



Uganda Internet eXchange Point

Plot 33, Clement Hill Road, Kampala, Uganda

<https://uixp.co.ug>

Uganda Communications Commission
UCC House
Plot 42 - 44, Spring road, Bugolobi
P.O. Box 7376
Kampala, Uganda

Monday, July 1st, 2019

RE: IXP Licensing Framework Consultation

Dear Mr. Mutabazi,

We would like to thank you and the Uganda Communications Commission (UCC) for the opportunity to comment on the draft licensing framework for Internet exchange points (IXPs) as per your letter dated June 7th, 2019. We would also like to commend the UCC for communicating its proposal with clarity as this made it easy for us to engage with the consultation.

As one of Africa's oldest IXPs, and one of East Africa's most successful with 26 connected networks exchanging over 8Gbps of peak traffic on a daily basis, we agree that IXPs have an important role to play in the development of Uganda's telecommunications ecosystem.

We also agree with the UCC's overall goals for this policy, and were pleased to see that the statement of objectives in section 3 is one that we can readily and wholeheartedly endorse. Thus, any recommendations we make for adjustments will simply reflect our technical understanding of ways to achieve the same goals more successfully based on our years of experience, our deep knowledge of international best practices, and other lessons learned from our extensive interactions with the global IXP community.

In that spirit, we have identified some refinements that we believe would enhance the framework as well as three areas of serious concern which we believe would inhibit, rather than help to achieve, the policy's objectives.



These three areas are:

1. The proposal to establish a single “Designated National IXP.” As the industry front-runner, the UIXP would be the obvious choice for such designation. However, we believe that we, and Uganda’s Internet infrastructure, will be stronger in the future, more responsive to innovation, and more resilient if others are permitted to create new independent IXPs on a level playing field.

In our opinion, preventing the formation of competition would enshrine a conservatism in management that will tend, over time, to inhibit innovation, restrict capacity, and forego opportunities to further enhance Uganda’s Internet ecosystem.

2. The proposal to require all other licensed IXPs to “peer” with the Designated National IXP. Technically speaking, “peering” is a term used to describe an interconnection between network operators, not IXPs, but we presume that the proposal’s wording intends for all IXPs to join their peering LANs into a single national peering LAN.

This would technically merge all IXPs into one, with each acting merely as an access point for the enlarged infrastructure. As stated above, we do not think that eliminating independent IXPs is advisable. Furthermore, we believe that this approach would introduce technical challenges and security risks derived from having multiple operators control access points that form part of the same IXP.

3. The proposal to require all network operators to interconnect. While this sounds superficially attractive as a means of achieving increased peering, international experience demonstrates the opposite; that mandatory peering policies always hinder growth, and that a voluntary environment is essential for success.

Accordingly, mandatory peering policies are almost entirely avoided in the global IXP community regardless of context; whether North America, Europe, Asia, Africa, or Latin America.

We also suggest that the UCC’s regulatory oversight and enforcement responsibilities could be fully achieved more rapidly, and with less burden on IXP operators, if some of the requirements for IXPs to seek the UCC’s approval were converted into an obligation to notify the UCC and, where applicable, a power for the UCC to require remedial action.



Uganda Internet eXchange Point

Plot 33, Clement Hill Road, Kampala, Uganda

<https://uixp.co.ug>

We respectfully request that you reconsider these specific elements and note that the remainder of the draft framework does not depend on their incorporation. We have also provided additional details and further recommendations for refinements to the remainder of the framework in our answers to the consultation questions below.

As always, we are committed to providing secure, reliable, high performance Internet infrastructure for the benefit of all Ugandans and would welcome any opportunity to discuss this proposal with you in more detail.

We thank you once again for giving us an opportunity to contribute to the regulatory process, and look forward to a continuing relationship of cooperation and respect with the UCC.

Regards,

A handwritten signature in blue ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Kyle Spencer,
Executive Director



Answers to Consultation Questions

Question 1

The UIXP agrees with the proposed definitions and interpretations in section 2.

