

# **Problem Statement about IPv6 Support for Multiple Routers, Multiple Interfaces, and Multiple Prefixes**

**(draft-gont-v6ops-multi-ipv6)**

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# Goals of this document

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- Define the problem statement for IPv6 support for **simple** Multi-IPv6 -- i.e., acknowledge the problem.
- Define a limited number of **simple scenarios** to be improved, and use them to:
  - Provide advice on what should happen in each case
  - Serve as test cases for any solution in this space
- Trigger protocol specification work (6man), to improve host robustness for these **simple** multi-ipv6 scenarios via:
  - **Host-side (only!)** improvements
  - **No new mechanisms on the router side** (i.e., no SLAAC router changes)

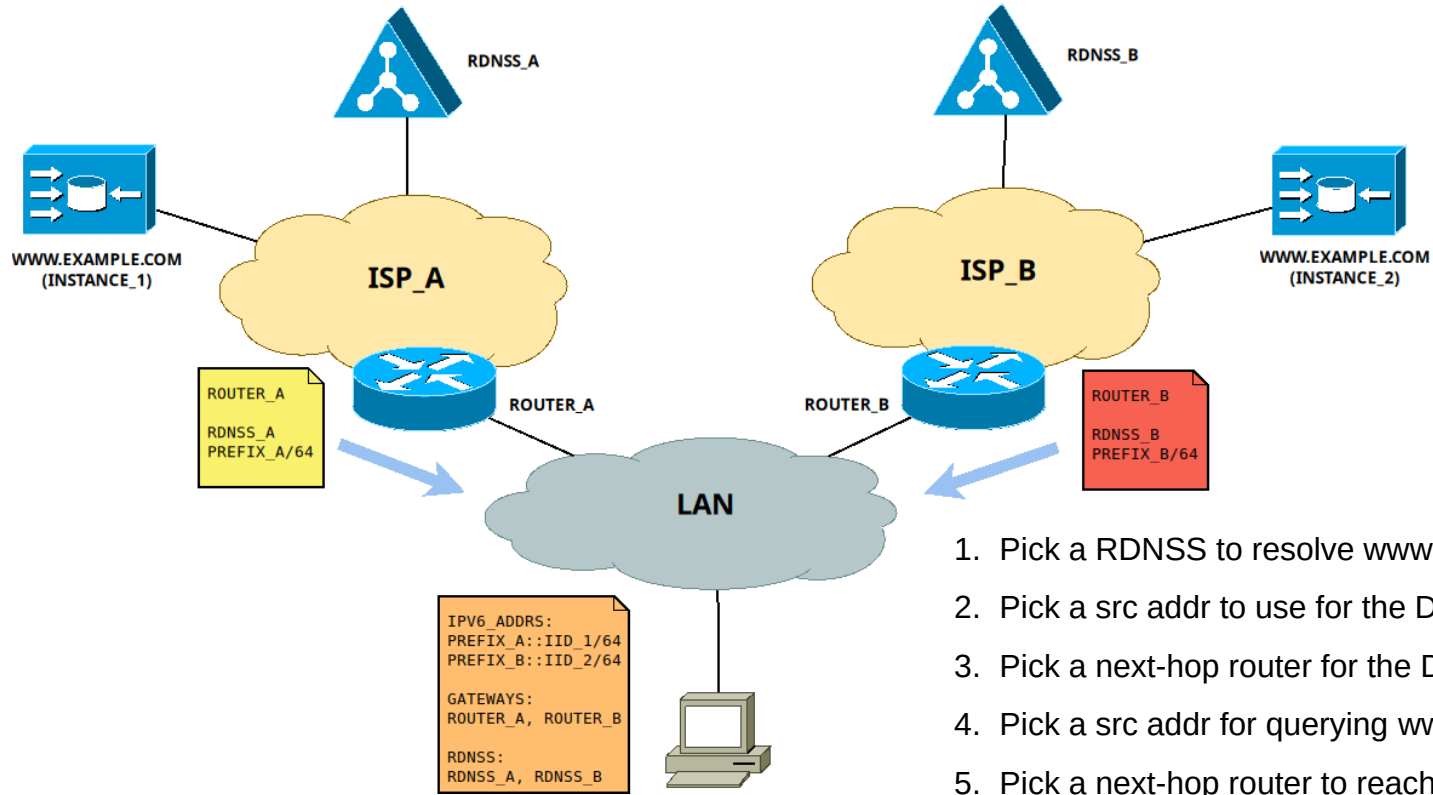
# Problem Statement

# Multi-(Router, Interface, Prefix) (multi-ipv6)

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- Scenarios with multiple routers, multiple interfaces, and/or multiple prefixes are quite common. They include:
  - A laptop connects to the Internet via Ethernet & WiFi interfaces
  - SOHO connects to the Internet via two ISPs and associated CPE routers
- Support for these scenarios has been poor (if at all present):
  - Breakage is sometimes avoided by employing only one interface at a time, or,
  - Otherwise things just break badly
- Host robustness should be improved for these simple scenarios.

