraudulent in nature and which may in any way harm the other. Such cooperation may include sharing information which may not otherwise be available to the other party, and may include technical intervention to establish the source of such activity

3.9 Annex 1.9: Dispute handling

Disputes, other than those relating to billing , as provided for above will be resolved in accordance with the relevant article in the operators' licence and the regulations of the Authority.

During the period of any dispute, before or until resolution by means of arbitration, a Party shall not disrupt service being provided to the other Party, change any level of service being provide to that Party or take any other actions which might materially or adversely affect that Party's service.

3.10 Annex 1.10: Number portability

The parties may, on request, (and shall, where required by Authority regulations) agree to implement procedures and technical interfaces necessary to support number portability between their networks. Such agreement will be on a reciprocal basis. Neither party may refuse a request to implement number portability if it provides number portability to any third party.

3.11 ANNEX 1.11: PROVIDING OPERATORS UNDERTAKING

The providing operator undertakes that it shall not apply less favorable technical and commercial conditions to any competitor than it would apply to itself, subsidiary or affiliate;

The providing operator undertakes to offer to the interconnecting party available capacity to ensure that the interconnecting party renders same level of quality of service;

4 Annex 2

4.1 Annex 2.1 Location of points of interconnection offered by Operator 1

Interconnection is currently available on request at the following locations:

Location	Region	Services available	Radio	Fibre	Signalling available
Town and Street address, or lat/long		Eg Termination, Transit etc	Yes / No	Yes / No	SS7 H.323 Signalling via another (specified) location
...					

Interconnection may be offered on request at the following location:

Location	Region	Services available	Radio	Fibre	Signalling available
Town and Street address, or lat/long		Eg Termination, Transit etc	Yes / No	Yes / No	SS7 H.323 Signalling via another (specified) location
...					

The interconnect seeker may request interconnection at other points in the provider's network. On receipt of such a request the provider will carry out a technical investigation and will provide a report into the technical feasibility within 45 working days, offering, where appropriate, an alternative location that is physically close if interconnection is not found to be technically possible at the requested location. If physical interconnection is found to be technically feasible, but economically unjustified at the requested location then the provider will offer "virtual interconnection" at, or close to, the requested point, and will extend, at its own expense, the interconnect link from the requested point to another point in its own network for interconnection. The networks will then operate in all matters as if interconnected at the point where virtual interconnection has been effected.

In all cases a copy of the request will be sent by the requester to the Authority and a copy of the results of the technical investigation will be sent by the provider to the Authority who may carry out further investigation as appropriate.

Where a new point of interconnection is established, this point will be added to the list of points of interconnection within one month, and the revised list will be distributed to all operators with which there is an interconnect agreement in force.

4.2 Annex 2.2 Operators interconnected with Operator 1

- Interconnected operator 1
- Interconnected operator 2
- Interconnected operator 3
- Etc.

5 Annex 3

5.1 Technical standards

The Authority has set quality levels for the performance of end to end calls. These levels apply separately to the operators. Where a call is passed from one operator to another it is important to ensure that network joining links between the networks do not introduce bottlenecks incapable of handling the expected peak traffic, or introduce unsecured points of failure that may lead to callers not being able to reach some end users.

The technical standards applied to network joining links are intended to support achievement of the overall end to end performance of calls involving two or more networks is maintained at an acceptable level, while avoiding undue restrictions on the operators freedom for implementation of the links. In addition to supporting end to end network performance it is particularly important to assure that the links joining the networks and the switching or routing equipment at the ends of the links do not introduce effects which lead to discrimination between operators.

5.2 Traffic planning

Network Joining Links will be designed to handle forecast peak hour traffic with an occupancy of no more than 80%.

Signalling links will be dimensioned to handle peak hour call attempts with an occupancy of no more than 80%.

Where interconnection is IP based, the link will be dimensioned to assure that the peak traffic forecast can be handled while respecting the individual Classes of Service of the different traffic streams carried by the link.

