

Route Information Options in Neighbor Discovery Messages

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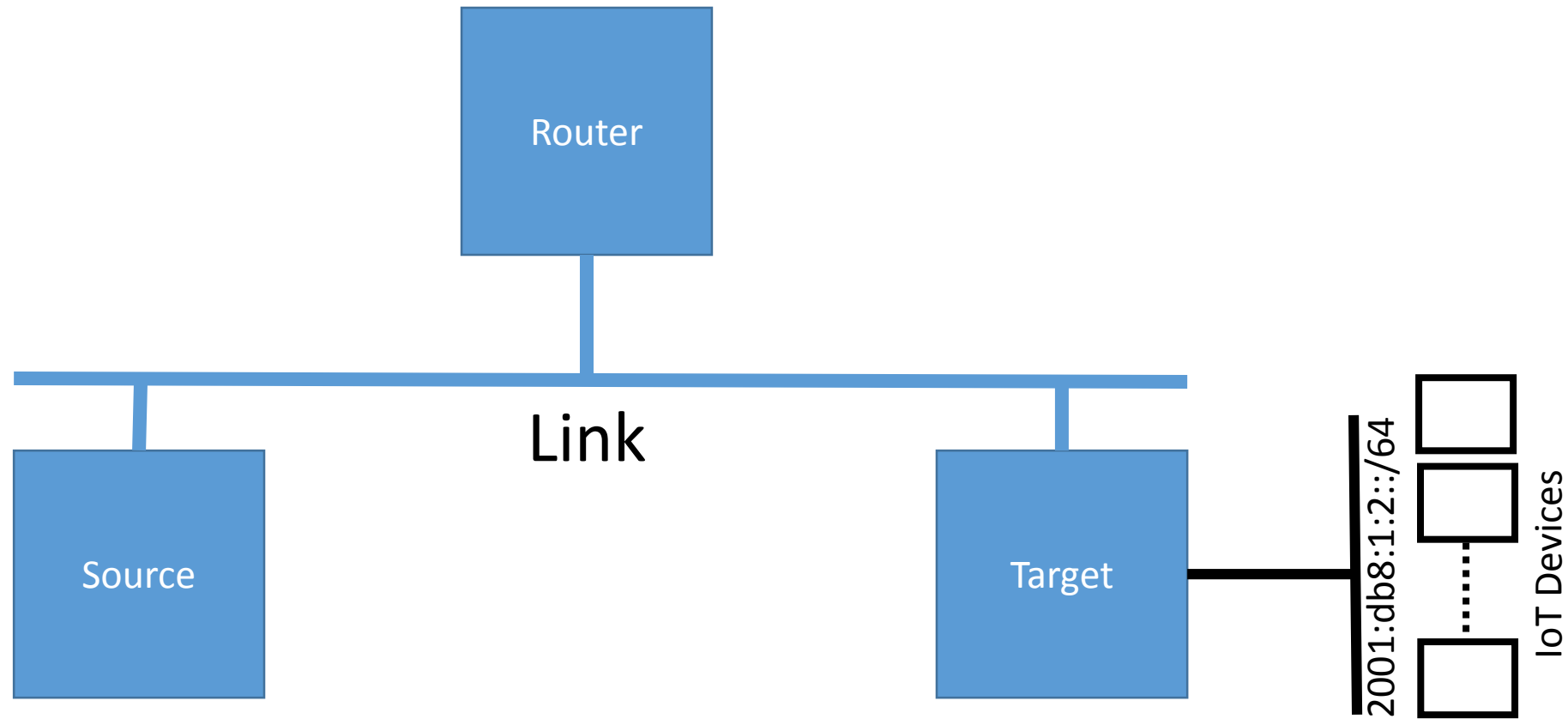
IETF99 6man Working Group

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Draft History

- First posted on 6man list 1/9/2017 as Draft -00
- Comments on the list resulted in Draft -01 update posted 1/31/2017
- More comments received – pending second update
- Draft -01 presented at IETF98 3/30/2017
- Major revision drafts -02 and -03 posted to incorporate comments and include RIOs in all IPv6 ND messages (i.e., and not just Redirects)
- <https://datatracker.ietf.org/doc/html/draft-templin-6man-rio-redirect>

Common Redirection Scenario (RFC4861)

