



APNIC

ARIN
American Registry for Internet Numbers





Introduction to IP Addressing & IPv6 Deployment Status

IP Addressing

- What is an IP Address?
- How is IP Address Space Managed?
- How is IP Address Space Policy Developed?

IPv6 Deployment Status

- IPv6 Policy History
- IPv6 Allocation Criteria and Process
- Statistics

What is an IP Address?

- A Number Used for Routing
- Not Dependent on DNS
- A Finite Public Resource
- Not Owned
- IP Does Not Mean “Intellectual Property”

How is IP Address Space Managed

- Address Space Management Objectives
- Implementation of Policy

Conservation

- Efficient Use of Resources
- Based on Need

Address Management Objectives

Aggregation

- Limit Routing Table Growth
- Support Provider-Based Routing Policies

Registration

- Ensure Uniqueness
- Trouble Shooting

Policy Implementation [Industry Self-Regulation]

- RIR Staffs
- Service Providers

How is IP Address Policy Developed?

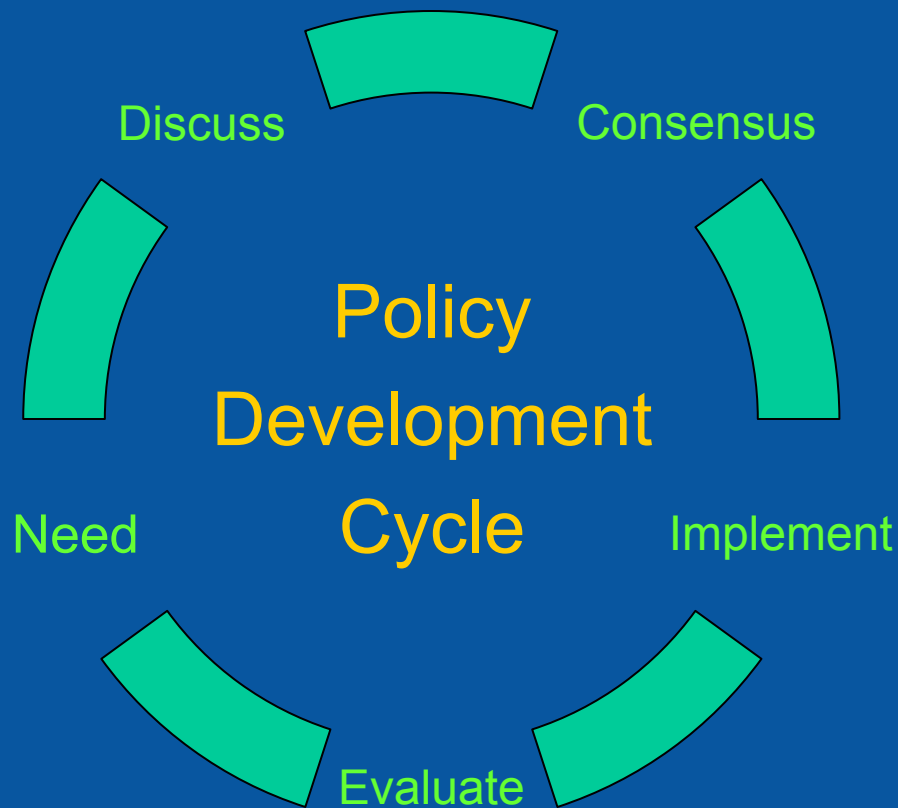
- According to Policy Development Principles
- In a Cyclical Manner

Policy Development Principles

- Open
 - Anyone Can Participate
 - Policy Fora
 - Mail Lists
- Documented
 - Formal Policy Documents
 - Implementation Procedures
- Transparent
 - Mail List Archives
 - Minutes
 - Policy Fora
 - RIR Boards
- Developed Bottom-Up
 - Internet Community
 - Stakeholders
 - Technology Changes
 - IETF

OPEN

TRANSPARENT



DOCUMENTED

**DEVELOPED
BOTTOM UP**

Recent Open Policy Meetings

- APNIC (2 per year)
3 - 6 Sep ** APNIC 12 - Kita-Kyushu, Fukuoka, JP
- RIPE NCC (3 per year)
9 - 13 Sep ** RIPE 43 - Rhodes, GR
- ARIN (2 per year)
30 Oct – 1 Nov ** ARIN X – Eugene, Oregon, US
- LACNIC (2 per year)
11 – 12 Nov ** Mexico City, MX

