DNS-Based Multicast Stream Discovery

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Marine Networks

• May contain 1 or more sensors of a given class
  • RADAR
  • SONAR
  • Environmental
  • Engine
  • etc.

• No central point of failure

• Users expect plug-and-play operation

• draft-karstens-pim-ipv6-zeroconf-assignment discusses zeroconf assignment of multicast addresses (uses DNS-SD for collision avoidance)

• Still need a way to advertise multicast streams
DNS-Based Multicast Stream Discovery

• Networks that use a method to dynamically allocate multicast addresses may use mDNS and DNS-MSD to advertise the presence of the multicast stream.

• Like DNS-SD, uses PTR, SRV, and TXT records to describe a service

• A new “.mcast.arpa” special use domain is used in A and AAAA records to indicate the hostname is mapped to a multicast stream.

• Networks with their own domain may publish A and AAAA records for pre-assigned multicast addresses
Other Requirements

• The second label in the <Service> portion of a Service Instance Name MUST be ":udp".

• The advertised port must be pre-assigned by IANA allocation or other network specification

• PTR records for reverse lookup must reflect the chosen multicast address
Example

• An example host has an Ethernet MAC address of 00-00-5E-00-53-00
• This is used to create IPv6 link local address fe80::200:5eff:fe00:5300
• It creates a link-scoped IPv6 multicast address ff32:ff:200:5eff:fe00:5300:aabb:ccdd to transmit with
• Its hostname is "example", the service name is "_heartbeat._udp", service instance is "instance", and by pre-agreement all hosts on the network reserve port 62000 for this protocol.

d.d.c.c.b.b.a.a.3.3.3.3.eth-addr.arpa 4500 IN PTR application.example.local
_heartbeat._udp 4500 IN PTR instance._heartbeat._udp.mcast.arpa.
instance._heartbeat._udp.mcast.arpa. 120 IN SRV 0 0 62000 instance.example.mcast.arpa.
instance._heartbeat._udp.mcast.arpa. 4500 IN TXT ""
instance.example.mcast.arpa. 120 IN AAAA ff32:ff:200:5eff:fe00:5300:aabb:ccdd
d.d.c.c.b.b.a.a.0.0.3.5.0.0.e.f.  
  f.f.e.5.0.0.2.0.f.f.0.0.2.3.f.f.  
ip6.arpa. 120 PTR instance.example.mcast.arpa.
Thank You!