



ASO Workshop

John Curran
Chair, Number Resource Organization (NRO)
ICANN 43
San José, Costa Rica
14 March 2012

Agenda

- About the ASO
- ASO Review Report
- Global Policy Update
- Regional Policy Update
- Internet Number Resource Status Report
- IPv4 free pool exhaustion
- Update on outreach and education activities



About the ASO

John Curran
Chair NRO EC, President & CEO ARIN
ICANN 43
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About the ASO

- Address Supporting Organization (ASO)
 - Function performed by the NRO
- ICANN supporting organization
- Purpose:
 - Recommendations on Internet number resources
 - Appoint Seats 9 and 10 to ICANN Board
 - Appoint individuals to ICANN bodies
 - NomCom 2012 — Hartmut Glaser (LACNIC)
 - SSR Review Team — Hartmut Glaser (LACNIC)
 - WHOIS Policy Review Team — Wilfried Woeber (RIPE)

ASO Executive Council

- Members Chief Executives of five RIRs
 - NRO Executive Council
- Office Bearer positions rotate annually
- 2012 Members
 - **Chairman:** John Curran (ARIN)
 - **Secretary:** Paul Wilson (APNIC)
 - **Treasurer:** Adiel Akplogan (AfriNIC)
 - **Member:** Axel Pawlik (RIPE NCC)
 - **Member:** Raúl Echeberría (LACNIC)

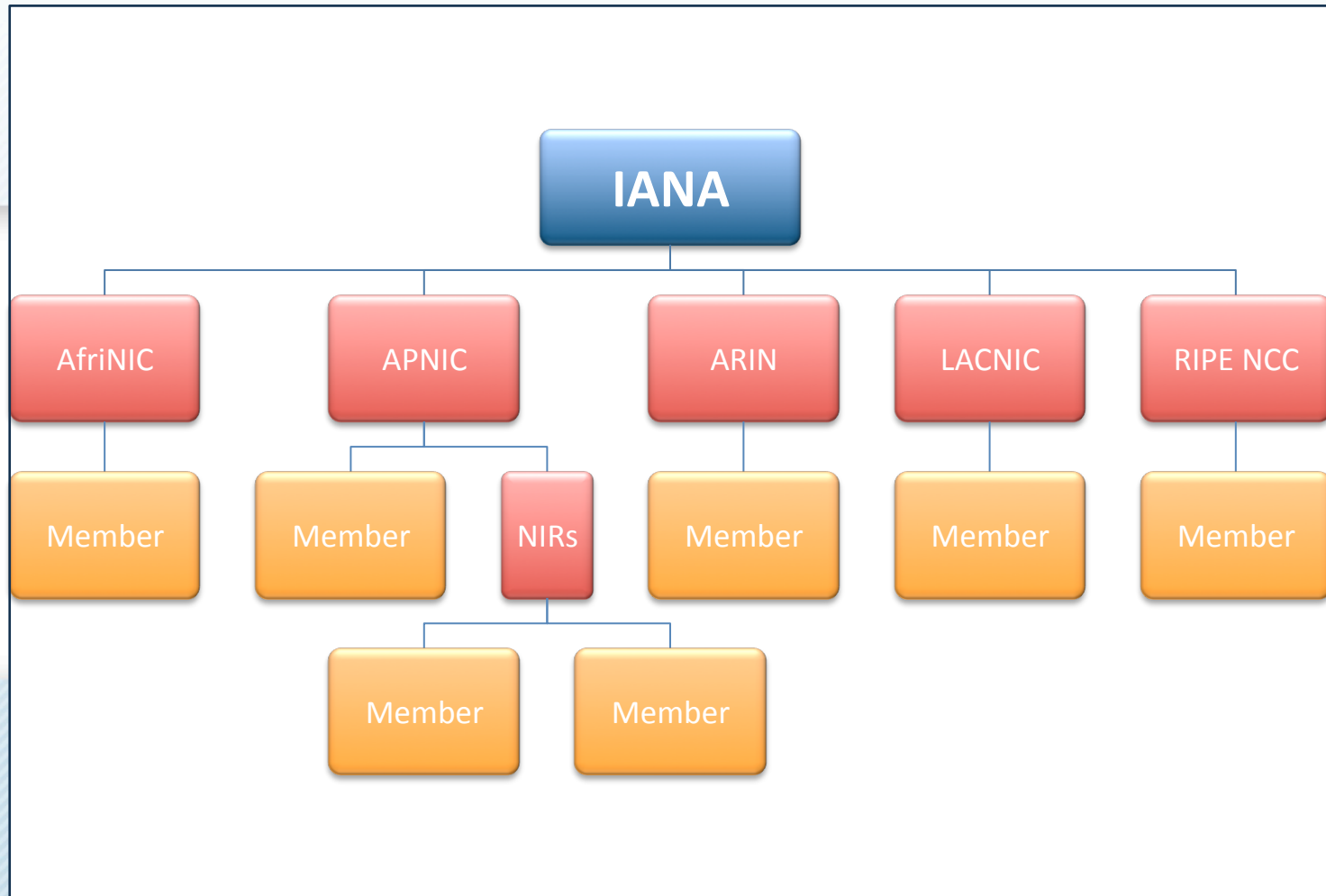
What is the NRO?

- Number Resource Organization
 - Vehicle for RIR cooperation and representation
- Formed for the purposes of:
 - protecting the unallocated Number Resource pool
 - promoting and protecting the bottom-up policy development process
 - acting as a focal point for Internet community input into the RIR system
- Fulfills the role, responsibilities and functions of the ASO within ICANN framework
 - By ICANN/ASO MoU signed on 21 October 2004

RIR Regions



RIR Structure



ASO / NRO

- **NRO expenses distribution 2011**
 - Weighted formula (being currently reviewed) based on revenue and total number resources held:
 - AfriNIC (4.14%)
 - APNIC (37.50%)
 - ARIN (18.17%)
 - LACNIC (6.86%)
 - RIPE NCC (33.45%)
- **NRO contribution to ICANN**
 - The NRO remains committed to a yearly contribution of \$823,000.

ASO Address Council

- Function performed by NRO Number Council
- 15 Community Members
 - 3 from each RIR Region (2 elected, 1 appointed)
- Independent body separate from RIR management and board to:
 - Oversee global number resource policy work
 - Appoint 2 Directors to the ICANN Board
 - Serve on various ICANN bodies as needed:
(e.g. ICANN Nominating Committee, Affirmation of Commitment Review Teams)
 - Advise ICANN Board on number resource matters

Registry	Member
	Alan Barrett* [Vice Chair]
	Douglas Onyango
	Fiona Asonga
	Andy Linton*
	Naresh Ajwani
	Tomohiro Fujisaki
	Jason Schiller
	Ron da Silva*
	Louis Lee [Chair]
	Sebastian Bellagamba
	Hartmut Glaser*
	Alejandro Guzman
	Dave Wilson [Vice Chair]
	Hans Petter Holen
	Wilfried Woeber*

ICANN Board Selection

- Seat Nine selection schedule
 - Nomination Phase 1 November 2011 to 16 January 2012
 - Comment Phase 17 January 2012 – 19 April 2012
 - Interview Phase 20 February 2012 – 19 April 2012
 - Selection Phase 23 April 2012 -14 May 2012
 - Due Diligence Review 15 May 2012 – 15 June 2012
- Selection Announced 18 June 2012
 - (or earlier based on completion date of due diligence review)
- Candidates:
 - Thomas Eric Brunner-Williams
 - Martin J. Levy
 - William Manning
 - Raymond Alan Plzak



Thank you.
Questions?



