

# IP Addressing and ICT Development in the Pacific Islands

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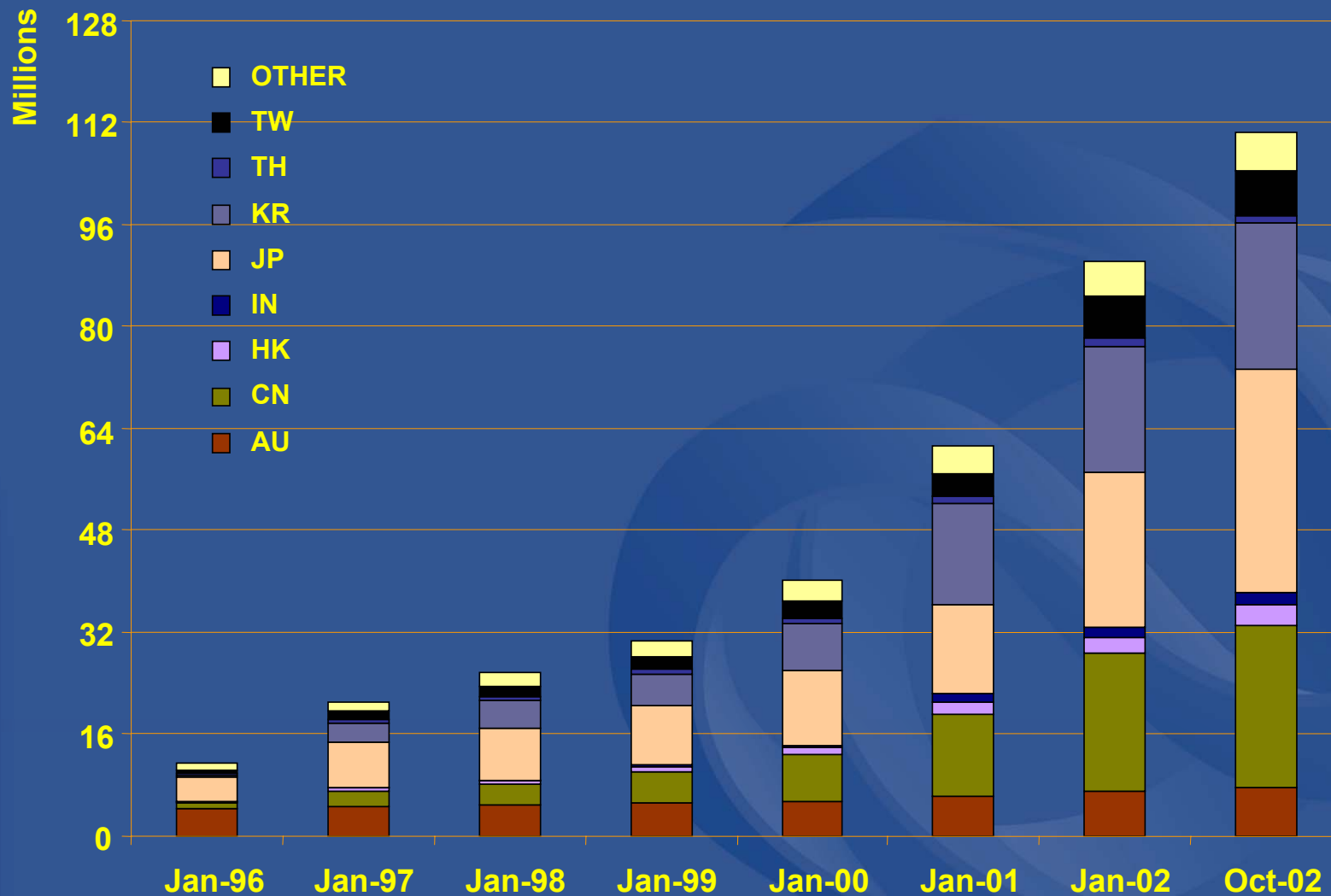
# What is ICT Development?

- E-commerce and E-education
- Virtual web hosting
- 'Always on' services, eg. cable
- Internet mobile applications
- Wireless networks
- IP addresses are critical for ICT!

