



Overview and Status Report

AussieISP Fall '99
Sydney, 9 April 1999



APNIC Overview

- What is APNIC?
- Services and Membership
- Policies
- Recent Developments
- Resource Status
- Future Directions
- *Questions?*



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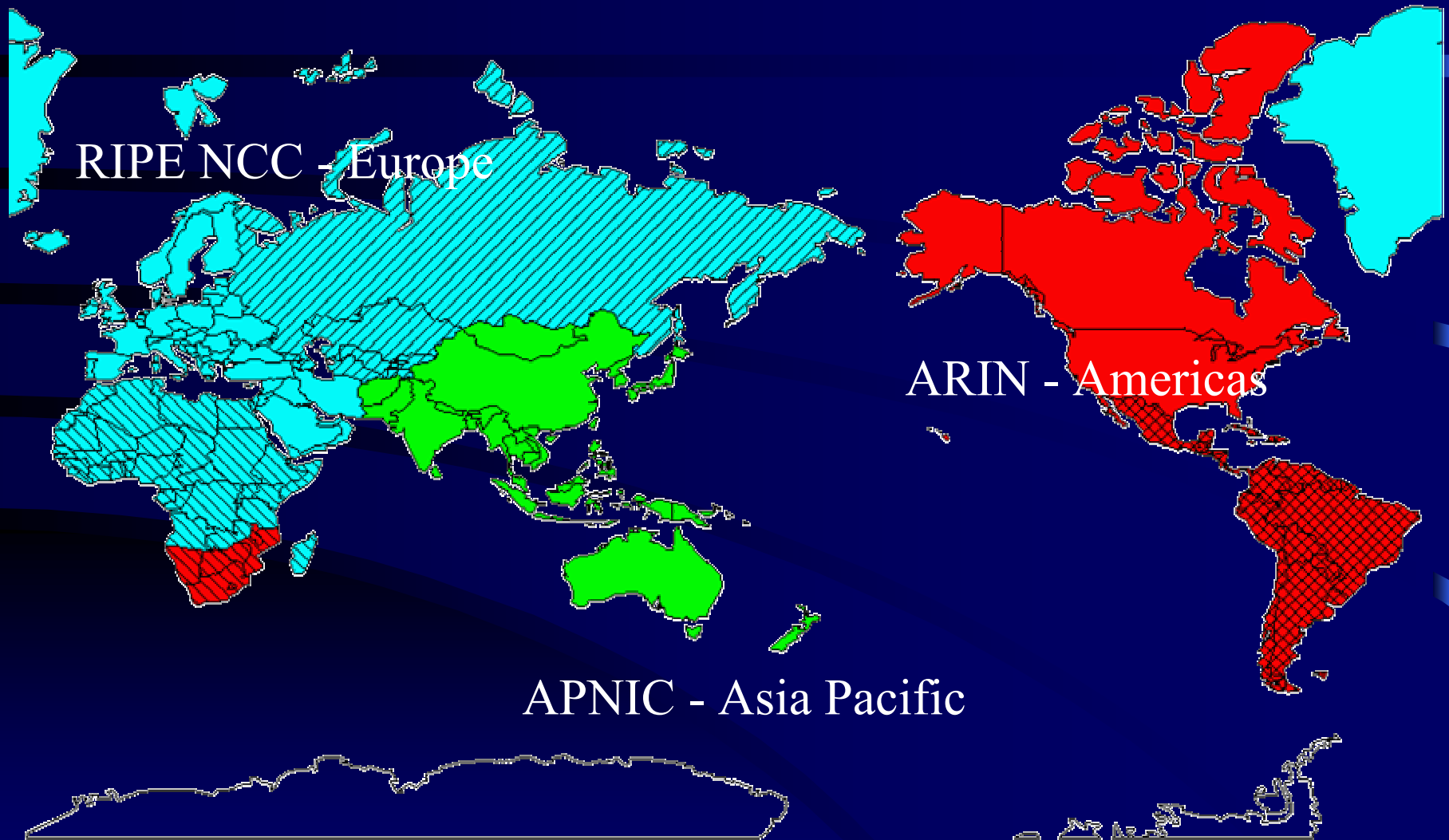


What is APNIC?

- Regional Internet Registry (RIR) for the Asia Pacific Region
- Non-profit, neutral and impartial
- Membership-based organisation
- Established 1993, Tokyo, Japan
- Relocated in 1998 to Brisbane, Australia
 - Reduction of costs and complexity