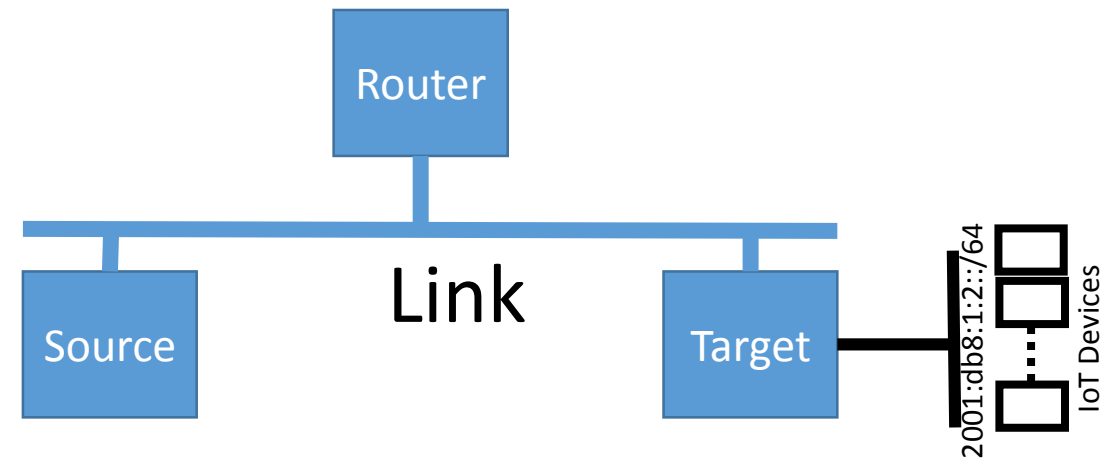


Route Information Options (RFC4191)

- Included in Router Advertisement (RA) messages
- Informs recipient of routes that are reachable via the router that sent the RA message
- RFC4191 identifies 3 types of hosts (Type A, B, C):
 - Type A and B both ignore RIOs
 - Type C processes RIOs in RA messages
- This document introduces a new **Type “D”** host
 - same behavior as Type "C", **but also process RIOs in Redirect and other IPv6 ND messages.**

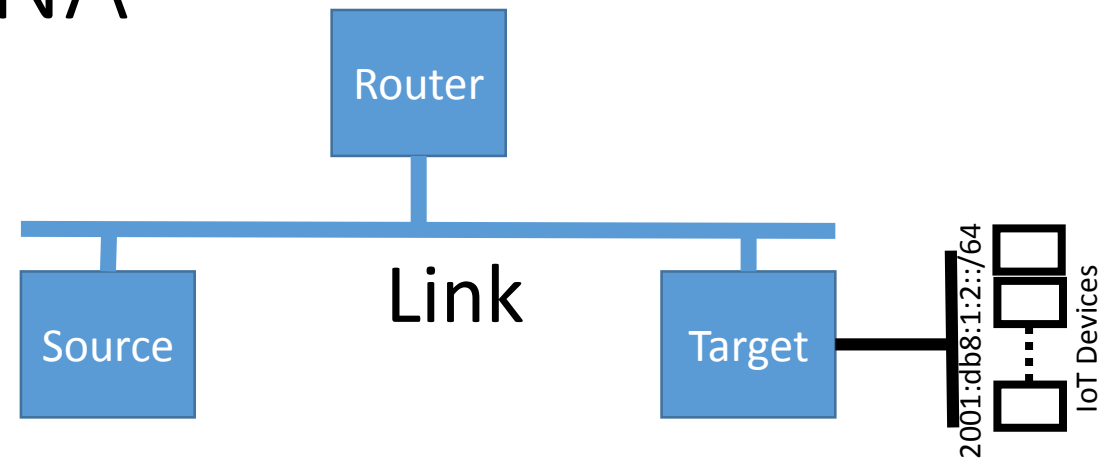
RIO Redirection Scenario

- Source sends packet toward destination via Router
- Router forwards packet to Target, and also sends Redirect to Source
- Redirect contains:
 - Target Address set to target addr
 - TLLAO with target link-layer
 - **RIO w/prefix 2001:db8:1:2::/64**



Testing the Path with NS/NA

- **After Redirection, continue to send data packets via Router until direct path is tested**
- **To test path, Source sends NS with desired RIOs directly to Target**
- **Target sends NA back to source with RIOs that match the ones it received in the NS**
- **Source populates its routing table based on NA RIOs and allows future packets to flow directly to Target without involving Router**



Use Cases and Next Steps

- Enterprise mobile devices (e.g., cell phones, tablets, etc.)
- Aeronautical communications (e.g., airplanes, air traffic control, etc.)
- Unmanned Air System (UAS) networks (vehicle to vehicle)
- Home networks with multiple subnets [HOMENET]
- Next steps:
 - 6man WG item?