Independent Review of ICANN ASO

John Curran
Chair, Number Resource Organization (NRO)
ICANN 43
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Independent Review of ICANN ASO

- Request for Proposal
 - ITEMS International, a Paris-based consultancy firm specialized in strategic consulting in the areas of telecommunications and the Internet
- Aims
 - Assess how well the ASO performs within the ICANN system
 - Determine whether any change in its structure or operations is desirable
- Conducted between July and December 2011
 - A global survey
 - Individual interviews at ICANN and RIR meetings

Independent Review of ICANN ASO

- ASO Review Report published 14 March 2012
 - Available on aso.icann.org
- Next Steps
 - ICANN Public Comment Process
 - NRO welcomes comments, and will post our final recommendations during the comment reply period
 - ASO Review Report with comments/replies will go to the Structural Review Committee and ICANN Board



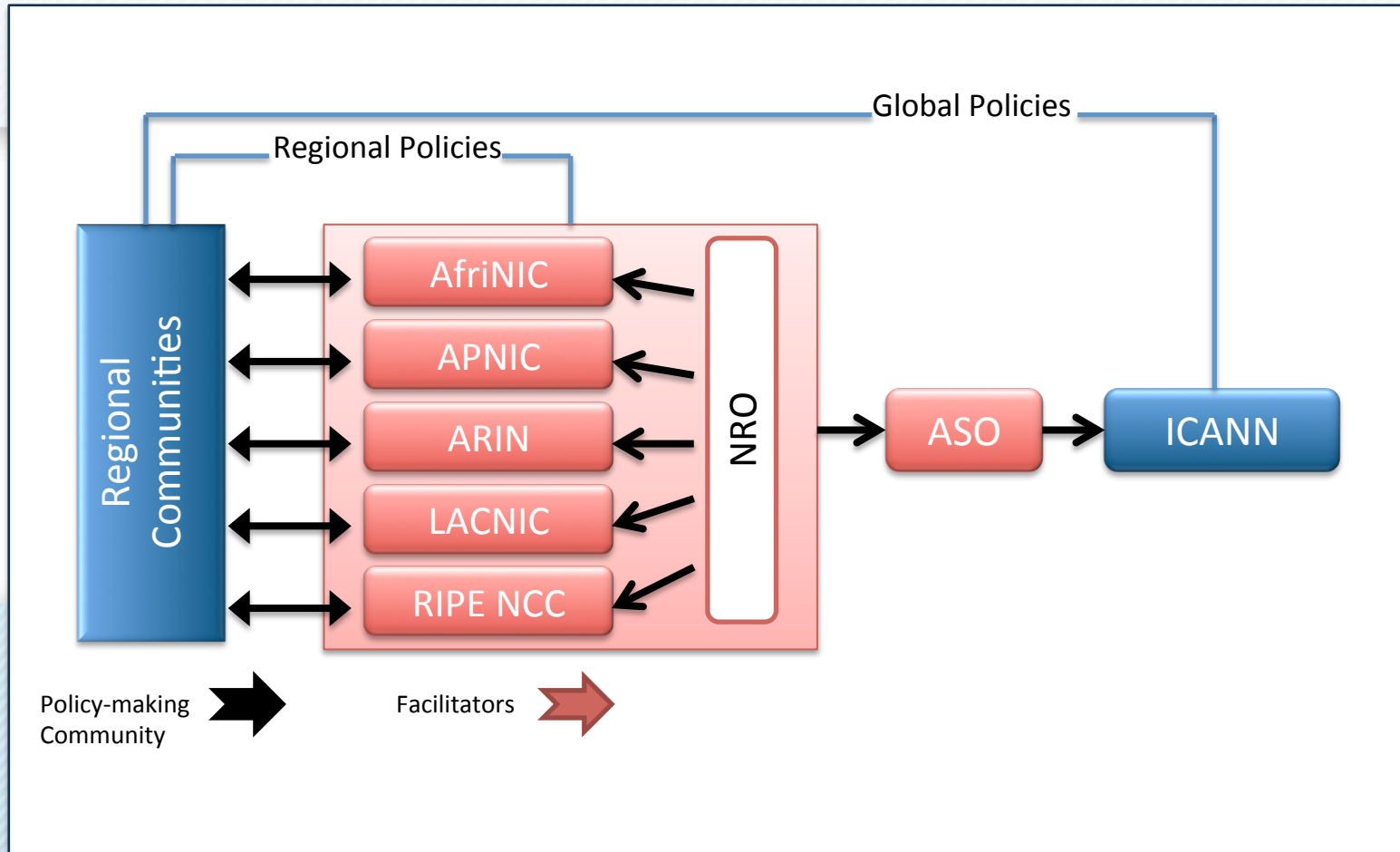
Thank you.
Questions?



Global Policy Update

Status of GPP-IPv4-2011

Global Policy Process



ASO AC: GPP-IPv4-2011

- “Global Policy Proposal for Post Exhaustion IPv4 Allocation Mechanisms by IANA”
- Recognized by ASO AC as GPP candidate 3 February 2011
- Describes how IANA will allocate IPv4 resources now central pool is exhausted
 - Establish a Recovered IPv4 Pool
 - Remaining fragments and returned space
 - 1/5 of Recovered IPv4 Pool to each RIR every IPv4 Allocation Period (6 months)

Global Policy Process

- GPP Process defined by ASO MOU
 - <http://www.icann.org/en/aso/aso-mou-29oct04.htm>
- Attachment A - GPDP
 - <http://www.icann.org/en/aso/aso-mou-attachmentA-29oct04.htm>
- ASO AC Operating Procedures
 - <http://aso.icann.org/documents/operating-procedures-aso-ac/>
- Calls for Policy Proposal Facilitator Team (PPFT)
- Within sixty (60) days AC will either
 - Pass to ICANN for ratification as a global policy;
 - Advise the NRO EC of any concerns; or
 - Request the NRO EC for a time extension

GPP-IPv4-2011 Status

- In Ratification Phase
 - NRO EC transmits to ASO AC - **Completed**
 - Address Council Review - **Completed**
 - Address Council notification to ICANN - **Completed**
 - ICANN Board Ratification:
 - Actions within 60 days: accept, reject, request changes, take no action
 - Open comment period as required by ICANN bylaws



Thank you.
Questions?



Regional Policy Update

Louie Lee
Chair, ICANN ASO Address Council
ICANN 43
San José, Costa Rica
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Summary of Current Proposals

- IPv4 policies: allocation, reclamation, transfer (6)
 - ARIN (3), LACNIC (2), RIPE (1)
- IPv6 address allocation policies (4)
 - APNIC (2), ARIN (1), RIPE (1)
- Whois, registration change policies (2)
 - LACNIC (1), RIPE (1)
- ASN Transfers (1)
 - ARIN (1)
- Other, compliance, documentation (3)
 - APNIC (1), ARIN (1), LACNIC (1)
- Total: 17 policies

APNIC Policy Update

- Under Discussion
 - prop-101 Removing multihoming requirement for IPv6 portable assignments
 - prop-099 IPv6 Reservation for Large Networks
- In Final Call
 - prop-102 Sparse allocation guidelines for IPv6 resource allocations
- Pending Implementation
 - prop-097 Global policy for post exhaustion IPv4 allocation mechanisms by the IANA

AfriNIC Policy Update

- Recently Approved
 - AFPUB-2011-v4-004 (GPP-IPv4-2011)
 - Global Policy for Post Exhaustion IPv4 Allocation Mechanisms by the IANA
 - AFPUB-2010-v4-005
 - IPv4 Soft Landing Policy
 - Changes IPv4 policies to deal with exhaustion
 - Maximum size of each allocation or assignment is reduced, first to /13 and later to /22
 - Time window used for planning purposes is reduced
 - A /12 is reserved for unforeseen purposes
 - AFPUB-2010-GEN-006
 - Abuse Contact Information in the AfriNIC service region
 - Adds a way of recording abuse contact information in WHOIS data

AfriNIC Policy Update

- Expired
 - AFPUB-2011-v4-002
 - Reclamation of Allocated but Un-routed IPv4 Addresses
 - AFPUB-2011-v4-001
 - Transfer of IPv4 Addresses to Any Entity
 - AFPUB-2010-GEN-007
 - Addition of Real Contact Email into ASN Whois Bulk Data
 - AFPUB-2010-v4-003 (GPP-IPv4-2010)
 - Global Policy for IPv4 Allocations by the IANA Post Exhaustion
- Under Discussion
 - (none)