5.3 Network Joining Links

Where 2048Kbps links are used to connect "TDM" systems, the links will comply with ITU standard G.703 and related standards. Higher order systems may be provided which will comply with the relevant standards.

Where IP systems are interconnected an appropriate interface standard will be used, such as Ethernet over SDH or native Ethernet using 100baseT etc.

Technical parameters of the links and the traffic passed over the links will comply with the relevant ITU standards covering parameters such as jitter, wander etc.

5.4 Availability of Network Joining Links

Network Joining Links between two networks will be designed to give an availability of 99% or better taking into account the beneficial effect of any redundancy that has been provided.

The percentage of severely errored seconds will be 0.05% or less.

Error Free seconds will be 99.50% or better.

For individual network joining links, the occurrences of intermittent breaks in service of greater than 10 seconds averaged over a rolling one year period shall be limited as follows:

- Break free days will be 85% or better
- Days with 1 break no more than 10%
- Days with more than 1 break no more than 5%

5.5 Signalling

Signalling between the networks will use ITU standards

5.6 Calling Line Identity

In all cases where Calling Line Identity (CLI) is available it will not be concealed or modified in any way, and will be passed across Network Joining Links between operators. Where Calling Line Identity Restriction (CLIR) has been set the CLI will not be passed to the called party other than where the called party is a recognised emergency service identified by the Authority as requiring receipt of CLI in all circumstances.

6 Annex 4:

6.1 Annex 4.1 Services offered by Operator 1

Note – Not all services will be offered by all operators

Annex 4.1.1 Network Joining Links

Annex 4.1.2 Terminating Services

Annex 4.1.3 Originating Services

Annex 4.1.4 Transit Services

6.1.1 Annex 4.1.1 Network Joining Links

Service description

The networks of the operators agreeing to interconnect may be joined at one or more points, directly or indirectly, using systems based on copper, fibre or radio, and using any appropriate technology, or mix of transmission technologies. The network joining link may be provided by:

one operator supplying the link and equipment at both ends of the link, with the other operator providing accommodation and power for the equipment at their end, or
the operators may each provide the equipment at their end of the link with one operator providing the link itself; or
part or all of the link may be provided by a third party.

Where copper or fibre is used the cable may be:

owned by one operator along its entire length;
joined at a convenient point with each operator owning and being responsible for their part of the cable; or,
owned along its entire length by one operator with the other operator taking responsibility for pulling the cable into their building at their end from a nearby cable chamber.

Where an operator provides accommodation and power for equipment at one end of a Network Joining Link provided by another operator no charge will be made for the accommodation, power or any other accommodation related service. The requirements for Colocation do not apply for the specific case of equipment and services essential to the provision of Network Joining Links.

The costs of the links will be shared between the parties in proportion to the volumes of traffic flowing for the services provided by each operator.

The design of Network Joining Links will take into account the need to handle the forecast capacity of the services to be passed over the links, at the required quality of service levels, and will include appropriate levels of resilience to failures. Signalling may be included with the traffic circuits, or may be handled on separate Network Joining Links, where appropriate between different points.

The Operators will discuss and agree the most suitable arrangements for providing and maintaining the interconnection links.

As a minimum each Operator will offer interconnection links operating at 2048Kbit/s in accordance with ITU recommendations, over at least one of radio, fibre or copper. Where capacity forecasts indicate higher capacities are needed then higher capacity systems will be made available.

Where signalling links are separated from the traffic bearing links, a minimum of two links will be provided operating at speeds of 64Kbit/s or above.

Quality of Service parameters applicable

Where a network joining link has been included in an agreed forecast the time from order to the tested link being available will be no more than 45 calendar days.

Where an interconnect link has not been included in an agreed forecast the time from order to the link being available will be no more than 90 calendar days for links to an existing point of interconnection, and 180 calendar days to other locations. Where an operator establishes that a link cannot be provided to a requested location or cannot be provided within the required time, the operator will advise the requestor giving a detailed explanation of the reason within 21 calendar days of the request being made, and will copy the explanation to the Authority. As part of this explanation and within the same 21 calendar day timescale, where possible the Operator will provide an alternate location which is close to the requested location, at or through which, the related interconnection services can be provided and to which connection can be made in the required timescales.

