DNS-Based Multicast Stream Discovery

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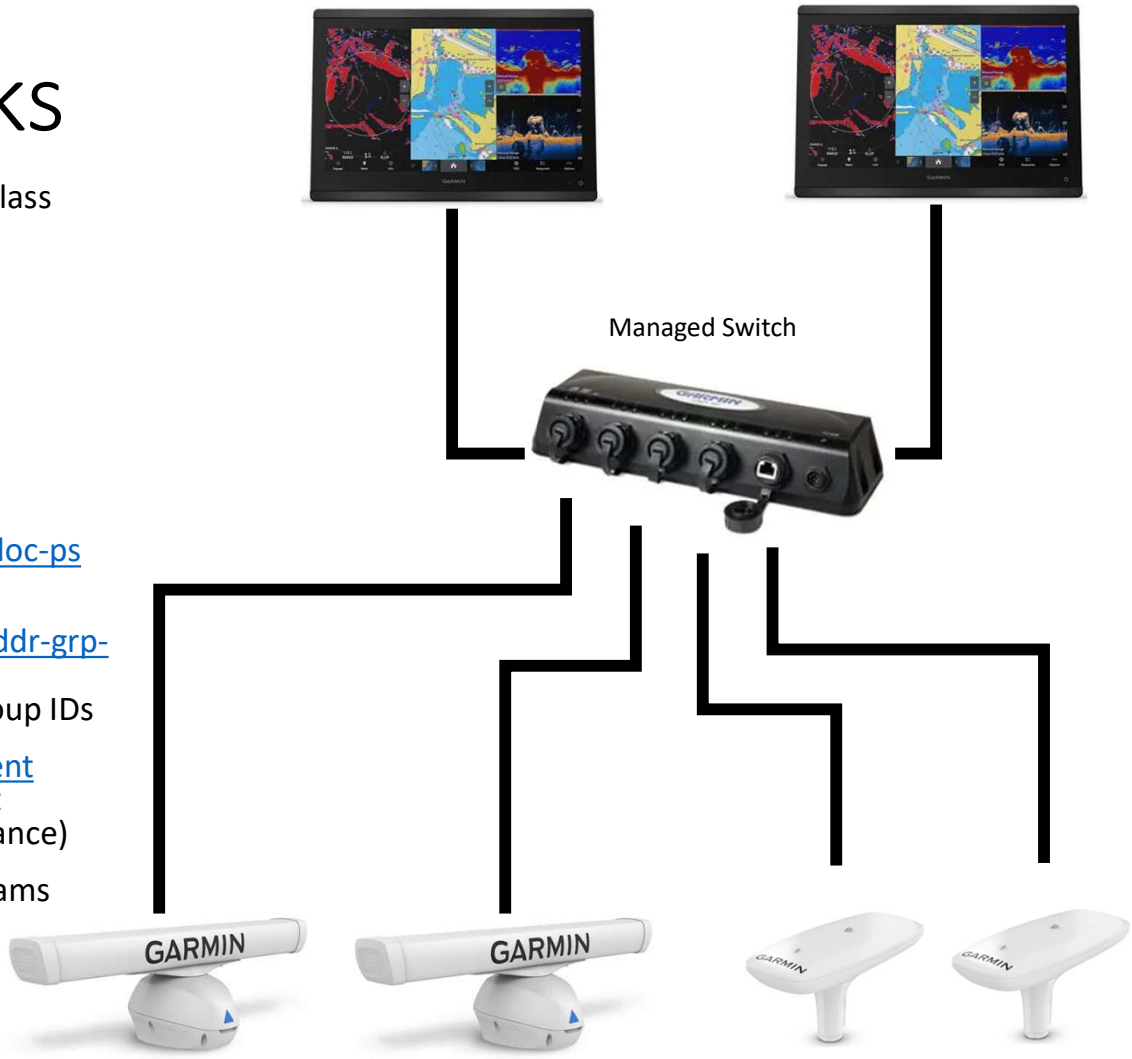
https://datatracker.ietf.org/doc/draft-karstens-dnssd-dns-msd/

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-zeroconf-mcast-addr-alloc-ps
  Problem statement and requirements
- draft-karstens-pim-updt-ipv6-dyn-mcast-addr-grp-id
  Adds registry of dynamic IPv6 multicast group IDs
- 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!