
ICT 2020 – 1 – Consultation on Internet Exchange Points (IXP) Regulatory Framework



**UTILITY REGULATION AND COMPETITION OFFICE
CAYMAN ISLANDS**

Publication Date:	11 November 2020
Closing Date for comments:	25 November 2020
Comment Publication Date:	27 November 2020
Closing Date for Reply comments:	7 December 2020

Contents

ICT 2020-1- Consultation – Internet Exchange Points (IXP) Regulatory Framework	1
A. Background	1
B. Legal Background	4
C. Discussion	6
C.1 Basic Principles	8
C.2 Membership	10
C.3 Governance.....	12
C.4 Operational Matters.....	14
C.5 Funding.....	17
C.6 IXP Right to Establish or Co-locate and Cross-connect at International Cable Landing Stations	19
C.7 IXP Application and Licensing Fees.....	20
D. Consultation Questions	21
E. How to Respond to This Consultation.....	23
F. Draft Determination	25
Appendix 1 – Legal Framework	28
Appendix 2 – Draft IXP Basic Principles	34
Appendix 3 – Draft IXP Regulatory Framework	35

ICT 2020 – 1– Consultation – Internet Exchange Points (IXP) Regulatory Framework

1. The Utility Regulation and Competition Office (the '**Office**' or '**OfReg**') is the independent regulator established by section 4(1) of the Utility Regulation and Competition Law (the '**URC Law**')¹ for the electricity, information and communications technology ('**ICT**'), water, wastewater and fuels sectors in the Cayman Islands. The Office also regulates the use of electromagnetic spectrum and manages the .ky Internet domain. The Office's functions include regulating the interconnection of ICT networks, regulating the quality of service offered by ICT service providers in the Cayman Islands, promoting innovation and facilitating investment in the Cayman Islands, promoting and maintaining an efficient, economic and harmonized utilisation of ICT infrastructure and ensuring the continuity of critical national infrastructure and critical ICT infrastructure.
2. The purpose of this consultation is to propose the regulatory model and other considerations necessary to achieve the objectives set out in a Cabinet Directive aimed at keeping all local internet traffic within the jurisdiction, where the source and destination are both local. Additionally, beyond the aim to keep local traffic local, this consultation considers the practical benefits of allowing IXP operators to own or operate domestic or international fibre optic cable networks, landing stations and to lease access to the related fibre. In particular, the consultation sets out the Office's intended regulatory framework which may be used to licence and regulate Internet Exchange Point ('**IXP**') in the Cayman Islands.

A. Background

3. At the present time, there are six entities issued with *Type 9 – Internet Service Provider* ('**ISP**') ICT service licences by the Office to provide Internet services in the Cayman Islands: Cable and Wireless (Cayman Islands) Limited, trading as Flow ('**Flow**'), Digicel Cayman Ltd ('**Digicel**'), Infinity Broadband Ltd doing business as C3 ('**C3**'), and WestTel Ltd, trading as Logic ('**Logic**'), the Government of the Cayman Islands ('**CIG**'), and United Telecommunications Services Ltd. ('**Unitel**'). The first four of these

¹ <https://www.ofreg.ky/legislation-regulation>

entities actively provide ISP services to the general public, which include in particular access to the Internet via subsea cable facilities between the Cayman Islands and the United States. It is through this connection to the Internet in the United States that the customers of an ISP in the Cayman Islands communicate with and access the Internet-based services and applications provided by the customers of the other ISPs in the Cayman Islands. There are currently no IXPs in the Cayman Islands and no direct interconnection or peering between ISPs. In effect, the ISPs in the Cayman Islands connect their networks indirectly via the Internet and depend upon facilities between the Cayman Islands and the United States and in the United States to connect their networks in the Cayman Islands, as outlined in Diagram 1 below.

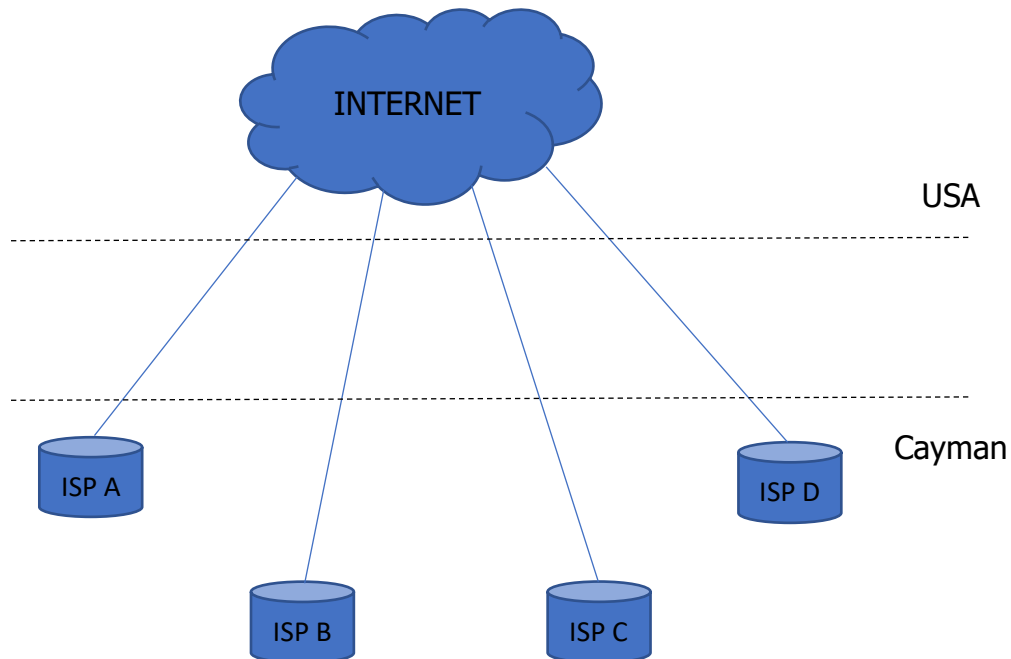
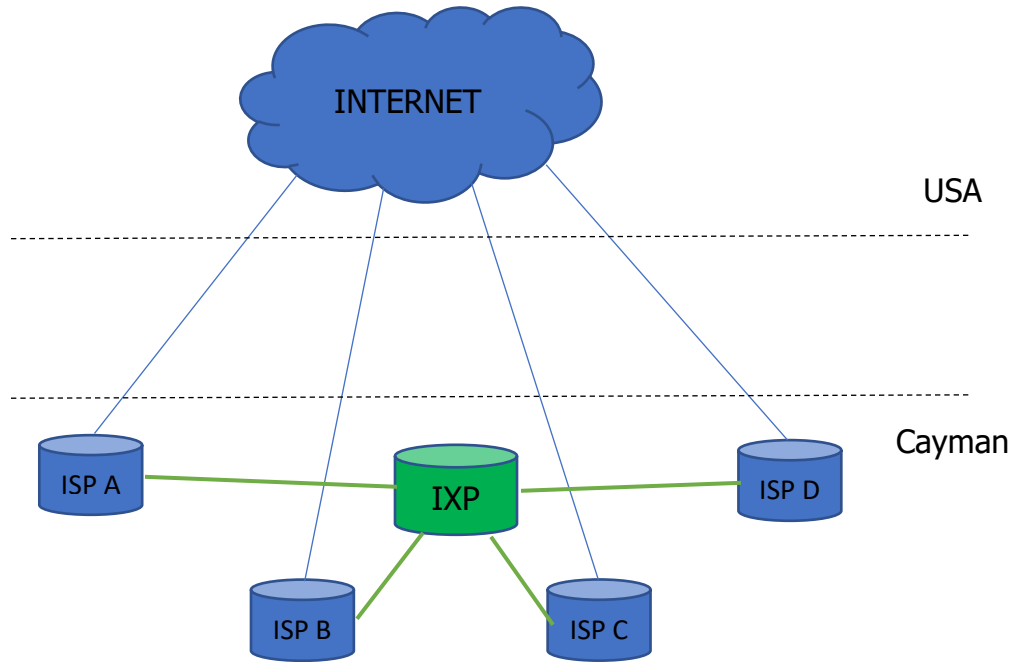
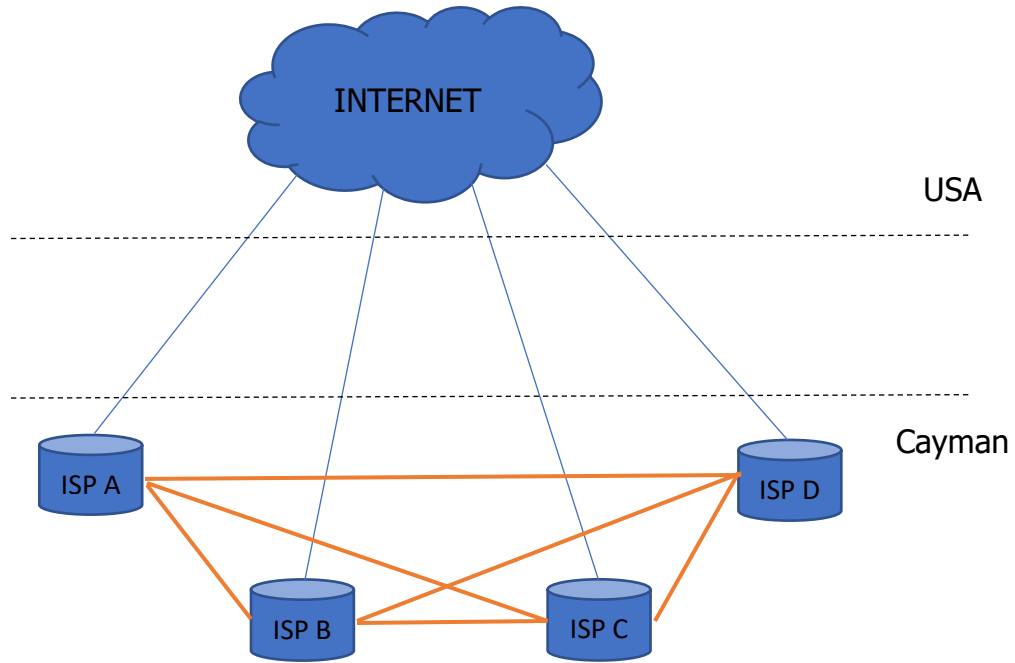


Diagram 1 – Current Interconnection Arrangements

4. An alternative to this arrangement would be to establish connections within the Cayman Islands between and among the ISPs. ISPs could connect separately on a bilateral basis similar to how fixed and mobile voice networks in the Cayman Islands are currently interconnected (in Diagram 2), or they could connect to each other at a common location called an 'Internet Exchange Point' or '*IXP*' (Diagram 3). There is no evidence that any of the ISPs connect to each other in either of these two ways at this time.



