



AfrinIC

AfrinIC-9

22 - 28 Nov 08

Mauritius



2-byte ASN exhaustion, Welcome 4-byte ASN

AfrinIC-9



Mauritius, 28th November 2008

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Spearheading Internet technology and policy development in the African Region

ASN

- - Autonomous System Number
- - Routing Policy Unit
- - 2-byte(RFC 1930)
 - 0-65535

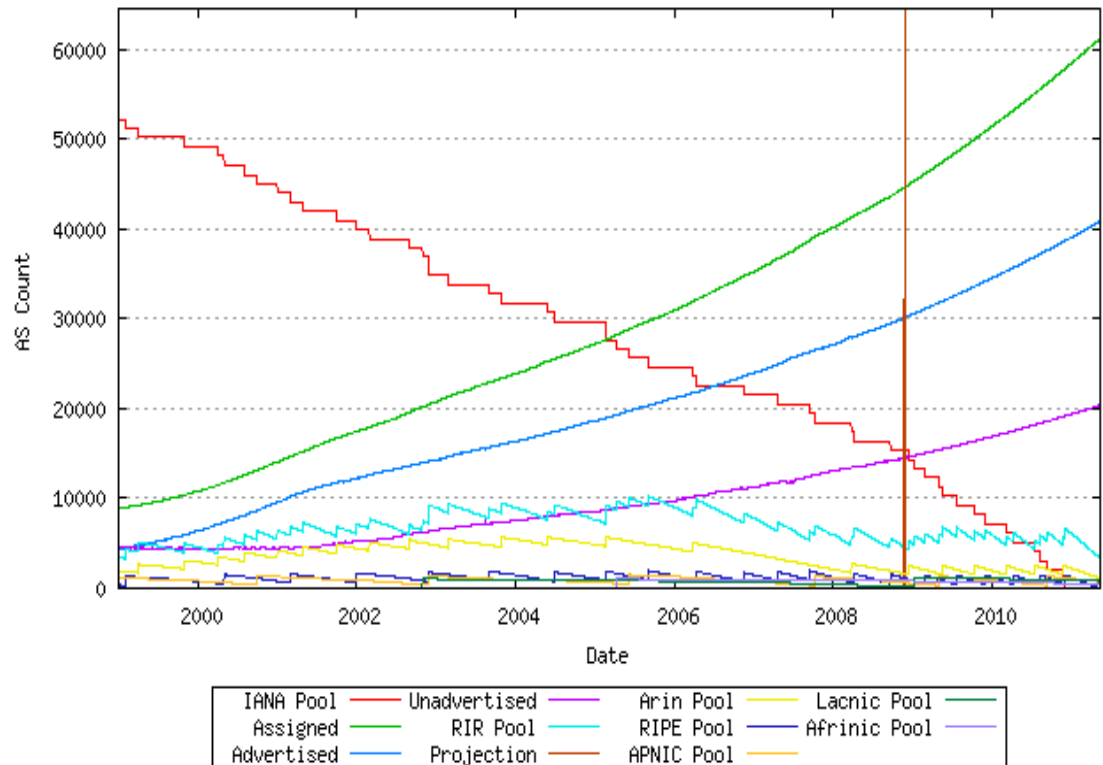
- - Registration process
 - RIRs request to the IANA
 - Networks request to RIRs

- - Use for Inter-AS routing

2-byte ASN exhaustion

The end point is the date where the first RIR has exhausted its available pool of 16-bit AS numbers, and no further numbers are available in the IANA unallocated pool to replenish the RIR's pool.

15-May-2011





4-byte ASN

- - In 11/2006, based on IETF recommendations, IANA increases the ASN pool size to 4-byte -RFC4893
From 65535 to 4,294,967,296
- AS23456 reserved for transition
- - Changes to BGP to support 4-byte ASN
 - Routers use Capabilities Advertisement with BGP-4 to check 4-byte support of peers(RFC3392)
- - 4-byte ASNs available in RIRs pool
 - 5.1- 5.1023 (327680-328703) for AfrinIC



4-byte ASN Policy(1)

- Adopted on 22/09/2005
 - <http://www.afrinic.net/docs/policies/afpol-asn0604.htm>

4.0 Proposal:

This policy proposal nominates three dates for changes to the current AS Number allocation policy for the registry:

- * On 1 January 2007 the registry will process applications that specifically request 4-byte only AS Numbers and allocate such AS Numbers as requested by the applicant. In the absence of any specific request for a 4-byte only AS Number, a 2-byte only AS Number will be allocated by the registry.
- * On 1 January 2009 the registry will process applications that specifically request 2-byte only AS Numbers and allocate such AS Numbers as requested by the applicant. In the absence of any specific request for a 2-byte only AS Number, a 4-byte only AS Number will be allocated by the registry.