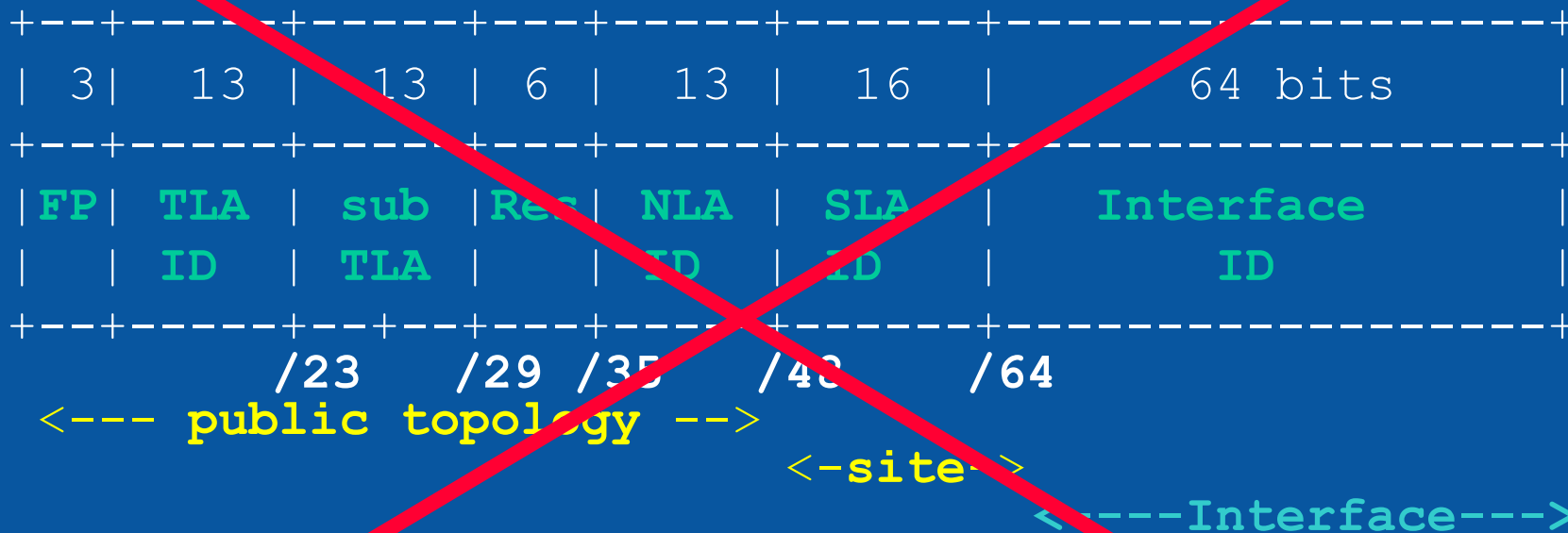


IPV6
DEPLOYMENT
STATUS

IPv6 Policy History

- **Apr 1999** – Joint RIR Consensus
 - Interim Policy
 - IPv6 Allocations Begin
- **Oct 1999** – Policy Review Begins
- **Jun 2001** – Joint RIR Consensus
 - Policy and Technical Boundaries
 - End Site Assignments [RFC 3177]
- **May 2002** – Joint RIR Consensus
 - Initial Allocation Size to ISP/LIR
 - Initial Allocation Criteria

