

Internet Resource Policy Evaluation Process

ARIN VIII

Richard Jimmerson

October 29, 2001

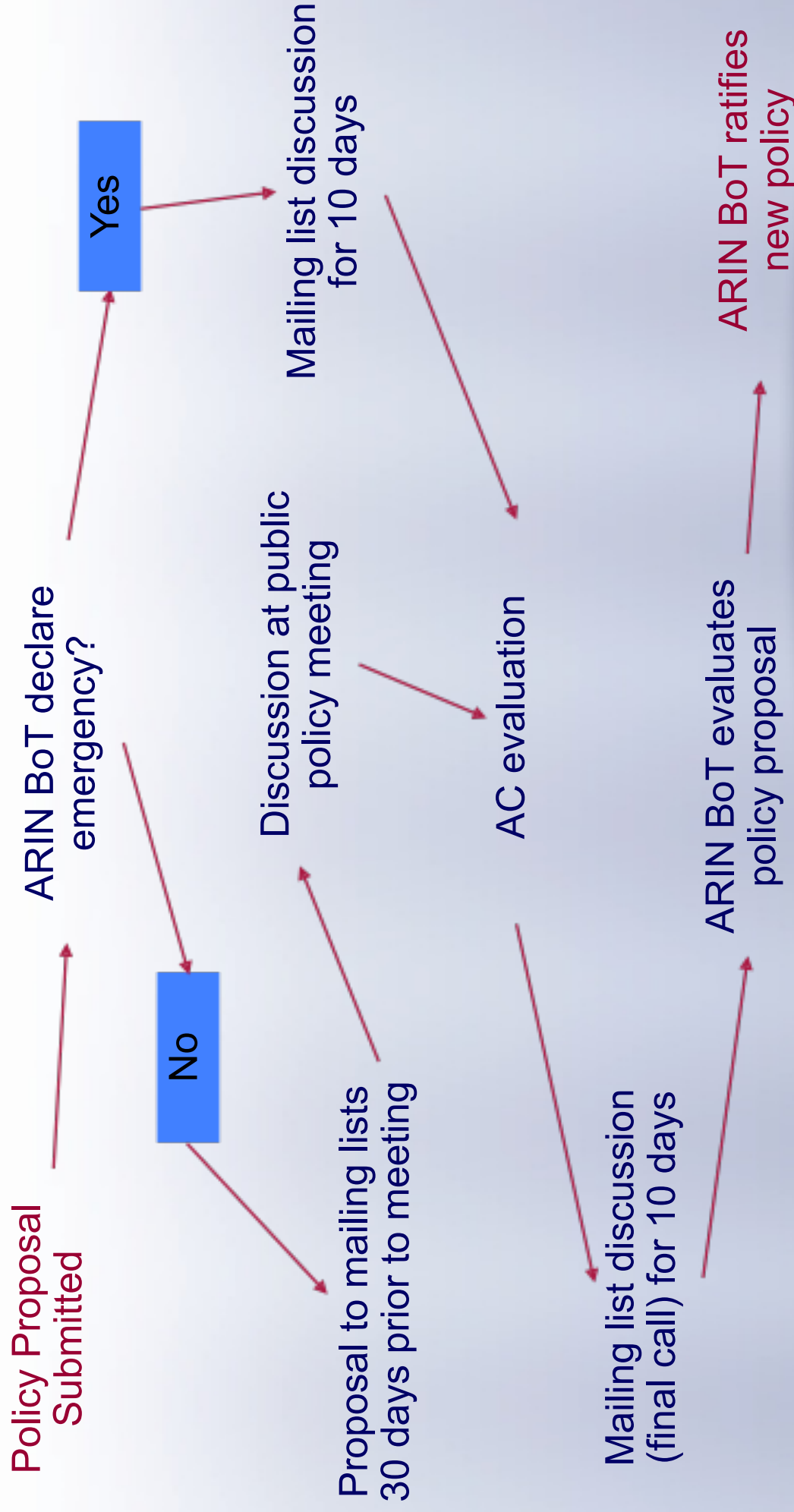
Miami

Policy Development Process

- Developed by the Internet community within the ARIN region
- Participation open to everyone
- Policy issues are discussed:
 - On ARIN public mailing lists
 - At open public policy meetings (twice yearly)
 - At other meetings
- Internet Resource Policy Evaluation Process located at:

www.arin.net/arin/policy_eval_process.html

Policy Process



Public Mailing Lists

- ARIN Public Mailing Lists
 - ARIN Public Policy Mailing List
 - RFC 2050 Working Group
 - Virtual Webhosting Committee
 - IPv6 Working Group
 - Database Implementation Working Group
 - Community Learning and Education Working Group (CLEW)
 - Routing Table Measurement and Analysis
- Subscription information and archives:
<http://www.arin.net/members/mailling.htm>