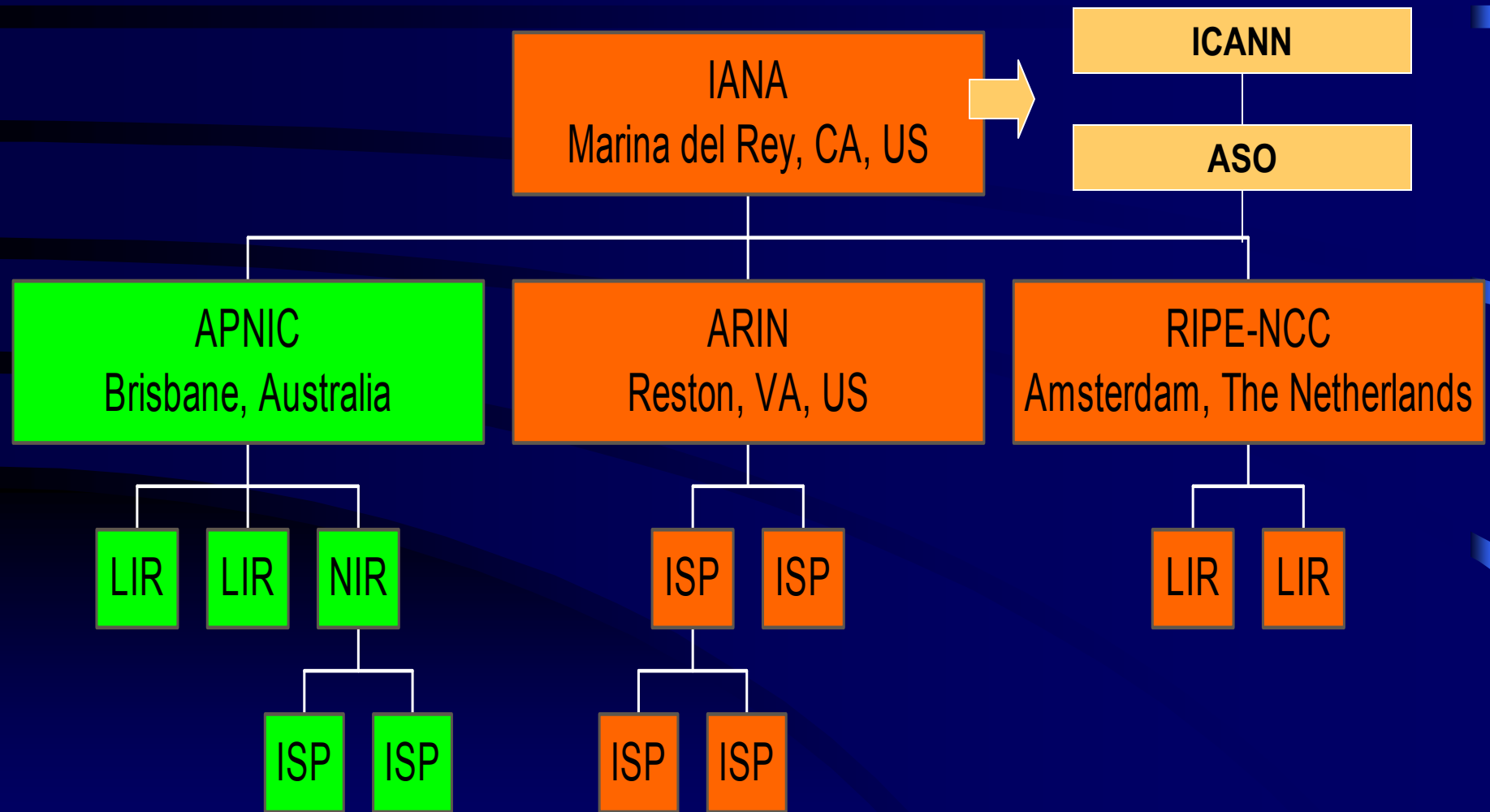


Regional Registry Areas





Registry Hierarchy





APNIC Organisation

APNIC Membership
(265 Members)

Executive Council
(7 Members)

Director General

Member Services
(3/6 Staff)

Memb Svc Mgr.

Tech Writer

Training Mgr.

Hostmaster

Hostmaster

Hostmaster

Technical Services
(2/3 Staff)

Technical Mgr.

Sys Admin

Prog/Analyst

Administration Services
(2/3 Staff)

Business Mgr.

Accountant

M'Ship Officer



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APNIC Services

- Resource allocation
 - Internet (IP) Addresses
 - Autonomous System (AS) numbers
 - *in-addr.arpa* Domains
- Resource registration
 - Registration Service
 - Registration Servers: “whois” and Reverse DNS
- Member training and support



APNIC Resources

- Internet (IP) Addresses
 - Limited by 32-bit number space
 - Limited by need for aggregation
 - *Major management responsibility of APNIC*
- Autonomous System (AS) Numbers
 - Limited by 16-bit identifier (65535 ASNs)
 - No immediate shortage
- *in-addr.arpa* Domains
 - No practical limitation



APNIC Membership ⁽¹⁾

- Membership is Open
 - ISPs, National Internet Registries and NICs, and multinational organisations
 - Member size self-assessed (currently)
 - Requirements: Payment of fees
Location in the AP region
- Benefits of Membership
 - Resource allocation and registration
 - Free attendance and voting at APNIC meetings
 - NOT: Automatic or Easier Address Allocation