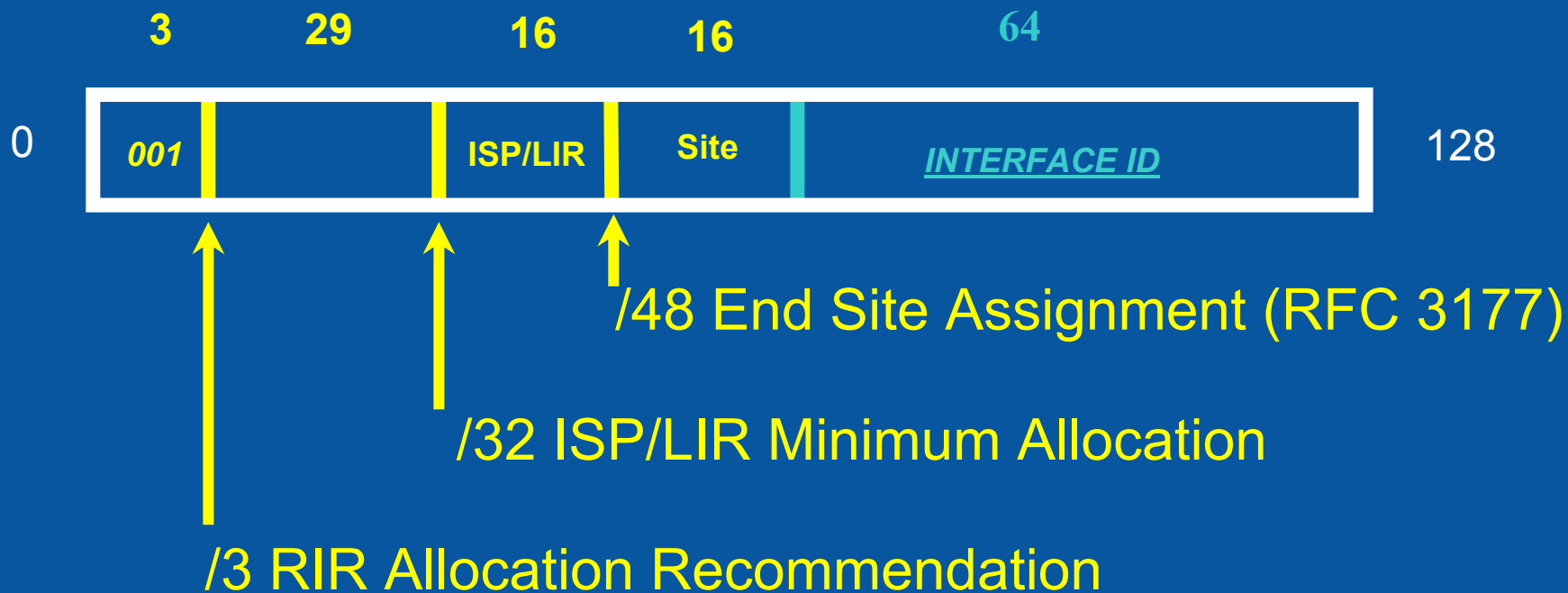
RFC 2374 IPv6 Boundaries



*(Mixes **Policy** and **Technology**)*

IPv6

Technical & Policy Boundaries



Assignments by ISP/LIR

ISP/LIR to End Site

- /48
 - Usual Assignment Size
 - 16 bits for subnets
- /64 only one subnet
- /128 one device connecting

