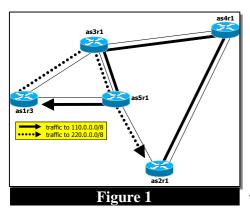
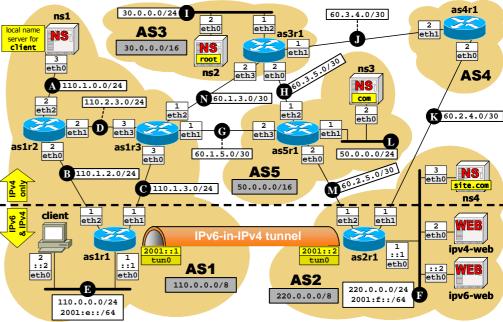
ICN – Examination date: 06-09-2013 – "Pinnacle"







ΙP

- Only the last byte of the address is specified next to the interfaces.
- All the nodes are IPv4-only, except ipv6-web, which is IPv6-only, and as1r1, as2r1 and client, which are dual stack.
- Nodes that act as IPv6 routers must be enabled to do so by using the command specified in the box alongside.
- IPv6 routing is implemented statically.

IGP and BGP

- **AS1**'s internal network runs RIP.
- BGP peering LANs and networks internal to each AS (indicated in gray) must be announced in BGP.
- BGP policies must be such that <u>traffic</u> is routed as specified in Figure 1.

<u>USEFUL COMMANDS</u> (parts in square brackets are optional):

- To assign the IPv6 address *ipv6addr/mask* to interface *interface*: ifconfig *interface* up
 - ifconfig interface add ipv6addr/mask
- To enable a network node to behave as an IPv6 router:
 echo 1 >/proc/sys/net/ipv6/conf/all/forwarding
- To add a static route towards ipv6addr[/mask]:
 - route -A inet6 add ipv6addr[/mask] [gw nexthop] [dev interface]
- \bullet To display the IPv6 routing table (which is different from the IPv4 one):
 - ip -6 route or, alternatively, route -A inet6
- To set up an IPv6-in-IPv4 tunnel called *tunnelName* between *ipv4LocalAddr* and *ipv4RemoteAddr* (note: the same configuration must be applied to both endpoints):
- ip tunnel add tunnelName mode sit remote ipv4RemoteAddr local
 ipv4LocalAddr ttl 10
- ifconfig tunnelName up
- ifconfig tunnelName add ipv6LocalAddr
- route -A inet6 add ipv6RemoteAddr dev tunnelName
- No routers announce the default route **0/0**, apply customer-provider policies, or filter BGP announcements.
- IPv6 subnets must not be announced by any routers, either in RIP or in BGP.

Services

- ns1, ns2, ns3, and ns4 are name servers. ns1 is the local name server for client, ns2 is root, ns3 is authority for com, ns4 is authority for site.com.
- The configuration of ns4 must include the following DNS record:
- ipv6.site.com. IN AAAA 2001:f::2

 Add this line at the beginning of file /etc/bind/named.conf on ns1:
- options { allow-recursion { any; }; };
- ipv4-web and ipv6-web run Apache and, respectively, serve http://ipv4.site.com/ and http://ipv6.site.com/.

Goals

- client must be able to display the web page served by ipv4-web using this command: lynx http://ipv4.site.com/
- client must be able to display the web page served by ipv6-web using this command: lynx http://ipv6.site.com/