Question 2

The UIXP fully supports the statement of objectives in section 3 and we are glad to see this included in the framework as it helps to measure the framework's specific elements in order to ensure that they really do help to achieve the UCC's goals.

Question 3

The UIXP has not conducted a legal analysis of the existing law and therefore has no comment on section 4.

Question 4

The UIXP has no comment on sections 5 and 6.

Question 5

7.1: IXP Licensing

- We recognise that, in order to discharge its responsibilities for the oversight and regulation of the sector, the UCC needs to know of the existence of all IXPs that make a material impact to the national infrastructure, and be able to impose appropriate regulatory requirements upon them.



However, we believe that this need would be more effectively satisfied by converting the proposed requirement for advance authorisation and licensing into a requirement for IXPs operators to notify the UCC of any IXPs they operate that pass a minimum materiality threshold.

Requiring prior authorisation and licensing before starting an IXP would significantly impede the formation of new IXPs that could, if otherwise encouraged, contribute to the UCC's objectives. The inevitable delay and uncertainty would inhibit prospective operators from starting a new IXP, and the uncertainty as to whether licensing could be obtained would weaken the essential support from prospective members as well.

By contrast, a notification requirement would remove all delay and uncertainty, while still providing the UCC with the knowledge and tools necessary to conduct its oversight function.

- The UIXP's copy of the draft licensing framework did not include the application form referenced in 7.1(b) as Annex 1. We are therefore unable to comment on this related document.

7.3: Technical Requirements

- The UIXP supports the requirements set out in section 7.3(a), (b), and (c). We consider these requirements to be essential elements of the quality service we provide.
- With respect to the services described in 7.3(d): We note that items (iii) Authentication, authorization and accounting (AAA); (iv) Firewall; and (vi) Caching servers are not applicable to IXP operations. We presume these have been carried over from regulatory requirements for other telecommunications operators to whom these would be applicable and recommend their removal. Note that the UIXP does operate a firewall to protect its own corporate network, but this is not an essential part of its operations.
- The UIXP supports the requirements set out in section 7.3(e)(i) to (iii), which we already satisfy, and are content with the new notification requirement set out in section 7.3(e)(iv).



- We note that IXPs inherently do not interact with the content of data traffic passing through their switching infrastructure. Accordingly, the requirement to notify the government about illegal content in 7.3(e)(v) would never apply, as an IXP would never be aware of such content. We presume that this requirement has simply been carried forward from regulatory requirements for other types of telecommunications operators to whom it would be applicable and recommend its removal.

7.4: Operational requirements

- The UIXP's standard contract is developed through consultation with our member networks. It incorporates international best practices and the experiences of our peers in the global IXP community. While broadly stable, it does evolve over time to meet the changing needs of our members and our environment. Requiring the UCC's prior approval for any modifications to this contract as outlined in 7.4(b) would significantly reduce our ability to adapt.

We believe that the UCC's legitimate requirement for regulatory oversight would still be fully achieved, without reducing our flexibility, if the requirement for prior authorisation were converted into a requirement to notify, and a power for the UCC to require changes where necessary.

- The UIXP considers the transparency and non-discrimination requirements set out in section 7.4(c) to be a core part of our ethos. We do, however, note that future IXPs with alternative business models, potentially based on specific commercial interests, could be inhibited by this requirement. We also note that the requirement would prohibit IXPs from negotiating with high value peers such as content delivery networks (CDNs), potentially making them more difficult to attract.

7.5: Inspection of the IXP

- The UIXP agrees that the UCC should have the power to assess compliance. However, we suggest that inspection without notice or cause is unduly onerous.

We note that we have only four active personnel. Accordingly, the UIXP would be able to cooperate with UCC inspections more fully, efficiently, and openly if given prior notice and sufficient understanding of what the UCC seeks to learn.