ARIN Policy Update

- Under Discussion
 - ARIN-2011-1: ARIN Inter-RIR Transfers
 - ARIN-2011-7: Compliance Requirement
 - ARIN-2012-1: Clarifying requirements for IPv4 transfers
 - ARIN-2012-2: IPv6 Subsequent Allocations Utilization Requirement
 - ARIN-2012-3 ASN transfers
 - ARIN-2012-4 Return to 12 Month Supply and Reset Trigger to /8 in Free Pool

ARIN Policy Update

- Awaiting Further Developments
 - ARIN-2011-5: Shared Transition Space for IPv4 Address Extension
 - ARIN-2011-9 (Global Proposal): Global Policy for post exhaustion IPv4 allocation mechanisms by the IANA

LACNIC Policy Update

- Under Discussion
 - LAC-2011-07 Modification of Policy 2.3 IPv4 Address Allocation and Assignment Policies
 - LAC-2011-08 Including ROA data in the Whois database when available
 - LAC-2011-09 Modification of the requirements for the initial assignment of IPv4 addresses to end users
 - LAC-2012-01 Eliminate the use of the term "dial-up"
 - LAC-2012-02 Registering assignments

LACNIC Policy Update

- Recently implemented:
 - LAC-2011-03 Modification of Section 2.3.4 - Policies for the Distribution of Additional IPv4 Address Space
 - LAC-2011-04 Add line 6 to Section 11.1 of the Policy Manual on IPv4 address exhaustion
 - LAC-2011-06 Distributions / Allocations for a smooth finish of IPv4 resources

RIPE NCC Region

- Under Discussion
 - 2011-04, Extension of the Minimum Size for IPv6 Initial Allocation
 - 2011-05, Safeguarding future IXPs with IPv4 space
 - 2011-06, Abuse Contact Management in the RIPE NCC Database

Participation is Easy!

- Subscribe to the RIR policy list(s)
 - No membership requirements
- Attend RIR meetings
 - In person (open, free or nominal fee)
 - Remote (free)
- Upcoming Meetings
 - RIPE 64, Ljubljana, Slovenia, 16-20 April 2012
 - ARIN XXIX Vancouver, British Columbia, 22-25 April 2012
 - LACNIC XVII Quito, Ecuador, 6-11 May 2012
 - AfriNIC-16: Serekunda, Gambia 12-18 May 2012
 - APNIC 34 Phnom Penh, Cambodia 21 – 31 August 2012



Thank you.
Questions?