Where an upgrade in capacity to an existing network joining link is requested which is included in an agreed forecast the upgrade will be available within 45 calendar days from the order being placed. Where the upgrade is not included in a forecast the upgrade will be available in 90 calendar days.

Where an upgrade to an existing link whether or not forecast, cannot be provided, the requestor will provide an explanation of the reasons within 21 calendar days of the request, and will copy this to the Authority.

Individual links will be designed to operate with a 95% availability measured over a rolling year.

Faults in Network Joining Links will be repaired such that 90% of faults are cleared within 2 hours of the fault being reported, and all faults are cleared within 48 hours of the fault being reported.

Charging

Charges will be made monthly for the interconnection links.

Where the capacity in a link is shared, the charges for that link each month will be shared in proportion to the traffic passed between the operators measured in minutes.

Where each operator provides part of a link or a configuration of links, the charges made by each operator to the other may be netted appropriately.

6.1.2 Annex 4.1.2.1: Termination of Calls to Terminals at Fixed Locations

Service description

Calls handed to the operator at a point of interconnection will be routed to the location indicated by the called number for termination at a terminal which is part of the operator's network. The called number will be a valid number from the numbering range allocated for fixed terminals to the operator by the Authority, or, where number portability has been implemented, will be a number for a fixed terminal that has been ported to that network.

The call may have originated on the seeker's network, or on another network.

The service may be ordered at points of interconnection at which the service is available and at which there is a network joining link in place, or is being put in place, which has sufficient capacity to handle the forecast traffic. The lead time to deliver the service is set out in the quality of service parameters below.

Traffic offered within the volumes set out in the current agreed forecast will be handled within the quality of service standards set out below. Traffic exceeding the forecast volume will be handled on a best endeavours basis.

Traffic will be delivered for termination using interfaces as agreed between the parties.

Signalling may be passed over the interconnect link at the same point of connection as the traffic, or may be passed over an interconnect link at a different point of interconnection as agreed between the parties.

Quality of Service parameters applicable

The Termination of Calls at Fixed Locations will be available within 45 days of placing an initial order where the capacity is set out in an agreed forecast for that location.

Capacity will be available in line with the agreed forecast without further order, subject to there being sufficient capacity in the Network Joining Links in operation to the location.

The service will have an availability of 98% measured over a rolling year.

90% of reported faults will be resolved within 2 hours of the fault report being sent.

Service will be restored in all cases within 48 hours of a fault report being sent.

Call failure rates will be monitored by both parties and not exceed 3%. Calls will be treated as successful where they result in "conversation", "engaged", "no answer", an announcement, or "end of selection" code returned from the network.

Metering and charging

Metering will be effected using the information provided within the signalling information. Call duration will be measured from the Call Answer signal to Call Clear. There will be no charge for any call that is connected to a network generated message.

The call duration will be measured in seconds, rounded up to the next whole second. Monthly bills will sum call durations, rounding the sum up to the next whole minute.

Where a call is delivered at a point of interconnection in the region indicated by the called number, the regional tariff will apply.

The national tariff will apply to all calls delivered to a point of interconnection other than in the region indicated by the called number.

Where applicable, a call spanning the agreed peak and off peak tariff periods will have the two tariffs applied proportionately.

6.1.3 Annex 4.1.2.2: Termination of Calls to Mobile Terminals

Service description

Calls handed to the operator at a point of interconnection will be routed as indicated by the called number for termination at the mobile terminal. The called number will be a valid number from the numbering range allocated for mobile terminals to the operator by the Authority, or, where number portability has been implemented, will be a number for a mobile terminal that has been ported to that network.

The call may have originated on the seekers network, or on another network.