Policy Proposals

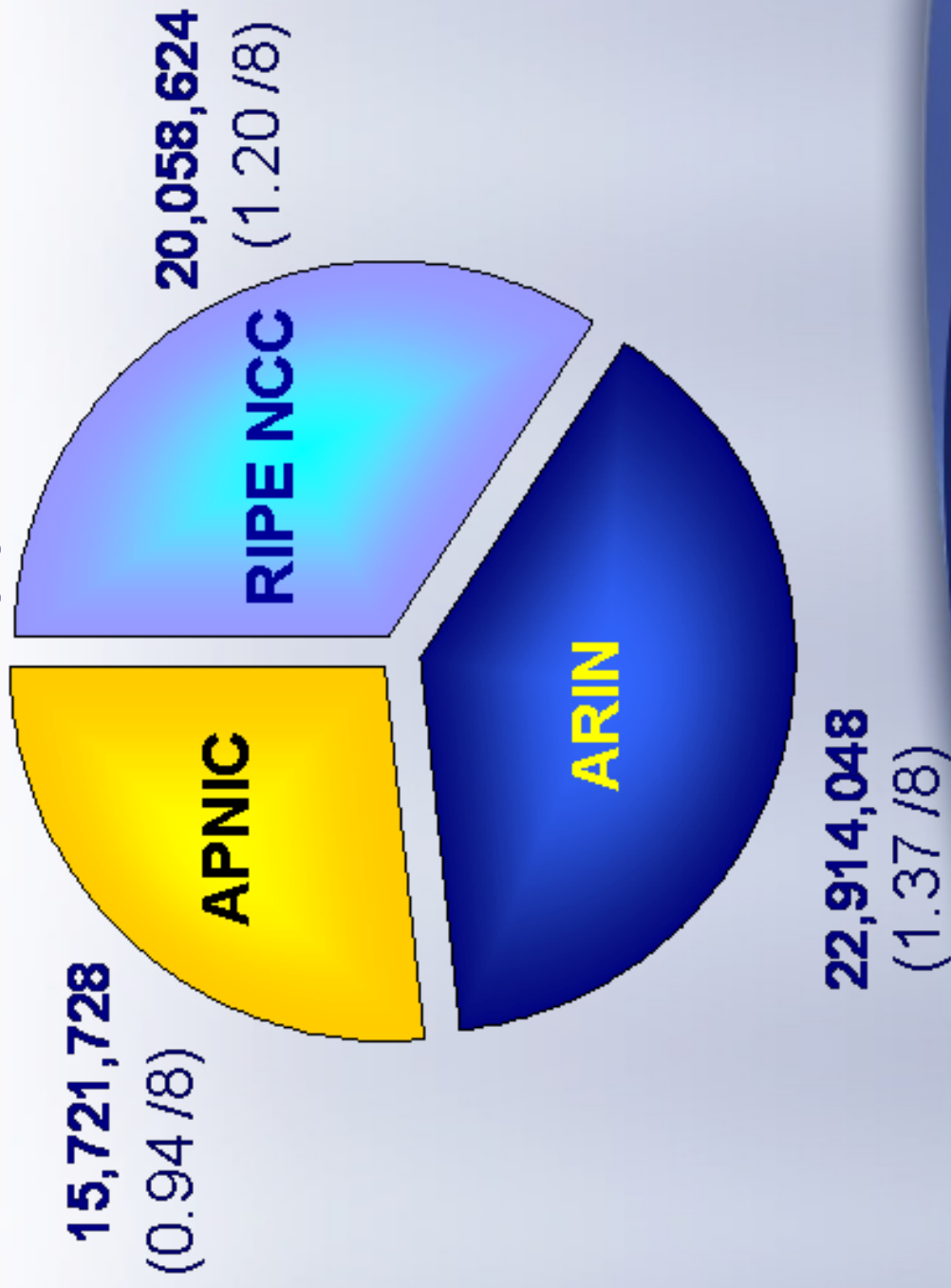
- 2001-1: Changing minimum SW/IP size from /29 to /28
- 2001-2: Multi-homing as justification for /24 reassignments
- 2001-3: IPv6 micro-assignments
- 2001-4: Modification of the IPv6 allocation policies
- 2001-5: Micro-assignments for multi-homed sites
- 2001-6: Single organizations with multiple aggregation points
- 2001-7: Bulk Copies of ARIN's WHOIS database



