GAAP Applications over a LISP Overlay

draft-farinacci-pim-gaap-02
LISP RFCs: 8378, 93**, 68**

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What is GAAP?

- A totally decentralized multicast group address allocation protocol
- There is no central entity that allocates group addresses
- Group addresses allocated are guaranteed to be unique among all GAAP speakers
- GAAP nodes have zero configuration to run the protocol
Design Goals

• The protocol allocates both IPv4 and IPv6 group addresses

• Group addresses allocated will not collide in layer-2 IGMP/MLD snooping switches (multicast MACs unique)

• Works on a single subnet as well as over layer-3 infrastructures, including overlays

• Can coexist with other group allocation protocols by using an IANA GAAP allocation block

• When native multicast not available multicast-capable overlays are used
How Does it Work

• Multicast source & receiver nodes participate in the GAAP protocol

• There is an application specified group name that will map to a group address

• A group address is a hash of the group name

• GAAP nodes send Claim messages to a well-known IANA allocated GAAP group

• A Claim message contains the group name, group address, and timestamp of group address creation
GAAP Applications

• GAAP Library - first phase in python

• Echo-Sender & Echo-Receiver Test App
  es <group-name> "<message>"
  er <group-name>

• GAAP Monitor Tool
  gaapshark [<group-name>]

• Suite of GAAP Utilities
  gaaphash, gaapscale, gaapcollide
The gaapchat App

- Is a text based multicast application that uses group addresses allocated by the GAAP protocol
- Command-line:

  gaapchat <group-name> [log]
gaapchat Demo

- We are going to demo gaapchat over a LISP Overlay

- The overlay supports multicast encapsulated in unicast (with NAT-traversal) specified in:

  RFC 8378 *(was draft-ietf-lisp-signal-free-multicast)*
  Signal-Free Locator/ID Separation Protocol (LISP) Multicast

  draft-farinacci-lisp-lispers-net-nat-04
  lispers.net LISP NAT-Traversal Implementation Report
./gaapchat dino-group

white nodes join group which maps from "dino-group"

white nodes and orange nodes run LISP
GAAP over LISP Demo

LISP Multicast Overlay
a-xtr1 terrestrial
a-xtr2 terrestrial

Internet Underlay
a-ms1 - map-server
a-ms1 - RTR
dan-mini terrestrial
dino-macbook
starlink satellite
mike-mac
starlink satellite

white nodes join group which maps from “dino-group”
.

/gaapchat dino-group

8

white nodes and orange nodes run LISP
You can find the GAAP-over-LISP Video here:

https://www.dropbox.com/s/is821hc2z83rtmvc/gaap-over-lisp.mov