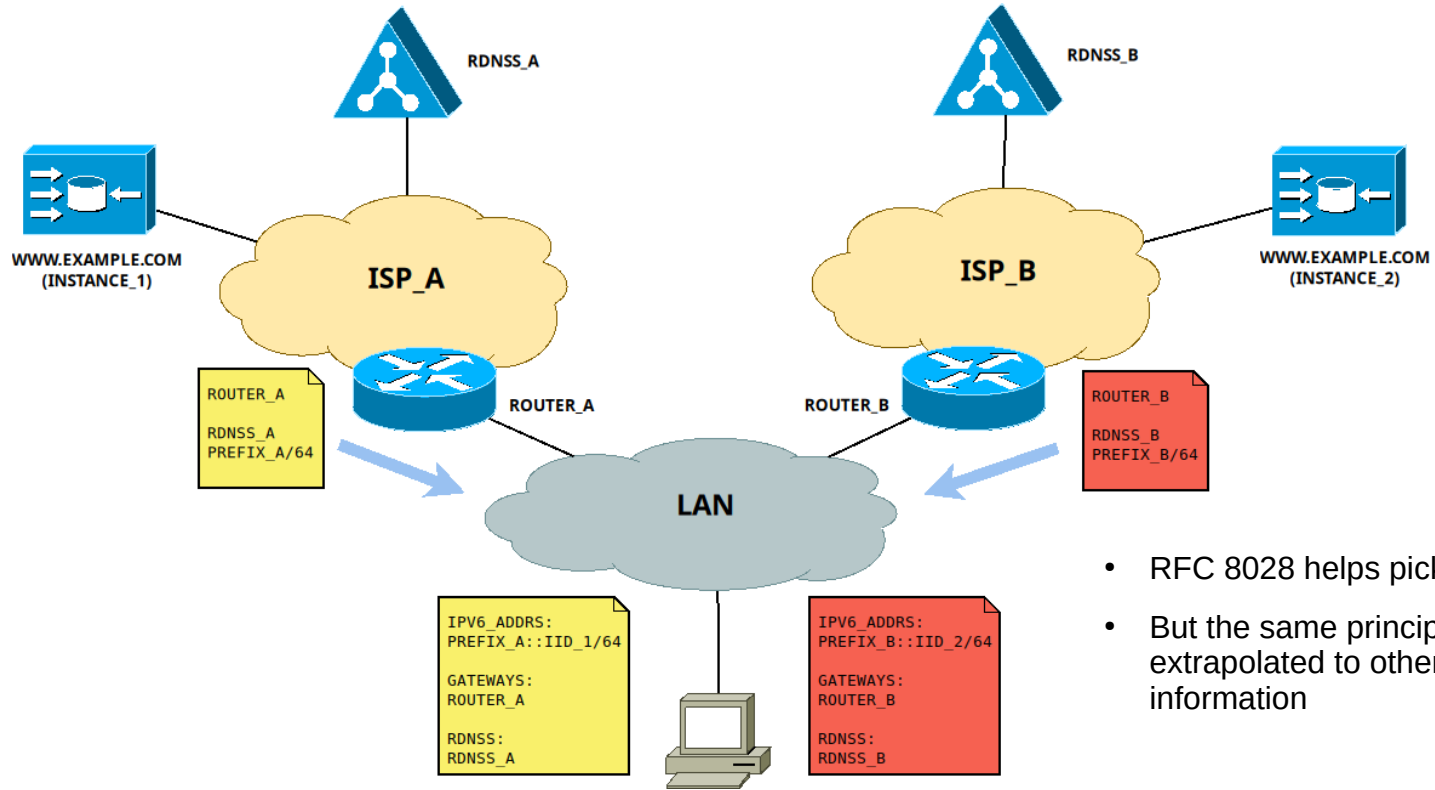
# Common Multi-ipv6 Scenario



1. Pick a RDNSS to resolve www.example.com
2. Pick a src addr to use for the DNS query
3. Pick a next-hop router for the DNS query packets
4. Pick a src addr for querying www.example.com
5. Pick a next-hop router to reach www.example.com