APNIC Membership ⁽²⁾

- Annual fees

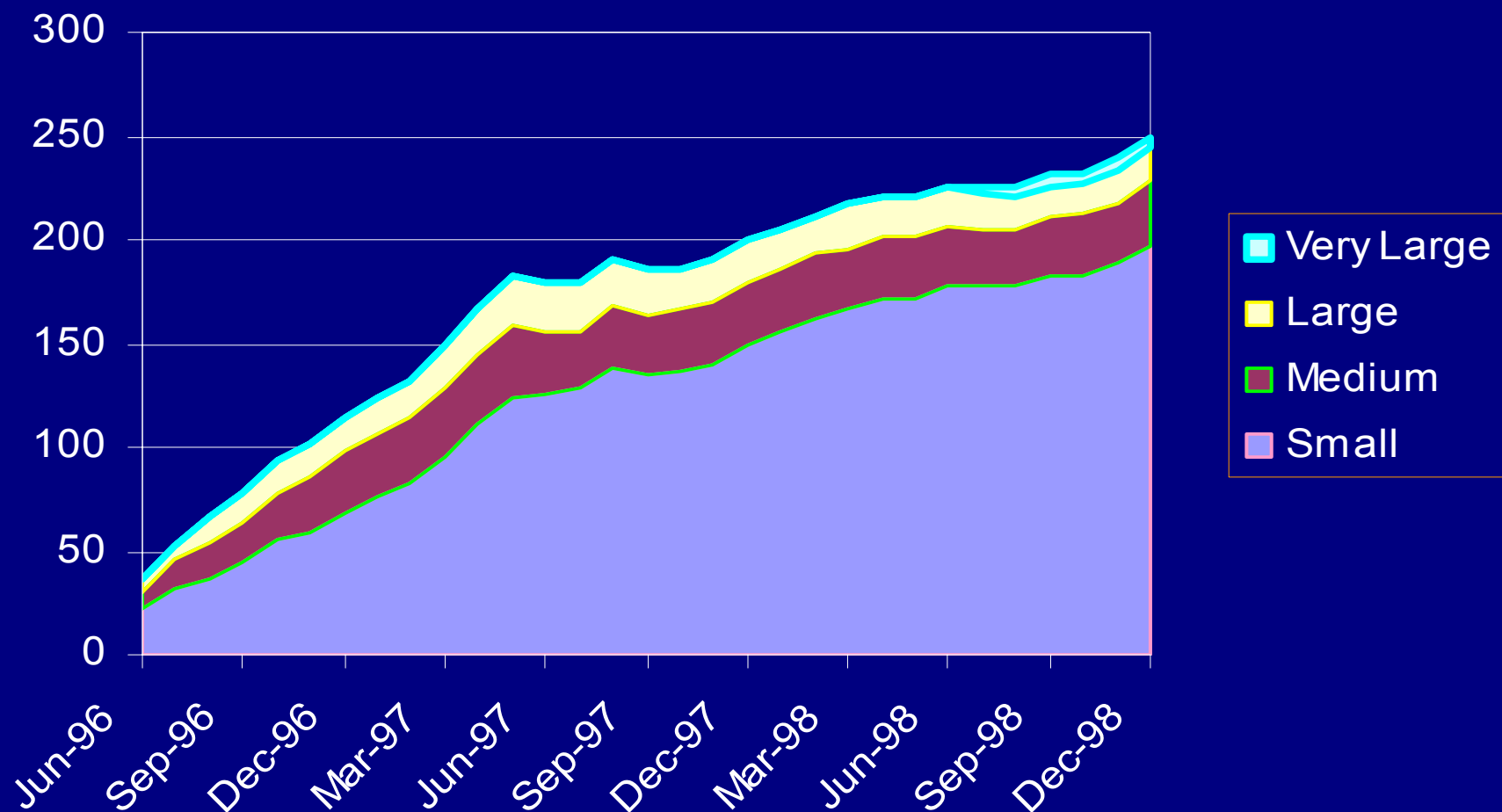
Small	1 vote	USD 2500/year
Medium	2 votes	USD 5000/year
Large	4 votes	USD 10000/year
Very Large	8 votes	USD 20000/year

- Other fees

- Startup USD 1000
- Allocation fees for confederations only

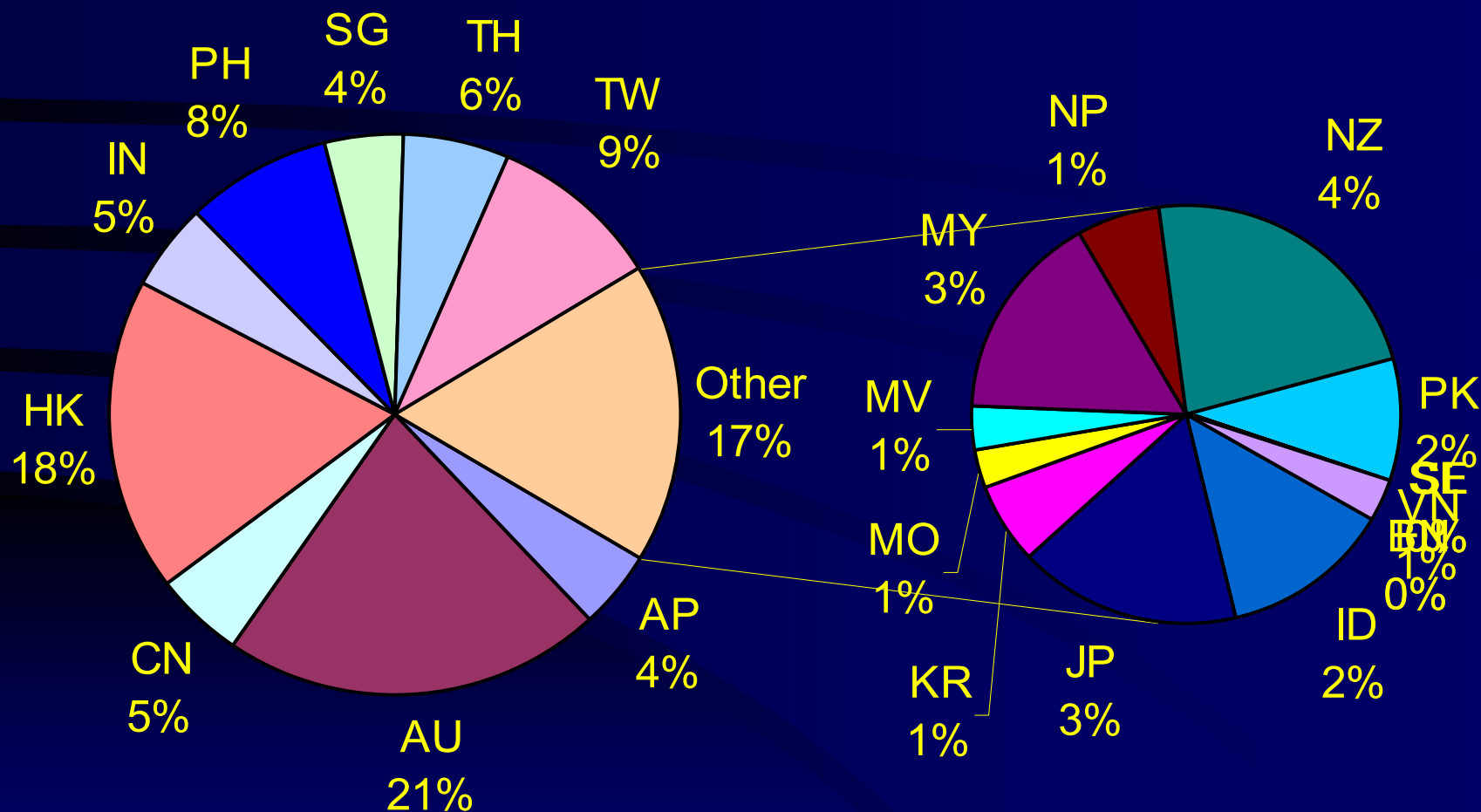


APNIC Membership (3)





APNIC Member Distribution





APNIC in Australia

- AU has largest APNIC Membership
(of all ISO3166 codes)
- Percentage of Membership: 21% (1st)
- Percentage of IP Allocations: 14% (3rd)
- Percentage of ASN Allocs: 28% (1st)
- Regional charts to follow...