ISP

Infrastructure

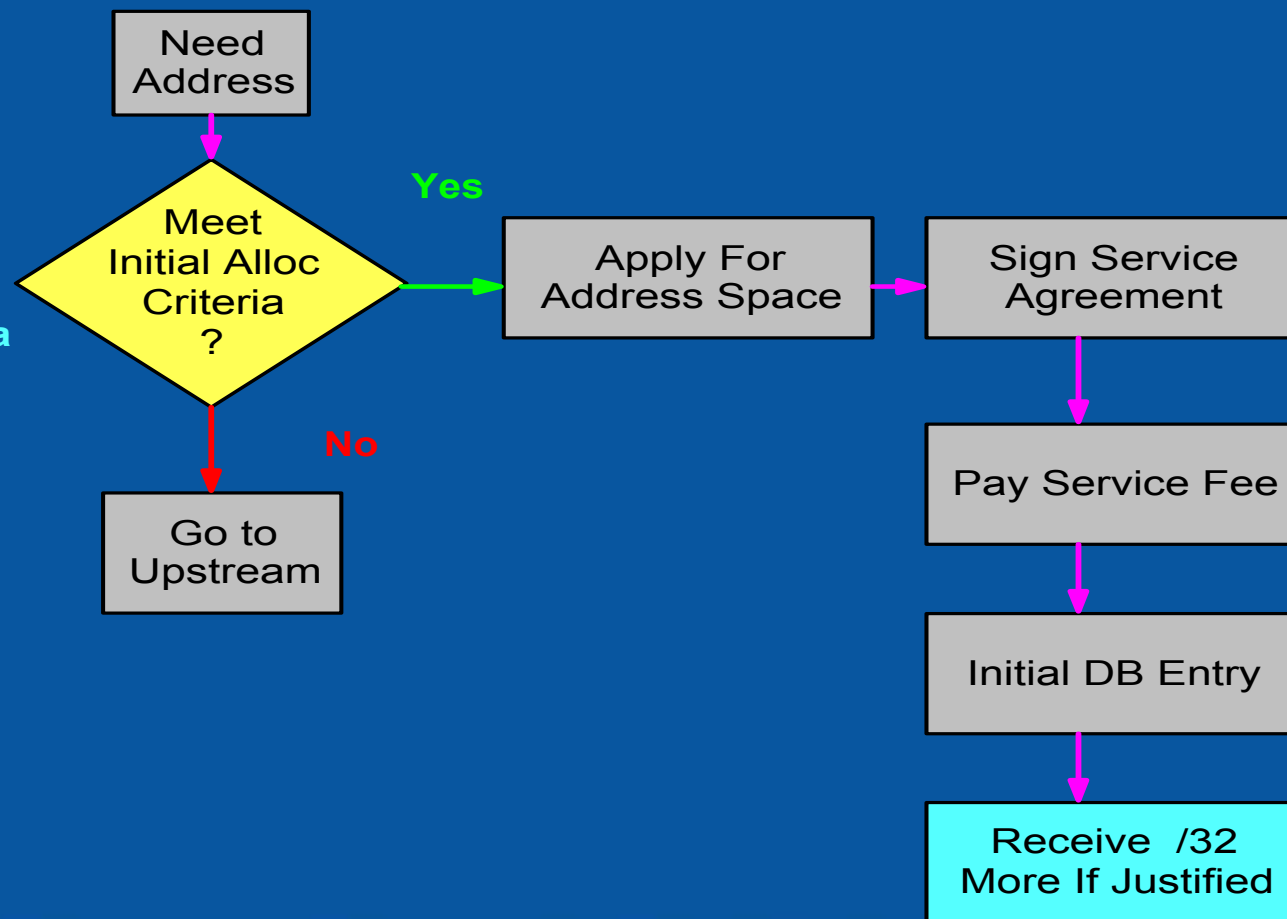
/48 per POP

RFC 3177 “IAB/IESG Recommendations on IPv6 Address Allocations to Sites”

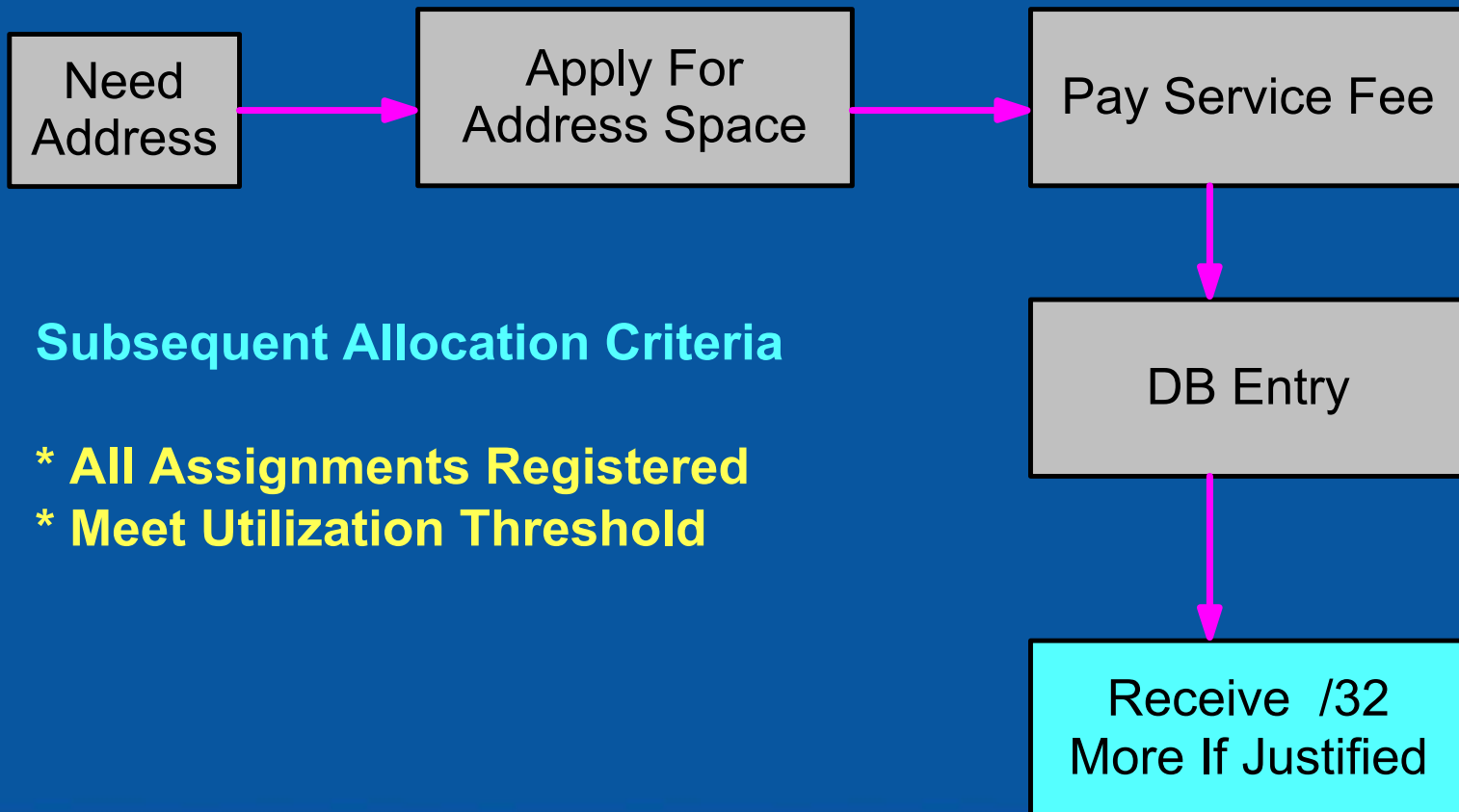
IPv6 Initial Allocation Criteria & Process