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# Total IPv4 Allocations in the Asia Pacific



# We Know For Sure.....

- As technology and the Internet evolves, there will always be a demand for IP Addresses
- IP addresses are finite
  - IPv4 address: 32-bit number (e.g. 202.165.207.255)
    - 4 billion addresses (though much less in practice)
  - IPv6 address: 128-bit number
    - 16 billion billion addresses (much less in practice)

# Misconceptions about IP Addresses

- IP addresses are “property”
  - They are not. A ‘license’ framework applies
- IP addresses can be sold
  - Selling addresses is contrary to goals of effective management
  - They cannot be transferred without approval from APNIC



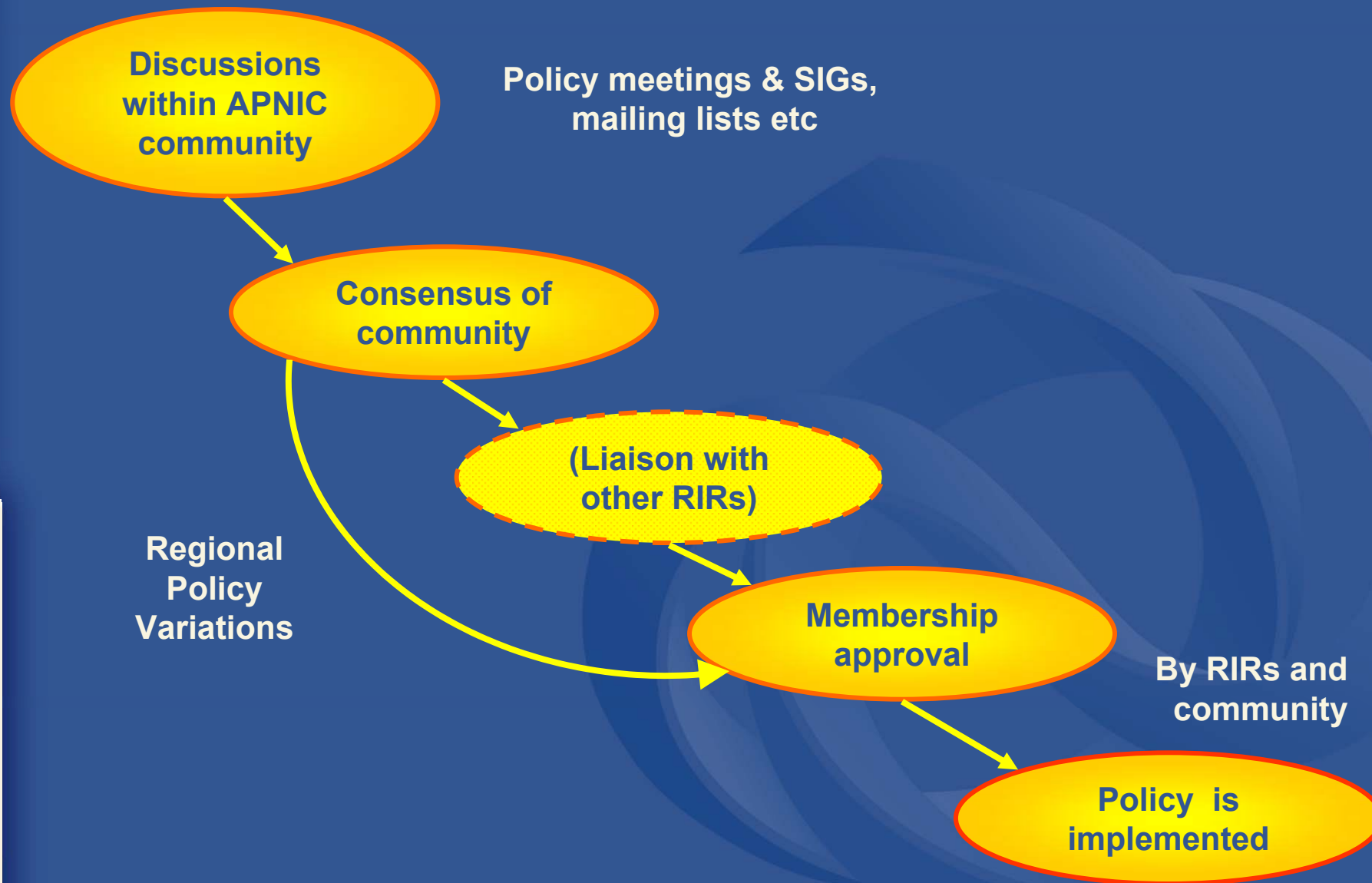
# What is APNIC?