The service may be ordered at points of interconnection at which the service is available and at which there is a Network Joining Link in place, or is being put in place, which has sufficient capacity to handle the forecast traffic. The lead time to deliver the service is set out in the quality of service parameters below.

Traffic offered within the volumes set out in the current agreed forecast will be handled within the quality of service standards set out below. Traffic exceeding the forecast volume will be handled on a best endeavours basis.

Traffic will be delivered for termination using interfaces as agreed between the parties.

Signalling may be passed over the interconnect link at the same point of connection as the traffic, or may be passed over an interconnect link at a different point of interconnection as agreed between the parties.

Quality of Service parameters applicable

The Termination of Calls to Mobile Terminals will be available within 45 days of placing an initial order where the capacity is set out in an agreed forecast for that location.

Capacity will be available in line with the agreed forecast without further order, subject to there being sufficient capacity in the Network Joining Links in operation to the location.

The service will have an availability of 98% measured over a rolling year.

90% of reported faults will be resolved within 2 hours of the fault report being sent.

Service will be restored in all cases within 48 hours of a fault report being sent.

Call failure rates will be monitored by both parties and not exceed 3%. Calls will be treated as successful where they result in “conversation”, “engaged”, “no answer”, an announcement, or “end of selection” code returned from the network.

Metering and charging

Metering will be effected using the information provided within the signalling information. Call duration will be measured from the Call Answer signal to Call Clear. There will be no charge for any call that is connected to a network generated message.

The call duration will be measured in seconds, rounded up to the next whole second. Monthly bills will sum call durations, rounding the sum up to the next whole minute.

The national tariff will apply to all calls provided under this service.

Where applicable, a call spanning the agreed peak and off peak tariff periods will have the two tariffs applied proportionately.

6.1.4 Annex 4.1.2.3: Termination of Calls to Terminals using Special Numbers

Service description

Calls handed to the operator at a point of interconnection will be routed to the location indicated by the called number for termination at a terminal which is part of the operator's network. The called number will be a valid number from the numbering range allocated for a special tariff rate or other special service to the operator by the Authority, or, where number portability has been implemented, will be a number for a fixed terminal that has been ported to that network.

This service includes calls to services such as "toll free" and "premium rate" services. In cases where the called party is paying for the call and there is no charge to the caller, or only a small charge to the caller, the tariff for the service is negative.

This service includes calls to emergency service, and operator services where these are available and required.

The call may have originated on the seekers network, or on another network.

The service may be ordered at points of interconnection at which the service is available and at which there is a Network Joining Link in place, or is being put in place, which has sufficient capacity to handle the forecast traffic. The lead time to deliver the service is set out in the quality of service parameters below.

Traffic offered within the volumes set out in the current agreed forecast will be handled within the quality of service standards set out below. Traffic exceeding the forecast volume will be handled on a best endeavours basis.

Traffic may be delivered using interfaces as agreed between the parties.

Signalling may be passed over the Network Joining Link at the same point of connection as the traffic, or may be passed over an interconnect link at a different point of interconnection as agreed between the parties..

Quality of Service parameters applicable

The Termination of Calls to Terminals using Special Numbers will be available within 45 days of placing an initial order where the capacity is set out in an agreed forecast for that location.

Capacity will be available in line with the agreed forecast without further order, subject to there being sufficient capacity in the Network Joining Links in operation to the location.

The service will have an availability of 98% measured over a rolling year.

90% of reported faults will be resolved within 2 hours of the fault report being sent.

Service will be restored in all cases within 48 hours of a fault report being sent.

Call failure rates will be monitored by both parties and not exceed 3%. Calls will be treated as successful where they result in "conversation", "engaged", "no answer", an announcement, or "end of selection" code returned from the network.

Metering and charging

Metering will be effected using the information provided within the signalling information. Call duration will be measured from the Call Answer signal to Call Clear. There will be no charge for any call that is connected to a network generated message.

The call duration will be measured in seconds, rounded up to the next whole second. Monthly bills will sum call durations, rounding the sum up to the next whole minute.