Internet Number Resource Status Report

As of 30 December 2011

Prepared by

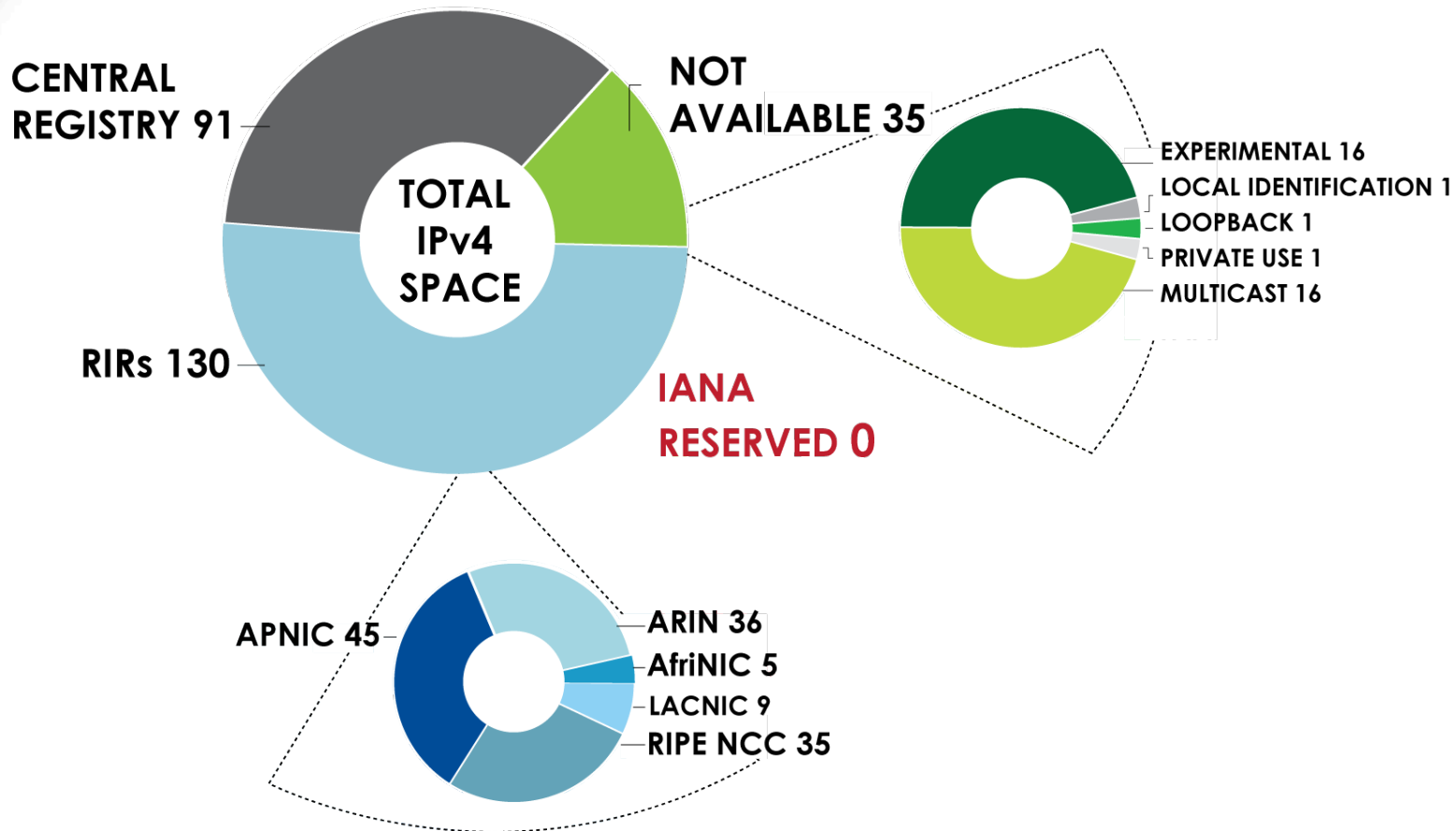
Regional Internet Registries

AfriNIC, APNIC, ARIN, LACNIC and the RIPE NCC

IPv4 ADDRESS SPACE

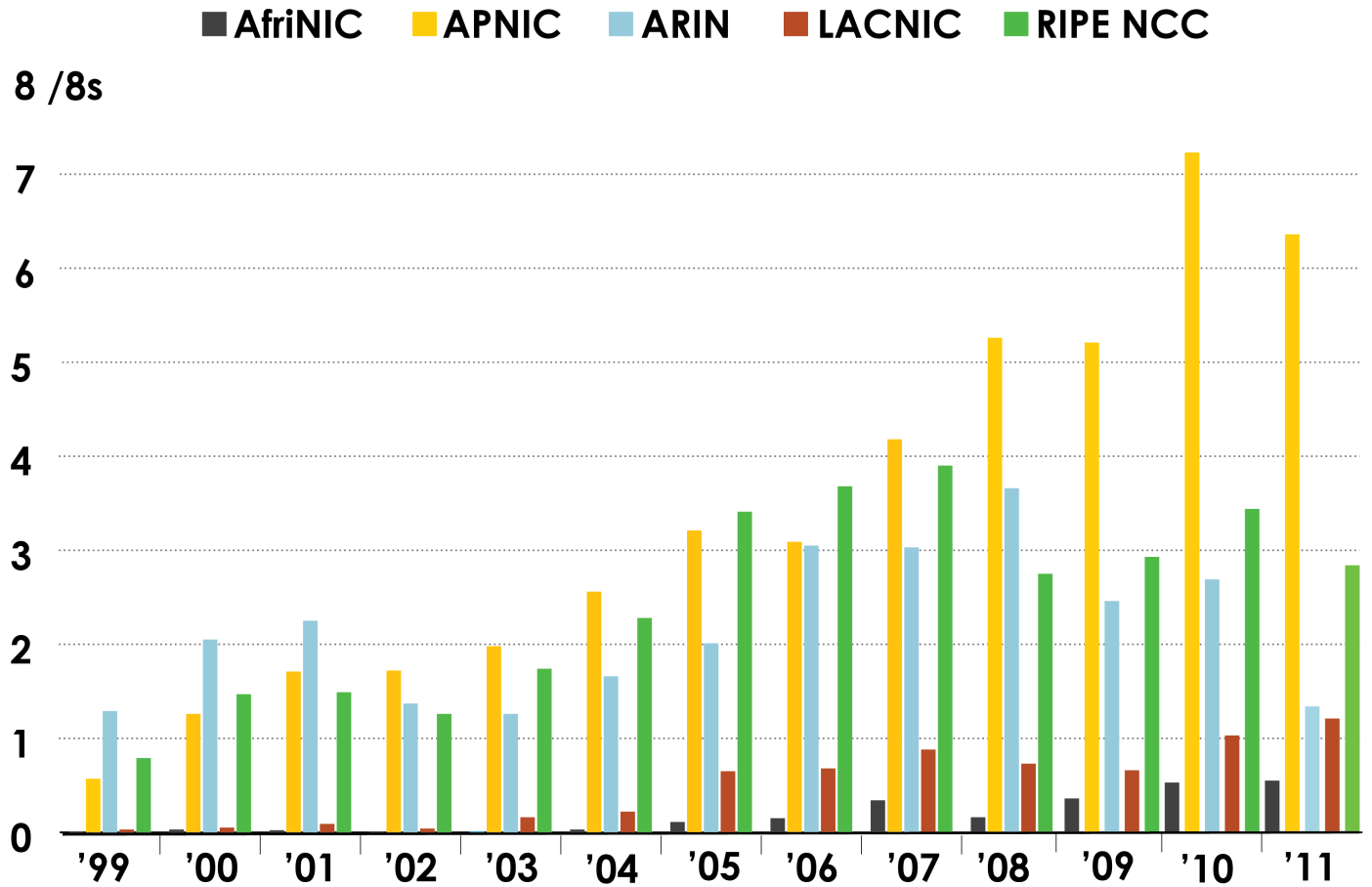
What is the status of each of the 256 /8s?

STATUS OF 256 /8s IPv4 ADDRESS SPACE



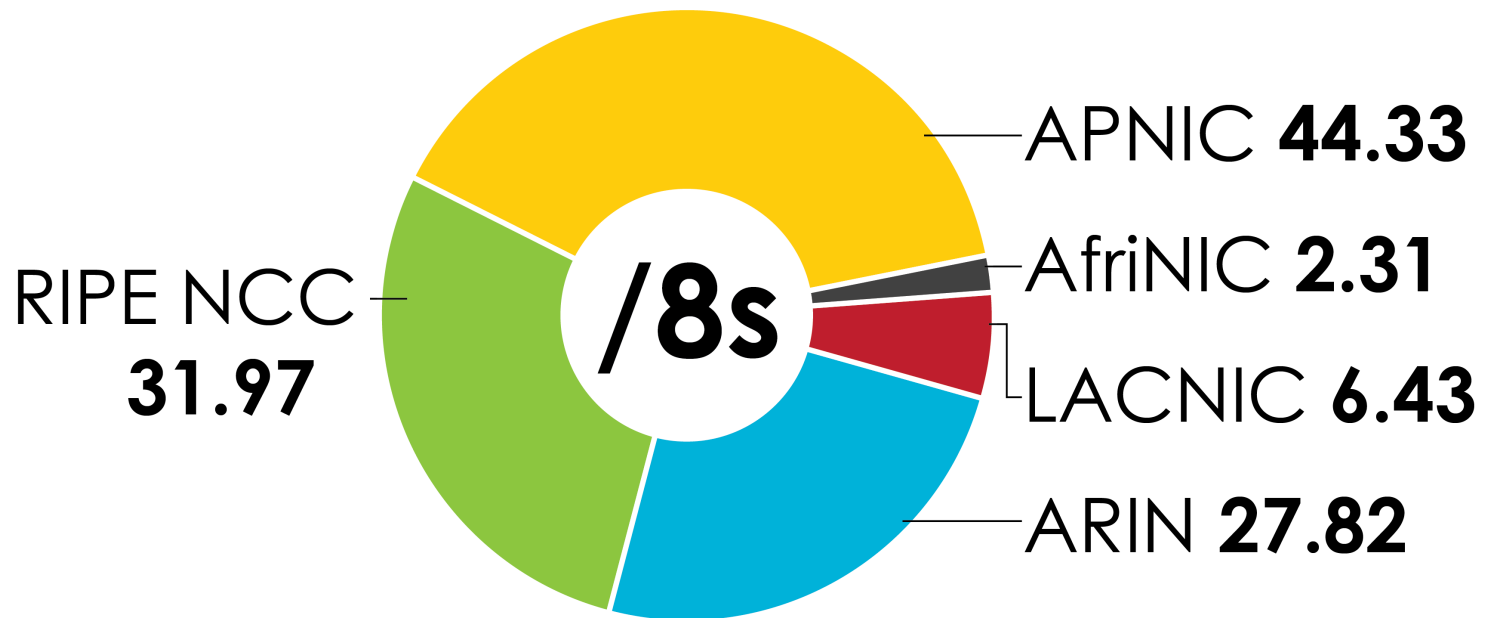
IPv4 ADDRESS SPACE ISSUED (RIRs TO CUSTOMERS)

In terms of /8s, how much space did each RIR issue by year?



IPv4 Address Space Issued (RIRs TO CUSTOMERS)

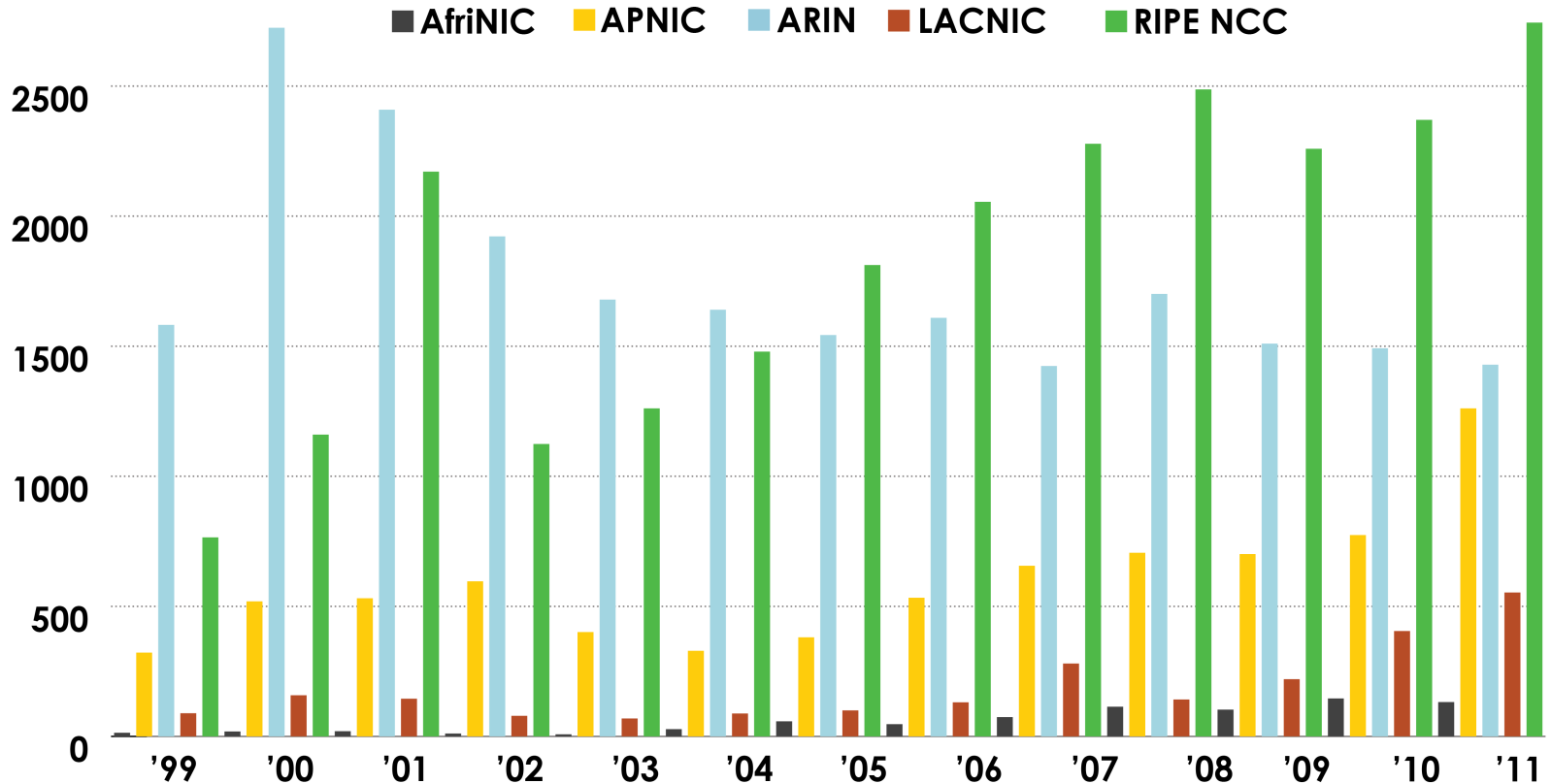
In terms of /8s, how much total space has each RIR issued?
(Jan 1999 – Dec 2011)



