anycast and the DNS roots

How will anycast affect attempts to measure the roots?

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overview

- background
- current/planned deployment
- implications for measurement
- proposed study of client distribution for single root

anycast: description

Multiple nodes configured to accept traffic on single IP address

Usually, one node recieves each packet

- Packet could be dropped like any other
- Preferably only one node receives packet, but no absolute guarantee

The node that receives a specific packet is determined by routing

[from "Deploying IP anycast" NANOG 29 - october 2003 by Kevin Miller Carnegie]

current/planned deployment

[note we aren’t sure and will ask on sunday]

F.root-servers.org (ISC) is working with regional Internet eXchanges

K.root-servers.net (RIPE-NCC) is working on a detailed plan with RIPE members

C.root-servers.net (Cogent) has instances located in several Cogent datacenters

J.root-servers.net (Verisign) has instances colocated with their gTLD servers

Some others are considering costs and architectures

implications for measurment

increased locality

- Measurements of root performance are relevant only to "currently" selected server.

transparency of instance selection

- difficulting in detecting which instance is being measured

fragmenation of global measurements

- today it would require 15 different monitors to capture just F-root.
- next year it will require 20.

proposed study of client distribution for single root

monitor current DNS client distribution
- collect dnsstat for 24 hours (or suitable period) from all nodes

examine and contrast client distribution
- what is client distribution among nodes, global and local?
- how does distribution compare to expectations from AS graph?
  - check using local RIB and/or RouteViews

monitor effect of introducing a new anycast node
- collect a RIB from a router in front of new location (before/after)
- collect dnsstat for 24 hours from all nodes (before/after)

follow-up
- how long does it take to stablize after anycast node insertion?
- ~~can we predict final "stable" client distributions?~~

questions/comments

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