

#### Rationale APNIC

#### Design goals

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- Availability of address space, autoconfiguration, security, real-time flow support, scalability
- Opportunity
  - To optimise on years of IPv4 deployment experience
- Protocol
  - In principle should remain similar to IPv4

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# Addressing

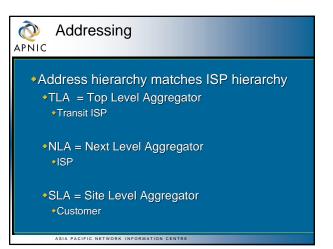
#### Address types

- Unicast (one-to-one)
  - Global
  - Link-local
  - Site-local
  - Compatible
- Multicast (one-to-many)
- Anycast (one-to-nearest)

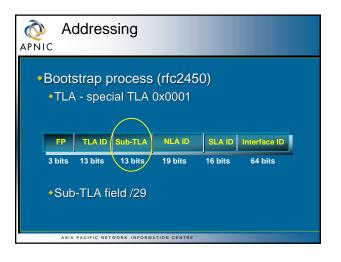
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Reserved

#### Addressing APNIC Terminology ♦Node A protocol that implements IPv6 A node that forwards IPv6 packets not explicitly addressed to itself Host Any node that is not a router ◆Link A communication facility or medium over which nodes can communicate at the link layer ie. Neighbours Nodes attached to the same link Interface A node's attachment to a link Address interfaces ASIA PACIFIC NETWORK INFORMATION CENTRE



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|--------------------------|------------------------------|--------------------|-------------------|-------------------|------------------------------------|
| •RFC                     | egatab<br>2374 (l<br>bit add |                    | al Unic           | ast Foi           | rmat                               |
|                          |                              |                    |                   |                   |                                    |
| FP                       | TLA ID                       | Reserved           | NLA ID            | SLA ID            | Interface ID                       |
| FP<br>3 bits             | TLA ID<br>13 bits            | Reserved<br>8 bits | NLA ID<br>24 bits | SLA ID<br>16 bits | Interface ID<br>64 bits            |
|                          |                              |                    |                   |                   | 64 bits<br>Interface<br>Identifier |



### Addressing APNIC

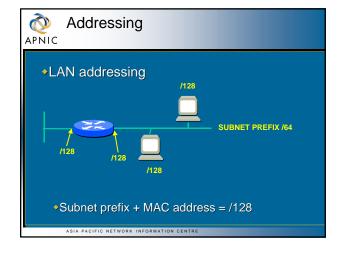
#### Assignments

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- •Minimum assignment to end-site or customer is a /48 prefix (SLA)
  - 16 bits for subnetworks
  - •65535 subnetworks per site

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- 64 bits for hosts
  - •18446744073710 million hosts per subnetwork!!



#### Features of IPv6 APNIC

- Server-less auto-configuration (plug-&-play)
- Streamlined header format and flow identification
- Expanded addressing capability
- More efficient mobility options

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- IP layer privacy and authentication
- Improved support for options/extensions

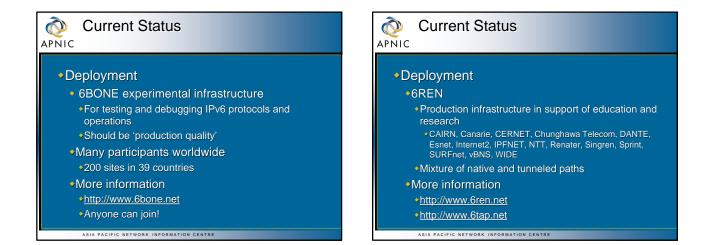
#### $\sim$ **Current Status** APNIC

#### Specifications

- Core IPv6 specifications are IETF draft standards and are well tested
- IPv6 base spec, ICMPv6, Neighbor Discovery, Multicast, Listener Discovery, PMTU Discovery, IPv6 over Ethernet....
- Others further behind but progressing Mobile IPv6, header compression, A6 DNS support, IPv6-over-NBMA, multihoming support

For status

http://playground.sun.com/ipng



#### **Current Status** APNIC

- Deployment assistance http://www.ipv6.org Contributed FAQ's and other info
- Deployment advocacy http://www.ipv6forum.com
- Address allocations
  - Test address space 6BONE
  - Production address space APNIC, ARIN, RIPE NCC ASIA PACIFIC NETWORK INFORMATION CENTRE



### Allocation Policy

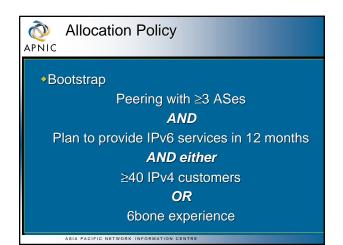
## Global Policy Document

- http://www.apnic.net/policies.html
- Request Forms APNIC
  - http://www.apnic.net/apnic-bin/ipv6-subtla-request.pl
- ARIN
  - http://www.arin.net/regserv/ipv6/ipv6-regserv.html
- ◆RIPE NCC http://www.ripe.net/ripe/docs/ripe-195.html
- FAQ
  - http://www.apnic.net/drafts/ipv6/IPv6-FAQ.html
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Allocation Policy

Peering with ≥3 subTLAs *AND either* Plan to provide IPv6 services within 12 months *OR* ≥40 SLA customers

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| Allocation Policy  | Questions?                              |
|--|---|
| <ul> <li>'Slow start'</li> <li>First allocation to a TLA Registry will be a /35 block</li> <li>Representing 13 bits of NLA space</li> <li>Entire /29 reserved (aggregatable)</li> <li>IANA allocations</li> <li>APNIC: 2001:0200::/23</li> <li>ARIN: 2001:0400::/23</li> <li>RIPE NCC: 2001:0600::/23</li> </ul> |   |
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