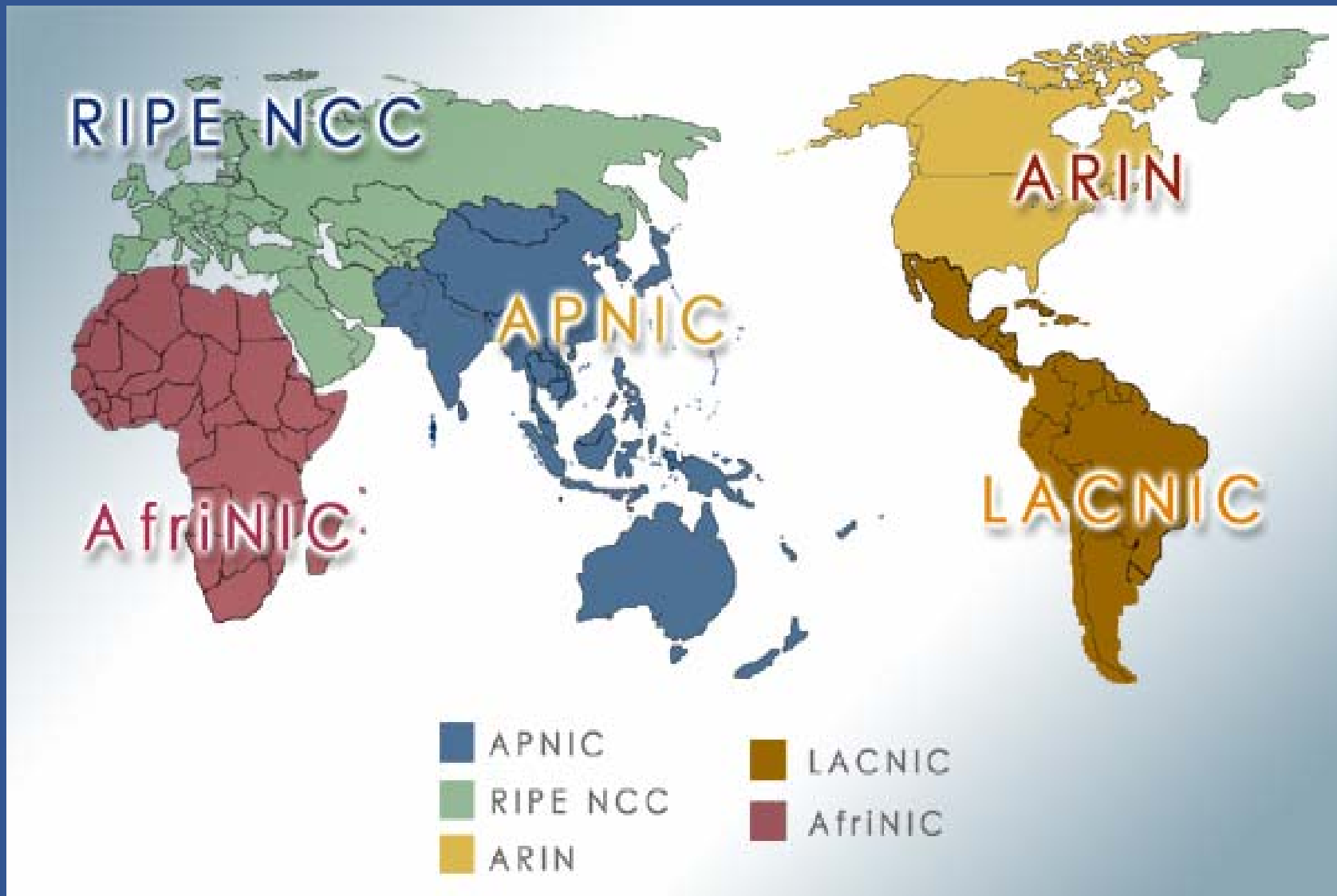
# What is APNIC?