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APNIC Policies

- *Background*

- Scalability of the Internet
 - CIDR & aggregation are vital
- Routing instability
 - Legacy routing structure, Router overload
- IPv4 address space is finite
 - Historically, many wasteful, “classful” assignments
- Fairness and Consistency
 - In the interests of the AP and Global communities



APNIC Policies

- *Objectives*

- First objective:
 - Ensuring efficient use and conservation of resources
- Second objective :
 - Limiting growth of routable prefixes
- Third objective :
 - Fairness and Consistency in procedures
 - Expertise and Neutrality of registry
- Policies defined by the Internet community
 - Implemented by APNIC and the APNIC community
(and of course by the other registries)



APNIC Policies

- IP Addresses

- Based on global Internet registry policies
 - RFC 2050 (1996)
 - Other RIR policies
 - APNIC Policy document being drafted
- Minimum practical allocation
 - /19 - under review at global level
 - “Slow Start” policy for new members
- Allocation of “PA” Address Space
 - Provider-Aggregatable
 - Customer assignments are non-portable



APNIC Allocation Policies

- IP Addresses

- **New allocations**
 - Completed request form in detail (next slide)
 - Demonstrated plan for efficient address space usage
- **Additional allocations**
 - Completed request form in detail (next slide)
 - Demonstrated plan for efficient address space usage
 - Assigned address space economically
 - APNIC database updated - to end user level
 - How quickly the initial allocation is consumed



APNIC Assignment Policies

- IP Addresses

- APNIC follows “second-opinion” process
 - New assignments can require a “second-opinion”
 - Submit request on “second-opinion” request form
- APNIC “assignment window”
 - The amount of address space a member may assign without a “second opinion”
 - Starts at zero, increases based on efficiency of assignment
- Assignment window size
 - Increased by APNIC as member gains experience
 - NOTE: assignment window can also be decreased



APNIC Assignment Policies

- *IP Addresses*

- Assignments based on requirements
 - Documentation must be detailed
 - Justification is based on number of hosts initially, after 1 year, and after 2 years
 - Address space assignment should maximise utilisation (and therefore minimise wastage)
 - Classless assignments, showing use of VLSM
 - Note: RFC1918, HTTP 1.1, NAT, IP unnumbered...
- Efficient address space assignments are vital for the future of the Internet!

