

IPv6 interdomain multicast

Stig Venaas

sv@ecs.soton.ac.uk

Interdomain IPv6 multicast

- Not clear how to do interdomain multicast with IPv6
- One way is SSM
- ASM is not so easy
 - No MSDP and a single common RP does not scale
 - Can use different RPs for different groups, but also problem how to distribute RP information
 - One solution to this is Embedded-RP

Embedded-RP (1)

- The idea is simple. The RP address is embedded in the group address, so a router knows the RP address by inspecting group address.
- Embedded-RP gives interdomain ASM, but very different model from IPv4 with MSDP
- With embedded-RP one can do scalable multicast by having a large number of RPs with only a few groups each
 - We expect the RPs to be located near the edge
 - Someone creating a new session (the owner) would normally pick a group address derived from the local RP, and everyone participating in the session (using same group address), will use the same RP

Embedded-RP (2)

- There are some issues here
- Not all use of multicast are based on sessions with an obvious owner
- One may not want others to use one's RP without oneself being part of the session
 - When someone sees one embedded-RP group, they know the RP address and can easily form other group addresses using the same
- How does user/application/host know which group address to pick when creating a new session? Normally they don't know about RP addresses
 - Would it work to let every edge router (DR?) be an RP, and have some way of deriving RP address from /64 prefix?

Multicast testing

- When IPv6 multicast soon becomes available in GEANT we should do tests
- Which NRNs plan to peer with GEANT and do tests?
- Which will offer multicast to customers?
- We should test both SSM and Embedded-RP
 - Although Embedded-RP may not be available from the start?
 - For SSM we might use e.g. flute which is an application for streaming files
 - Presented in TF-NGN before, tested in 6NET and other places
- In addition to testing that the basics work, there are some other things we should think about
- More SSM applications to test?
- What is the best way for us to use embedded-RP on a large scale? What's the usage model, what issues do we see?
- Are SSM and embedded-RP sufficient for our interdomain needs?
 - E.g. SAP/sdr does not work well with embedded-RP because global SAP group would use one single common global RP

Other possible multicast issues to look at

- Intradomain multicast
 - Embedded-RP, BSR, anycast-RP (without MSDP)
- Layer-2 issues
 - How switches cope with IPv6 multicast, snooping etc
- Last mile issues
 - AMT also for IPv6?
- SSM, application, host and router support
- Test solutions for SSM source discovery (sort of emulating ASM)
- Alternatives to SAP for global session discovery?
- Multicast with regards to QoS, mobility, renumbering, multihoming etc
- Management, MIBs, mtrace, beacons (beacon protocols?)