- Regional Internet Registry (RIR) for the Asia Pacific Region
  - Regional authority for Internet resource distribution
    - IP addresses (IPv4 and IPv6), AS numbers, reverse DNS delegation
  - Provide services to 700+ members and NIR's
- Industry self-regulatory body
  - Participation by those who use Internet resources
  - Consensus-based, open and transparent
  - Non-profit, neutral and independent
  - Open membership-based structure

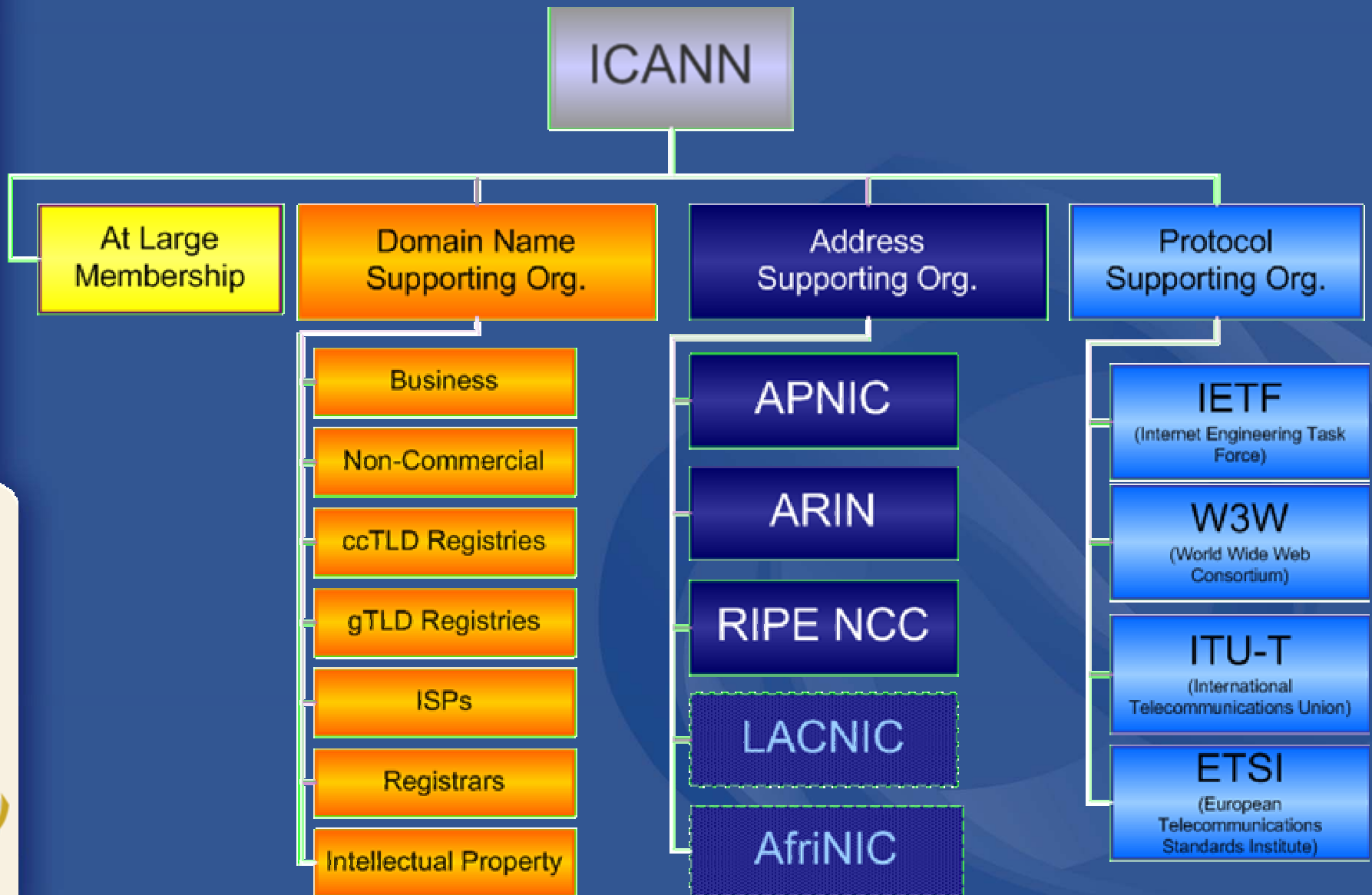