5. Between June 2016 and February 2017, the Office hosted industry working group meetings with ISPs to discuss the implementation of an IXP. The discussions lead to agreement and acceptance of a set of high-level principles to be used to govern the operations of the IXP. Notwithstanding this, the ISPs were unable to come to agreement to establishing an IXP.

6. The Office considers that the principals are generally still applicable but proposes an updated version for inclusion in the framework discussed in this consultation.
7. The objective of facilitating the establishment IXPs locally remains a key priority of the Office. Additionally, the Cabinet of the Cayman Islands in a Directive² to the Office, has also identified the facilitation of establishment of IXPs as a priority. Accordingly, through this consultation the Office will ultimately make proposals to define and determine what is the regulatory framework necessary to facilitate the establishment of local IXPs, including outlining obligations for ISPs to peer.

B. Legal Background

8. The Office is guided by its statutory remit, notably as set out in the URC Law and the Information and Communications Technology Law (2019 Revision) (the '**ICT Law**').³
9. **Section 6** of the URC Law sets out the principal functions of the Office. Of particular relevance to this consultation are the following:
 - (b) *to promote appropriate effective and fair competition;*
 - (c) *to protect the short and long term interests of consumers [...]; and*
 - (d) *to promote innovation and facilitate economic and national development.*
10. Section 7 of the URC Law sets out the Office's duty to consult on matters that impact the rights or obligations of a licensee.
11. The duty to promote innovation and to facilitate economic and national development is further detailed in **section 62** of the URC Law.

62. The Office shall have a duty to promote innovation within the sectors for which it has responsibility with a view to contributing to national economic competitiveness and development, and in doing so it may-

² <https://gazettes.gov.ky/portal/pls/portal/docs/1/12980585.PDF>

³ <https://www.ofreg.ky/legislation-regulation>

- (a) *through its policies actively facilitate the development and introduction of relevant innovative technologies into the national economy;*
- [...]
- (e) *take such other initiatives as it considers to be consistent with its mandate to contribute to national development and economic growth.*
12. The specific functions and duties and powers of OfReg in respect of the ICT sector in particular are set out in the ICT Law. Under **section 9** of the ICT Law, OfReg is required, among others:
- (a) *to promote competition in the provision of ICT services and ICT networks [...]*
 - (e) *to licence and regulate ICT services and ICT networks [...]*
 - (h) *to promote and maintain an efficient, economic and harmonized utilisation of ICT infrastructure;*
 - (hc) *to develop and maintain cyber security strategies that enhance and support the security and resilience of national and critical ICT infrastructure towards increased economic prosperity, safe and secure business and innovation. [emphasis added]*
13. Other sections of the ICT Law set out the requirements for interconnection between ICT network providers. **Section 65** of the ICT Law requires, among other things, licensees that operate public ICT networks to ensure that the interconnection provided is made at technically feasible points, and that such interconnection shall be provided at reasonable rates, terms and conditions.
14. “*Interconnection*” is defined in **section 2** of the ICT Law to mean:
- the physical or logical connection of public ICT networks of different ICT network providers.*
15. Where licensees cannot agree on the terms of interconnection, **sections 66(5), 67 and 67A** authorise OfReg to investigate and to resolve the dispute.

16. **Section 72** of the ICT Law sets out the standards to which ICT network and ICT service providers are to offer their networks and services. In particular, providers:

shall use best endeavours to ensure that their ICT networks and ICT services are:

- (a) reliable*
- (aa) where practicable, directly interconnected with each of the other ICT network providers' networks [...]*

17. The Information and Communications Technology Authority (Interconnection and Infrastructure Sharing) Regulations, 2003 (the '**Regulations**')⁴ set out in greater detail the general principles and guidelines for the provision of interconnection. In particular, a licensee is to provide interconnection to other licensees on a non-discriminatory basis under cost-oriented and reasonable rates. **Regulation 12** also sets out where interconnection is to be provided:

A responder shall offer interconnection services at any technically feasible point of its public ICT network, upon request by a requester.

C. Discussion

18. The Office considers that local interconnection among ISPs at an IXP would bring a number of benefits to the Cayman Islands. These include increased resilience as ISPs would no longer be dependent on overseas connections to exchange traffic with each other. The ISPs would be able to focus their use of expensive overseas bandwidth on international traffic instead of local traffic, which, by diverting traffic from that bandwidth, should improve the quality of service experienced by users and defer the need to acquire additional international capacity to meet demand.
19. Interconnection at an IXP would also enable ISPs to fulfil their obligations under **section 72** of the ICT Law. While they would interconnect with the IXP, they would peer directly with each other at the IXP.

⁴<http://www.icta.ofreg.ky/upimages/commonfiles/1417277060ICTAInterconnectionInfrastructureRegulations.pdf>

20. Users would experience reduced latency in their local communications as local traffic would no longer need to travel up to the United States and back simply to cross the street. The use of an IXP should also improve the security of local communications, as local traffic would be exposed to fewer points where it could be accessed illegally.
21. The Office also considers that local businesses and service providers could use an IXP to provide their customers with lower-latency access to their services, irrespective of the specific ISP serving those customers. This would increase the quality of service provided by those businesses and service providers and improve their customers' perceptions of the business. The creation of an IXP could also provide an opportunity for persons to develop new services for the jurisdiction, such as a local DNS server or content delivery networks, which in turn would increase resilience of the network, divert additional traffic away from overseas bandwidth and increase the attractiveness of the jurisdiction for investment.
22. The Office further considers that facilitating the establishment of an IXP in the Cayman Islands would be consistent with its functions under **section 6** and **section 62** of the URC Law to promote innovation and development.
23. The Office notes that an entity establishing and operating an IXP and enabling the interconnection of ISPs at that IXP would be offering an ICT service using an ICT Network, as those terms are defined in the ICT Law. An ICT licence from the Office would therefore be required.
24. From time to time, the Office updates its regulatory Notice pursuant to **section 23(2)** of the ICT Law, which specifies the types of ICT Networks and ICT Services that are required to be licensed. As part of the most recent update⁵, the Office confirmed that activities relating to the establishment and operation of an IXP would require grant of a licence. In particular, the Office defined two licence categories - *Type G – Internet Exchange Point (IXP)*, for the operation of IXP infrastructure and *Type 16 – Internet Peering Service Provider*.
25. Although the Office confirmed the need to obtain a licence to operate an IXP, the Office did not establish the necessary licensing and regulatory framework that would be used to authorise and ultimately govern the operations of an IXP, including setting obligations for ISPs to peer at the IXP, without which would make the existence of an IXP moot. By introducing

⁵ <http://gazettes.gov.ky/portal/pls/portal/docs/1/12540389.PDF>

these two licence types, the Office took the first step towards establishing a licensing and regulatory framework to facilitate the creation of an IXP.

26. In addition to the new licence categories, the Office imposed restrictions on the ability for persons who operate or offer internet related networks or service to also obtain an IXP licence. This restriction was considered necessary to ensure that IXP operations remained neutral. Not imposing this restriction could result in the potential for an internet service licensee to have control and access to its competitors' traffic.
27. Considering that an IXP's activities are determined to be licensable activities, the Office considers that it is required to establish a regulatory framework to govern the operation of an IXP and the interconnection of ISPs at an IXP. The issues to be addressed as part of establishing this regulatory framework include:
 1. Establishing basic principles to guide the implementation of an IXP;
 2. Deciding which entities (ISPs and others) should or must become members of the IXP;
 3. Establishing the governance model for interactions among the members and the IXP operator;
 4. Agreeing on the technical details of the IXP and of connections to the IXP; and
 5. Establishing a stable source of funding
 6. Consideration of rights of IXP in relation to operation and access to international cable landing stations
 7. Establishing application fee and licence fee structure
28. Each of the above considerations are discussed below. The Office makes proposals in relation to each in the form of draft determinations and also provides opportunity for interested parties to comment on the proposals. Those draft determinations are also incorporated into the proposed Draft IXP Regulatory Framework at APPENDIX 3.