ASN ASSIGNMENTS (RIRs TO CUSTOMERS)

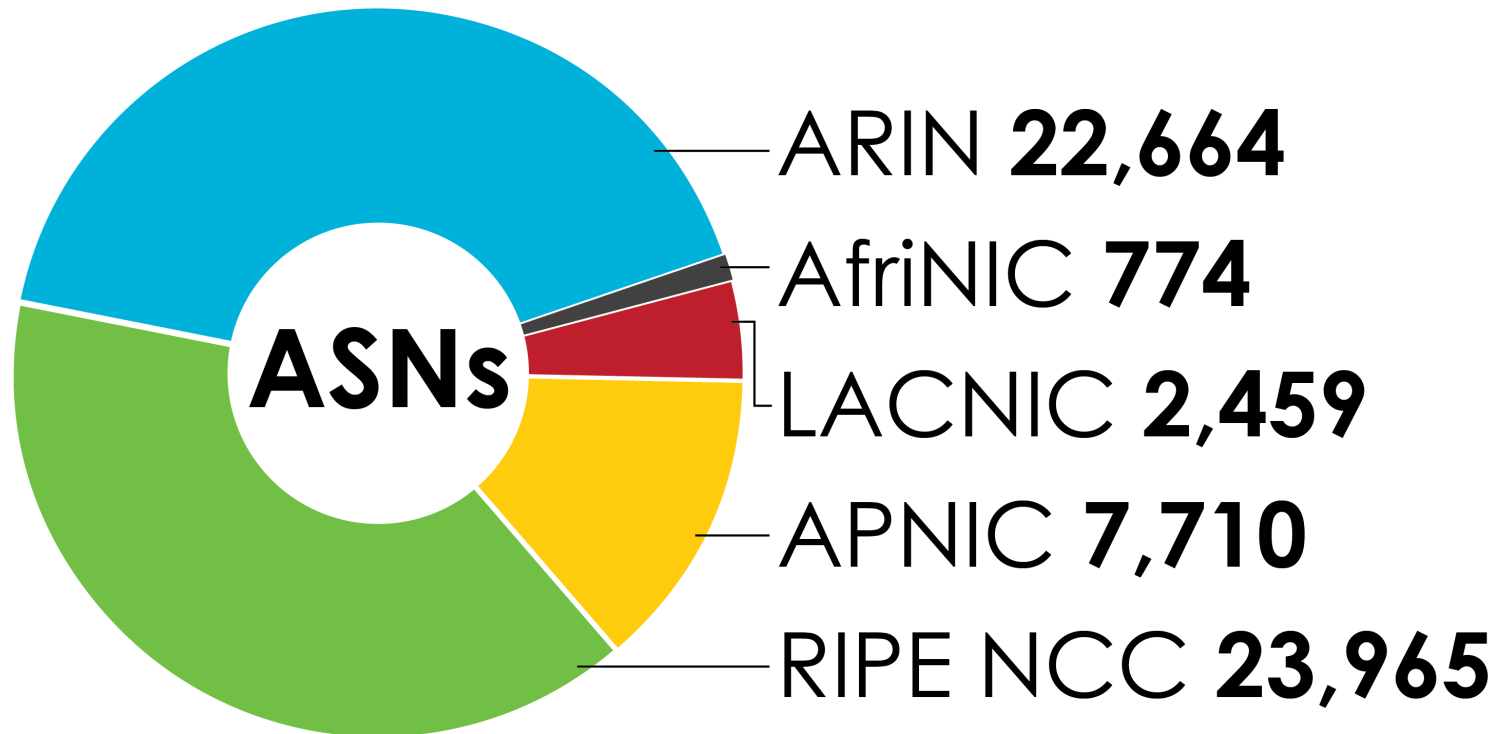
How many ASNs has each RIR assigned by year?

3000 assignments



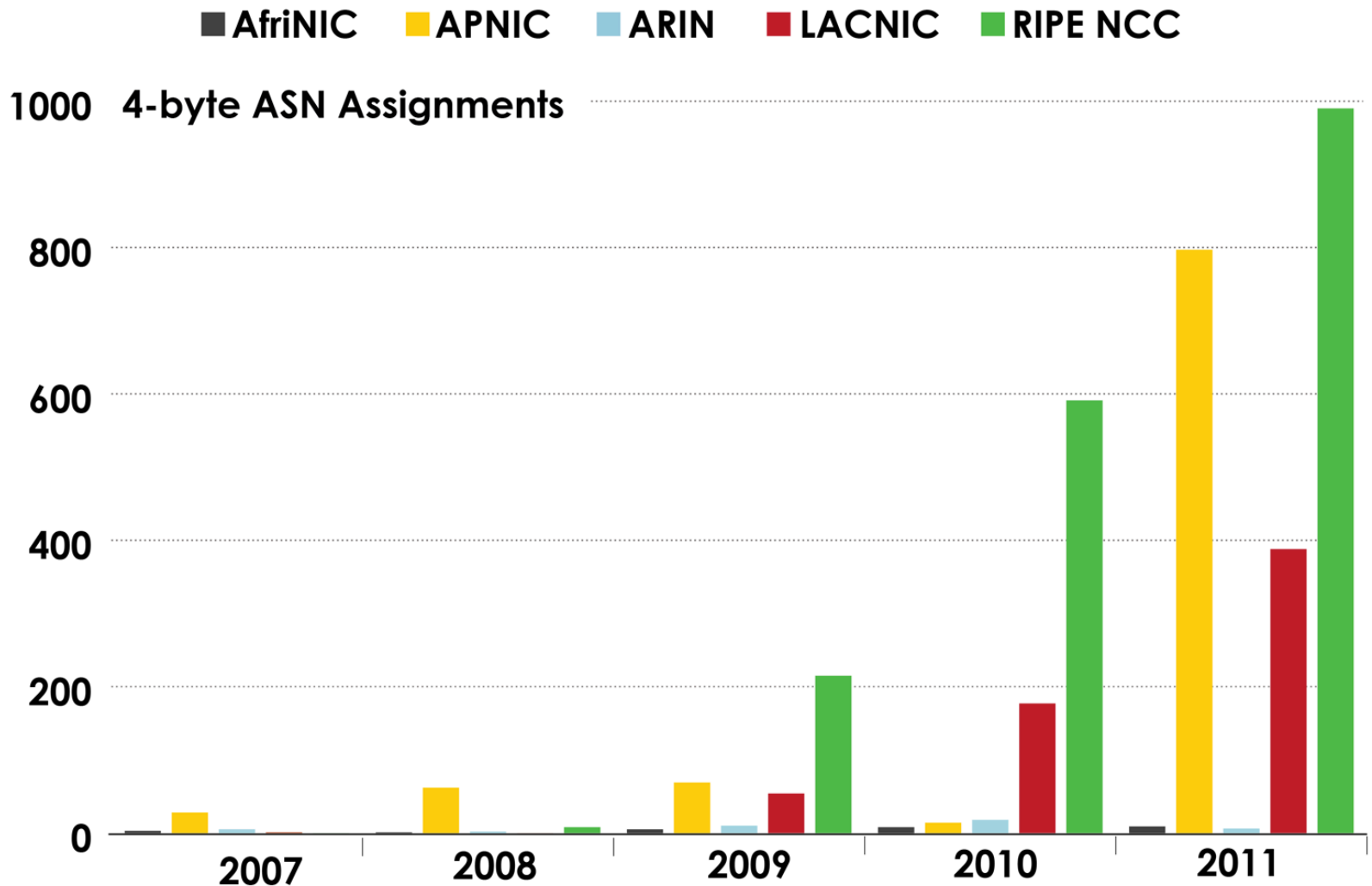
ASN Assignments (RIRs TO CUSTOMERS)