# APNIC Policy Making Process



# Where is APNIC?



# Internet Organisation Hierarchy



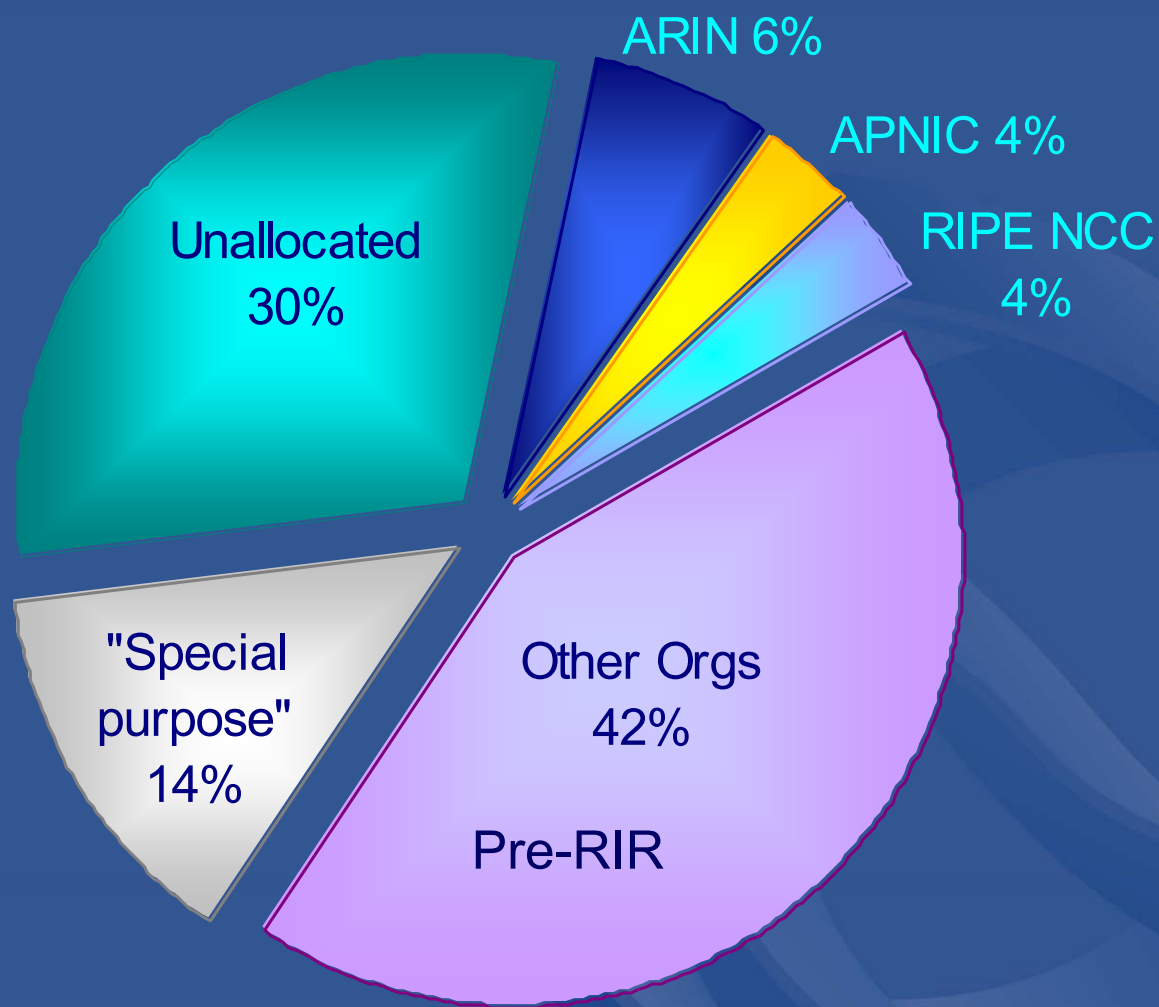
# Goals of Address Management

- Conservation
  - Ensuring efficient use and conservation of resources
- Aggregation
  - Limiting growth of routable prefixes
- Uniqueness
  - Global visibility
- Registration
  - Registering the Internet resources in a public database
- Fairness and consistency
  - Equal consideration irrespective of external factors