C.1 Basic Principles

29. The Office notes that, during the 2016/17 IXP industry working group meetings, ISPs agreed to ten basic principles regarding the establishment of a local peering point for internet traffic in the Cayman Islands. These principles have been modified slightly for this consultation, but in summary included that:

1. The Cayman Islands would benefit from the establishment of an Internet Exchange Point (IXP).
 2. All ISP's will work together to establish a peering point for local IP traffic.
 3. The Internet Exchange Point or IXP, will be hosted by a neutral party.
 4. Shared Costs – The IXP shall be operated as a non-profit service, prices shall be cost-based, and all costs associated with the IXP will be shared by the parties equally.
 5. No party shall be advantaged or disadvantaged by the practises, contracts, policies, or pricing of the IXP.
 6. Transparency – To the extent possible, the operations of the IXP will be transparent to the parties, barring commercially sensitive information.
 7. Layer 2 – To enhance privacy and speed, the IXP will connect the parties together at Layer 2 of the International Organization of Standardization, Open System Interconnection stack- (“ISO OSI stack”).
 8. Keep It Simple – the parties will strive to embrace simplicity in all aspects of the IXP.
 9. Licensing – The IXP will be a licensed service of the Office and therefore be subject to regulatory oversight and be provided facility for dispute resolution among the parties.
 10. Consensus – The IXP will be driven by consensus views of the parties in its operations, policies, and practices.
30. The Office considers generally that these basic principles continue to be relevant and should be adopted as the high-level principles applicable to the establishment and provision of IXP service in the Cayman Islands.⁶

⁶ The Office notes that one of the basic principles, that “*the IXP will be a licensed service of the Office and therefore be subject to regulatory oversight and a facility for dispute resolution among the parties*,” was achieved in part by being included in the revised Section 23(2) Regulatory Notice **2017** revision.

31. Accordingly, subject to consultation, the Office proposes to determine that **“IXPs established in the Cayman Islands shall operate in a manner consistent with the 10 Basic Principles set out in APPENDIX 2 of this Consultation.”**

C.2 Membership

32. The Office considers that the greatest benefit is derived from an IXP when all the ISPs in the market both connect to the IXP and exchange local traffic with each other at that IXP. The Office notes that the second of the Basic Principles listed in **APPENDIX 2**, supports this view:

2. *All ISP's will work together to establish a peering point for local IP traffic.*

33. The Office also notes that many IXPs, whether established as for-profit or not-for-profit organisations, appear to have been established as voluntary or commercial ventures. ISPs may choose to join the IXP and connect to the equipment at the central location but typically are not required to do so. Few jurisdictions appear to have mandated that ISPs connect to an IXP.⁷
34. However, past experience in the Cayman Islands strongly suggests that the ISPs are unwilling to establish and connect to an IXP voluntarily, notwithstanding the benefits to consumers and to operators described in paragraphs 18 to 21 above, or indeed directly to each other, notwithstanding the obligation imposed by **section 72 (1) (aa)** of the ICT Law to be, *“where practicable, directly interconnected with each of the other ICT network providers’ networks.”* As a consequence, individual and business consumers in the Cayman Islands are not able to enjoy the benefits that would be derived from the establishment and operation of an IXP. Given that market forces have not led to the creation of an IXP and in light of the benefits accruing to consumers and operators from the establishment of an

⁷ See, for example, the British Virgin Islands’ *“Telecommunications Code (Part 2) (Internet Traffic Exchange) Requirements, 2010”* –

http://trc.vg/images/attachments/Legal%20Framework/Severe_Weather_Emergency_Communications_Procedure/030_G00349_SI_No_101_of_2010_-_Telecommunications_Code_Part_2_Internet_Traffic_Exchange_Requirements_2010.pdf.

The Subsecretaría de Telecomunicaciones (**Subtel**) in Chile requires ISPs to interconnect directly with each other for the exchange of national Internet traffic (*“Fija Procedimiento y Plazo para Establecer y Aceptar Conexiones entre ISP,”* Resolución N° 1483 de octubre de 1999) and has stipulated that this requirement can be satisfied by connection to an IXP (*“Fija indicadores de calidad de los enlaces de conexión para cursar el tráfico nacional de Internet y sistema de publicidad de los mismos,”* Resolución N° 698 de junio de 2000) –

<http://www.subtel.gob.cl/normativa-tecnica-internet/>

The Telecommunications Regulatory Authority of India has also recommended that national level ISPs be mandated to connect to all IXPs. See *“Recommendations on Telecommunications Infrastructure Policy,”* 12 April 2011, paragraph 2.25 – http://www.trai.gov.in/sites/default/files/Rec_Infrastructure.pdf

IXP, the Office considers that ISPs ought to be mandated to connect to an IXP in the Cayman Islands.

35. The Office notes that the ICT Law does not limit the number of licences which the Office may approve for any specific ICT service or network licence type. This means that, conceivably, more than one IXP service provider could be licensed to operate in the Cayman Islands. The Office does not anticipate a multiplicity of IXPs, given the size of the market and the requirement that the holder of the applicable licences not be affiliated with an ISP.
36. However, the Office considers that one of the main benefits of an IXP, the direct exchange of local traffic among local ISPs, could be considerably reduced if ISPs were to connect to different IXPs. In light of this, the Office considers that all ISPs shall connect to at least one same IXP that is licensed to operate in the Cayman Islands. In addition to connecting to one common IXP, licensees may connect to alternate IXPs if they so choose.
37. The Office further notes that it is not sufficient to connect an ISP's services to the peering equipment located at an IXP in order to enjoy the benefits of an IXP – the ISPs must also exchange Internet traffic. The exchange of traffic could be agreed on a bilateral basis (i.e. each pair of ISPs connected at an IXP agree separately on the terms and conditions upon which they will exchange traffic) or on a multi-lateral basis (i.e. all ISPs connected at an IXP agree to exchange traffic with all other ISPs connected there). As in the case of connections to the IXP, the Office notes that few jurisdictions appear to have published rules or regulations mandating the exchange of traffic at the IXP.⁸
38. In the Cayman Islands, ICT licensees who operate public ICT networks are, as a rule, required to interconnect with other such licensees who request the interconnection, pursuant to **section 65** of the ICT Law. Further to **section 72 (1) (aa)** of the ICT Law, such licensees are required to interconnect directly to each other's networks "*where practicable*." Read together, the Office does not consider that these two provisions of the ICT Law require all ICT network providers to be directly interconnected to each other in all circumstances: at a minimum, one ICT network provider must request it of another and the direct connection must be "*practicable*." In this respect, the Office notes that the existence of an IXP would make such a direct connection and exchange of local traffic between ISPs much more

⁸ The British Virgin Islands being a notable regional example.

practicably achievable at an IXP, where there is an expectation and obligation to directly exchange traffic.

39. Accordingly, subject to consultation, the Office proposes to determine that **“all persons who hold *Type 9 – Internet Service Provider* (*‘ISP’*) ICT service licences must connect their ISP services networks to at least one common licensed IXP in the Cayman Islands and must be obligated to exchange Local IP Traffic, whether on a bilateral or multilateral basis.”**
40. The Office notes that the preceding discussion focused on the participation of ISPs in, and connection to, an IXP. The Office further notes that persons other than ISPs may seek to connect to an IXP, in particular persons who provide services to ISPs or to the public and whose customers would benefit from low latency access to those services. This can include local services providers, content delivery networks, or government agencies, to name a few. The Office notes that it can also be practical to locate certain Internet-related services at an IXP, such as Domain Name System servers. The Office considers that such persons or services should not be precluded from connecting to an IXP.
41. Accordingly, subject to consultation, the Office proposes to determine that **“persons other than ISPs should not be restricted from connecting to and providing services at an IXP, subject to compliance with such relevant laws, regulations, rules or reasonable terms and conditions as may be established by the operator of the IXP for such non-ISP connections.”**

C.3 Governance

42. Because the ISPs who connect at an IXP to exchange local traffic with each other are also competing with each other, the effective operation of the IXP will depend upon appropriate rules to govern the interactions of the ISPs and the operator of the IXP. The Basic Principles 2,3,5,6 and 10 set out in **APPENDIX 2** provide some guidance on governance:
 2. *All ISP’s will work together to establish a peering point for local IP traffic.*
 3. *The Internet Exchange Point or IXP, will be hosted by a neutral party.*

-
5. *No party shall be advantaged or disadvantaged by the practises, contracts, policies, or pricing of the IXP.*
 6. *Transparency – To the extent possible, the operations of the IXP will be transparent to the parties, barring commercially sensitive information.*
 10. *Consensus – The IXP will be driven by consensus views of the parties in its operations, policies, and practices.*
43. The Office notes that the Section 23(2) Notice specifies⁹ that a person, or an affiliate of a person, who holds a *Type 5 – Internet Telephony* or a *Type 9 – Internet Service Provider* ICT service licence is not eligible to hold a *Type G – Internet Exchange Point* ICT network licence or a *Type 16 – Internet Peering Service Provider* ICT service licence. This ensures that the operator of the IXP is a neutral party, consistent with the third Basic Principle.
44. However, assuming the Office ultimately adopts them in a determination following this consultation, the other Basic Principles would need to be put into practice by the ISPs and the operator of the IXP. The Office considers that, subject to operating in a manner consistent with the ICT Law and its regulations, and with the Basic Principles, the operator of the IXP should determine the governance model that it would apply to its operations in consultation with the ISPs. This would be consistent with Principles 2 and 10, which require the parties to work together and seek consensus.
45. The Office considers that permitting the various stakeholders to develop the governance model would result in a robust and sustainable arrangement for the operation of the IXP. Further, in the absence of disputes (which the Office would resolve after investigation under applicable provisions in law and regulation) or of evidence of infringement of the ICT Law or Basic Principles and related IXP Regulatory Framework, the Office does not consider it appropriate or proportionate to determine at this time the governance model which would be applied to the operation of the IXP.
46. Notwithstanding the foregoing, the Office considers it would be assistance to the industry if guidance on some matters were to be provided by the Office at the outset. In particular, the Office notes that, in accordance with the Basic Principles, the operator of the IXP is expected to be an independent non-profit organisation and to operate by consensus with the

⁹ Note '(c)'

ISPs. This differs from the model adopted in other countries, where the operator of the IXP is an association or consortium of ISPs and, in some cases, other entities, or where the IXP is operated by a commercial for-profit organisation.