Where a call is delivered at a designated point of interconnection for delivery to the relevant service, as indicated by the called number, the regional tariff will apply.

The national tariff will apply to all calls delivered at points of interconnection other than the point designated for the particular called number.

Where applicable, a call spanning the agreed peak and off peak tariff periods will have the two tariffs applied proportionately.

6.1.5 Annex 4.1.2.4: Termination of Calls to International Destinations

Service description

Calls handed to the operator at a point of interconnection will be routed as indicated by the called number for onward routing to and termination on a network outside Zambia. The called number will include the international dialling prefix.

The call may have originated on the seeker's network, or on another network.

The service may be ordered at points of interconnection at which the service is available and at which there is a Network Joining Link in place, or is being put in place, which has sufficient capacity to handle the forecast traffic. The lead time to deliver the service is set out in the quality of service parameters below.

Traffic offered within the volumes set out in the current agreed forecast will be handled within the quality of service standards set out below. Traffic exceeding the forecast volume will be handled on a best endeavours basis.

Traffic will be delivered using interfaces as agreed between the parties.

Signalling may be passed over the Network Joining Link at the same point of connection as the traffic, or may be passed over a Network Joining Link at a different point of interconnection as agreed between the parties.

Quality of Service parameters applicable

The Termination of Calls to International Destinations will be available within 45 days of placing an initial order where the capacity is set out in an agreed forecast for that location.

Capacity will be available in line with the agreed forecast without further order, subject to there being sufficient capacity in the Network Joining Links in operation to the location.

The service will have an availability of 98% measured over a rolling year.

90% of reported faults will be resolved within 2 hours of the fault report being sent.

Service will be restored in all cases within 48 hours of a fault report being sent.

Call failure rates will be monitored by both parties and will not exceed 3%. Calls will be treated as successful where they result in "conversation", "engaged", "no answer", an announcement, or "end of selection" code returned from the destination network.

Metering and charging

Metering will be effected using the information provided within the signalling information. Call duration will be measured from the Call Answer signal to Call Clear. There will be no charge for any call that is connected to a network generated message.

The call duration will be measured in seconds, rounded up to the next whole second. Monthly bills will sum call durations, rounding the sum up to the next whole minute.

The tariff that will apply to each call will be according to the country code and other information within the particular called number.

Where applicable, a call spanning the agreed peak and off peak tariff periods will have the two tariffs applied proportionately.

6.1.6 Annex 4.1.3.1: Origination of Calls from Fixed Terminals

Service description

Calls made from Fixed Terminals using a carrier selection prefix will be routed from the calling terminal to a point of interconnection where the call is handed over to the other Operator for call processing and completion. The dialled prefix will be a valid code allocated to the operator by the Authority.

Other than to route the call following dialling of the complete prefix, forwarding any and all further dialled digits through the signalling system in an agreed manner, and providing standard tones to the caller as appropriate, the originating operator will take no further part in checking, or routing the call. The originating operator will make no attempt to verify that the caller is authorised to use services provided by the seeker's facilities, or to validate any number dialled after the carrier selection prefix.

The service seeker is responsible for end user billing of the calling party as appropriate for the call. The service provider will not make any charge to the calling party for the call. The service does not include billing of the calling or called party, or revenue collection on behalf of the service seeker.

In the event that a calling party attempts to report faults or complaints with any service available following dialling the carrier selection prefix, the caller will be asked to contact the seeker directly, other than in cases where the fault relates to the carrier selection prefix failing to work as expected.

The service may be ordered at points of interconnection at which the service is available and at which there is an interconnection link in place, or is being put in place, which has sufficient capacity to handle the forecast traffic. The lead time to deliver the service is set out in the quality of service parameters below.

Traffic offered within the volumes set out in the current agreed forecast will be handled within the quality of service standards set out below. Traffic exceeding the forecast volume will be handled on a best endeavours basis.

Traffic will be delivered using interfaces as agreed between the parties.