How many total ASNs has each RIR assigned?
(Jan 1999 – Dec 2011)



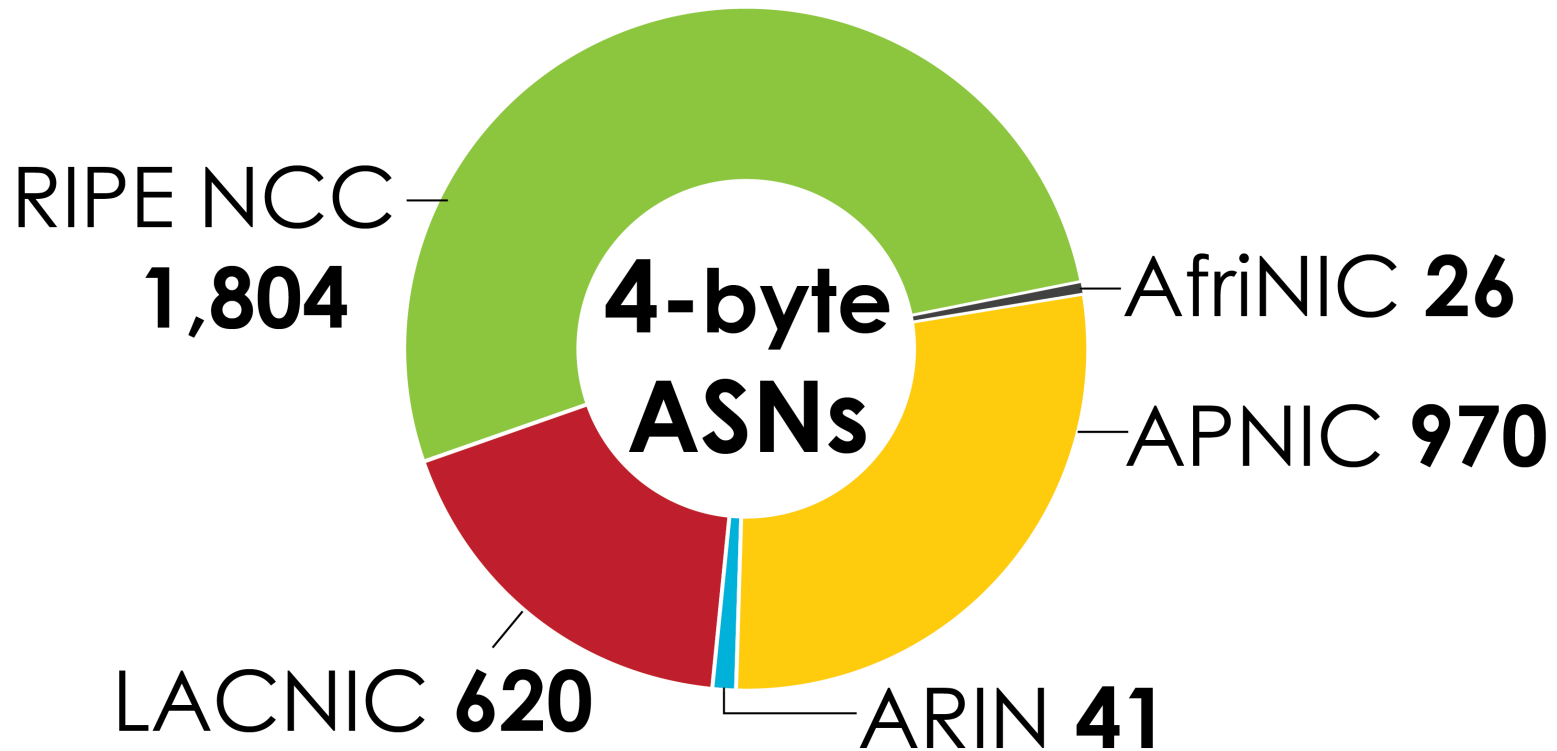
4-BYTE ASN ASSIGNMENTS

How many 4-byte ASNs has each RIR assigned by year?



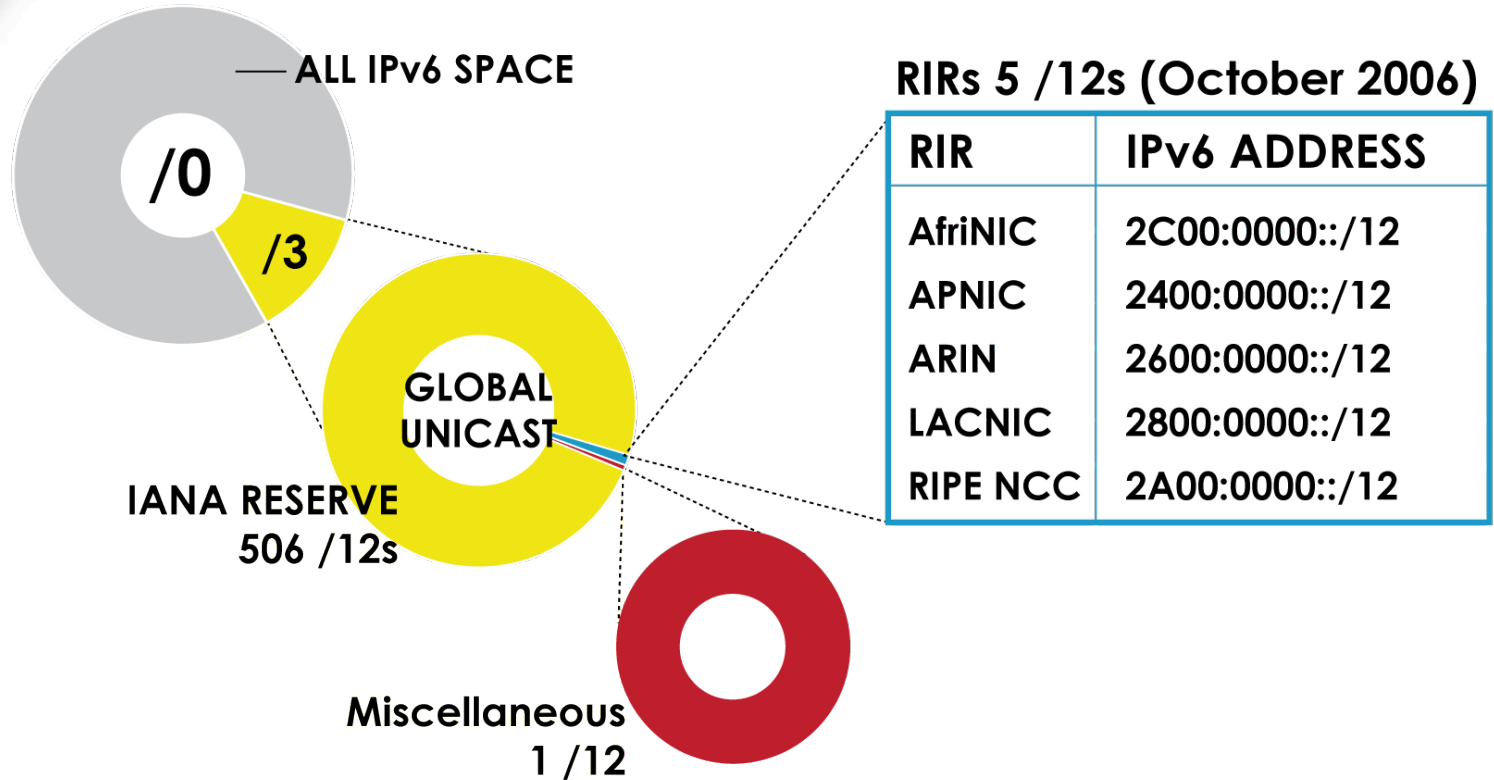
4-Byte ASN Assignments

How many total 4-byte ASNs has each RIR assigned?
(Jan 2007 – Dec 2011)