47. The Office considers that the core function of the IXP is to facilitate the exchange of local Internet traffic¹⁰ within the Cayman Islands, i.e. without carrying the traffic overseas to be exchanged between the ISPs. The ISPs are therefore key stakeholders and the operation of the IXP should reflect their needs.
48. Without prejudice to the specific corporate and organisation structure that the operator of an IXP may decide to adopt, the Office considers that the ISPs should form an advisory committee or board to advise the operator of the IXP, that all ISPs should be represented on that committee or board, and that the operator of the IXP must give effect to the greatest extent practicable to the consensus of that committee or board.
49. The Office notes that the foregoing is without prejudice to other forms of organisation which an IXP operator might propose and might achieve the same objectives (for example, the operator of the IXP could appoint representatives of the ISPs to its own board of directors). The Office will review any such proposals to determine whether they are consistent with the Basic Principles and IXP Regulatory Framework.
50. Accordingly, subject to consultation, the Office proposes to determine that **“the operator of an IXP must establish an advisory board consisting of representatives of each of the ISPs, and must give effect to the greatest extent practicable to the consensus of that board on any matters relating to the exchange of local Internet traffic, provided, however, that the operator of the IXP may submit for the Office’s review and approval alternative methods of determining the consensus of the ISPs on matters relating to the exchange of local Internet traffic.”**

C.4 Operational Matters

51. As with governance matters discussed above, the Basic Principles address selected aspects of the operations of the IXP at a high level. These include:

¹⁰ This scope of the term “local Internet traffic” is further discussed at paragraphs 53 to 58 below.

2. *All ISP's will work together to establish a peering point for local IP traffic.*
 5. *No party shall be advantaged or disadvantaged by the practises, contracts, policies, or pricing of the IXP.*
 7. *Layer 2 – To enhance privacy and speed, the IXP will connect the parties together at Layer 2 of International Organization of Standardization, Open System Interconnection stack- (“ISO OSI stack”).*
52. As above, the Office considers it appropriate that the operator of the IXP determine most matters relating to the operation of the IXP, provided they are consistent with the ICT Law, the Basic Principles, IXP Regulatory Framework and any consensus among the ISPs. However, the Office considers that it may facilitate the establishment of the IXP if some of the operational matters were determined at the outset.
53. The Office notes that Principle 2 refers to the establishment of “*a peering point for local IP traffic*” (emphasis added). The Office further notes that the term “*local IP traffic*” is not defined by the Basic Principles.
54. As noted above in paragraph 40, an IXP can be used to facilitate access by ISPs to a range of other services. However, the Office considers that the primary purpose of an IXP is to facilitate the exchange of traffic between ISPs within the jurisdiction, consistent with the requirements of section **72 (1) (aa)** of the ICT Law to be, “*where practicable, directly interconnected with each of the other ICT network providers’ networks.*”
55. The Office considers, therefore, that “*local IP traffic*” should be considered to be Internet traffic which originates in the Cayman Islands on a network operated by an ISP and terminates in the Cayman Islands on a network operated by another ISP.
56. This proposed definition would exclude transit traffic, i.e. traffic which originates in the Cayman Islands and is destined for an overseas network, and traffic which originates overseas and is destined for a network in the Cayman Islands. The Office notes that an IXP can, in principle, be used to facilitate the provision of transit services and the Office would not prohibit the provision of such services at an IXP. However, the use of the IXP for purposes other than the exchange of local IP traffic as defined above would be subject to commercial terms and conditions agreed by all applicable

parties and may not impose additional costs on or impair the exchange of local IP traffic between any of the other ISPs connected to the IXP.

57. This proposed definition would also exclude IP traffic which is not Internet traffic, for example voice traffic. The Office notes that ISPs should not be precluded from agreeing to exchange local voice traffic via IP connections at an IXP. However, the Office notes that the voice networks of the ISPs are already interconnected via other facilities and the Office does not consider it necessary to make any determinations regarding voice interconnection at this time.
58. However, the Office notes that the proposed definition would apply to all local Internet traffic, i.e. irrespective of whether the Internet traffic originates or terminates on a fixed wireline, fixed wireless or mobile wireless network in the Cayman Islands. The Office considers that no class of consumers in the Cayman Islands should be denied the resilience, latency and other benefits of an IXP because of their choice of Internet access service provider.
59. Accordingly, subject to consultation, the Office proposes to determine that “***‘local IP traffic’*** means ***‘Internet traffic which originates in the Cayman Islands on a network operated by an ISP and terminates in the Cayman Islands on a network operated by another ISP, irrespective of whether the networks in question are fixed wireline, fixed wireless or mobile wireless networks’.***”
60. The Office notes that Principle 3 requires that the IXP be hosted by a neutral party. The Office considers that this means the IXP also should be located in a neutral location, i.e. in a location which is not owned or operated by an ISP or by an affiliate of an ISP. The Office notes that this may result in higher costs to establish the IXP, as it precludes the use of any suitable space which might be available at the premises of an ISP. However, the market is highly competitive, and the Office considers that confidence in the IXP would be greatly enhanced if it is physically located in a space independent of any of the competing ISPs.
61. The Office also notes that Principle 7 requires ISPs to connect to the IXP equipment at Layer 2 of the ISO OSI stack. The Office notes that this type of connection appears to be international best practice for IXPs around the world and would provide ISPs with lower costs and greater control and privacy than the alternative method of connecting at Layer 3.

62. Accordingly, subject to consultation, the Office proposes to determine that **“the IXP must be located in premises which are not owned or operated by an ISP or by an affiliate of an ISP. That ISPs must connect to the IXP equipment at Layer 2 of the ISO OSI stack; and the IXP shall not access, interrupt or otherwise use the ISP’s traffic for any purpose other than what is minimally necessary to facilitate delivery of IXP service.”**

C.5 Funding

63. The Office notes that two of the Basic Principles address how the operator of the IXP is to be compensated for the IXP services it offers to the ISPs:
4. *Shared Costs – The IXP shall be operated as a non-profit service, prices shall be cost-based, and all costs associated with the IXP will be shared by the parties equally.*
 5. *No party shall be advantaged or disadvantaged by the practises, contracts, policies, or pricing of the IXP.*
64. As noted at paragraph 31 above, the Office proposes to determine that IXPs established in the Cayman Islands should operate in a manner consistent with the Basic Principles, including Principles 4 and 5. This means that IXP services in the Cayman Islands would be operated on a not-for-profit basis.
65. However, until an IXP is licensed and established, it is not possible to fully identify its costs or the appropriate charges necessary to recover those costs. The Office considers therefore that the charges and fees to be levied by the operator of an IXP for connection to the IXP should be set by the operator itself, in consultation with the ISPs and in compliance with applicable provisions of the ICT Law and the Regulations. Accordingly, the Office does not propose to establish charging principles for those charges and fees at this time. Notwithstanding this, the Office reserves the right to exercise its authority under section 9(4) of the ICT Law and section 45(1) of the URC Law, *price regulation* provisions.
66. The Office considers, however, that it would be appropriate to address at this time matters relating to the circuits to connect to the IXP and the exchange of traffic across the IXP.

-
67. The Office’s preliminary view, subject to consultation, is that the ISPs should be responsible for installing or procuring, at their own expense, the facilities necessary to connect their networks to the IXP. The Office considers that, as network operators, they should be in a position to do so on the most cost-effective basis. The Office further considers that access to the IXP should not depend on obtaining the necessary circuits from any specific provider. Such a restriction would be discriminatory and would be in breach of the Basic Principles as well as the ICT Law and the regulations.
68. The Office’s preliminary view, subject to consultation, is that the ISPs should exchange local Internet traffic, that is, peered with each other, at the IXP on a charge-free basis. In other words, the operator of the IXP may charge cost-based fees to connect to the IXP but the ISPs should not charge each other to send or to receive traffic. The Office considers that this approach will facilitate the establishment of peering at the IXP and would be most consistent with Basic Principle No. 8, to “*Keep It Simple*”.
69. Accordingly, subject to consultation, the Office proposes to determine that:
- a. **the operator of the IXP shall charge ISPs cost-based fees for connection to and use of the IXP for exchange of Local IP Traffic;**
 - b. **the ISPs shall be responsible for procuring, at their own expense, the necessary facilities to connect to the IXP;**
 - c. **the operator of the IXP may not make access to the IXP contingent upon the use of the services or facilities of any particular network or service provider; and**
 - d. **the ISPs may not charge each other for the exchange of local Internet traffic across the IXP.”**
70. The Office notes that the foregoing applies to the use of the IXP for the purposes of exchanging local Internet traffic. The Office does not propose to address in detail at this time the use of the IXP for other purposes, such as to access services which may be made available at the IXP. The Office considers such services to be commercial services and the parties may negotiate such commercial arrangements as they see fit, provided they do not result in a breach of the provisions proposed in the preceding paragraph.

