Internet Development in AFRICA

Do resource policies matter for exchange points and their peers?

Madhvi Gokool

AFPIF 2022

Policies

https://www.inx.net.za/ - ‘

Q: *Who is eligible to connect to the exchanges?*

A: The INXes are 100% community operated, and open to any organisation that has their own Internet number resources (ASN + IPV4/IPV6 address space).

Network Engineer : I need public IP resources to connect my customers/users to the Internet. I also need an ASN as I will be peering at the exchange point

AFRINIC NMRP portal - “it is recommended to read the following documents to verify your eligibility for resource membership, understand what policies shall apply to your resource request “

AFRINIC hostmasters - Referring to your request for ASN, be advised that your request shall be evaluated based on our Consolidated Policy Manual Section 7.4. As you would notice, the policy currently in place state that in order to qualify, you need to be Interconnect (including peering) with at least one AS or planning to be within the following six months.

Resource Policies

IXP A to AFRINIC - I need a ‘small’ ASN as I will use BGP communities

AFRINIC Hostmaster - Your request for a ‘small’ ASN has been evaluated against the applicable policy and been approved

IXP A - I am so lucky to get the small ASN as it has run out globally.

IXP C to AFRINIC - I need peering, management IPv4 and IPv6 resources and ASNs to launch my IXP

AFRINIC Hostmaster- Based on your request for EU membership & resources /24 IPv4, /48 IPv6 and ASN to be used for IXP purposes, please send us the following supporting documentation:

1.AS numbers and email contacts of at least three peers connecting at the IXP, we shall contact them to confirm the peering.

2. A copy of the MoU you have signed with your peers.

3. Website(if any) for the IXP

4. Kindly advise if your IXP is “public” and any interested network operator can peer at the IXP - You may share a link to the public website where the same is mentioned.

Challenges faced by network/IXP operators

- What is the CPM? What is a policy?
- Why is AFRINIC asking me for justification of IP addressing needs?
- Why am I asked about the IXP peers and peering policy?
- I can only get a maximum of /22 (1024) IPv4 addresses in one request, but I need 20,000 IPv4 addresses
- Why did I receive a communication from AFRINIC that my organisation is not in compliance with policy XYZ
- I am unable to create a domain object on the WHOIS Database

Let’s delve in

Resource Policies

Resource Policies are the guidelines /rules that enable AFRINIC to manage or distribute IP Number Resources to network operators in its service region.

Developed using a bottom-up Policy Development Process

- Proposal from a member of the AFRINIC Community
- Consultation and Discussion within the Policy Development Working Group
- Consensus Determination
- Ratified by the AFRINIC Board of Directors
- **Implemented** by AFRINIC Staff

Resource Policies

- All implemented policies are documented in the Consolidated Policy Manual
- Any change to an implemented policy needs to go through the Policy Development Process
- Upon implementation, resource policies apply to :-

a) Organisation operating networks that are already Resource Members

b) Organisations that are planning to get public IP Resources to connect their users or customers to the Internet

Policies

AFRINIC Policy Development Process

Policies around services offered, e.g Reverse DNS, lame delegations

What does AFRINIC staff do?

All resource requests are evaluated against the policies that have already been

Implemented

Compliance with these policies is sought …. And this is the PAIN Point of many IXPs and network operators

Benefits of policies

- Engages the AFRINIC community in developing these rules

  Transparent, Bottom-up and open

- Enables AFRINIC to manage resources in a consistent manner

  Same resource policies are applicable to all Resource Members

Benefits of policies

- Enables proactive management of internet number resources

  Soft-landing policy to cater for exhaustion of IPv4 resources

  Intra-RIR transfer policies that allows for IPv4 transfers between organisations within the AFRINIC service region

  Reservations of 2 /16s of IPv4 and ASNs for Internet Exchange Points

Benefits of policies

- Provides visibility regarding availability of Internet Number Resources & conditions to network operators planning to operate a network or those scaling their networks

  Limit to the IPv4 prefix size

  Any number of IPv4 requests can be submitted as long as AFRINIC has an available pool

  IPv6 prefix sizes and also ability to adjust initial allocation/assignment size

Policy Development Process

Process that brings around the resource policies at AFRINIC

- Consultation and Discussion within the Policy Development Working Group

Mailing list - rpd@afrinic.net

Open to the AFRINIC Community - which you are part of either in your individual capacity or as a registered contact of your organisation

All discussions are archived

https://lists.afrinic.net/pipermail/rpd/

How to participate ?

By subscribing to rpd mailing list - rpd@afrinic.net

Go through the policy proposals (they are published on the AFRINIC website)

We encourage the PDWG to go through these proposals and discuss them on the RPD mailing list using the following guidelines:-

You mention the identifier of the proposal and/or the title in the subject of your emails to the list.