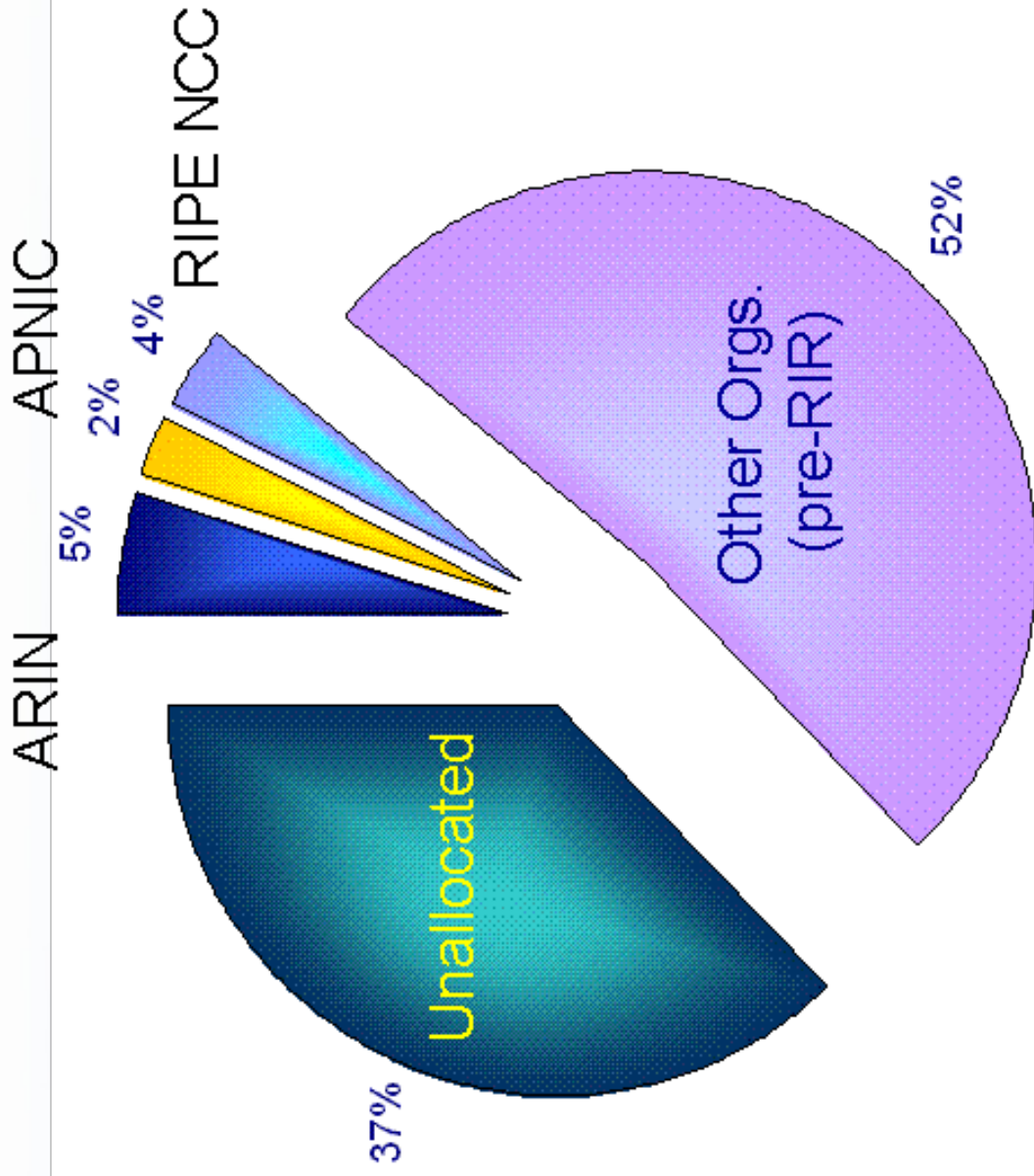
Global RIR Statistics

Leslie Nobile
ARIN

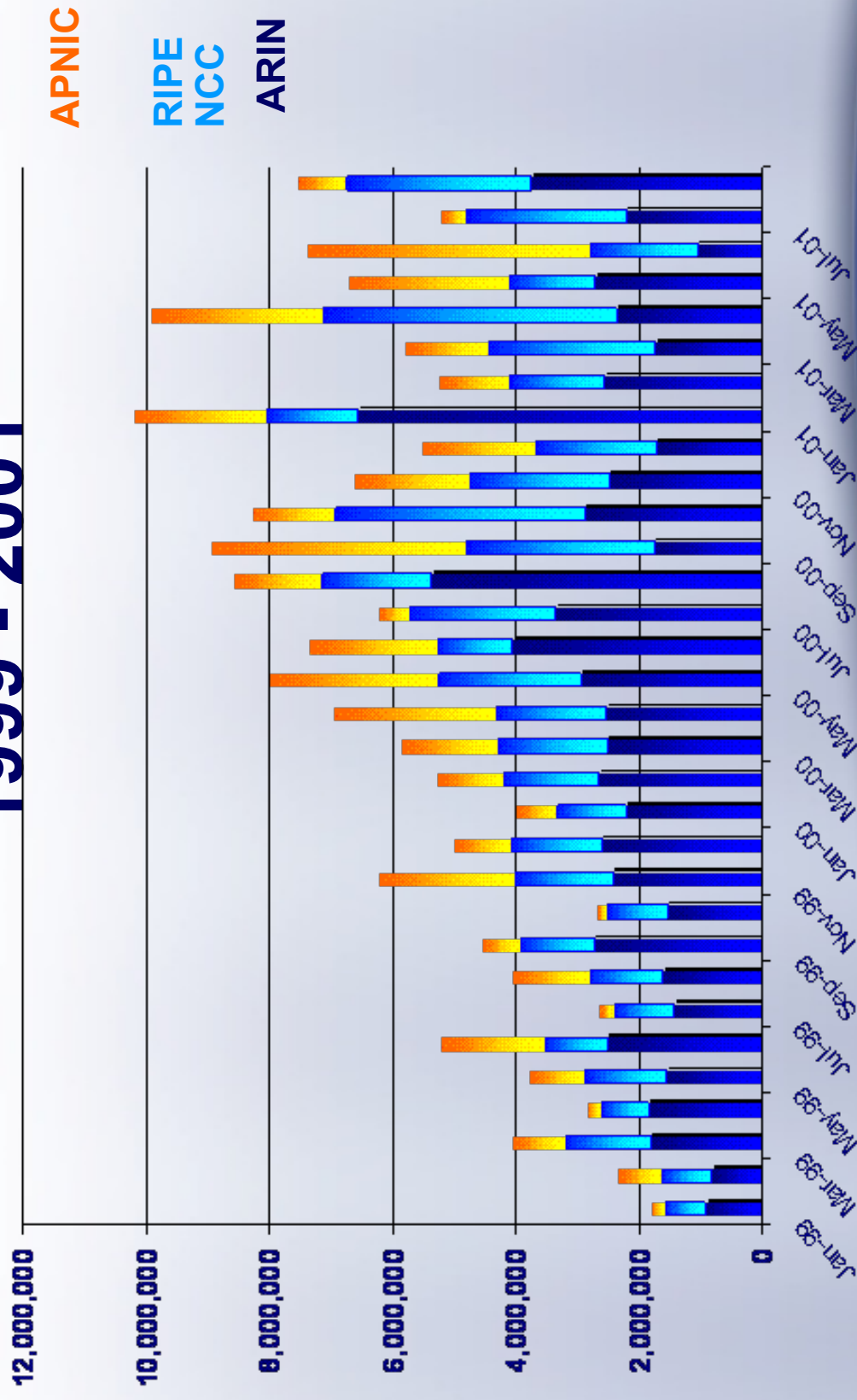
Global IPv4 Allocation 2001



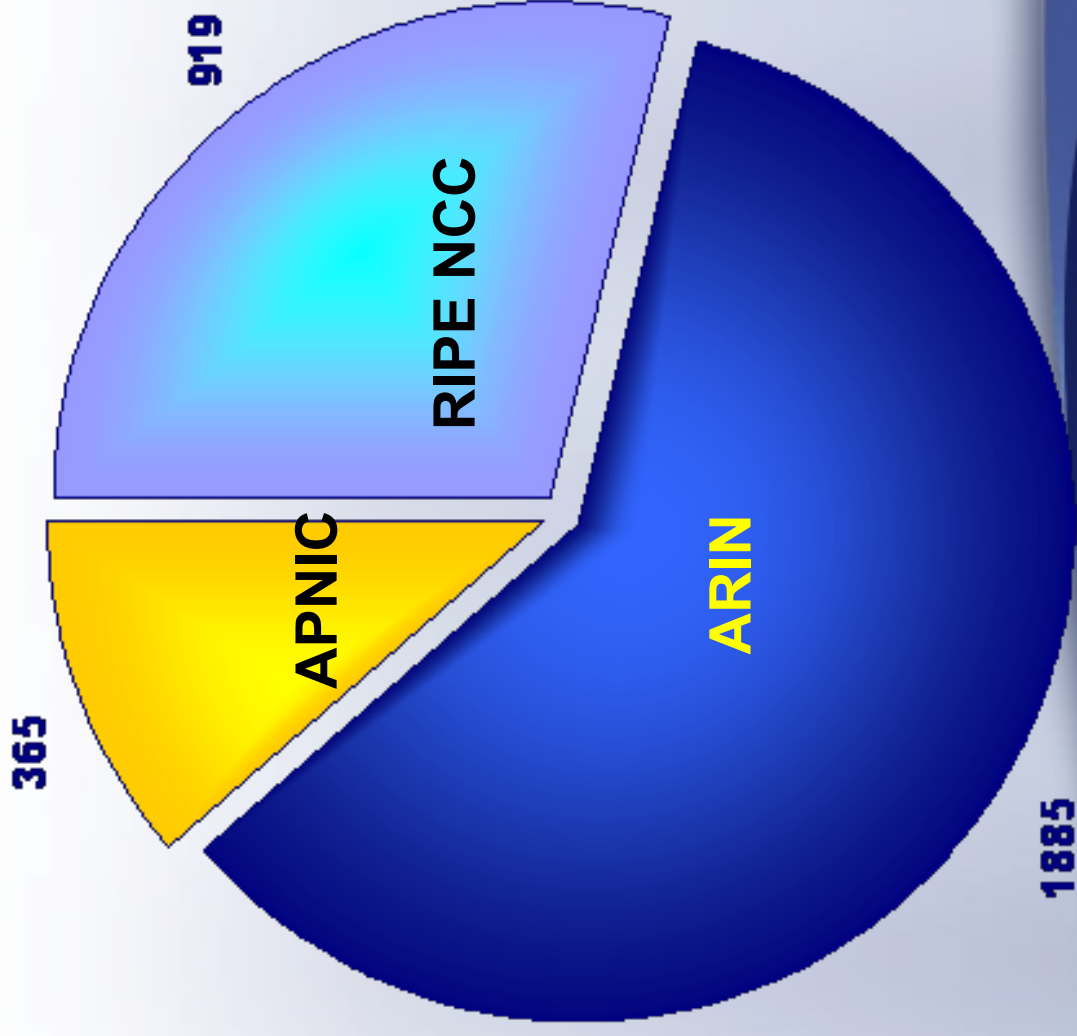
IANA IPv4 Delegations