Initial Allocation Criteria

- * Not An End-Site
- * Be An ISP/LIR
- * Plan To Provide:
 - IPv6 Connectivity
 - 200 /48 In 2 Years



Subsequent Allocation Criteria & Process



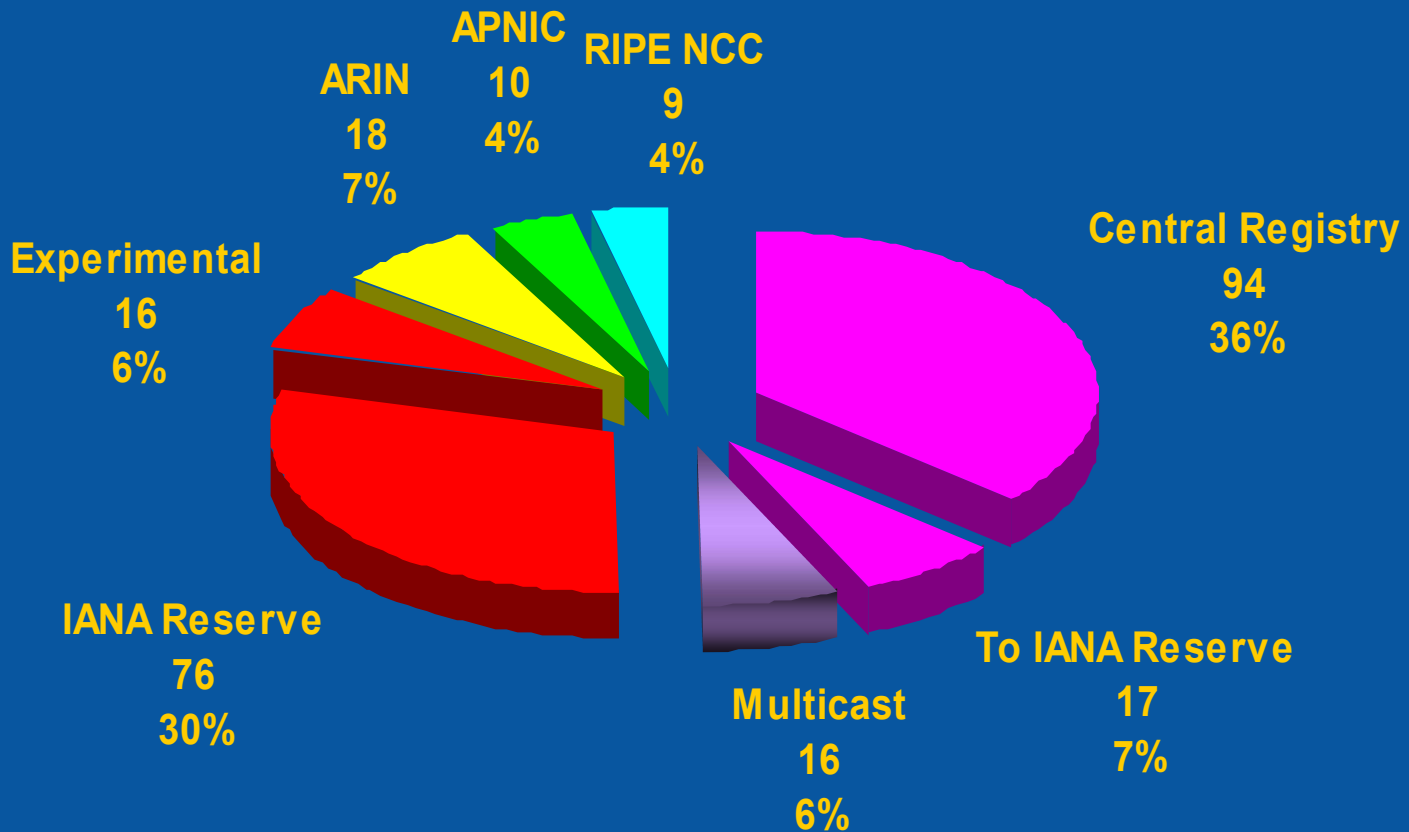