We therefore propose that section 7.5(a) be adjusted so that the UCC is granted the power to inspect an IXP upon 14 days notice, and that such notice to contain a description of the information sought and items to be inspected. If the UCC feels necessary, this could be complemented by an additional power to inspect without notice where the UCC can show evidence that the IXP operator would not cooperate with inspection with notice.

- Although the UIXP accepts that UCC needs the power to issue instructions where necessary to remedy critical operational or technical shortfalls, we are seriously concerned that the blanket power to do so set out in section 7.5(c) provides inadequate guidance to the UCC on the use of the power. Inappropriate use of such a power would pose a critical risk to the continuity and security of an IXP.

We fear that this could arise, for example, on the basis of an incomplete or mistaken understanding of technical risks, or by misapplying standards applicable to other classes of telecommunications operators in the highly specialist area of an IXP where different requirements may be applicable.

We would therefore strongly recommend that, prior to exercising such a power, the UCC should be required to:

- a. Publish such a notice in draft form, no fewer than 30 days prior to it taking effect;
- b. Publish, alongside the notice, explanatory guidance on its implementation;
- c. Publish, alongside the notice, a reasoned statement setting out the purpose that the notice seeks to achieve and alternatives that were considered;
- d. Consult any affected operator, and any IXP member network of such an affected operator, before issuing a final, effective notice; and
- e. Take into account established international best practice.



Question 6

8.1: Stakeholder Responsibilities (IXPs)

- The UIXP broadly supports the reporting obligations set out in section 8.1 but considers quarterly reporting to be burdensome and more frequent than would be useful to the UCC. Instead, we recommend that such a report be produced annually. The UIXP remains available to explain any developments with UCC, and to address any concerns, throughout the year.

8.1: Stakeholder Responsibilities (Operators)

- The UIXP does not believe that mandatory connections to an IXP will help achieve the goals set out in section 3. On the contrary, international experience demonstrates the opposite; that mandatory peering policies always hinder growth, and that a voluntary environment is essential for success. This is why mandatory interconnection policies are increasingly rare internationally, regardless of context; whether North America, Europe, Asia, Africa, or Latin America.

Question 7

As previously stated, we have serious concerns about the proposal to establish a single “Designated National IXP” and require all other licensed IXPs to “peer” with it.

We note that IXPs do not “peer” as described in 9(j), so we understand this wording to mean that all IXPs should be merged into a single national peering LAN with access points in multiple locations that are potentially administered by multiple operators even though they form part of a single national peering fabric.

The UIXP believes that prohibiting the operation of independent, unconnected IXPs in Uganda would undermine, rather than achieve, the framework’s objectives listed in section 3. This would hinder innovation, limit opportunities for growth and expansion, and eliminate the resilience that a diverse array of independent IXPs would provide. It would also introduce significant technical challenges and security risks derived from having multiple operators control access points that form part of the same IXP.



Instead, we believe that the UCC, as the national regulator, should remain strictly neutral as to the need for additional IXPs, their structure, and model. This approach would allow the network operator sector (i.e. IXP member networks) to stimulate and support the development of new IXPs where there is a technical and commercial need to do so, and to withhold that support where new IXPs would be unnecessary. By remaining neutral on this point, the UCC would allow the Ugandan telecommunications market to most efficiently adapt to changing requirements over time, and thereby most effectively contribute to the further development of the country.

Question 8

The UIXP believes that the UCC's role in resolving disputes between peers would be an appropriate subject for a more broadly based consultation with affected operators. Accordingly, we suggest that this provision be omitted from the draft guidelines at this time, and introduced separately if thought appropriate following such a consultation.

Question 9

Given the highly technical nature of the matters that the UCC will need to decide, the fluid and developing nature of international best practice, and the rapid advance of technology, the UIXP believes that the framework's enforcement regime should place UCC under a duty to:

1. Consult with affected parties on the likely impact of remedies before imposing them;
2. Consult with international experts on the same;
3. Account for international best practices; and
4. Provide an avenue for appeal of any sanctions or remedies imposed.