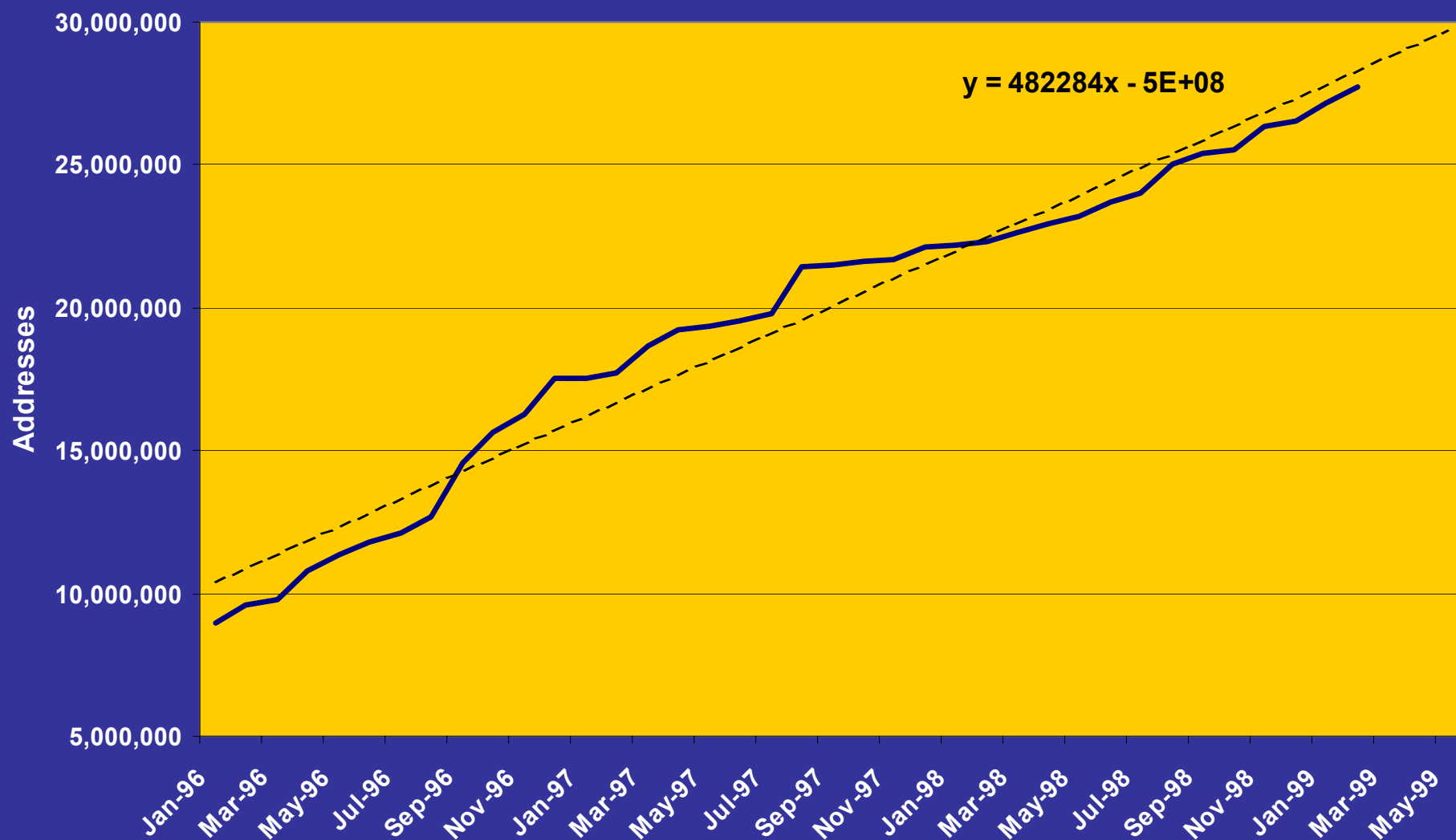


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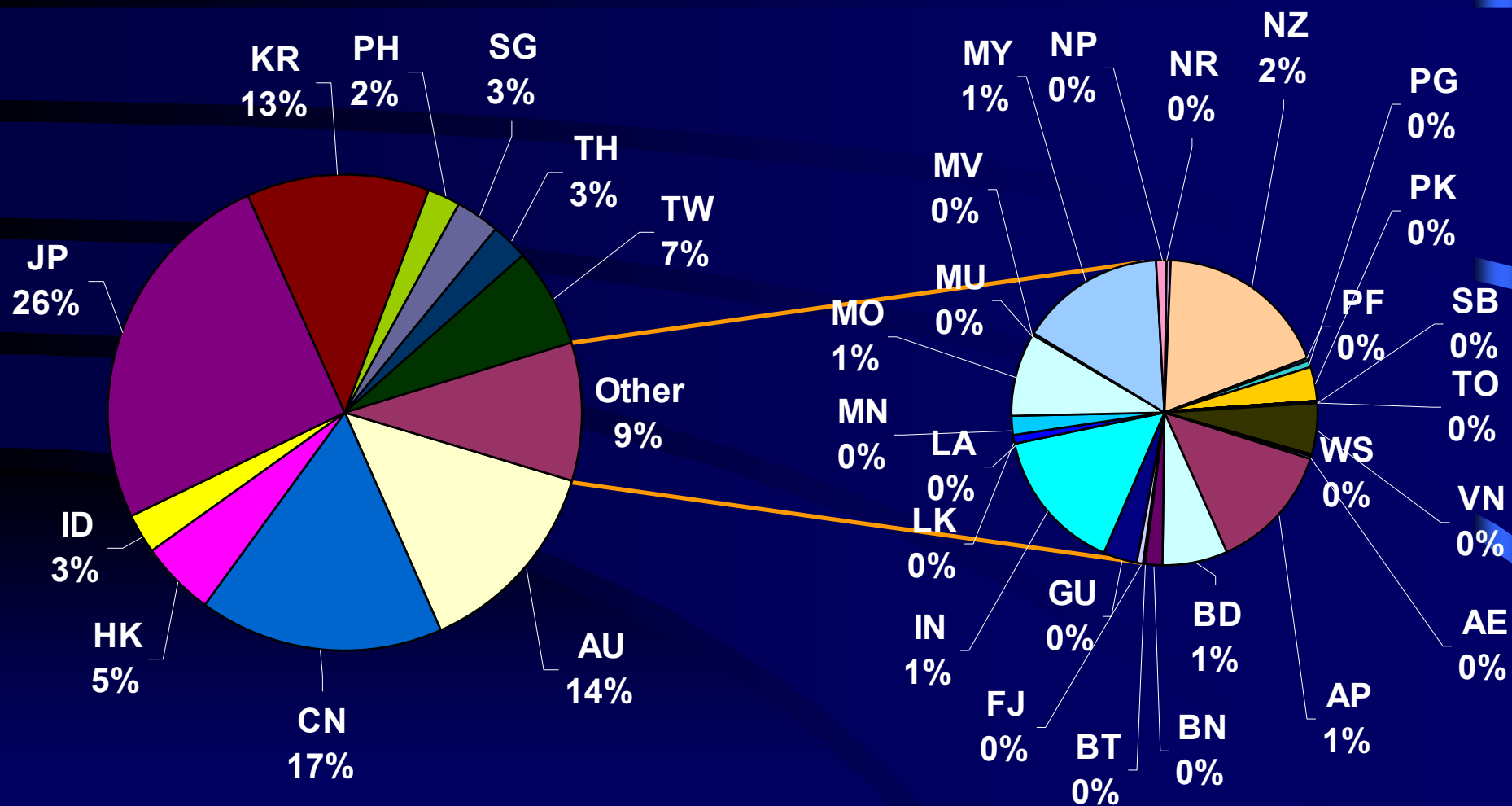