C.6 IXP Right to Establish or Co-locate and Cross-connect at International Cable Landing Stations

71. The IXPs' ability to own or operate International collocate Cable Landing Stations ('ICLS')¹¹ would enrich the universe of potential IXP members, allowing direct connection with international submarine cables without third-party intermediation. Therefore, OfReg could choose to allow IXPs to own or operate International Cable Landing Stations in the Cayman Islands.
72. Additionally, in accordance with the existing Regulations¹², licensees seeking access to Interconnection and Infrastructure Sharing at ICLS' are required to enter into negotiations to allow such sharing or interconnection, however, this does not automatically guarantee access. At the same time, access to ICLS' is considered an important factor for ISPs success in accessing Content Delivery Networks to facilitate the provision of internet service locally. The Office is therefore considering mandating international cable operators to provide IXPs with collocation and cross-connect at ICLS'.
73. Mandating ICLS access for IXPs is a regulatory intervention that is not novel to many markets reviewed by the Office. This obligation on ICLS owners will enable IXPs to offer international peering and will act as an important factor in attracting international content providers to peer at IXPs in the Cayman Islands. This will support the establishment of the Islands as a regional hub for international internet traffic, as well as facilitate the establishment of an alternate but neutral international connectivity co-location point for ISPs.
74. The Office proposes to provide IXPs with the right to own and operate ICLS. Additionally, the Office proposes to mandate that international fibre cable Network and Service providers must provide cross-connects and collocation to IXPs on request.
75. Accordingly, subject to consultation, the Office proposes to determine that:
"IXPs be allowed to obtain necessary licences to operate International Cable Landing Stations (ICLS). Additionally, persons licensed and operating Type- D2 International Fibre Optic Networks and Type-11a

¹¹ "International Cable Landing Station" means the location where an international submarine cable is or can be first connected to the local public telecommunications networks. Access to physical infrastructure of International Cable Landing Station encompasses access by one ICT Network or Service provider to the cable landing station of another ICT Network or Service provider. This service could encompass access to other associated facilities such as collocation, power, air conditioning and other facilities.

¹² The Information and Communications Technology Authority (Interconnection and Infrastructure Sharing) Regulations, 2003

Provision of Dark Fibre Services, or otherwise authorised to operate a ICLS, must provide International Fibre cross-connects and ICLS co-location to IXPs.”

C.7 IXP Application and Licensing Fees

76. The URC and ICT Laws empower the Office to license and regulate ICT Service providers and ICT Network operators. As a consequence, the Office is given the authority to prescribe and collect fees from applicants and licensees under sections 9(3)(f) and 30 of the ICT Law and section 6(2)(l) of the URC Law.
77. The fees charged by the Office are expected, among other things, to meet its needs for funding its activities in carrying out the statutory functions assigned by law.
78. Currently, all activities identified as ICT Networks and ICT Services (“ICT Sector One”) as set out in the Section 23(2) Notice, are subject to Licence Fees.
79. Licence Fees are comprised of a royalty fee and a regulatory fee. The royalty fee, which is set by the Government, is 6% of each Licensee’s revenues. The regulatory fee, which is based on the Office’s costs for regulating ICT Sector One, is pro-rated across all Licensees based on each Licensee’s quarterly revenues as a percentage of all Licensees’ quarterly Revenues. In certain cases, a licence may exempt certain operations from paying royalty fees. This is typically where the licensee is designated not-for-profit.
80. Being mindful of the need for IXPs to be viable and self-sustaining, as well as the Office’s proposed determination at paragraph 69, that *‘the operator of the IXP shall charge ISPs cost-based fees for connection to and use of the IXP for exchange of Local IP Traffic’*, the Office considers that it would be appropriate to exempt IXP licensees from the requirement to pay royalty fees. This exemption is not intended to apply to any other licensable service offered by the IXP.
81. The Office maintains its position that all licensed Network and Service operators including IXPs are required to pay their share of the costs of regulation in the Cayman Islands.

82. Application fees are typically set to cover the Office's application processing and administrative costs. In considering the appropriate fee for processing an IXP application, the Office notes that there currently exists a \$1500.00 fee for application for grant of Type 11 *Provision of ICT Infrastructure* service licence. Although the Office has determined that provision of IXP or Internet Peering service under a Type 16 is to be distinguished from a Type 11 service, the Office considers that the application processing and administrative costs would be similar. Therefore, the Office proposes to apply the application fee of \$1500.00 to applications for Type 16 Internet Peering Service.
83. The Office's current regulatory framework distinguishes between service and network licence types. As mentioned before, for an IXP to operate within the Islands, it would have to obtain both a Type G IXP network licence and a Type 16 peering service licence, this is because the Office has previously determined that IXP network is any infrastructure operated by a Type 16 service licensee. Accordingly, the Office does not consider it necessary to apply an application fee for considering grant of Type G licence as it would naturally form part of the Type 16 application.
84. Accordingly, subject to consultation, the Office proposes to determine that:
- a. **IXP licensees shall pay their share of Regulatory Fees;**
 - b. **IXP licensees shall be exempt from paying Royalty Fees for services related to the exchange of Local IP Traffic;**
 - c. **The Application Fee for grant of Type 16 Internet Peering Service licence shall be \$1500.00, and**
 - d. **Type G IXP network licence will not be considered without application for Type 16 service licence. Therefore, no application fee will be applied to Type G applications."**

D. Consultation Questions

85. Based on the above, the Office invites all interested parties to submit their responses, with supporting evidence, to the following questions:
86. **Question 1:** Do you agree that, the IXPs established in the Cayman Islands should operate in a manner consistent with the 10 Basic Principles set out in APPENDIX 2 of this Consultation?
87. **Question 2:** Do you agree that, all persons who hold *Type 9 – Internet Service Provider ('ISP')* ICT service licences must connect their ISP

services networks to at least one common licensed IXP in the Cayman Islands and must be obligated to exchange Local IP traffic, whether on a bilateral or multilateral basis?

88. **Question 3:** Do you agree that, persons other than ISPs should not be restricted from connecting to and providing services at an IXP, subject to compliance with such relevant laws, regulations, rules or reasonable terms and conditions as may be established by the operator of the IXP for such non-ISP connections?
89. **Question 4:** Do you agree that, the operator of an IXP must establish an advisory board consisting of representatives of each of the ISPs, and must give effect to the greatest extent practicable to the consensus of that board on any matters relating to the exchange of local Internet traffic, provided, however, that the operator of the IXP may submit for the Office's review and approval alternative methods of determining the consensus of the ISPs on matters relating to the exchange of local Internet traffic?
90. **Question 5:** Do you agree that, '*Local IP Traffic*' should be determined to mean 'Internet traffic which originates in the Cayman Islands on a network operated by an ISP and terminates in the Cayman Islands on a network operated by another ISP, irrespective of whether the networks in question are fixed wireline, fixed wireless or mobile wireless networks.'?
91. **Question 6:** Do you agree that, the IXP must be located in premises which are not owned or operated by an ISP or by an affiliate of an ISP. That ISPs must connect to the IXP equipment at Layer 2 of the ISO OSI stack; and that the IXP shall not access, interrupt or otherwise use the ISP's traffic for any purpose other than what is minimally necessary to facilitate delivery of IXP service?
92. **Question 7:** Do you agree that;
1. the operator of the IXP shall charge ISPs cost-based fees for connection to and use of the IXP for exchange of Local IP Traffic;
 2. the ISPs shall be responsible for procuring, at their own expense, the necessary facilities to connect to the IXP;
 3. the operator of the IXP may not make access to the IXP contingent upon the use of the services or facilities of any particular network or service provider; and
 4. the ISPs may not charge each other for the exchange of local Internet traffic across the IXP?

93. **Question 8:** Do you agree that, IXPs should be allowed to obtain necessary licences to operate International Cable Landing Stations (ICLS) and that persons licensed and operating Type D2 International Fibre Optic Networks and Type 11a Provision of Dark Fibre Services, or otherwise authorised to operate a ICLS, must provide International Fibre cross-connects and ICLS co-location to IXPs?
94. **Question 9:** Do you agree that,
- a. IXP licensees should pay their share of Regulatory Fees;
 - b. IXP licensees should be exempt from paying Royalty Fees for services related to the exchange of Local IP Traffic;
 - c. The Application Fee for grant of Type 16 Internet Peering Service licence should be \$1500.00
 - d. No application fee should be applied to applications for Type G IXP network licence applications?
95. **Question 10:** Do you agree with the proposed Draft IXP Regulatory Framework? If not, why?

E. How to Respond to This Consultation

96. Pursuant guideline 38(f) of the Office's Guidelines¹³ the Office considers that a consultative period of two weeks is appropriate for this consultation on the ground that the matter of facilitating establishment of an IXP in the Cayman Islands is *'a requirement imposed in a policy direction to the office by the Cabinet and is deemed as an urgent matter.*
97. Therefore, all submissions to this consultation should be made in writing and must be received by the Office by **5 p.m. on 25 November 2020** at the latest. When responding, please repeat the entire question above the corresponding response to each question.
98. The Office will aim to post any comments received within the stated deadline on its website by **5 p.m. on 27 November 2020.**
99. For the same reason set out in paragraph 96 above, the Office requires that reply comments to those submissions be filed on or before **5 p.m. on 7 December 2020.**

¹³Office's Consultation Procedure Guidelines

<https://www.ofreg.ky/upimages/commonfiles/1507893545OF20171DeterminationandConsultationProcedureGuidelines.pdf>

100. The Office reserves the right not to accept comments or reply comments submitted after the respective deadlines.

101. Submissions may be filed as follows:

By e-mail to: consultations@ofreg.ky

Or by post:
Utility Regulation and Competition Office
P.O. Box 10189
Grand Cayman KY1-1002
CAYMAN ISLANDS

Or by courier:
Utility Regulation and Competition Office
3rd Floor, Alissta Towers
85 North Sound Road
Grand Cayman CAYMAN ISLANDS
Or by fax to: (345) 945 8284

102. If a respondent chooses to file any information in confidence with OfReg, it should, *at the time of making its filing*, also file redacted versions for the public record along with the reasons for each confidentiality claim and the other requirements for confidentiality claims as specified in **section 107** of the URC Law and in the Information and Communications Technology Authority (Confidentiality) Regulations 2003. OfReg refers respondents particularly to **Regulations 4 (1) (b) and (c)** of those Regulations which set out what needs to be included in such a request.