# Careful Management is Vital

- APNIC's role
  - “Addressing the challenge of responsible resource distribution in the Asia Pacific”
- ISP's role
  - To manage the resources they have been allocated
  - To develop policies to safeguard future supply which is essential to ICT

# The Bigger Picture - Conservation





# IP Address Policies

## Frequently Asked Questions



# Why Do We Need Policies?

- To protect your interests
  - Your ICT development depends on continued access to and availability of IP addresses
- It is your business to see that the resources are effectively managed

# Getting IP Address Space

- Examine your “need”
  - Different policies address different “needs”
- Membership does not guarantee you will get IP addresses
  - Different technical criteria need to be met for each policy
  - IP addresses can also be applied for on a “one-off” basis (“non” membership)
    - Technical criteria still need to be met

# Getting IP Address Space

- ISPs typically...
  - Need continued access to a pool of address space for equipment and customers (“allocations”)
- To “qualify” for an allocation
  - Need to meet criteria
    - Demonstrate an immediate need for a /22 (1024 IP addresses)
    - And a need for a /21 (2048 IP addresses) in one year

# Getting IP Address Space

- Cannot meet the criteria?
  - Go to your upstream provider
- No upstream provider?
  - Approach and discuss with APNIC
- Upstream will not give the addresses?
  - Approach and discuss with APNIC