Subsequent Allocation Criteria

- * All Assignments Registered
- * Meet Utilization Threshold

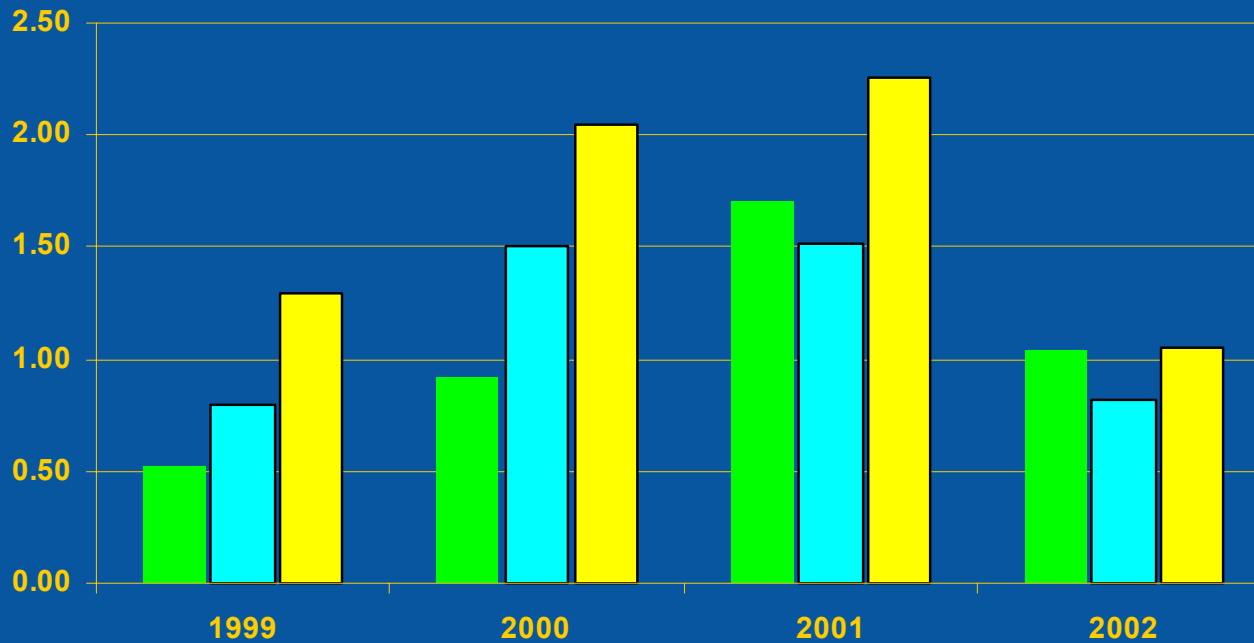
Statistics



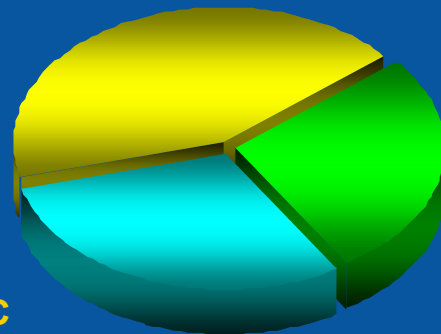