103. If a respondent chooses to apply to the Office for an extension of the time to file comments or reply comment, it must do so no less than **four (4) days** before the day of the existing deadline, include a complete and detailed justification for the request, and copy all other respondents (if known) *at the same time* as it applies to the Office. The other respondents (if applicable) may comment on the application for an extension within **two (2) days** of submission of the application, copying all other respondents *at the same time*. The Office reserves the right not to accept applications for extensions that do not satisfy these requirements. However, at no time will the Office accept an application for an extension submitted after the deadline in question has passed.

104. Subject to responses from interested parties, OfReg expects to issue a final Determination on the matters addressed by this Consultation and Draft Determination by 18 December 2020.

F. Draft Determination

105. As noted above, **section 7 (1)** of the URC Law states that prior to issuing an administrative determination of public significance, the Office shall “*issue the proposed determination in the form of a draft administrative determination.*”
106. As referenced at paragraph 96 above, because the matter of facilitating establishment of an IXP in the Cayman Islands is ‘*a requirement imposed in a policy direction to the Office by the Cabinet and is deemed an urgent matter*, pursuant to guideline 39 of the Consultation Guidelines, the Office chooses to issue the related draft determination with this Consultation.
107. The Office has set out a number of proposed determinations, subject to consultation, in bold at paragraphs 31, 39, 41, 50, 59, 62, 69, 75 and 84 above. These draft determinations are summarised again in this part in paragraphs 109. Additionally, these draft determinations have informed the development of the Draft IXP Regulatory Framework at **APPENDIX 3**.
108. For the avoidance of doubt, the Office considers the proposals in paragraphs 109 and the Draft IXP Regulatory Framework at APPENDIX 3, to be “*draft administrative determinations*” for the purposes of **section 7 (1)** of the URC Law in relation to this **ICT 2020 – 1– Consultation - Internet Exchange Points (IXP) Regulatory Framework**.
109. **Accordingly, the Office proposes the following Draft Administrative Determinations:**
1. That IXPs established in the Cayman Islands shall operate in a manner consistent with the 10 Basic Principles set out in APPENDIX 2 of this Consultation.
 2. That all persons who hold *Type 9 – Internet Service Provider* (‘ISP’) ICT service licences must connect their ISP services networks to at least one common licensed IXP in the Cayman Islands and must be obligated to exchange Local IP Traffic, whether on a bilateral or multilateral basis.

3. That persons other than ISPs should not be restricted from connecting to and providing services at an IXP, subject to compliance with such relevant laws, regulations, rules or reasonable terms and conditions as may be established by the operator of the IXP for such non-ISP connections.
4. That the operator of an IXP must establish an advisory board consisting of representatives of each of the ISPs, and must give effect to the greatest extent practicable to the consensus of that board on any matters relating to the exchange of local Internet traffic, provided, however, that the operator of the IXP may submit for the Office's review and approval alternative methods of determining the consensus of the ISPs on matters relating to the exchange of local Internet traffic.
5. That, 'Local IP Traffic' should be determined to mean 'Internet traffic which originates in the Cayman Islands on a network operated by an ISP and terminates in the Cayman Islands on a network operated by another ISP, irrespective of whether the networks in question are fixed wireline, fixed wireless or mobile wireless networks.'
6. That IXPs must be located in premises which are not owned or operated by an ISP or by an affiliate of an ISP. That ISPs must connect to the IXP equipment at Layer 2 of the ISO OSI stack; and the IXP shall not access, interrupt or otherwise use the ISP's traffic for any purpose other than what is minimally necessary to facilitate delivery of IXP service.
7. That:
 - a. the operator of the IXP shall charge ISPs cost-based fees for connection to and use of the IXP for exchange of Local IP Traffic;
 - b. the ISPs shall be responsible for procuring, at their own expense, the necessary facilities to connect to the IXP;
 - c. the operator of the IXP may not make access to the IXP contingent upon the use of the services or facilities of any particular network or service provider; and
 - d. the ISPs may not charge each other for the exchange of local Internet traffic across the IXP
8. That IXPs be allowed to obtain necessary licences to operate International Cable Landing Stations (ICLS). Additionally, that

persons licensed and operating Type D2 International Fibre Optic Networks and Type 11a Provision of Dark Fibre Services, or otherwise authorised to operate a ICLS, must provide International Fibre cross-connects and ICLS colocation to IXPs.

9. That,
 - a. IXP licensees shall pay their share of Regulatory Fees;
 - b. IXP licensees shall be exempt from paying Royalty Fees for services related to the exchange of Local IP Traffic;
 - c. The Application Fee for grant of Type 16 Internet Peering Service licence shall be \$1500.00, and
 - d. Type G IXP network licence will not be considered without application for Type 16 service licence. Therefore, no application fee will be applied to Type G applications.

10. That the Draft IXP Regulatory Framework set out at APPENDIX 3, shall apply to IXP services provided in the Cayman Islands.

-END-

Appendix 1

—

Legal Framework

A – Utility Regulation and Competition Law

Section 6 of the URC Law sets out the principal functions of OfReg which include in particular:

6. (1) *The principal functions of the Office, in the markets and sectors for which it has responsibility, are -*

[...]

- (b) to promote appropriate effective and fair competition;*
- (c) to protect the short and long term interests of consumers In relation to utility services and in so doing -*
 - (i) supervise, monitor, and regulate any sectoral provider, in accordance with this Law, the regulations and sectoral legislation and any general policies made by Cabinet in writing;*
 - (ii) ensure that utility services are satisfactory and efficient and that charges imposed in respect of utility services are reasonable and reflect efficient costs of providing the services; and*
 - (iii) publish information, reports and other documents relating to utility services; and*
- (d) to promote innovation and facilitate economic and national development.*

(2) *In performing its functions and exercising its powers under this or any other Law, the Office may -*

[...]

- (d) make administrative determinations, decisions, orders and regulations;*

[...]

- (f) establish external advisory panels and take appropriate actions to foster industry self-regulation and co-regulation;*

[...]

- (o) *conduct research and studies into any matter or technology which may be relevant to its functions and publish its findings, if appropriate;*
- (p) *assign resources and implement initiatives designed to enable the introduction of new and innovative technologies and systems in the markets and sectors for which it has responsibility;*
- (q) *initiate and conduct inquiries and investigations into any matter or complaint, either on its own initiative or referred to it, which in the opinion of the Office, is not frivolous;*
- [...]
- (dd) *conduct public consultations;*
- [...]
- (hh) *take any other action, not expressly prohibited by Law, that is necessary and proper to perform its duties under this Law and sectoral legislation;*

(3) *Without prejudice to subsection (1) or (2), the Office has power to carry on any activity which appears to it to be requisite, advantageous or convenient for or in connection with the performance of its functions or the exercise of its powers under this or any other Law.*

Pursuant to **section 62 of the URC Law**, OfReg has a particular duty to promote innovation and facilitate investment in the economy of the Cayman Islands:

62. *The Office shall have a duty to promote innovation within the sectors for which it has responsibility with a view to contributing to national economic competitiveness and development, and in doing so it may –*

- (a) *through its policies actively facilitate the development and introduction of relevant innovative technologies into the national economy;*
[...]*and*
- (e) *take such other initiatives as it considers to be consistent with its mandate to contribute to national development and economic growth.*

B – Information and Communications Technology Law, 2019 Revision

Section 9 of the ICT Law sets out the powers and duties of OfReg more specifically in relation to the ICT sector. Section 9(3) reads in part:

[...] the principal functions of the Office are –

(a) to promote competition in the provision of ICT services and ICT networks where it is reasonable or necessary to do so;

[...]

(d) to determine the categories of licences to be issued under this Law and the Electronic Transactions Law (2003 Revision);

(e) to license and regulate ICT services and ICT networks as specified in this Law and the Electronic Transactions Law (2003 Revision);

[...]

(h) to promote and maintain an efficient, economic and harmonised utilisation of ICT infrastructure; [...]

Section 9(3) was amended on 16 January 2017 by the Information and Communication Technology Authority (Amendment) (No. 2) Law 2016 (**'Amendment Law'**) to add the following functions of OfReg:

(hc) to develop and maintain cyber security strategies that enhance and support the security and resilience of national and critical ICT infrastructure towards increased economic prosperity, safe and secure business and innovation; ...

Section 65 of the ICT Law states, among other things, that:

(1) Subject to this section, a licensee that operates a public ICT network shall not refuse, obstruct or in any way impede another licensee in the making of any interconnection with its ICT network or the sharing of any infrastructure and shall, in accordance with this section, ensure that the interconnection or infrastructure sharing provided is made at technically feasible physical points.

[...]

(5) Any interconnection or infrastructure sharing provided by a licensee under this section shall be provided at reasonable rates, terms and conditions which are not less favourable than those provided to -

(a) any non-affiliated supplier;

- (b) any subsidiary or affiliate of the licensee; or*
- (c) any other part of the licensee's own business.*

(6) Without prejudice to subsection (5), the Office shall prescribe the cost and pricing standards and other guidelines on which the reasonableness of the rates, terms and conditions of the interconnections will be determined.

Section 66 of the ICT Law states, among other things, that:

(5) Where parties cannot agree upon interconnection or infrastructure sharing rates, the Office may impose such rates.

Section 69 of the ICT Law states, among other things, that:

(2) The Office, in order to promote an efficient, economic and harmonised utilisation of infrastructure, may-

[...]