Are the problem statement and the solution clear to you?

Does the proposal solve a problem that you are experiencing? If yes, you can reach out to the community and share your situation.

Are you in support of the proposal? If yes, why?

Do you oppose the proposal? If yes, please state clearly the objective reasons.

Can the proposal be enhanced by either removing ambiguous text or reinforcing the solutions?

Consensus

The PDWG Chairs determine whether there is rough consensus among the community during open public policy proposal discussions

- Determining consensus is a process
- Objective is to always aim for **rough consensus**, if not consensus
- Rough consensus is **not** built/determined through a VOTING mechanism
- Rather by ensuring that **all objections/concerns are adequately addressed**
- Look/seek consensus **throughout** the process (*for each contentious issue*)
- **No VOTING mechanism** applied at any point in time (*avoid "vote stuffing"*)
- 100 people for and 5 people against **might** not be rough consensus

  *If a **minority** of participants have a **valid objection**, that objection must be dealt with before rough consensus can be declared*

- 5 people for and 100 people against **might** still be rough consensus

  *As long as there are no **valid objections** that have not been addressed*

What have the network/IXP operators likely missed on the topic of resource policies?

Some statistics

Number of subscribers to rpd mailing list	1211
Number of resource members with staff subscribed	~100
Number of participants/posters in the rpd mailing list discussions since 2005	260
Number of participants/posters in the rpd mailing list with >50 posts per year	2021 - 7 2020 - 9 2019 - 3 2018 - 3

What have the network operators likely missed on the topic of resource policies?

Opportunity to contribute to the development of the resource policies that apply to them when they use them(Resources are used by corporate organisations, end users , on equipment)

Policies can be amended to fix a particular problem being faced by a network operator. The operator can propose the policies using the bottom-up principle and other operators facing the same problem join the discussion and contribute to refine the problem statement and solution.

who knows consensus can be reached

Policies are implemented and they have to comply .. non compliance is considered a breach of the RSA

What have the network operators likely missed on the topic of resource policies?

- Fail to properly manage their resources and become ineligible for additional resource requests.

Hence delays in being able to cater to growth in customer base

- Learning about the policies at the time of submitting resource requests
- Not understanding some of the error messages when they use the myafrinic member portal when managing their resources
- Not understanding non-compliance email notifications that are addressed to them

And IXPs?

CPM

11.0 Resource Reservations for Internet Exchange Points

This policy requests AFRINIC to reserve, and publish IPv4 resources, and ASNs for use by IXPs only.

/16 IPv4 prefix reserved for peering

/16 IPv4 prefix reserved for management

the number of ASNs to be reserved should be the larger of 114 or half of the remaining ASNs between 0 - 65535 within AFRINIC's block at the date of ratification of this policy.

The Peering LAN assignments for each IXP should ensure that the adjacent /24 IP block is reserved (based on the minimum end-user assignment policy size of /24) to support the future growth of the IXP. This will enable an IXP to increase its peering LAN resources to /23 without having to renumber to a new contiguous IP block allocation.

And IXPs?

5.6.4 PI Assignments to critical Infrastructure

5.6.4.1 AFRINIC will make End-User assignment to critical infrastructure providers of the Internet such as public internet exchange points and core DNS service providers.

These allocations will be no longer than a /24 using IPv4. **Multiple allocations may be granted in certain situations.** Exchange point assignments MUST be issued from specific blocks reserved only for this purpose.

5.6.4.4.1 Exchange Point:

An Internet Exchange Point is defined as a physical network infrastructure (layer 2) operated by a single entity whose purpose is to facilitate the exchange of Internet traffic between ISPs. There must be a minimum of three ISPs connected and there must be a clear and open policy for others to join.

And IXPs?

Expansion to other cities/provinces ?

Catered for

Growth in the number of peers beyond the /24 assigned by AFRINIC?

The Peering LAN assignments for each IXP should ensure that the adjacent /24 IP block is reserved (based on the minimum end-user assignment policy size of /24) to support the future growth of the IXP. This will enable an IXP to increase its peering LAN resources to /23 without having to renumber to a new contiguous IP block allocation.

And IXPs?

IXP has grown beyond 512 peers. More peering IPs are required?

IXP is running on /23 peering IPs received before this policy. I would like to renumber to a prefix covered by Section 11 of CPM.

Way forward

Do you feel that the Consolidated Policy Manual sections as written cater for the IXP evolution in the AFRINIC service region? If not, do they need harmonisation and updates?

Are you interested to have a say in the resource policies development?

Do you now know where you can start your involvement?

If you need any assistance - Contact policy-liaison@afrinic.net

Thank you.


twitter.com/ afrinic


flickr.com/ afrinic


facebook.com/ afrinic


linkedin.com/company/ afrinic


youtube.com/ afrinic media


www. afrinic .net