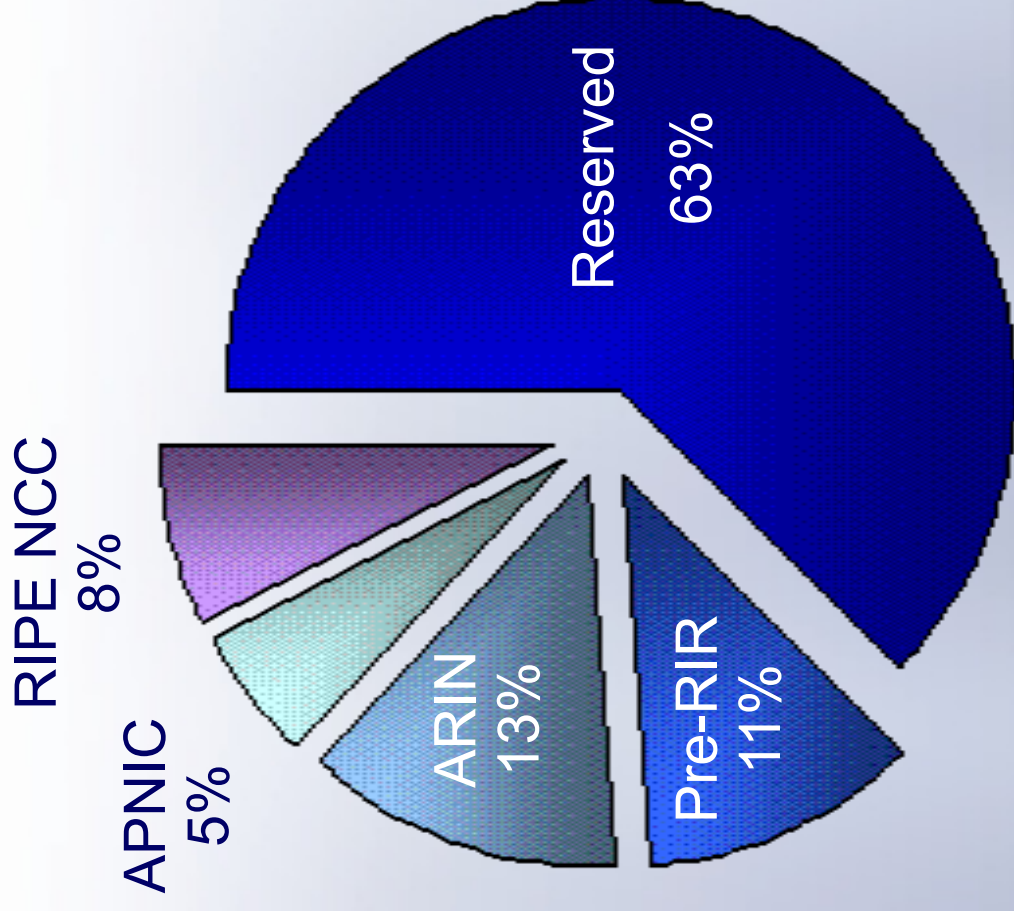
IPv4 Allocation 1999 - 2001



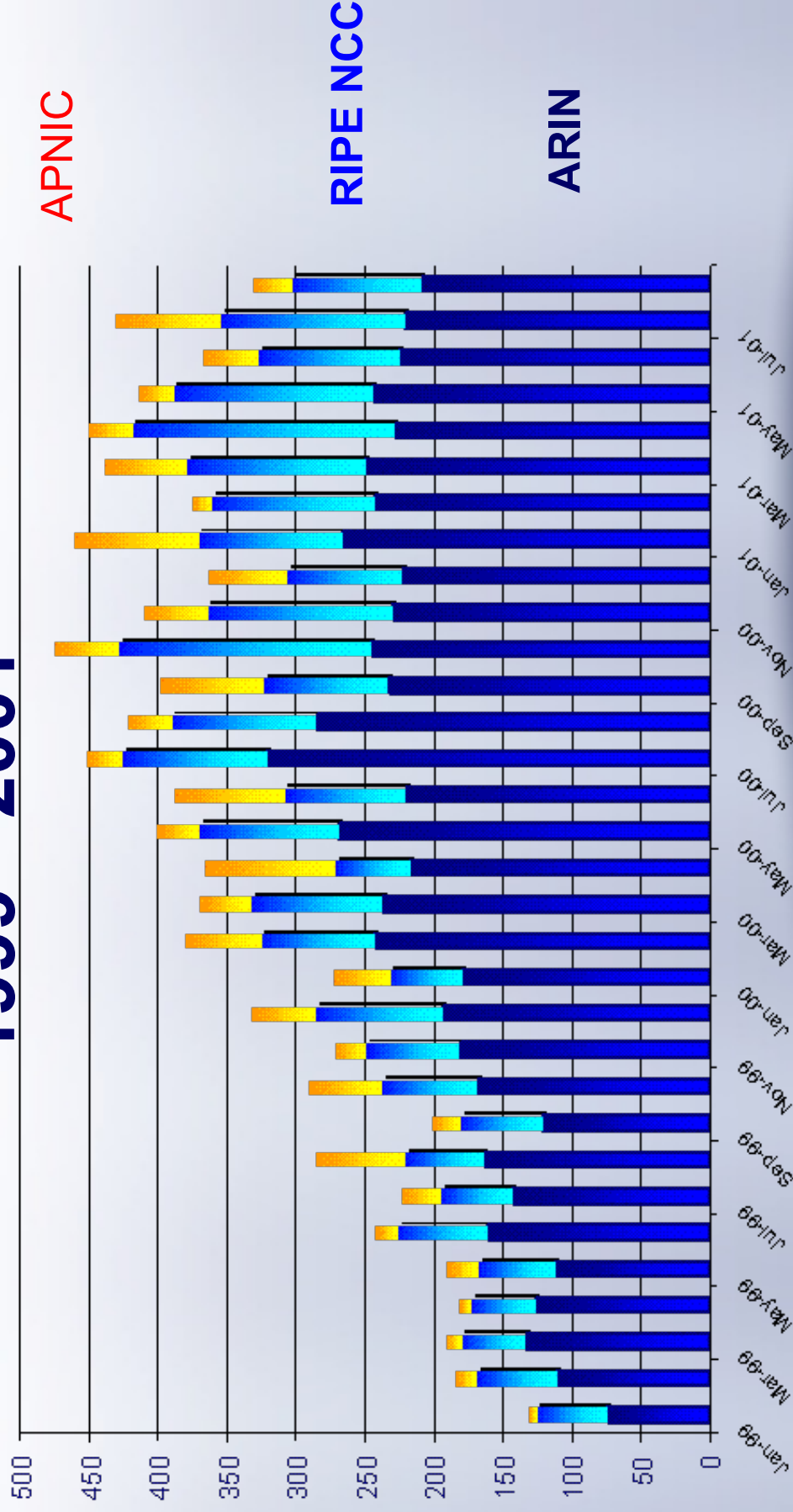
Global ASN Distribution - 2001



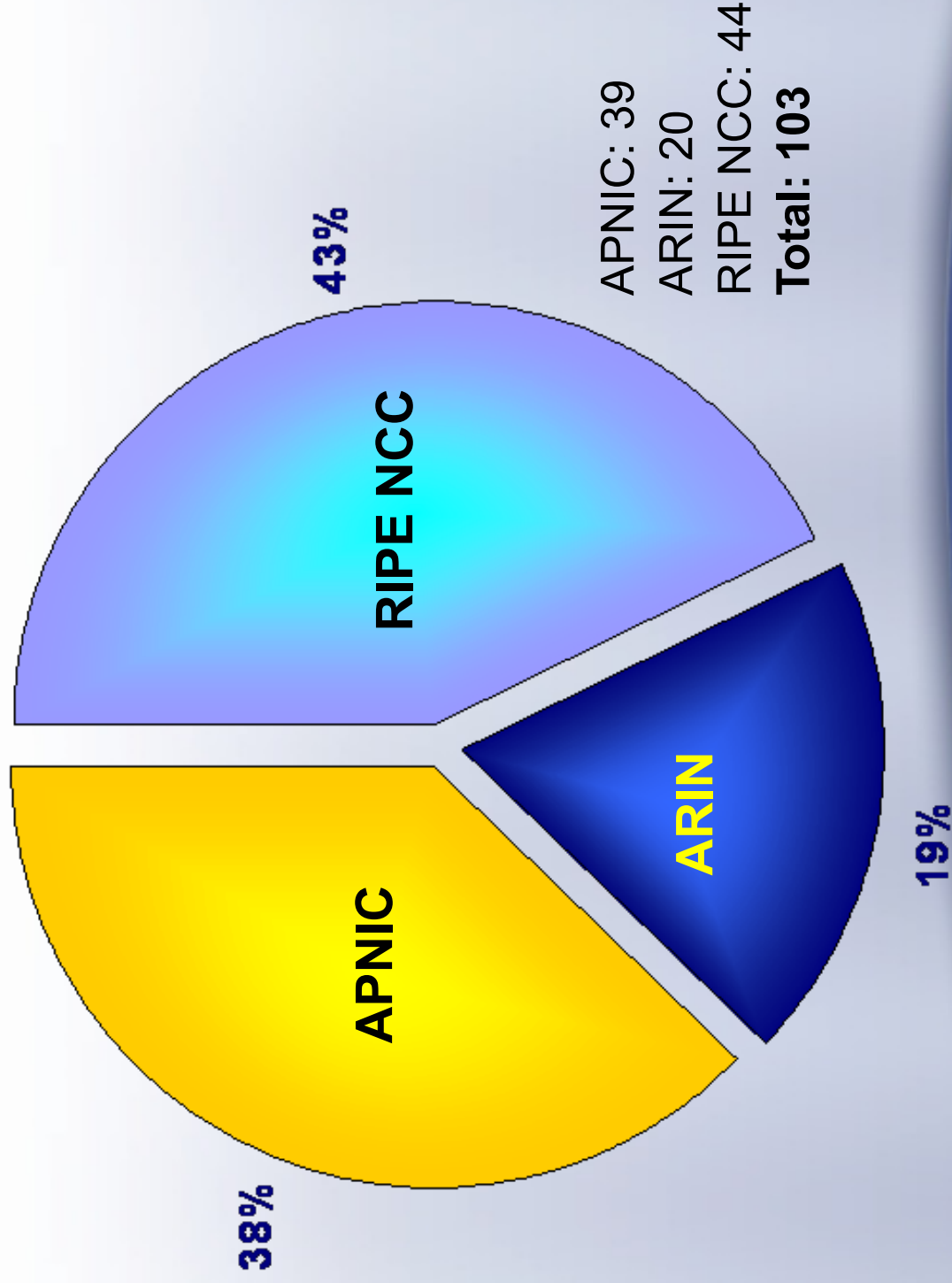
IANA AS Number Delegations



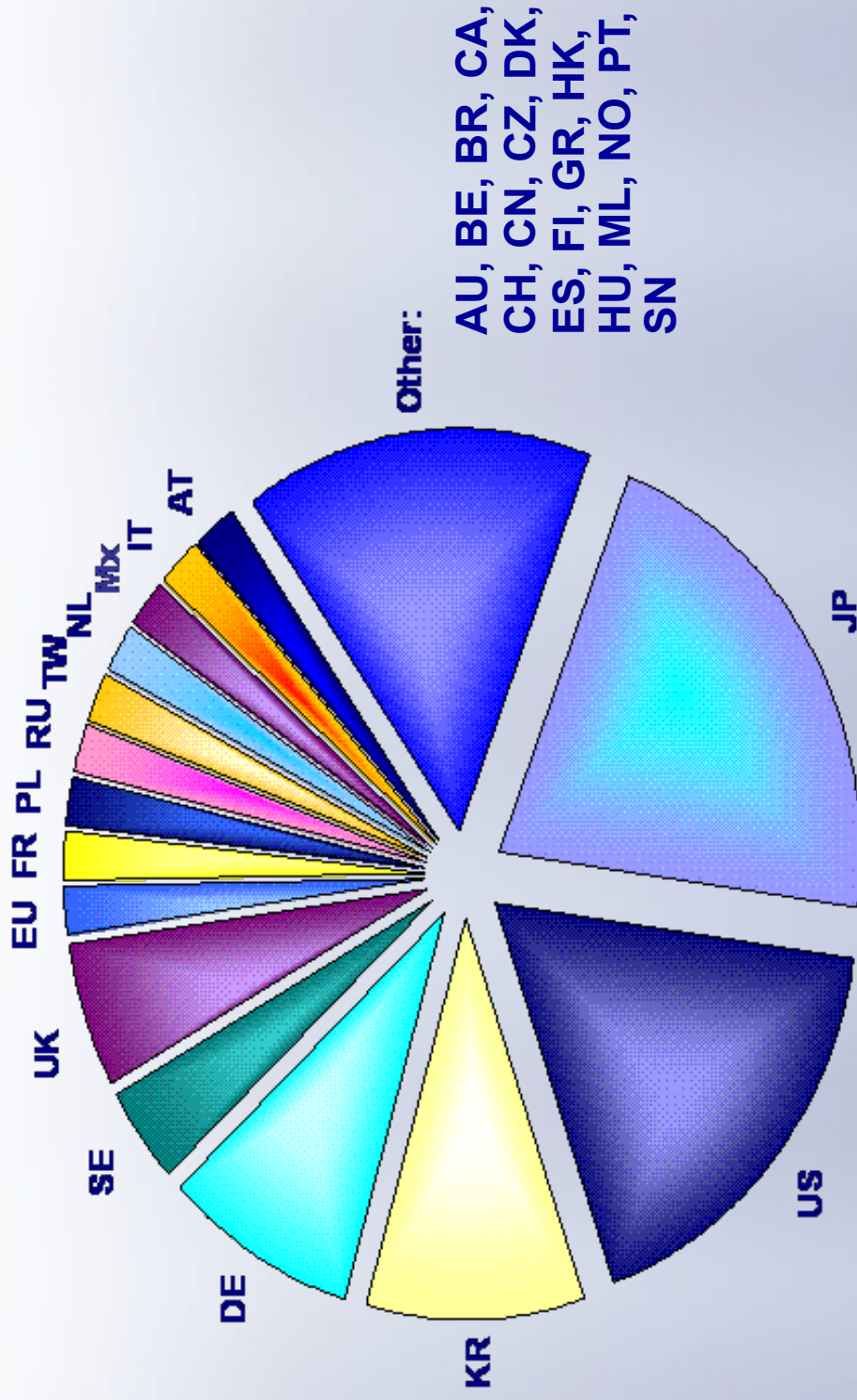