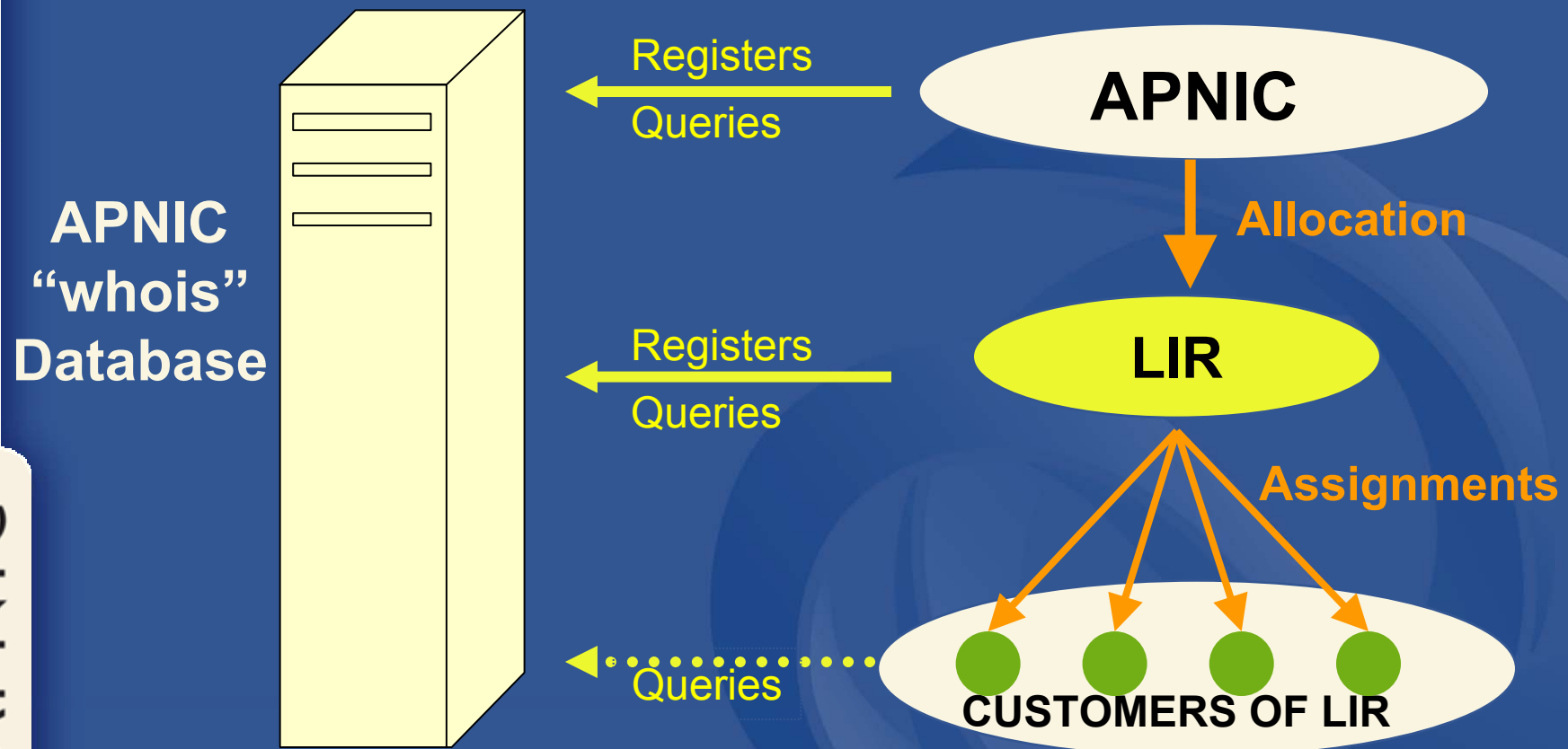
# Getting IP Address Space

- What about other ways of obtaining IP address space?
  - Are you an operator of ‘critical infrastructure’? eg. ccTLD (NEW!)
    - Critical infrastructure assignment policy
  - Need address space to multihome?
    - Multihoming assignment policy
  - More information needed?
    - [http://www.apnic.net/services/ipv4\\_guide.html](http://www.apnic.net/services/ipv4_guide.html)

# Obtaining More IP Addresses

- How do I obtain additional address space after the initial allocation
  - Need to demonstrate 80% utilisation of previous IPv4 allocation
  - Register all customer assignments in database
  - Comply with policies
- How much will I be allocated?
  - Amount allocated depends on how quickly you used up the first allocation and future plans

# LIR Database Responsibilities



# Managing IP Addresses – “Whois”

- Do I need to register assignments in the APNIC “whois” database?
  - Yes, it is vital. It ensures that the custodian of the resource can be identified
  - It also tells APNIC how much address space is ‘used’ when you return for more
  - Correct management carried out to achieve 80% utilisation



# Customer Assignments

- Follow '2<sup>nd</sup> Opinion process' ,i.e. APNIC evaluates your customer request for IP address based on Assignment Window
- Why follow it?
  - It is used to ensure that all members are assigning to their customers according to the policies and meeting technical criteria



APNIC

Asia Pacific Network Information Centre

# Activity in the Pacific

# Survey of Pacific Members of APNIC

- Many received 'early' allocations
  - Have very little contact with APNIC
  - Have not sent in '2<sup>nd</sup> Opinion' requests
  - Lack database records for customers
  - Unclear if they have customers?
- Out of touch
  - No or little contact with APNIC means out of touch with APNIC policies
  - Not up to date with procedures
  - Maybe not managing address space

# Will you Need IP Addresses for ICT Development?

- Do an audit!
  - What future applications /services are you planning and will they require IP addresses?
- If you have IP addresses from APNIC
  - Have staff followed the 2<sup>nd</sup> Opinion process?
  - Are customer assignments registered in the APNIC database?
  - Have you documented 'usage' and deployment?

# Stay in Touch with APNIC

- It is important and easy
  - Email to [helpdesk@apnic.net](mailto:helpdesk@apnic.net)
    - They are there to help you
  - Attend Member Trainings
    - NZ December 9, 2002 and Pacific 2003
  - Collectively send a person to APNIC meetings
    - 2003: APNIC15, 24-28 Feb  
<http://www.apnic.net/meetings>
    - With APRICOT <http://www.apricot2003.net>
  - Check the APNIC web pages frequently
    - <http://www.apnic.net>



# Questions?

- Thank you for listening!