- (b) inquire into and require modification of any agreement or arrangements entered into between a licensee and another person or licensee which has the effect of limiting either the efficient and harmonised utilisation of infrastructure or the promotion of competition in the provision of ICT services or ICT networks.*

Section 72 of the ICT Law states as follows:

72. (1) ICT service providers and ICT network providers shall use reasonable endeavours to ensure that their ICT services and ICT networks are –

- (a) reliable;*
- (b) provided with due care and skill; and*
- (c) rendered in accordance with the standards reasonably expected of a competent provider of those ICT services and ICT networks.*

This **section 72(1)** was amended by **section 19 of the Amendment Law**, which substituted the word “best” for the word “reasonable” and further inserted the following sub-paragraph:

- (aa) *where practicable, directly interconnected with each of the other ICT network providers' networks;*

C – Information and Communications Technology Authority (Interconnection and Infrastructure Sharing) Regulations, 2003

Regulation 6 states in part:

6. *The following general principles shall apply to the provision of interconnection and infrastructure sharing services –*

[...]

- c) *interconnection and infrastructure sharing services shall be provided by the responder to the requester at reasonable rates, on terms and conditions which are no less favourable than those provided by the responder to itself, any non-affiliated licensee or any subsidiary or affiliate of the responder and shall be of no less favourable quality than that provided by the responder to itself, any non-affiliated licensee or any subsidiary or affiliate of the responder;*

[...]

- (j) *interconnection and infrastructure sharing services shall be provided in a manner that –*
- (i) *maximises the use of public ICT networks and infrastructure;*
 - (ii) *minimises the potential for negative environmental impacts; and*
 - (iii) *enables the development of competition in the provision of public ICT networks and public ICT services in a timely and economic manner;*
- (k) *interconnection and infrastructure sharing services shall be provided by the responder to the requester at any technically feasible point on terms and conditions that are just, reasonable and non-discriminatory and in*

accordance with an interconnection or infrastructure sharing agreement between the two parties;

[...]

Regulation 12 states:

12. A responder shall offer interconnection services at any technically feasible point of its public ICT network, upon request by a requester.

Appendix 2

—

Draft IXP Basic Principles

1. The Cayman Islands would benefit from the establishment of an Internet Exchange Point (IXP).
2. All ISP's will work together to establish a peering point for local IP traffic.
3. The Internet Exchange Point or IXP, will be hosted by a neutral party.
4. Shared Costs – The IXP shall be operated as a non-profit service, prices shall be cost-based, and all costs associated with the IXP will be shared by the parties equally.
5. No party shall be advantaged or disadvantaged by the practises, contracts, policies, or pricing of the IXP.
6. Transparency – To the extent possible, the operations of the IXP will be transparent to the parties, barring commercially sensitive information.
7. Layer 2 – To enhance privacy and speed, the IXP will connect the parties together at Layer 2 of the International Organization of Standardization, Open System Interconnection stack- (“ISO OSI stack”).
8. Keep It Simple – the parties will strive to embrace simplicity in all aspects of the IXP.
9. Licensing – The IXP will be a licensed service of the Office and therefore be subject to regulatory oversight and be provided facility for dispute resolution among the parties.
10. Consensus – The IXP will be driven by consensus views of the parties in its operations, policies, and practices.

Appendix 3 Draft IXP Regulatory Framework



Table of Contents

1. Introduction.....	X
2. Definitions.....	X
3. Regulatory Framework.....	X
Annexure I: Application Criteria.....	X

1. Introduction

- 1.1. Pursuant to Utility Regulation and Competition Law (2019 Revision) (URC Law) and the Information and Communications Technology Law (2019 Revision) (the '**ICT Law**') the telecommunications sector must be regulated by the Utility Regulation and Competition office ("Office" or "OfReg") to, among other objectives, promote appropriate effective and fair competition in the communications markets, protect the short and long term interests of consumers and ensure creation of favourable atmosphere for promotion of innovation and facilitation of development. Additionally, the regulatory activities must focus on promoting and maintaining an efficient, economic and harmonized utilisation of ICT infrastructure as well as protecting critical national infrastructure.
- 1.2. In exercise of the powers conferred by section 12(1) of the URC Law, the Cabinet issued a Direction to the Office – the 'Utility Regulation and Competition (Information and Communications Technology) Directions, 2020'. As part of the Directions, the Office was tasked to, among other things:
 - 1.2.1. Take measures to ensure local internet communication remains onshore including the facilitation of establishment of an ICT peering point for the exchange of local IP traffic between service providers and to take necessary steps to ensure that the exchange of local traffic is a condition in licences of service providers.
- 1.3. The Cayman Islands' Information and Communications Technology (ICT) sector is undergoing rapid change. Implementation of this Regulatory Framework on Internet Exchange Points is focused on fulfilling the mandate to keep local internet traffic within jurisdiction and improve customer experience from internet usage in the country, but is also designed to support the Office's broader sector objectives to facilitate development of a world-class communications ecosystem for the Cayman Islands, to increase the attractiveness of the Islands for investment in digital innovation and development.

2. Definitions

- 2.1. The terms and expressions defined in the URC and ICT Laws and Regulations shall have the same meaning in the present Regulatory Framework.
- 2.2. In addition, the following terms and expressions shall have the meaning assigned to them hereunder except where the context in this Regulatory Framework otherwise requires:

-
- 2.2.1. 'Internet Exchange Points' ("IXP") shall mean the physical infrastructure in the Cayman Islands through which, Internet Service Providers and other entities (such as content delivery networks, content providers, enterprises and others as defined by the Office) connect their networks and exchange internet traffic, but does not include private exchange through direct bilateral arrangements or communication between autonomous systems.
- 2.2.2. 'Internet Exchange Point Services' or 'IXP Services' shall mean services offered by the IXPs These services may include but shall not be limited to provision of Ethernet switch(es) for the purposes of peering or transit among IXP Members, supporting network operations centres for monitoring and fault detection, guaranteed service level agreements, internet security services and other services as deemed appropriate. IXPs, unless authorised through a separate process, shall not offer any service or operate any network that requires specific license, registration or authorisation from the Office.
- 2.2.3. 'IXP Members' shall mean participants at any IXP who can benefit from services of the IXP, including but not limited to peering and/or transit arrangements in line with the IXP policies. These Members shall include Internet Service Providers but may also include other ICT Network or ICT Service licensee.
- 2.2.4. 'IXP Service Provider' shall mean any entity issued license by the Office to provide Internet Exchange Point Services in the Cayman Islands and owns or exercises direct control of an Internet Exchange Point.
- 2.2.5. 'International Cable Landing Station' means the location where an international submarine cable is or can be first connected to the local public telecommunications networks. Access to physical infrastructure of International Cable Landing Station encompasses access by one ICT Network or Service provider to the cable landing station of another ICT Network or Service provider. This service could encompass access to other associated facilities such as collocation, power, air conditioning and other facilities.
- 2.2.6. 'Infringing Content' shall mean content that infringes an existing intellectual property right.
- 2.2.7. 'Local IP traffic' shall mean Internet traffic which originates in the Cayman Islands on a network operated by an ISP and terminates in the Cayman Islands on a network operated by another ISP,

irrespective of whether the networks in question are fixed wireline, fixed wireless or mobile wireless networks.

2.2.8. 'Peering Policy' shall mean rules defined by any IXP Service Provider regarding connecting and sharing of internet traffic by IXP Members at an identified location. These rules may include but are not limited to, ports used for peering, any requirement for mandatory peering or traffic exchange by members.

2.2.9. 'Unlawful Content' shall mean content that is unlawful or prohibited under the laws of the Cayman Islands.

3. Regulatory Framework

3.1. Basic Principles

3.1.1. All Internet Exchange Points in the Cayman Islands shall operate in a manner consistent with the following IXP Basic Principles:

1. The Cayman Islands would benefit from the establishment of an Internet Exchange Point (IXP).
2. All ISP's will work together to establish a peering point for local IP traffic.
3. The Internet Exchange Point or IXP, will be hosted by a neutral party.
4. Shared Costs – The IXP shall be operated as a non-profit service, prices shall be cost-based, and all costs associated with the IXP will be shared by the parties equally.
5. No party shall be advantaged or disadvantaged by the practises, contracts, policies, or pricing of the IXP.
6. Transparency – To the extent possible, the operations of the IXP will be transparent to the parties, barring commercially sensitive information.
7. Layer 2 – To enhance privacy and speed, the IXP will connect the parties together at Layer 2 of the International Organization of Standardization, Open System Interconnection stack- ("ISO OSI stack").
8. Keep It Simple – the parties will strive to embrace simplicity in all aspects of the IXP.

9. Licensing – The IXP will be a licensed service of the Office and therefore be subject to regulatory oversight and be provided facility for dispute resolution among the parties.
10. Consensus – The IXP will be driven by consensus views of the parties in its operations, policies, and practices.

3.2. Scope

- 3.2.1. The provisions of this Regulatory Framework shall apply with regard to any IXP Services provided in the Cayman Islands.
- 3.2.2. The licensing obligation under this Regulatory Framework shall apply to any entity engaged or proposing to engage in IXP Services in the Cayman Islands.

3.3. IXP Licensing and Fees

- 3.3.1. Applications for licence will be evaluated on their merits having regard to the information provided by the applicant and to the broad licensing criteria outlined in “Part III – Licensing” of the ICT Law.
- 3.3.2. Applicants should use their best endeavours to ensure that all information contained in their applications and any other subsequent submissions and representations are correct and accurate in all respect, in reliance upon which the Office will consider the applications. The Office reserves the right not to accept applications which are incomplete.
- 3.3.3. Any entity that seeks to offer IXP Services in the Cayman Islands must apply to the Office for grant of licence to operate as an IXP Service Provider.
- 3.3.4. The Office will only consider applications for grant of IXP licence from companies registered in the Cayman Islands.
- 3.3.5. The fee for application for grant of licence to operate an IXP, is \$1500.00 and is to be submitted along with the relevant IXP application.
- 3.3.6. The information to be provided for the above registration, the form to be used, and the applicable procedure and time limits shall be as prescribed by the Office. All applicants for grant of IXP Service licence

shall follow the licensing procedure and submit all required documents in accordance with Annex 1 of this Regulatory Framework.