IPv4 /8 Address Space Allocation



Cumulative IPv4 Allocations



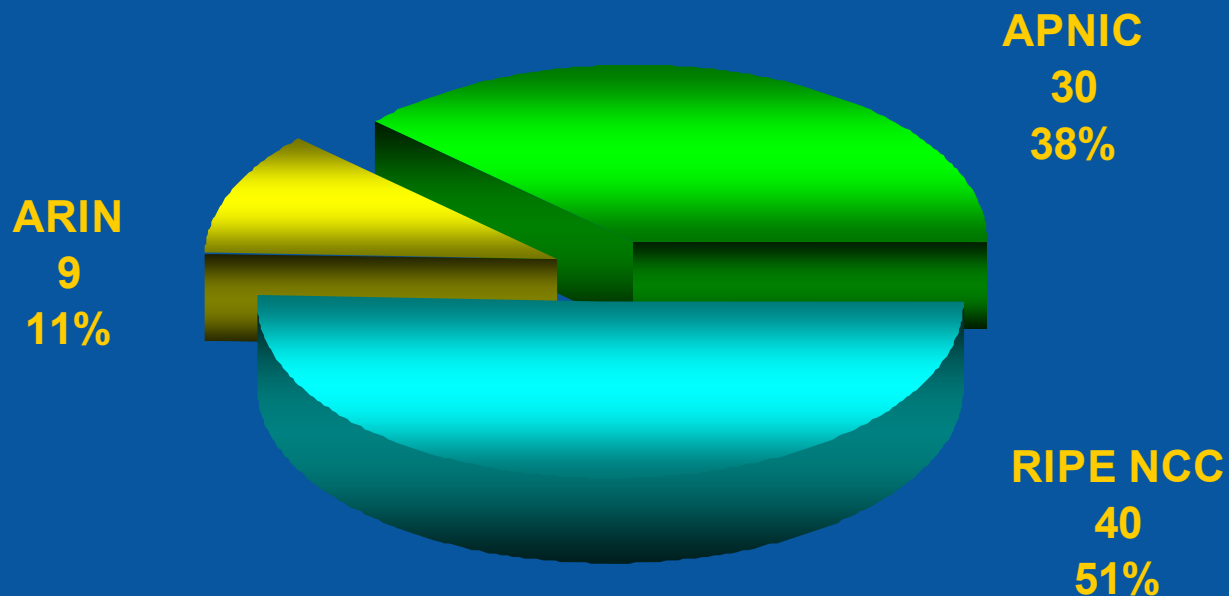
ARIN
6.65
43%



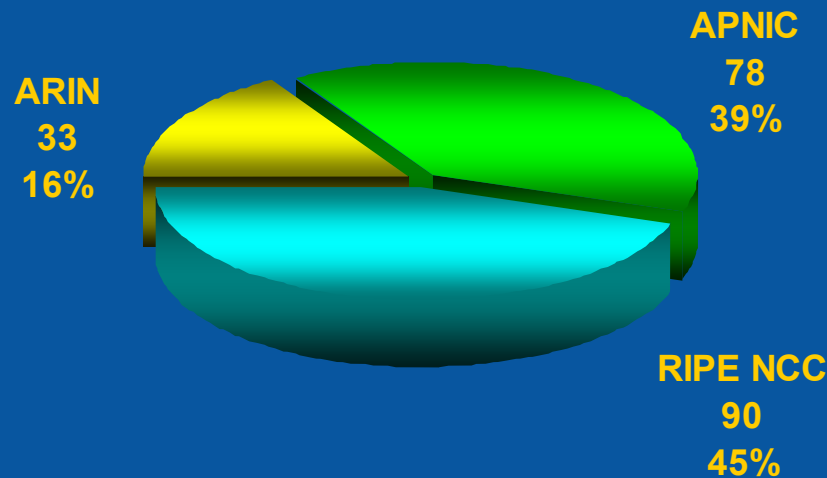
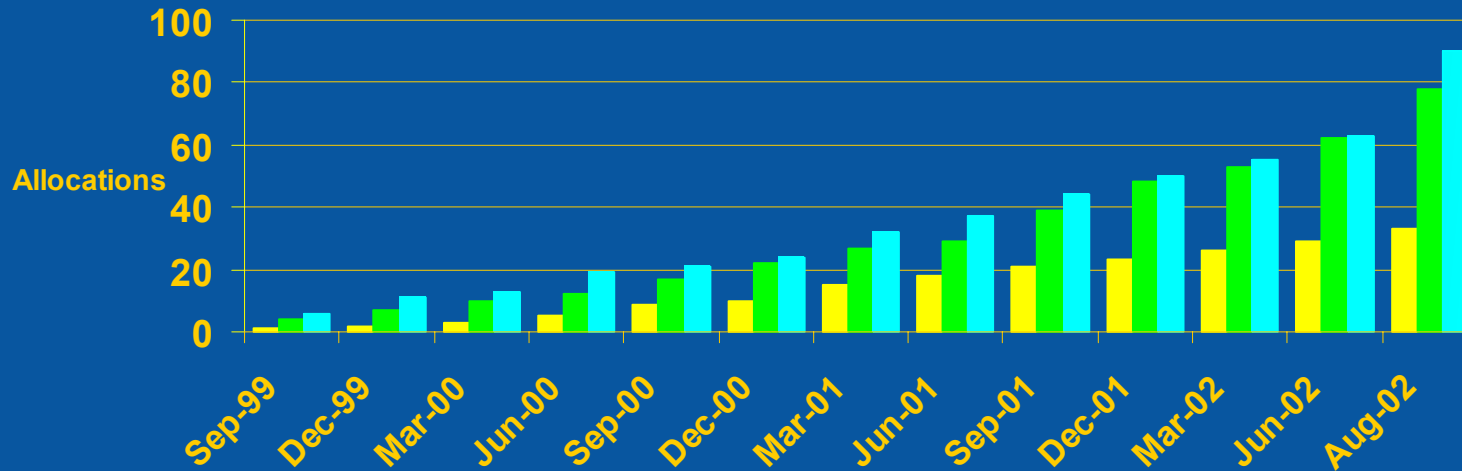
APNIC
4.19
27%