Activities - IP Allocation



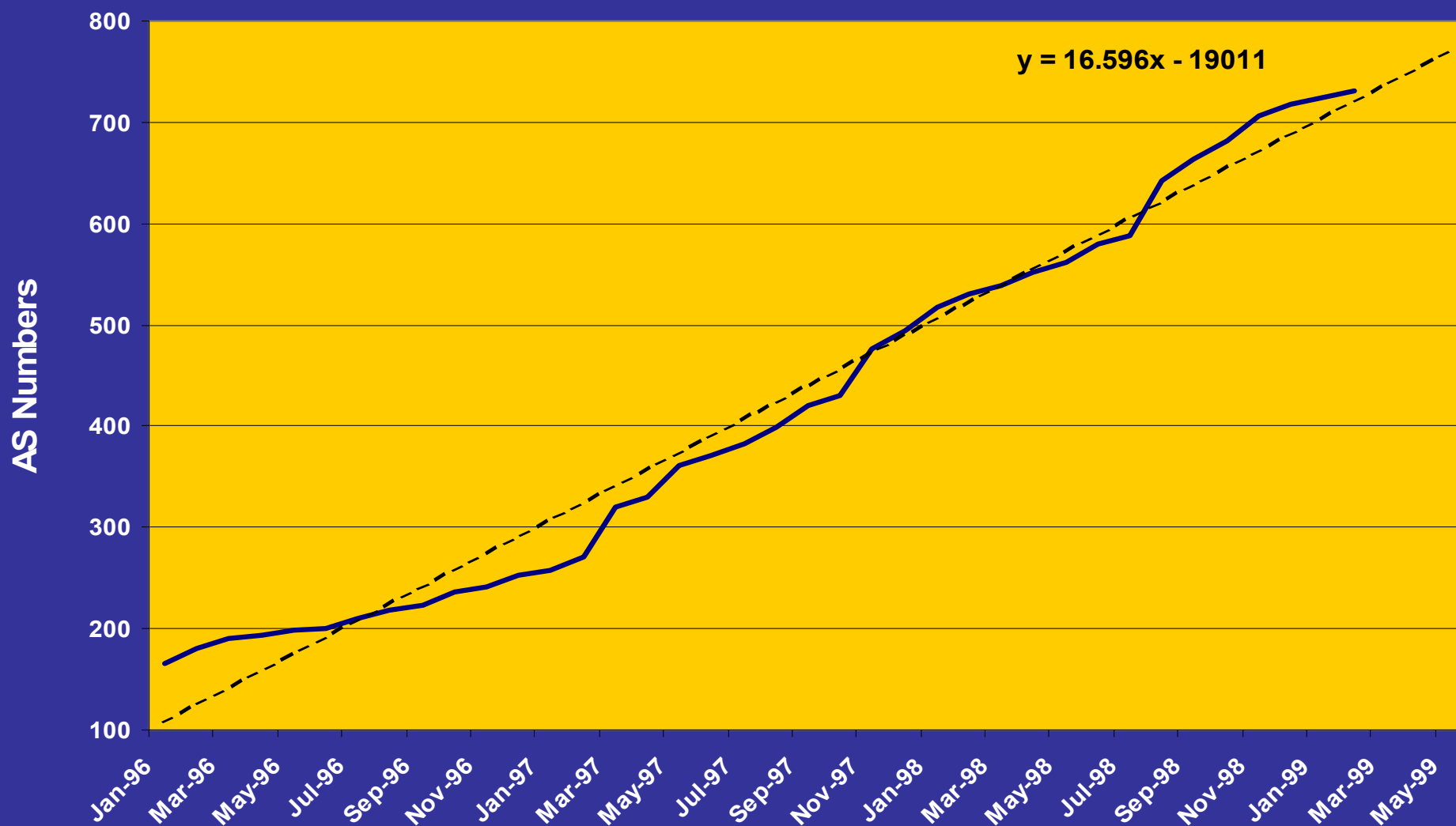


IP Allocation - Distribution



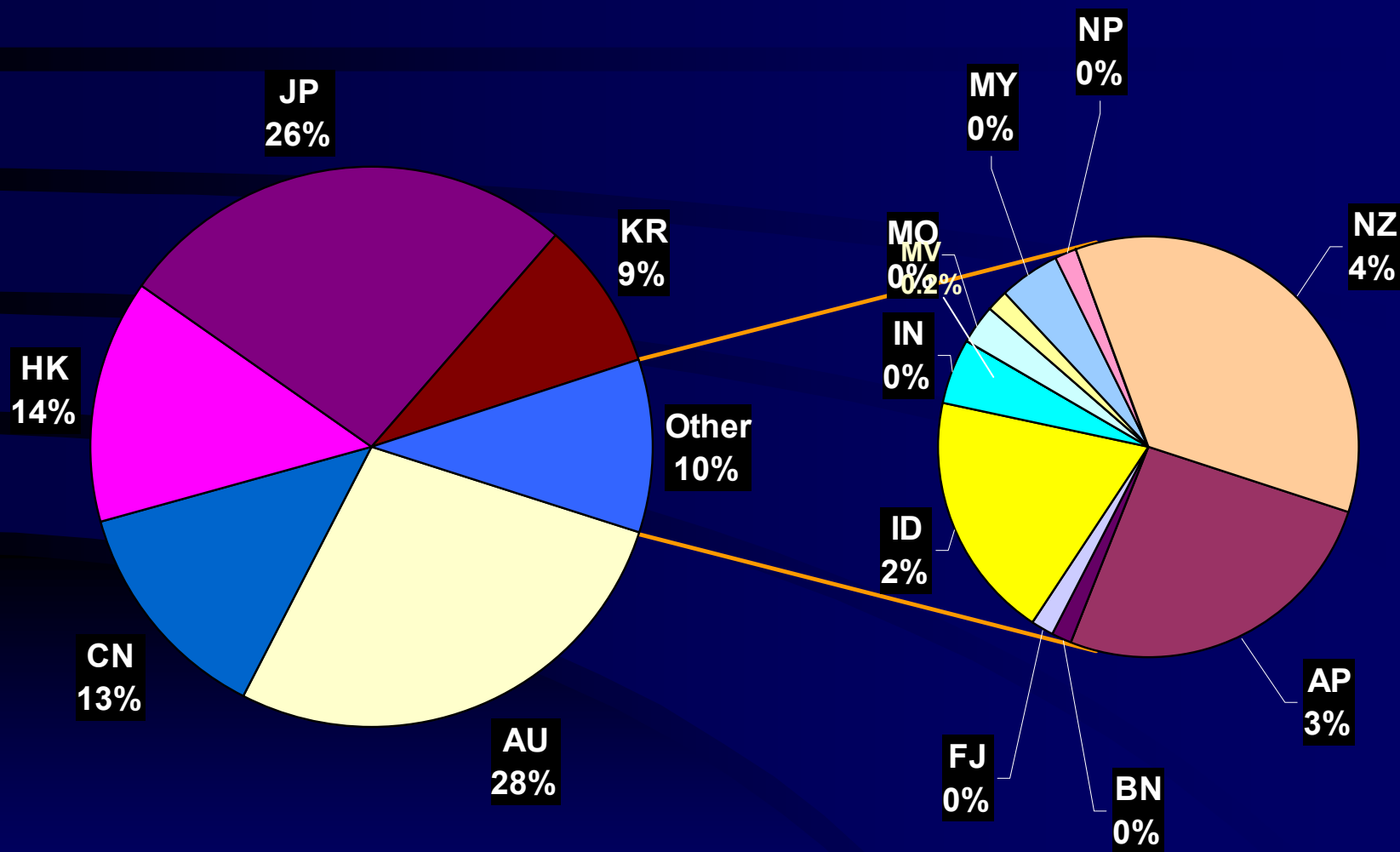


Activities - ASN Allocation





ASN Allocation - Distribution





Resource Status (Dec 1998)

Address Block	Addresses	%Allocated	%Reserved	%Free	Date Delgated by the IANA
202/7	33554432	60.32	0.00	39.68	January 10, 1994
169.208/13	1048576	0.00	0.00	100.00	June 6, 1995
210/7	33554432	58.10	0.00	41.90	September 16, 1996
61/8	16777216	0.05	0.00	99.95	April 25, 1997
<i>Total</i>	84934656	36.03	0.00	63.97	