Signalling may be passed over the Network Joining Link at the same point of connection as the traffic, or may be passed over a Network Joining Link at a different point of interconnection as agreed between the parties.

Quality of Service parameters applicable

The service will be available within 45 days of placing an initial order where the capacity is set out in an agreed forecast for that location.

Capacity will be available in line with the agreed forecast without further order, subject to there being sufficient capacity in the Network Joining Links in operation to the location.

The service will have an availability of 98% measured over a rolling year.

90% of reported faults will be resolved within 2 hours of the fault report being sent.

Service will be restored in all cases within 48 hours of a fault report being sent.

Metering and charging

Metering will be effected using the information provided within the signalling information. Call duration will be measured from the Call Answer signal to Call Clear. There will be no charge for any call that is connected to a network generated message.

The call duration will be measured in seconds, rounded up to the next whole second. Monthly bills will sum call durations, rounding the sum up to the next whole minute.

The regional tariff will apply where a call is delivered at a regional point of interconnection in the same region as the calling party as indicated by the calling number.

The national tariff will apply to all calls delivered to a point of interconnection other than in the region indicated by the calling number.

Where applicable, a call spanning the agreed peak and off peak tariff periods will have the two tariffs applied proportionately.

6.1.7 Annex 4.1.4.1: Basic Transit Conveyance of Calls

Service description

Calls handed to the operator at a point of interconnection will be routed to a point of interconnection with a third operator and handed to that operator. The Basic Transit Conveyance of Calls service does not include termination of the call by the third or other operator. The seeker will require an independent agreement with the third operator for onward handling of the calls. The call will be efficiently routed according to the called number. Calls will be routed to the point of interconnection nearest the location indicated by the destination phone number where there is a choice. The destination phone number will be a valid number from the numbering range allocated to a third operator by the Authority and which is included in the list of third operators to which the Basic Transit Conveyance of Calls service is available.

The call may have originated on the seekers network, or on another network. The tariff for this service includes the cost of any links to the third operator, but excludes payments necessary to the third operator for onward handling of the calls.

The service may be ordered at points of interconnection at which the service is available and at which there is a Network Joining Link in place having sufficient capacity to handle the forecast traffic. The lead time to deliver the service is set out in the quality of service parameters below.

Traffic offered within the volumes set out in the current agreed forecast will be handled within the quality of service standards set out below. Traffic exceeding the forecast volume will be handled on a best endeavours basis.

Traffic will be delivered using interfaces as agreed at the time the service is ordered.

Signalling between the seeker and the provider and between the provider and the third operator may be passed over the Network Joining Link at the same point of connection as the traffic, or may be passed over a Network Joining Link at a different point of interconnection as agreed between the parties.

Quality of Service parameters applicable

The Basic Transit Conveyance of Calls will be available within 45 days of placing an initial order where the capacity is set out in an agreed forecast for that location.

Capacity will be available in line with the agreed forecast without further order, subject to there being sufficient capacity in the Network Joining Links in operation to the location.

The service will have an availability of 99.5% measured over a rolling year.

95% of reported faults will be resolved within 2 hours of the fault report being sent.

Service will be restored in all cases within 48 hours of a fault report being sent.

Call failure rates will be monitored by both parties and will be below 3 % for any reasons other than “engaged” or “no answer”

Metering and charging

Metering will be effected using the information provided within the signalling information. Call duration will be measured from the Call Answer signal to Call Clear. There will be no charge for any call that is connected to a network generated message.

The call duration will be measured in seconds, rounded up to the next whole second. Monthly bills will sum call durations, rounding the sum up to the next whole minute.

The tariff that applies to each call will be determined by the point of interconnection at which the call was collected and the point of interconnection at which the call was handed on to another operator as determined by the called number. Where both points are in the same region, the regional tariff will apply. Where the points are in different regions, the national tariff will apply.

This service does not include payment to the third operator for termination.

Where applicable, a call spanning the agreed peak and off peak tariff periods will have the two tariffs applied proportionately.

