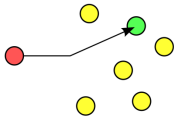


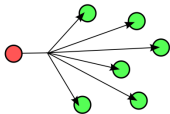
Let's Peer with PIM? - Growing Multicast Trees

T_X

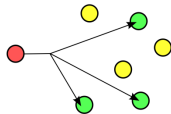
Multicast



► Unicast



► Broadcast



► Multicast

Motivation

- reduced layer 2 overhead
 - esp. ICMPv6 Neighbor Discovery
- video/audio streaming
- peer discovery
- service discovery:
 - e.g. mDNS or SAP (RFC2974)

Milestones

- Gluon v2021.1:
 - initial multicast snooping support, via batman-adv + Linux bridge
- Gluon v2023.2:
 - full Multicast Router Discovery (MRD) support
- Gluon v2025.1:
 - batman-adv multicast packet type
 - brmldproxy

■ Why Layer 3?

- No content -> no users
- No users -> no content
- No users?
- Increase multicast range!

PIM-SM

- Protocol Independent Multicast (RFC 7761)
- Layer 3 multicast routing protocol
 - NOT autonomous
 - requires: layer 3 unicast routing protocol
- PIM-SM: Sparse Mode
 - explicit subscription (vs. DM: dense-mode)
 - builds forwarding trees
 - consent based networking
- Problem:
 - each hop needs to support PIM
 - not supported by ISPs
 - VPNs!

■ dn42 + multicast

- PIM over dn42 (<https://dn42.dev/>)
 - VPN overlay network
 - BGP
 - WiP: PIM

■ dn42 + multicast

- 2025:
 - dn42 added multicast support to its GRC (global route collector)
- 2026:
 - iedon added multicast support to dn42 map
 - <https://map.iedon.net/#4242421976>
 - [Demo]

■ dn42 + multicast

- PIM implementations:
 - pim6sd: <https://github.com/troglobit/pim6sd>
 - mrdisc: <https://github.com/troglobit/mrdisc>
 - FRR: <https://github.com/FRRouting/frr>
- Examples:
 - (a bit outdated): <https://dn42.dev/howto/IPv6-Multicast>
 - At nobreakspace:
<https://wiki.chaotikum.org/infrastruktur:host:dobby-setup>
- Contact:
 - IRC: #dn42-multicast on HackInt

■ dn42 + multicast

- More technical slides (39c3 self-organized session):
 - <https://md.chaotikum.org/fCdsqpICRT2m-uX6tNyGFA>



■ Questions?