IPv6 Address Space

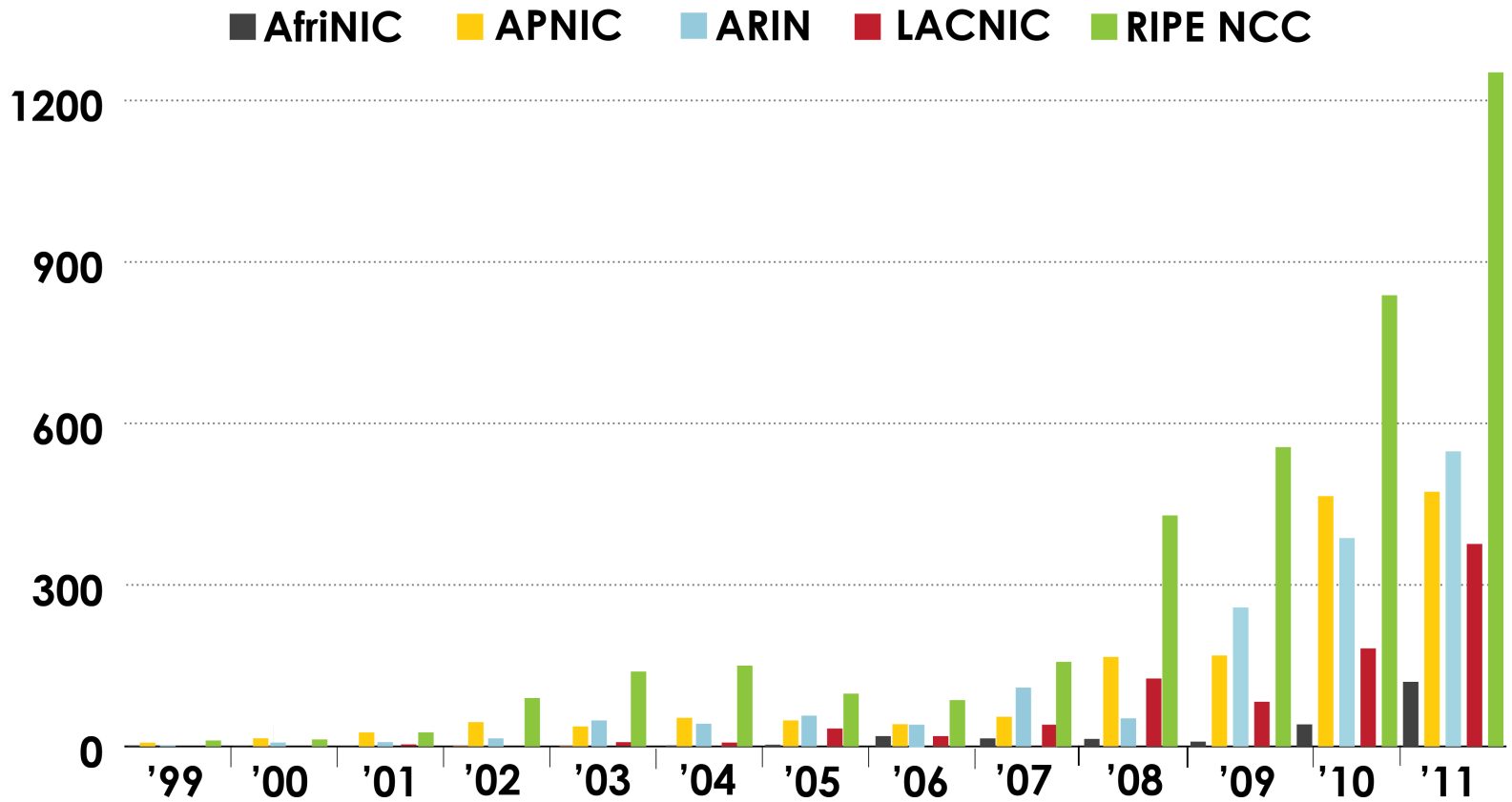
How much has been allocated to the RIRs?



IPv6 Allocations RIRs to LIRs/ISPs

Allocations made by each RIR by year?

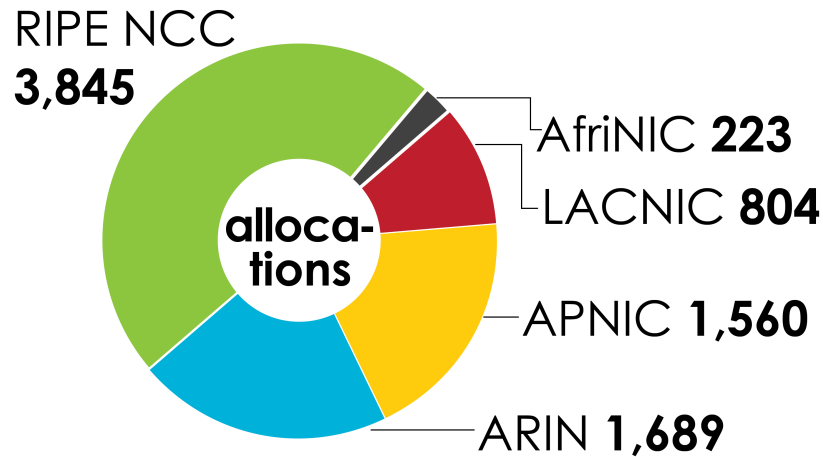
1500 allocations



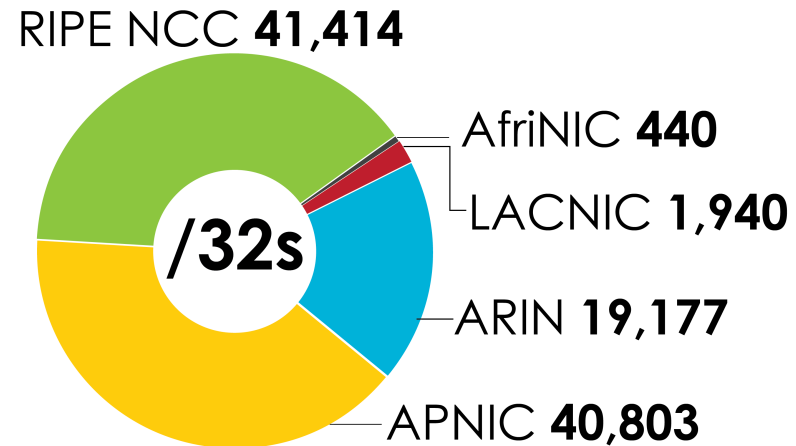
IPv6 Allocations RIRs to LIRs/ISPs

(Jan 1999 – Dec 2011)

