

# Status of IPv6 policies at different RIR service regions

IPv6 Workshop  
ICANN SPO



# IPv6 Policies: Agenda

RIRs coverage

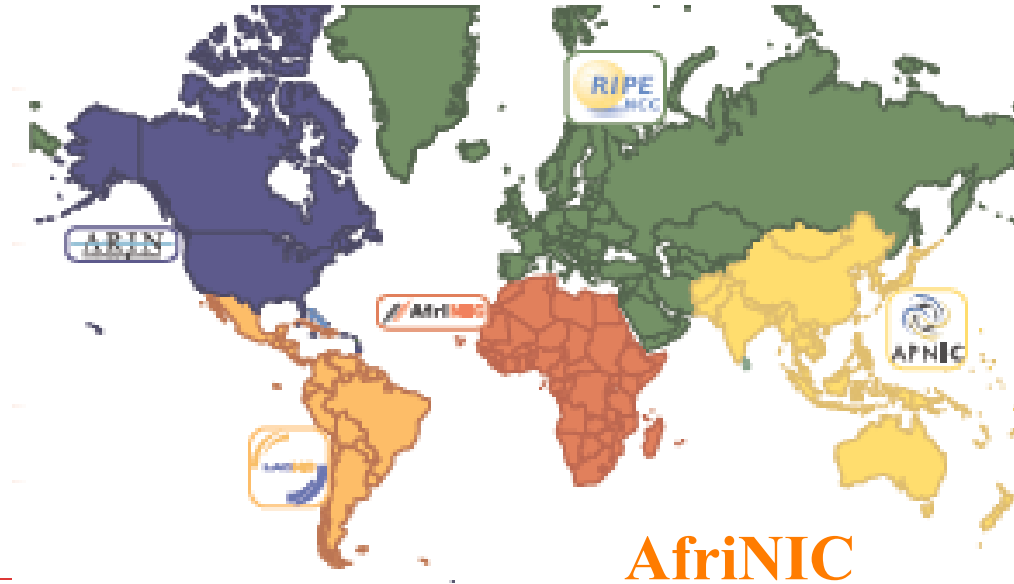
RIR Policies

- Initial allocation
- Subsequent allocations
- Critical Infrastructure

RIR Policies being discussed

Global Policies

# RIRs



## Registry

AfriNIC	Africa
APNIC	Asia Pacific
ARIN	Canada, United States, several islands in the Caribbean Sea and North Atlantic Ocean
LACNIC	Latin America, Caribbean
RIPE NCC	Europe, the Middle East, parts of Central Asia

**AfriNIC**

**APNIC**

**ARIN**

**LACNIC**

**RIPE NCC**

# IPv6: Initial Allocation: AfriNIC

**Size**  $\geq /32$

## **Eligibility**

- Be an LIR (not be an end site)
- Show a reasonable plan for making /48 IPv6 assignments to end sites in the AfriNIC region within twelve months.
- The LIR should also plan to announce the allocation as a single aggregated block in the inter-domain routing system within twelve months.
- Show a detailed plan to provide IPv6 connectivity to organizations in the AfriNIC region.

**Period** Up to 2 years.



# IPv6: Initial Allocation: ARIN

ARIN: Size  $\geq$  /32.

## Eligibility

- Be an LIR; not be an end site;
- Plan to provide IPv6 connectivity to organizations to which it will assign IPv6 address space, by advertising that connectivity through its single aggregated address allocation
- Be an existing, known ISP in the ARIN region or have a plan for making at least 200 /48 assignments to other organizations within five years.
- Organizations may qualify for an initial allocation greater than /32 by submitting documentation that reasonably justifies the request.

**Period** up to two years.

# IPv6: Initial Allocation: RIPE

RIPE NCC: Size  $\geq$  /32.

## Eligibility

- Be an LIR; not be an end site;
- Plan to provide IPv6 connectivity to organizations to which it will assign /48s, by advertising that connectivity through its single aggregated address allocation
- Have a plan for making at least 200 /48 assignments to other organizations within two years.
- Organizations may qualify for an initial allocation greater than /32 by submitting documentation that reasonably justifies the request.
- Considers IPv4 deployment as one of the means of justifying a larger initial allocation.

**Period** For up to two years.

# IPv6: Initial Allocation: APNIC

APNIC: Size  $\geq /32$ .

## Eligibility:

- Equivalent to RIPE NCC
- In addition, APNIC will make allocations to 'closed' networks if they meet all other criteria.