As Block	Ases	%Allocated	%Reserved	%Free	Date Delgated by the IANA
4608-4863	256	98.83	0.00	1.17	10-Jan-94
7467-7722	256	100.00	0.00	0.00	6-Jun-95
9261-10239	979	20.33	0.00	79.67	16-Sep-96
<i>Total</i>	1491	47.48	0.00	52.52	

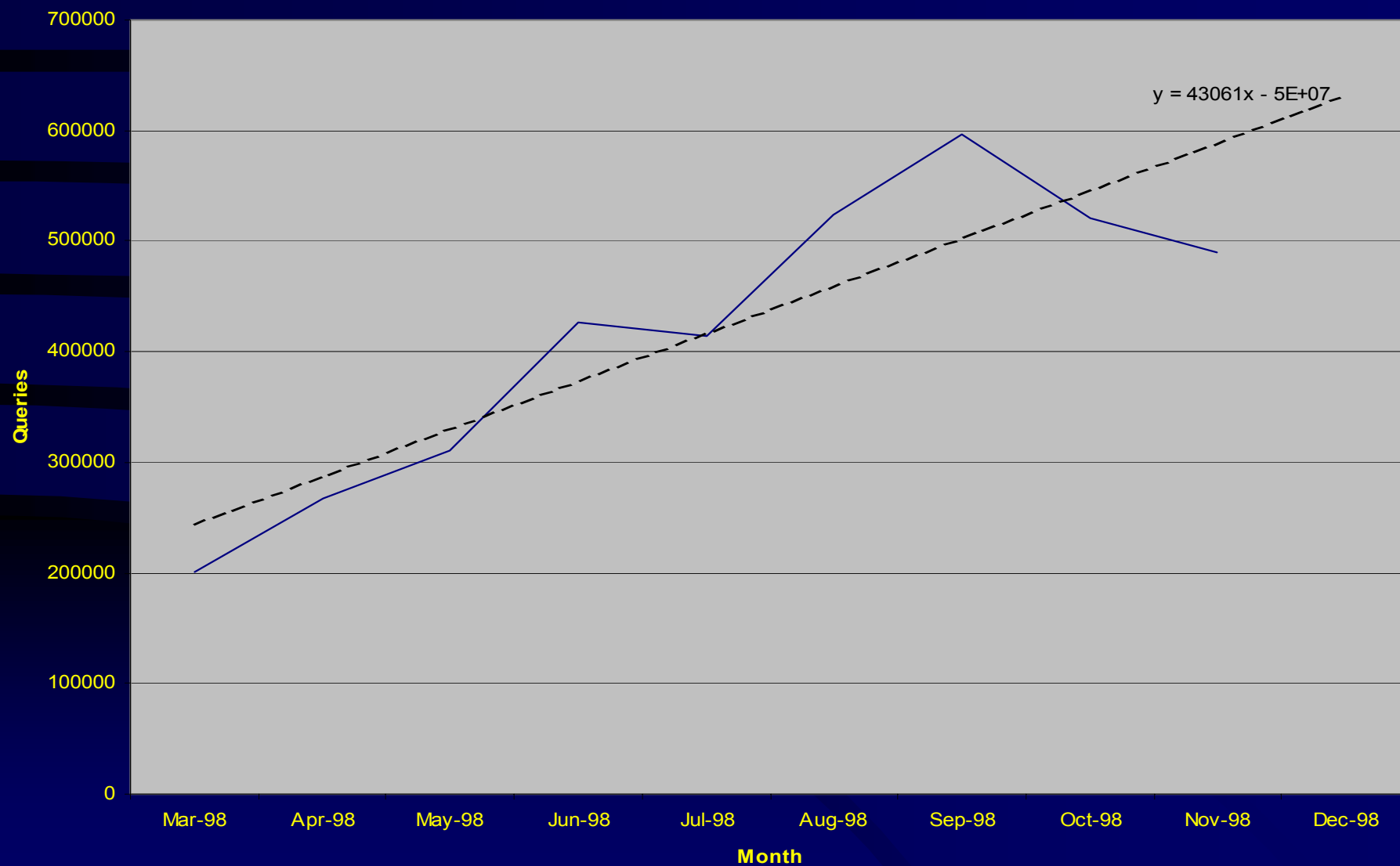


Whois Queries





HTTP Queries





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Recent Developments ⁽¹⁾

- Secretariat Relocation
 - Started Feb 1998, completed Aug 1998
- Capacity Building
 - Systems, Services, Staffing
- Documentation Activities
 - Review and Update, Restructure
- Training Services
 - Started at APRICOT