- 3.3.7. The licence for the provision of IXP Services shall not be used for provision of other services for which a licence or authorisation of any kind by the Office is required. An IXP Service Provider shall apply separately for any license in accordance with the Office's established procedures.
- 3.3.8. No IXP Service Provider, shareholder in an IXP nor affiliate shall be granted licence or authorisation to operate as an Internet Service Provider (ISP) or Reseller of Internet Service.
- 3.3.9. In cases where an IXP Service Provider obtains a licence to offer other ICT services, all revenue earned from the non-IXP Service shall be clearly indicated in all financial reporting.
- 3.3.10. Under no circumstances shall an IXP licence be used as reason for non-payment of fees as per the conditions of other licence(s) held by the IXP Service Provider.
- 3.3.11. Provision of IXP Services relating to the exchange of Local IP Traffic shall be delivered on a not-for-profit basis. IXP Service Providers shall only charge Members cost-based fees for exchange of Local IP Traffic.
- 3.3.12. IXP Service Providers shall not be required to pay Royalty Fees for provision of services relating to the exchange of Local IP Traffic.

3.4. IXP Participation

- 3.4.1. Every IXP Service Provider shall define and publish its membership policy and make it available to the public.
- 3.4.2. All ISPs licensed in the Cayman Islands are obligated to connect their services and networks to at least one common licensed IXP for the purpose of exchanging Local IP Traffic.
- 3.4.3. Every IXP Service Provider shall allow all ISPs licensed by the Office to connect to the IXP for the purpose of exchanging Local IP Traffic and in order to do so, acquire and have in place the necessary infrastructure to facilitate such exchange.
 - 3.4.3.1. If an IXP Service Provider decides that it is unable or that it is inappropriate to allow an ISP to connect to its infrastructure, the

IXP Service Provider must notify the Office within seven days of such decision with reasons. Notwithstanding any decision of an IXP Service Provider, the Office reserves the right to mandate acceptance of ISP Members by exercise of its relevant authority in Law.

3.4.4. No IXP Service Provider shall make access to the IXP contingent upon the use of the services or facilities of any particular network or service provider.

3.5. IXP Ownership and Shareholding

3.5.1. IXP Service Provider licences will not be issued to any ISP or Reseller of Internet service licensee, nor to any shareholder, affiliate, director or person having a link to such licensees, where in the opinion of the Office such link does not align with the third (3) Basic Principle.

3.5.2. IXP Service Provider licence will not be issued to an entity that:

- a. is not Caymanian controlled;
- b. has less than sixty per cent (60%) beneficial ownership by Caymanians; and
- c. has less than sixty per cent (60%) of its directors as Caymanians.

3.6. IXP Operations

3.6.1. An IXP Service Provider shall establish an advisory board consisting of representatives of each of its ISP Members, and must give effect to the greatest extent practicable to the consensus of that board on any matters relating to the exchange of local Internet traffic, provided, however, that the operator of the IXP may submit for the Office's review and approval alternative methods of determining the consensus of the ISPs on matters relating to the exchange of local Internet traffic.

3.6.2. All infrastructure, management and other personnel of the IXP shall be located in the Cayman Islands.

3.6.3. In further fulfilment of Basic Principle 3, IXPs must be located in premises which are not owned or operated by an ISP or Resellers of Internet service or by a shareholder, affiliate or director of such licensee.

3.6.4. IXP infrastructure shall be located in premises that meet or exceed minimum Cayman Islands building code standards for category 4

hurricane wind ratings and minimum seismic event ratings. The premises shall have multiple independent back-up power supplies, fire suppression and environmental controls, access to terrestrial communications infrastructure and in any case not be located on a ground level floor.

- 3.6.5. IXP Service Providers shall offer the right sufficient redundancy and availability measures to their Members.
- 3.6.6. IXP Service Providers shall define and implement a disaster preparedness and recovery plan for all IXP operations and services to ensure continuity of service.
- 3.6.7. IXP Service Providers are not restricted from offering other services as long as;
 - a. those services do not interfere with the exchange of internet traffic;
 - b. the IXP Service Provider does not make access to the IXP contingent upon the use of any other services or facilities; or
 - c. those services are offered or made possible by unauthorised access to Members internet traffic.
- 3.6.8. An IXP Service Provider shall define its Peering Policy, including rules regarding traffic exchange, and make it available to the public. This Peering Policy shall apply to every IXP Member without any discrimination to Members or prospective Member.
- 3.6.9. Notwithstanding 3.6.8, IXP Service Provider must connect ISPs to the infrastructure equipment at Layer 2 of the ISO OSI stack; and the IXP shall not access, interrupt or otherwise use the ISP's traffic for any purpose other than what is minimally necessary to facilitate delivery of IXP service.
- 3.6.10. ISPs shall be responsible for procuring, at their own expense, the necessary facilities to connect to the IXP.
- 3.6.11. Every IXP Service Provider shall define the technical requirements and statistics that show the value of the provided services. The provider shall be liable for the accuracy of the shared information.
- 3.6.12. Every IXP Provider shall define its pricing policy, provide a copy to the Office and also make it available to the public.

-
- 3.6.13. Notwithstanding any pricing policy established by the IXP Service Provider, the IXP shall charge ISPs cost-based fees only, for connection to and use of the IXP for exchange of Local IP Traffic.
- 3.6.14. The Office shall have the right to develop specific quality of service standards for IXP Providers, if it considers it necessary to do so.
- 3.6.15. IXP Providers shall notify the Office and any other authorised entity, without undue delay, if it becomes aware of any cyber or other threats to its infrastructure or its Member's infrastructure. For this part, an authorised entity includes the relevant Member.
- 3.6.16. IXP Service Providers shall refer any third parties complaining against Unlawful Content or Infringing Content on any IXP Member's network to the competent authorities in the Cayman Islands and also notify the Office.
- 3.6.17. IXP Service Providers shall report financial, technical, governance or any other information with the Office as required in its licence.
- 3.7. Right to Establish or Co-locate and Cross-connect at International Cable Landing Station**
- 3.7.1. Every IXP Service Provider shall have the right to build, own and operate their own International Cable Landing Station (ICLS) in the Cayman Islands. This shall include the right to enter into commercial agreements with submarine cable owners for landing in any IXP-owned facility approved by the Office to be used as International Cable Landing Station.
- 3.7.2. Every IXP Service Provider shall have the right to request from ICLS owners and operators and therefore the right to access ICLS infrastructure in the Cayman Islands for the purpose of establishing and maintaining cross-connect and co-location of equipment at the ICLS to allow the IXP Service Provider to:
- 3.7.2.1. access its own cable capacity on any cable system at the relevant ICLS,
 - 3.7.2.2. access the cable capacity owned by any third party on any cable system landing at the ICLS.
- 3.7.3. ICLS shall provide requested access to any IXP Service Provider in a reasonable timeframe at a cost-oriented price and shall not deny any such requests.

3.7.4. Owners of existing ICLS shall only be allowed to deny access to the IXP Service Provider to any International Cable infrastructure due to technical reasons. In such cases the ICLS owner shall provide necessary details to the satisfaction of the IXP Provider. The Office reserves the right to review any reasons being provided for denial of access and may issue a determination in the matter in accordance with established rules.

3.8. The Office's Powers

3.8.1. Any violation of the provisions of the this IXP Regulatory Framework shall be subject to the actions and penalties that the Office may take or impose under URC and ICT Laws, relevant Regulations or licence conditions but without prejudice to any penalties that may be imposed under any other applicable law in the Cayman Islands.

3.8.2. Unless otherwise specified in this Framework, mentioned provisions shall be mandatory and not subject to any modification through contractual agreement.

3.8.3. This Framework can be amended from time to time at the discretion of the Office.

3.8.4. The Office may issue guidelines, model IXP contracts or clauses, policies, guides, recommendations or other texts aimed at:

3.8.4.1. Clarifying any aspect of this Framework;

3.8.4.2. Providing guidance to IXP Service Providers, Members and the public in general on any aspect of IXP operation;

3.8.4.3. Establishing the Framework by setting out implementation provisions.

3.9. Coming into Force of the Framework

3.9.1. Subject to the provisions of paragraph 3.9.2 below, this Framework shall be considered to be in force seven calendar days after its publication in the form of a final determination on the Office's website.

3.9.2. An IXP or prospective IXP Service Provider's obligation to apply to the Office pursuant to Part 3.3 above, shall come into force seven calendar days after the present Regulatory Framework's entry into force. Notwithstanding this, eligible parties may apply for a licence upon the coming into force of the Framework.

IXP Regulatory Framework

Annex 1: Application Criteria

The prescribed application form to be submitted in support of grant of IXP Service Provider licence will include but not be limited to the following requirements:

1. Payment of the full application fee of \$1500.00.
2. That the relevant application form, be completed in full and signed by an authorised representative of the Applicant.
3. Provision of the management and operational structure of the applicant.
4. Provision of certified copy of a valid company registration and certified Register of Members.
5. Provision of details of the applicant's members shareholding or interest in other ICT Licensees.
6. Provision of details of the applicant's parent, subsidiary or affiliate's ICT operations in the Cayman Islands or any other jurisdiction.
7. Provision of details of technical experience and competency necessary to fulfil the expectations of an IXP Service licence.
8. Provision of description of services to be provided at the IXP.
9. Provision of details of the applicant's IXP and other ICT related operations in any other jurisdiction.
10. Provision of proof available Capital Expenditure and Operational Expenditure as necessary to establish and operate and IXP.