ASN Assignments 1999 - 2001



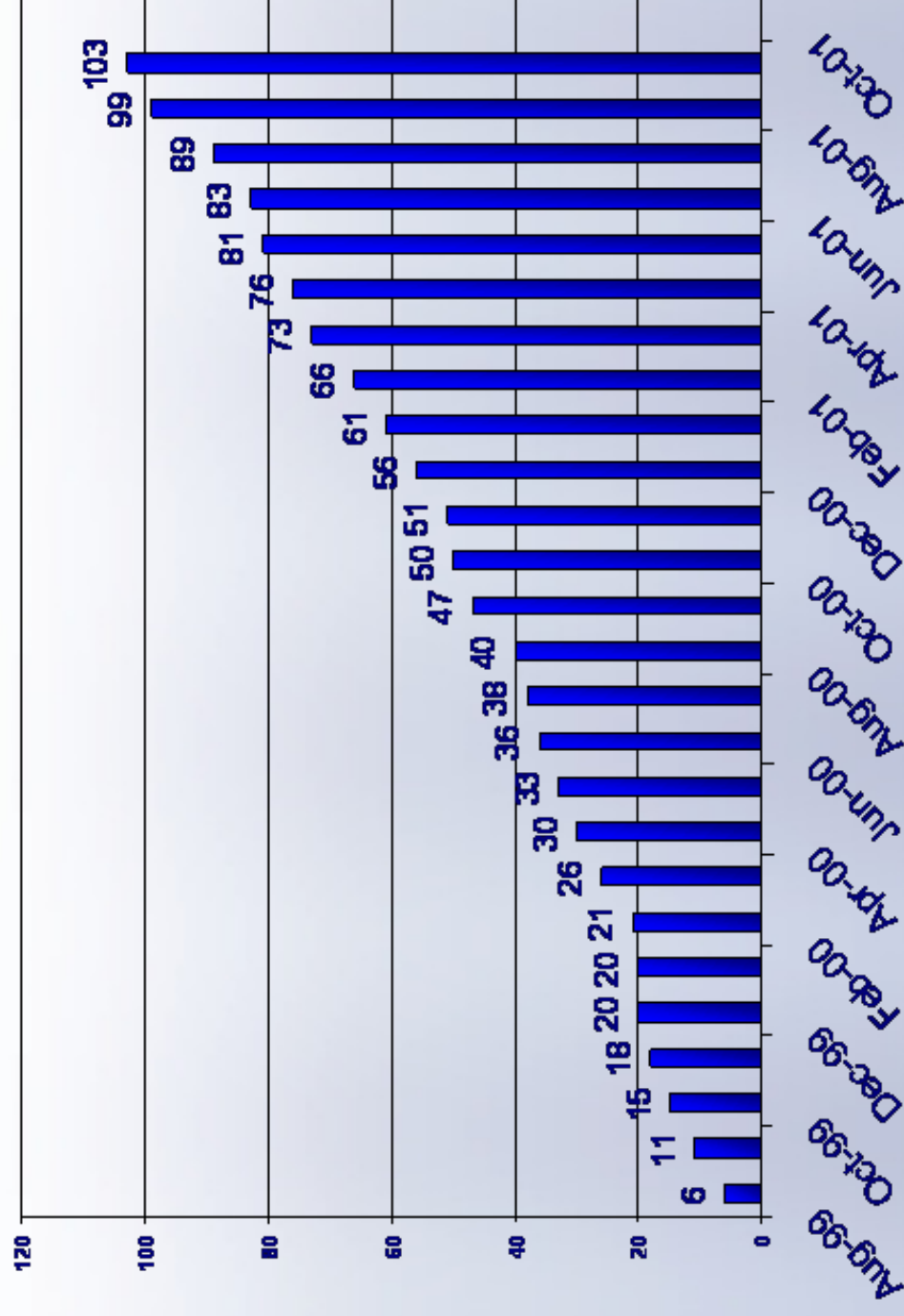
Global IPv6 Distribution



Global IPv6 Distribution



IPv6 Allocations



Global Coordination

Richard Jimmerson

October 29, 2001

Miami

Overview

- RIR Coordination
- ASO AC Coordination
- Internet Meeting Attendance

RIR Coordination

- Open Policy Meetings
- Coordinated Efforts
 - IPv6 policy discussions
 - RFC 2050 evaluation
 - Early registration transfer project
- Statistics
- Joint presentations
- Information sharing

ASO AC Coordination

- Monthly teleconference meetings
- Secretariat (ARIN in 2002)
- RIRs host General Assembly Meetings
 - ARIN hosted 2001 meeting
 - Next meeting to be hosted by APNIC