4-byte ASN Policy(2)

* On 1 January 2010 the registry will cease to make any distinction between 2-byte only AS Numbers and 4-byte only AS Numbers, and will operate AS Number allocations from an undifferentiated 4-byte AS Number allocation pool.

AfrinIC and 4-byte ASN(1)

- 4-byte analysis done in 2007

aut-num: AS5.1
as-name: TEST-1
descr: For Testing Purposes Only
org: ORG-AFNC1-AFRINIC
admin-c: AAP1-AFRINIC
tech-c: AAP1-AFRINIC
mnt-by: AFRINIC-HM-MNT
source: AFRINIC # Filtered

inetnum: 196.1.15.0 - 196.1.15.255
netname: TEST-003
descr: African Network Information Center.
descr: Testing 4-byte ASN
country: ZA
org: ORG-AFNC1-AFRINIC
admin-c: EMB2-AFRINIC
tech-c: EMB2-AFRINIC
status: ASSIGNED PI
remarks:
remarks: AfrinIC is the Internet Numbers' Registry for the
remarks: African continent and part of the Indian Ocean
remarks: region. This block is for testing reachability.
remarks:
mnt-by: AFRINIC-HM-MNT
mnt-lower: AFRINIC-HM-MNT
changed: hostmaster@afnic.net 20070504
changed: hostmaster@afnic.net 20070604
source: AFRINIC
parent: 196.0.0.0 - 196.255.255.255

AfrinIC and 4-byte ASN (2)

- 4-byte ASN analysis done in 2007

route: 196.1.15.0/24

descr: AFRINIC 4-byte ASN

descr: testing prefix

origin: AS5.1

mnt-by: AAP-MNT

source: RIPE # Filtered

aut-num: AS5.1

as-name: AIRRS_4-byte_ASN

descr: AFRINIC experimental allocation for testing 32-bit
ASN

descr: deployment

mp-export: afi ipv4 to AS3741 announce { 196.1.15.0/24 }

mp-export: afi ipv4 to AS2.4 announce { 196.1.15.0/24 }

mp-import: afi ipv4 from AS2.4 accept { 169.222.0.0/24 }

admin-c: AP147-RIPE

tech-c: AP147-RIPE

mnt-by: AAP-MNT

source: RIPE # Filtered55.255.255

Quagga AS4 patch project

<http://quagga.ncc.eurodata.de/>



AfrinIC and 4-byte ASN(3)

BGP routing table entry for 196.1.15.0/24

Paths: (14 available, best #12, table Default-IP-Routing-Table)

Advertised to non-peer-group peers:

195.28.164.125 203.119.0.116

1930 174 3741 5.1

193.136.5.1 from 193.136.5.1 (193.136.5.1)

Origin IGP, localpref 100, valid, external

Last update: Thu Nov 27 19:44:35 2008

BGP routing table entry for 196.1.15.0/24, version 35513483

Paths: (3 available, best #3, table Default-IP-Routing-Table)

Advertised to update-groups:

2

1239 7018 3741 23456

160.81.19.9 from 160.81.19.9 (144.228.241.254)

Origin IGP, metric 4, localpref 100, valid, external

Community: 16422:666





What's next

- Be Aware that starting from 1st January 2009, AfrinIC will implement the second phase of the 4-byte ASN policy

* On 1 January 2009 the registry will process applications that specifically request 2-byte only AS Numbers and allocate such AS Numbers as requested by the applicant. In the absence of any specific request for a 2-byte only AS Number, a 4-byte only AS Number will be allocated by the registry.*

- For more information on your favorite routing system 4-byte ASN support

<http://www.swissix.ch/asn32/doku.php>

Thank you for attention

