Addressing and Routing for Scalability

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Is there a scalability problem?

- Routing table (routing as well as forwarding) has been growing
  - Attributed to increase multi-homing and traffic engineering
- When we move to IPv6, there will be more addresses
  - More opportunity for MH and TE
  - Will it accelerate the grow of routing table size?
  - Will this be a problem?

Note: this is different than trying to conserve the number of addresses so that IPv6 is not needed

Our proposal

- By using NAT, IPv4 networks support a lot of users/nodes without public addresses
  - Using “NAT routing”
- If routing (table) scalability is a problem
  - Earmark a subspace of addresses NAT type of routing
  - Since they have public addresses, they can bind to proxy nodes on semi-permanent basis, hence better service than private addr
  - Charge differently for “classic public addresses” and “NAT-style public addresses”
- Other address types possible, e.g. highly mobile/portable addresses

Discussion

- Advantages of multiple types of (public) addresses:
  - Each type of address incur different overhead in routing table size
  - Can control scalability problem by controlling the size of each pool of addresses
  - ISP can charge for them differently to manage demand
  - Different types address can satisfy different user requirements
  - Routing changes should be minimal
- Question:
  - Has this been considered before?
  - Is it a lousy idea?