Internet Meeting Attendance

- RIR & Emerging RIR
- NANOG
 - ARIN tutorial at NANOG 22
 - ARIN open microphone session at NANOG 23
- IETF
 - RIR updates at IEPG meetings
 - Working group participation
- ICANN
 - Ray Plzak on program committee
 - Bob Stratton on budget committee
- ISOC
 - Ray and Richard on Advisory Council

IN-ADDR Nameserver Hosting Status Report

Ray Plzak

The Problem

- The in-addr.arpa zone contains delegations longer than a /8 (/16s & /24s)
- Many registration records are not maintained in the appropriate RIR database
- Many organizations
 - have to interact with more than one RIR to modify their registration records
 - have difficulty making efficient and timely in-addr.arpa updates

Project Goals

- In-addr.arpa zone will contain only /8 delegations
- Registration records will be maintained in the appropriate RIR database
- Organizations will be able to:
 - interact with a single RIR
 - make more efficient and timely in-addr.arpa updates

Project Tasks

- Establish process for maintaining in-addr.arpa sub-domains
- Update the in-addr.arpa zone file to contain only /8 delegations
- RIRs maintain /8 zone files
- Transfer IPv4 registrations from ARIN to the appropriate RIR DB

Maintaining in-addr.arpa

- Each RIR will maintain a suite of in-addr.arpa servers
- APNIC & RIPE NCC have already deployed this solution
- ARIN will establish a suite of in-addr.arpa sub-domain servers
- Non-shared /8s maintained by appropriate RIR
- Shared /8s maintained by majority record holder
- RIR having majority of network space for a /8 will have primary responsibility
- Other RIRs must be able to provide updates to zones maintained by other registry

In-addr.arpa /8 Categories

- Blackhole /8 (RFC 1918)
- IANA Reserve /8s
- RIR allocations
- Legacy /8s
 - Class A
 - Class B
 - Class C

Delegation & Transfer Actions

- Blackhole /8 (RFC 1918) - no action required
- IANA Reserve /8s – no action required
- RIR allocations
 - APNIC & RIPE NCC - aggregated
 - ARIN – unaggregated
- Legacy /8s
 - Class A - no action required
 - Class B – aggregated & unaggregated
 - Class C – unaggregated

Initial Phase

- Notification to IP community (Q2/2001)
 - Implement data consistency rules based on DNS rules
 - Data cleanup
- Preliminary Steps (Ongoing since Q2/2000)
 - Purchase equipment
 - Contract with vendors
 - Host ARIN.NET domain in a more robust environment
- Test Phase (June 2001)
 - Generated zone, but did not delegate out of in-addr.arpa
 - Configured nameservers and loaded zone
 - Ran test queries

Implementation Phase

[Ongoing Since July 2001]

[Progress to Date]

- Delegate /8 subdomains out from in-addr.arpa domain
 - Ran test queries
 - No negative impact observed or reported.
- ARIN /8s delegated – 31 Aug 2001
- Legacy /8s delegated – 21 Sep 2001
- 188 /8 delegated to RIPE NCC – 10 Oct 2001
- Transfer 145 /8 to RIPE – In progress since July 2001
- Update procedure discussions initiated – mid-September 2001

Next Steps

- Set up status page on ARIN Web Site
- Complete update procedure and test
- Customer notification/DB Clean Up
- Transfer /16s & /24s

Status of New ARIN Database

Cathy Murphy
Principal Software Engineer

Overview

- Problems to Solve
- Requirements
- Primary Database Objects
- Conversion Tasks
- Features
- User Interfaces

Problems to Solve

- No referential integrity in database
- Multiple tables to hold the same object type
- Indexes created as separate tables
- Attributes for a single object needlessly split across multiple tables
- Inconsistent format for index fields
- Invalid data / data cleanup required
- Null values in fields that should be non-null
- No representation of organizations

Requirements

- Data object libraries that will allow easy integration of other system components
- Object interface where business rules are applied
- Referential Integrity Baked Right In
- Automated Q/C on data
 - Sunset tagging
 - Orphaned POCs
 - Resource-less Organizations
- Easy-to-use user interface

Primary Database Objects

Current

- Resource Objects
 - Network Registrations
 - Autonomous System Number Registrations
- Point-of-Contact Records
- Host Records
- Maintainer

Primary Database Objects

New

- Resource Objects
 - Network Registrations
 - Autonomous System Number Registrations
 - **Member Registrations**
- Point-of-Contact Records
- **NO Host Records** – Host names are now an attribute of the network
- **Organization Entity Records**

Conversion Tasks – Internal

- Upgrades
 - Hardware
 - Software
- Registration Tools
- *Template Processing*
 - Web user interface
 - Reporting functionality
 - Researching functionality
- Accounting System
- Website

Conversion Tasks - External

- Whois
- RWhois
- Routing Registry
- Ticketing System
- IN-ADDR.ARPA
- Statistical Reporting
- Information available on ftp site

Features

- Central location for your Organization's information
 - Change of Address
 - Technical POC
- Clearly delineated scope of authorization
- Automated pre-processing of templates
- Automated processing of SWIP templates
- Modularized design allows for easy integration to other systems (Accounting, Whois, Routing Registry, etc.)

User Interfaces

Leslie Nobile
Director of Registration Services

User Interface - Templates

Current Templates *Replacement Templates* *New Templates*

- | | | |
|------------------------|-------------------------|----------------|
| • ISP | • Network Allocation | • Organization |
| • End-User | • Network Assignment | • POC |
| • Network Modification | Network Modification | |
| • SWIP | • Simple Reassignment | |
| | • Detailed Reassignment | |
| | • Re-allocation | |
| • ASN | • ASN | |
| • Transfer | • Transfer | |
| • IPv6 | • IPv6 | |

URL: <ftp://ftp.arin.net/pub/proposed>