RIPE NCC
4.62
30%

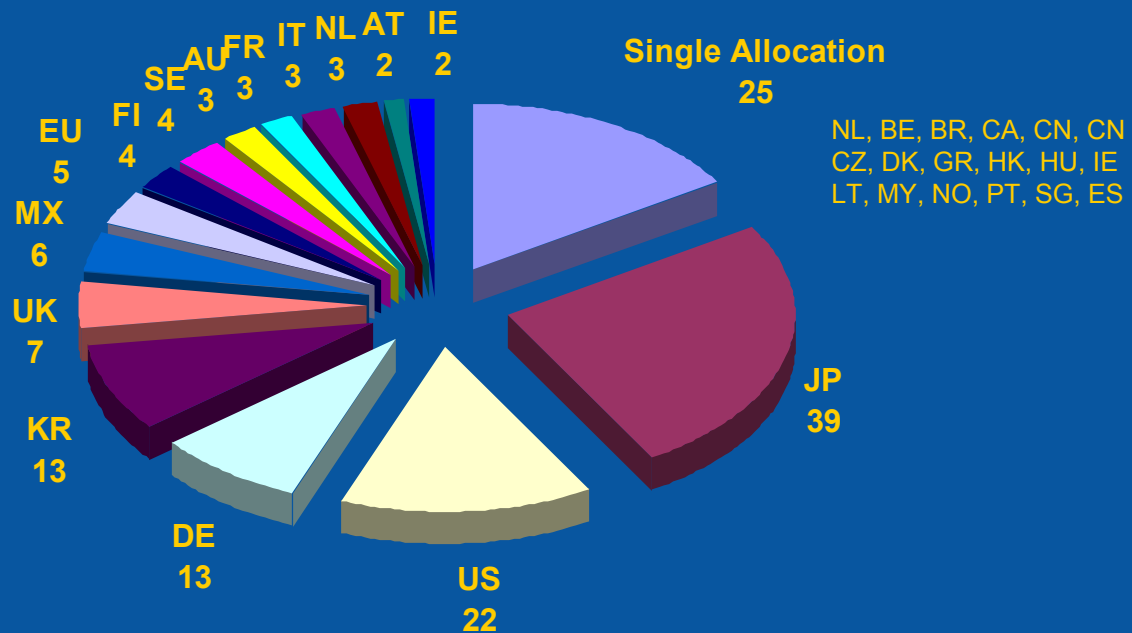
2002 IPv6 Allocations 31 Aug 2002



Cumulative IPv6 Allocations



IPv6 Allocation By Country



Vielen
Dank



Merci

ขอบคุณ

Thank You

Bedankt

Gracias

Díky

A green leafy branch with several leaves, positioned below the word "Díky".

شكراً

Teşekkürler

A pink rose with green leaves and a stem, set against a light green oval background.

Grazie

Obrigado!

Köszönettel