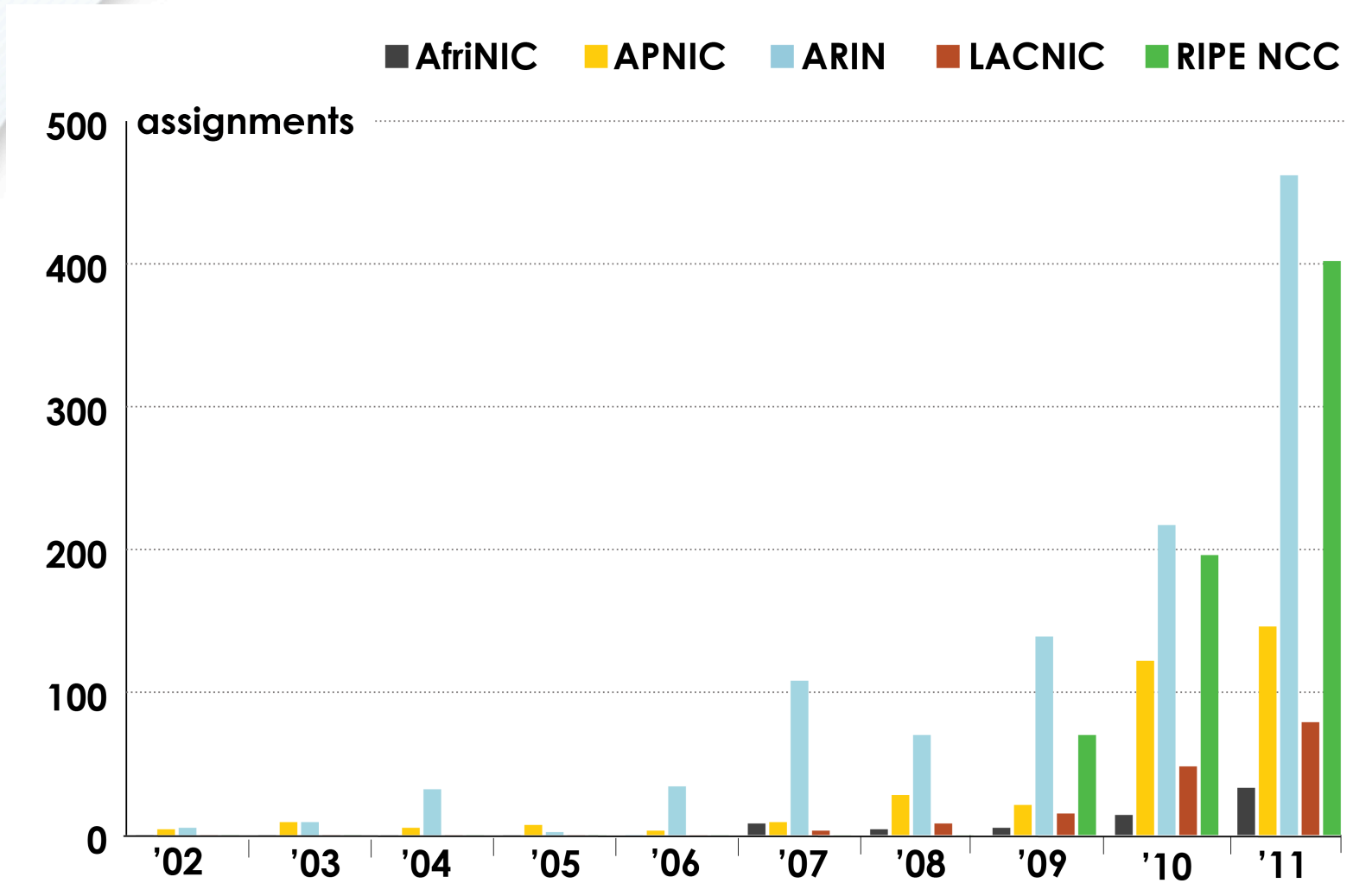
How many total allocations have been made by each RIR?



In terms of /32s, how much total space has each RIR allocated?



IPv6 Assignments RIRs to End-Users



Links to RIR Statistics

- RIR Stats:
 - www.nro.net/statistics
- Raw Data/Historical RIR Allocations:
 - www.aso.icann.org/stats
 - www.iana.org/assignments/ipv4-address-space
 - www.iana.org/assignments/as-numbers
 - www.iana.org/assignments/ipv6-unicast-address-assignments



IPv4 Free Pool Exhaustion

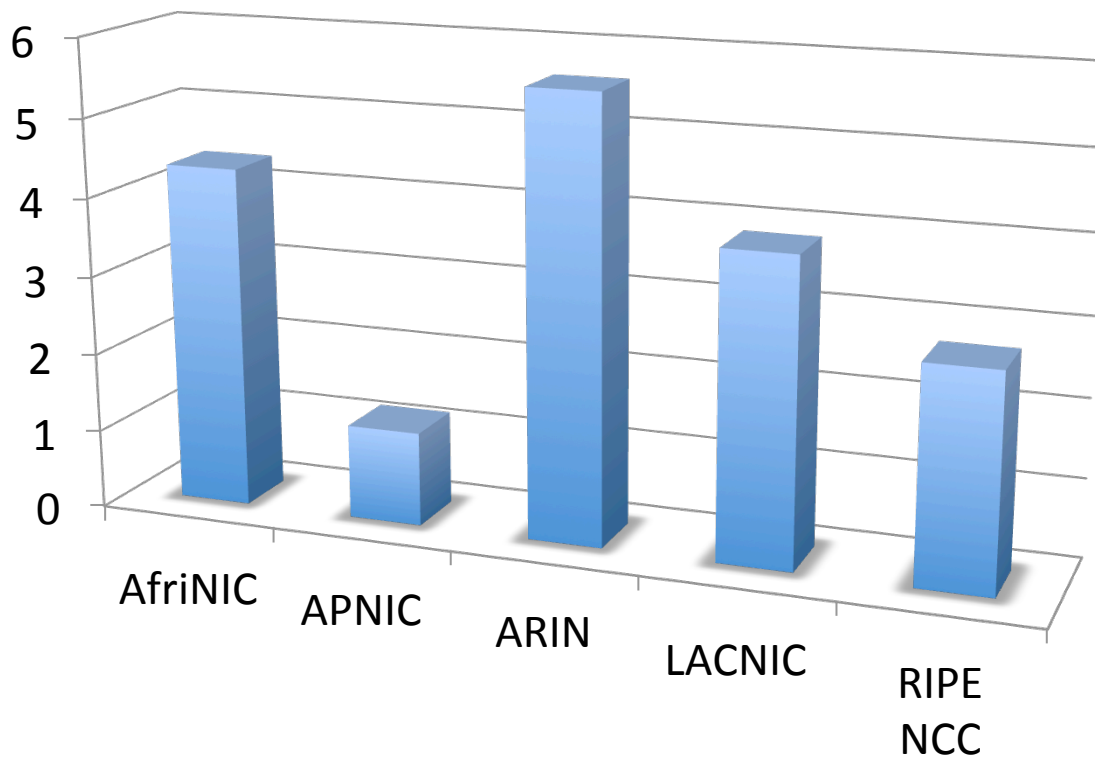
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IPv4 Free Pool

- AfriNIC = 4.3439 /8s
- APNIC = 1.1943 /8s
- ARIN = 5.5964 /8s
- LACNIC = 3.8607 /8s
- RIPE NCC = 2.7270 /8s

Source: IPv4 Address Report <http://www.potaroo.net/tools/ipv4>: As at 13 March 2012

IPv4 Free Pool Remaining /8s



Source: IPv4 Address Report <http://www.potaroo.net/tools/ipv4/>: As at 13 March 2012



Outreach

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RIRs Conduct Training

- **Face-to-face**
 - Training
 - Workshops
 - Seminars
 - Roadshows
- **eLearning**
 - Interactive webinars
 - Self-paced learning modules
- **Collaboration**
 - NOGs
 - Training organizations and Universities

RIR Outreach Activities

- Roundtables, workshops, representation
 - International Telecommunications Union (ITU)
 - Organisation for Economic Cooperation and Development (OECD)
 - Asia-Pacific Economic Cooperation (APEC)
 - Inter-American Telecommunications Commission (CITEL)
 - Caribbean Association of National Telecommunication Organizations (CANTO)

The Seed Alliance

- New umbrella alliance
 - To promote innovation and social development
- Funding by
 - International Development Research Centre (IDRC)
 - AfriNIC
 - APNIC
 - LACNIC
- RIR Partners
 - APNIC (ISIF)
 - LACNIC (FRIDA)
 - AfriNIC (FIRE) new grants program
- Seed Alliance Launch on 31 March 2012



Thank you.
Questions?