**Period** For up to two years.



# IPv6: Initial Allocation: LACNIC

**Size**  $\geq /32$

## **Eligibility**

- Be a LIR or an ISP; not be an end site (End User)
- Document a detailed plan for the services and IPv6 connectivity to be offered to other organizations
- Announce a single block in the Internet inter-domain routing system, aggregating the total IPv6 address allocation received, within a period not longer than 12 months
- Offer IPv6 services to clients physically located within the region covered by LACNIC within a period not longer than 24 months.

**Period** For up to two years.



# Comparison

	<b>AFRINIC</b>	<b>ARIN</b>	<b>LACNIC</b>	<b>APNIC</b>	<b>RIPE</b>
<b>S I Z E</b>	>=32	>=32	>=32	>=32	>=32
<b>E L E G I B I L I T Y</b>	<b>LIR</b> Detailed Plan. (12 months) BGP Announce	<b>LIR</b> Detailed Plan (at least 200 /48 assignments in 5 years) BGP Announce	<b>LIR</b> Detailed Plan Service in 24 months Announce in 12 months	<b>LIR</b> Detailed Plan Detailed Plan (at least 200 /48 assignments in 2 years) BGP Announce	<b>LIR</b> Detailed Plan (at least 200 /48 assignments in 2 years) BGP Announce

# IPv6 Subsequent Allocations

AfriNIC - APNIC - RIPE NCC - LACNIC

## Size:

- Minimum size of next allocation will equal the first allocation size. More can be allocated but justification must be supplied.

## Eligibility

- ISP/LIR must satisfy the evaluation threshold of past address utilization in terms of the number of sites in units of /48 assignments.
- The HD- Ratio (RFC3194) of 0.8 is used to determine the utilization thresholds that justify the allocation of additional addresses.

**Period** Up to two years.

(Contiguous allocation provided if possible.)

# IPv6 Subsequent Allocations

ARIN: similar with exceptions

## Eligibility

- ISP/LIR must satisfy the evaluation threshold of past address utilization in terms of the number of sites in units of **/56 assignments**.
- The **HD-Ratio of 0.94** is used to determine the utilization thresholds that justify the allocation of additional addresses.

# IPv6 Critical Infrastructure

APNIC

**Definition:** Root DNS, ccTLD, gTLD, IANA, RIRs, NIRs.

**Size**

- /32 minimum.
- IXP/48 minimum (IXP policy).

**Eligibility** Assignments to critical infrastructure are available only to the actual operators of the network infrastructure performing such functions.



# IPv6 Critical Infrastructure

ARIN (Known as 'micro-allocation' policy)

**Definition** Root DNS, ccTLD, gTLD, IANA, RIRs, IXP.

**Size** /48 minimum.

**Eligibility** Assignments to critical infrastructure are available only to the actual operators of the network infrastructure performing such functions.

# IPv6 Critical Infrastructure

LACNIC

**Definition** NAPs, Root DNS, ccTLD, gTLD, IANA, RIRs, NIRs.

**Size** /48 minimum, /32 maximum.

**Eligibility**

- Micro allocation to critical Internet infrastructure operators only.
- For IXP: must have a clear and open policy for others to join and must have at least three members.

# IPv6 Critical Infrastructure

RIPE NCC

**Definition** Root DNS, Anycasting ccTLD, gTLD.

**Size**

- For Root DNS minimum allocation size at time of request
- For Anycasting ccTLD, gTLD a /48.
- IXP: Size /64 or /48

**Eligibility**

- Assignments to critical infrastructure are available only to the actual network infrastructure performing such functions.
- For IXP: must have a clear and open policy for others to join and must have at least three members.

# IPv6: End Users

ARIN

**Size** /48 minimum.

**Eligibility**

- Not be an IPv6 LIR
- Qualify for an IPv4 assignment or allocation from ARIN under the IPv4 policy currently in effect.