Recent Developments ⁽²⁾

- Staff capacity building
 - Jan 1998: 5
 - Aug 1998: 7
 - May 1999: 10
 - Dec 1999: 15 (?)
- Recent recruitment
 - New staff in December 1998
 - System Admin, Tech Writer
 - Hostmaster recruitment restarted



Recent Developments ⁽³⁾

- Tokyo mirrors established
 - Servers at NSPIXP-II (Tokyo) upgraded in December 1998
- Primary server upgrade
 - Primary server farm upgrade scheduled since January 1999
 - Two node “high-availability” cluster (2xPII/450, 12Gbytes RAID, 512M etc)
 - Final installation this month
 - Sponsored by COMPAQ and SCO
- Internal server upgrades



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Future Directions ⁽¹⁾

- Member Services 1999
 - Documentation update, extension, translation
 - Quality of services to improve
 - Training services to begin
 - IPv6 Allocation service on trial from Q1 1999
 - Fee structure review
- Internet “Governance”
 - Ongoing work on ICANN and the ASO

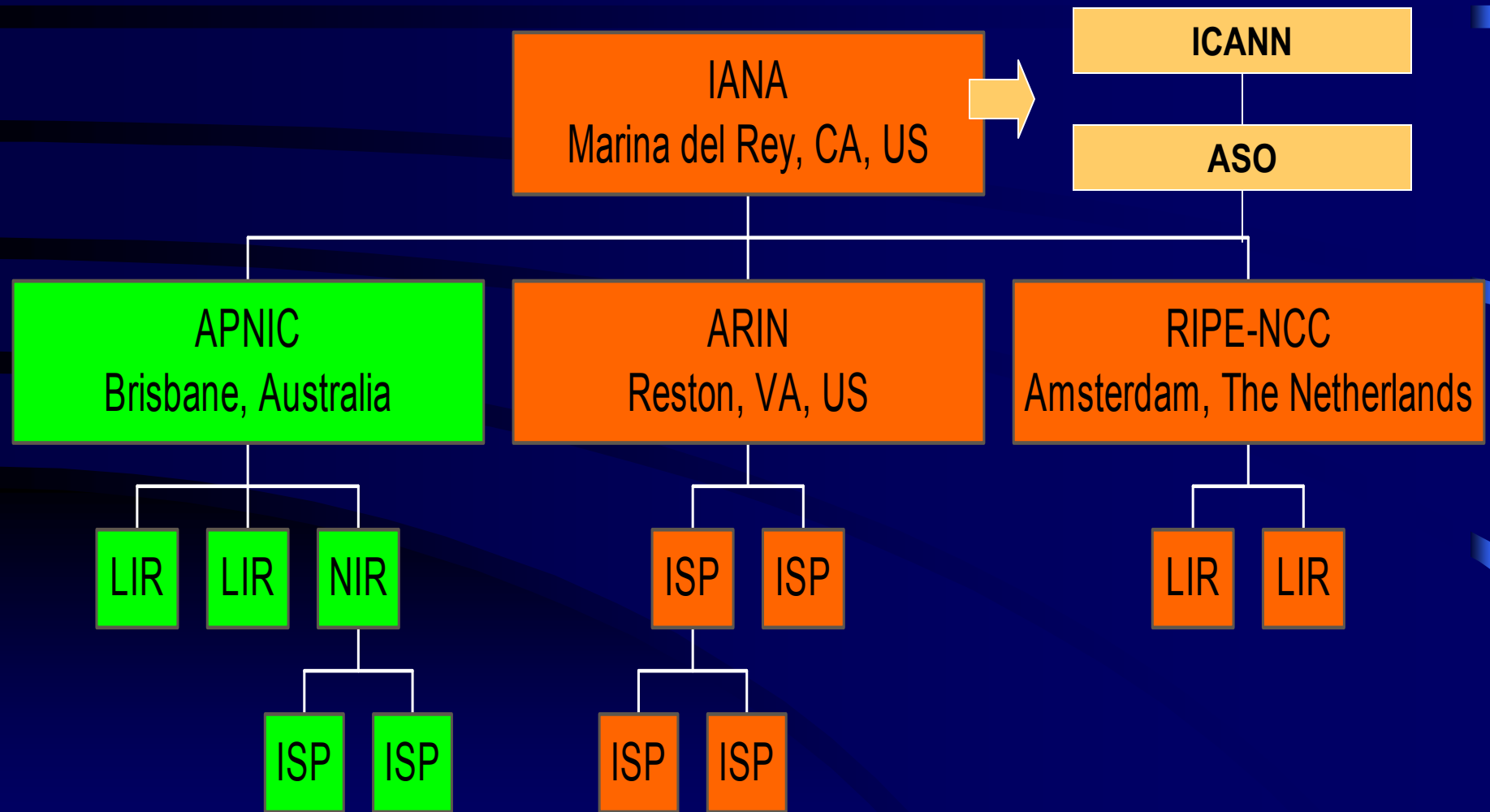


Future Directions ⁽²⁾

- Technical Services 1999
 - whois reimplementation (with RIPE NCC)
 - Routing registry (test server deployed)
 - Higher redundancy - Servers and Connectivity
 - Certification / Security
- Internal Systems
 - Member management
 - in-addr.arpa automation



Registry Hierarchy





ICANN and the ASO

- Supporting Organisations of ICANN:
 - Address Supporting Organisation (ASO)
 - Domain Name Supporting Organisation (DNSO)
 - Protocol Supporting Organisation (PSO)
- SO Requirements:
 - i) Open Membership Criteria
 - ii) Policy Development Procedures
 - iii) Openness and Transparency
 - iv) International and Diverse Participation
 - v) Disclosure of Interests
 - vi) Funding



Overview and Status Report

Questions?

<http://www.apnic.net>