6.1.8 Annex 4.1.4.2: Transit Conveyance and Termination of Calls

Service description

Calls handed to the operator at a point of interconnection will be routed to a point of interconnection with a third operator and passed to that operator for termination. The Transit Conveyance and Termination of Calls service includes transit of the call across the operator's network to a third party's network where the call is handed on for termination of the call by the third party operator. The call will be efficiently routed according to the called number. The called number will be a valid number from the numbering range allocated to the third operator by the Authority and which is included in the list of third operators to which the conveyance and termination of calls service is available. The call may have originated on the seekers network, or on another network. The tariff for this service includes payments necessary to the third operator for termination.

The service may be ordered at points of interconnection at which the service is available and at which there is a Network Joining Link in place having sufficient capacity to handle the forecast traffic. The lead time to deliver the service is set out in the quality of service parameters below.

Traffic offered within the volumes set out in the current agreed forecast will be handled within the quality of service standards set out below. Traffic exceeding the forecast volume will be handled on a best endeavours basis.

Traffic will be delivered using a interfaces as agreed at the time the service is ordered.

Signalling may be passed over the Network Joining Link at the same point of connection as the traffic, or may be passed over an interconnect link at a different point of interconnection as agreed between the parties.

Quality of Service parameters applicable

The Transit Conveyance and Termination of Calls service will be available within 45 days of placing an initial order where the capacity is set out in an agreed forecast for that location.

Capacity will be available in line with the agreed forecast without further order, subject to there being sufficient capacity in the Network Joining Links in operation to the location.

The service will have an availability of 98% measured over a rolling year.

90% of reported faults will be resolved within 2 hours of the fault report being sent.

Service will be restored in all cases within 48 hours of a fault report being sent.

Call failure rates will be monitored by both parties and will be below 3 % for any reasons other than "engaged" or "no answer"

Metering and charging

Metering will be effected using the information provided within the signalling information. Call duration will be measured from the Call Answer signal to Call Clear. There will be no charge for any call that is connected to a network generated message.

The call duration will be measured in seconds, rounded up to the next whole second. Monthly bills will sum call durations, rounding the sum up to the next whole minute.

The tariff that applies to each call will be determined by the point of interconnection at which the call was collected and the point of interconnection at which the call was passed on to another operator for termination as determined by the called number. The regional tariff will apply where the point of interconnection at which the traffic is delivered to the third operator, and the region in which the destination number is located as indicated by the dialled number are in the same region. The national tariff will apply in all other cases.

This service includes payments to the third operator for termination including all associated administration and operation activities associated with the termination service provided by the third operator.

Where applicable, a call spanning the agreed peak and off peak tariff periods will have the two tariffs applied proportionately.

7 Tariffs

Tariffs for the Services offered under the terms of the MIO shall be set in accordance with the following principles:

Service	Charging structure	Charging level
Network Joining Links	<ul style="list-style-type: none"> • Monthly charge, which may be shared between the parties in proportion to traffic volumes. 	<ul style="list-style-type: none"> • No set tariff list. • Priced by negotiation, but cost based. • Reference point: compare costs to a retail 2Mbps leased line between end points, making allowance for higher availability requirements.
Termination of calls to fixed locations	<ul style="list-style-type: none"> • Duration based, per second. • Regional (meaning in this case delivery to the POI designated for this type of call) and national (meaning delivery at a POI that has not been designated for this type of call) tariffs. • Peak and off peak. 	<ul style="list-style-type: none"> • Tariff ceiling set by ZICTA's cost model output.
Termination of Calls to Mobile Terminals	<ul style="list-style-type: none"> • Duration based, per second. • National tariff only 	<ul style="list-style-type: none"> • Tariff ceiling set by ZICTA's cost model output.
Termination of Calls to Terminals using Special Numbers	Tariffs to be set by separate ZICTA Regulations on Special Number Services	<ul style="list-style-type: none"> • Tariffs to be set by ZICTA from time to time