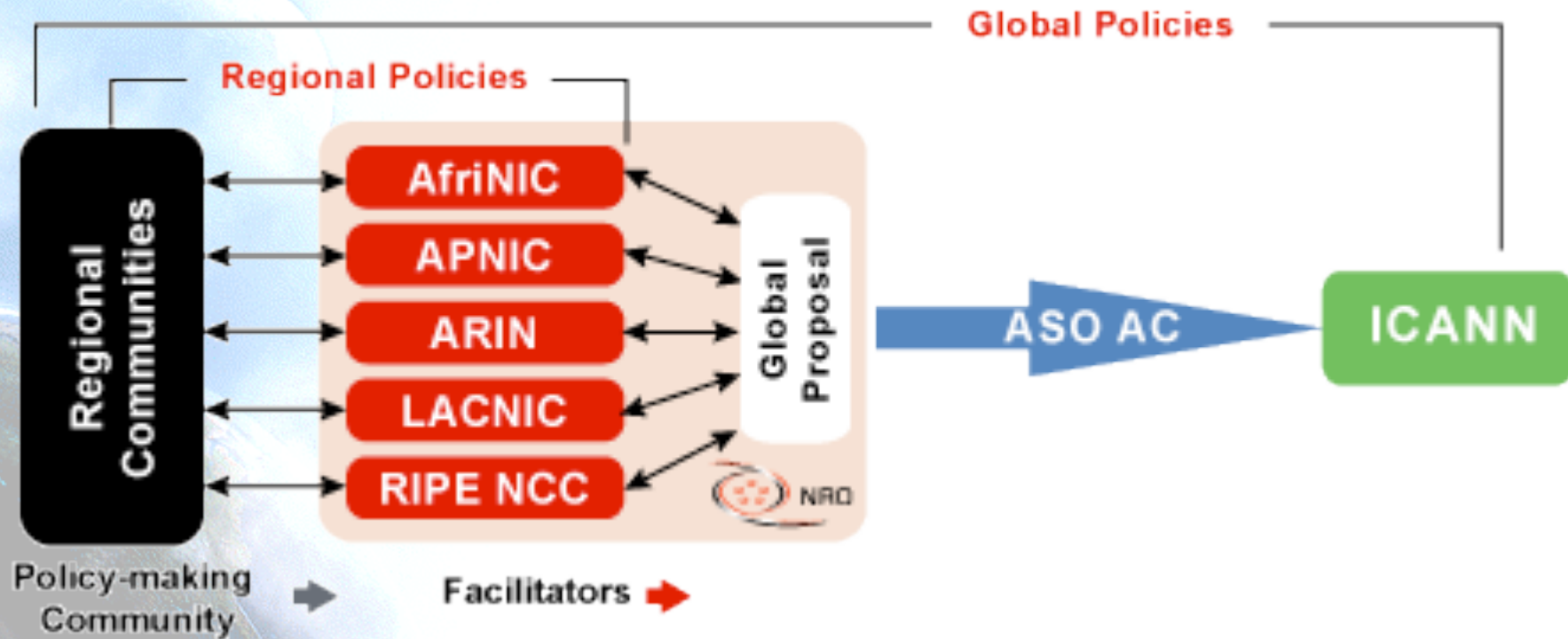
# Policies being discussed

- Remove the Requirement for 200 allocations (ARIN/RIPE)
- No reference to the /48 or any allocation size for assignment plan
- Change for the HD-ratio value from 0.8 to 0.94
- Assignment of a /32 for PI addresses
- Include new organizations who do not want to use IPv4 at all

# IPv6 Global Policy

- What a Global Policy is?
  - Involves all 5 RIRs
  - Has a common text emerged from all 5 RIRs
  - Involves IANA/ICANN + 5 RIRs
- There is only one Global Policy regarding IPv6
  - IANA to RIR IPv6 Allocation (Ratified by ICANN 7 SEP 2006)

# Global PDP



# IPv6 Global Allocation Policy

Minimum Allocation*	Allocation Criteria	New RIR Allocation	Announcements
= 18 Months of Necessary Space	Available Space: < 50% of 1 Allocation Unit	/12 Regardless of Utilization or Transferred Space	IANA, NRO, RIRs will:  •Make Announcements  •Update Websites
Unit Size: /12*  0.02% of Total  [1 IPv4 /8 = 0.4%]	<u>OR</u> Available Space is < 9 Month Necessary Space		
	<u>OR</u> Special Need Exists		

Policy full text: <http://aso.icann.org/docs/aso-global-ipv6.pdf>



# IPv6 Global Allocation Policy

- Minimum Allocation Size
  - Not Dependent on Regional Market Size
  - Contributes to Regional Aggregation
  - Best Conserves Address Space
- Allocation Criteria
  - Provides Objectivity
  - Satisfies Demonstrated Needs
  - Provides Accountability

A composite image showing the Earth's horizon on the left and the Moon in the sky on the right, set against a light blue background.

# Thank You