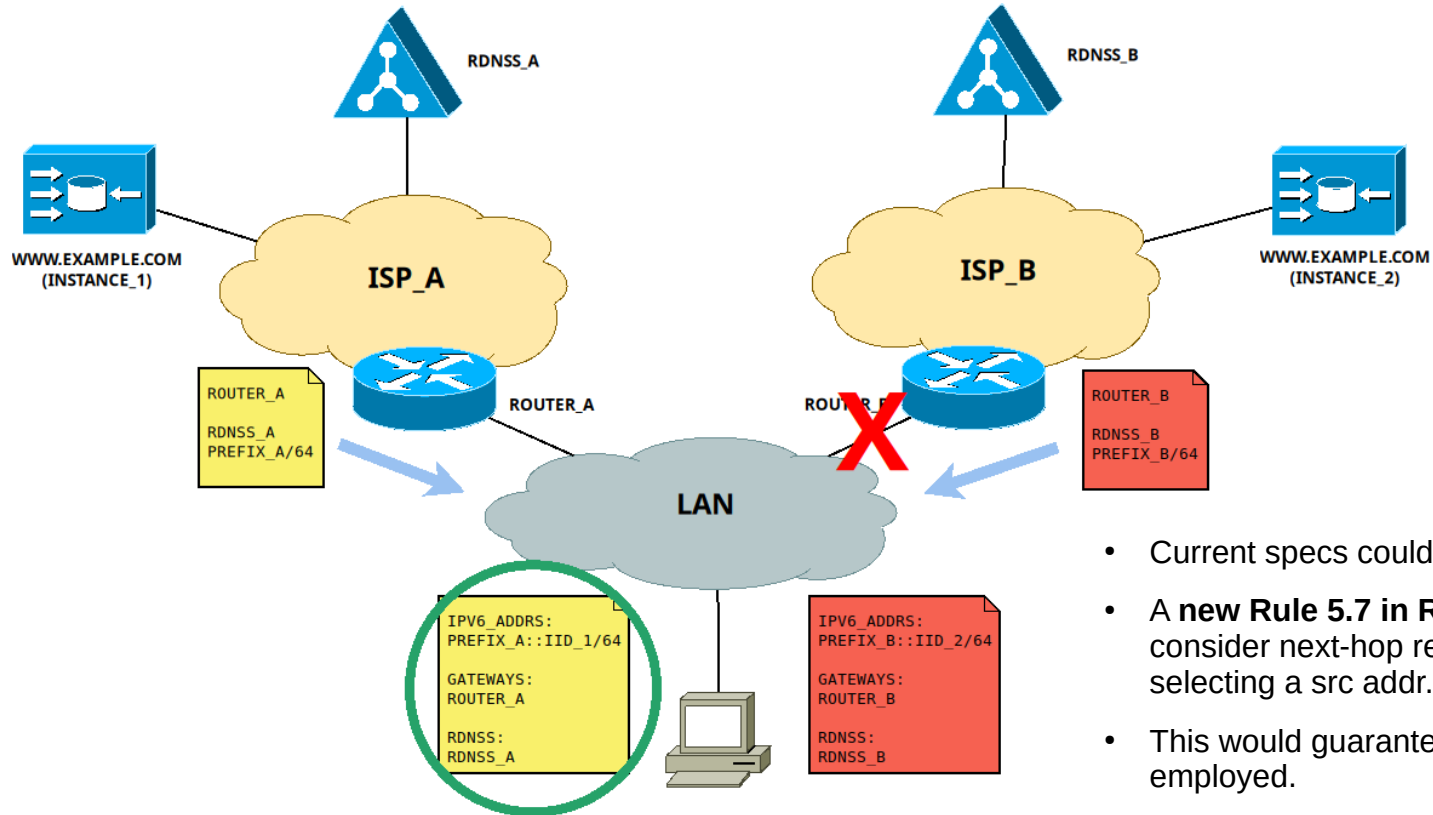
# Multi-IPv6 Scenarios

# Scenario #1: Multi-Router, Multi-Prefix



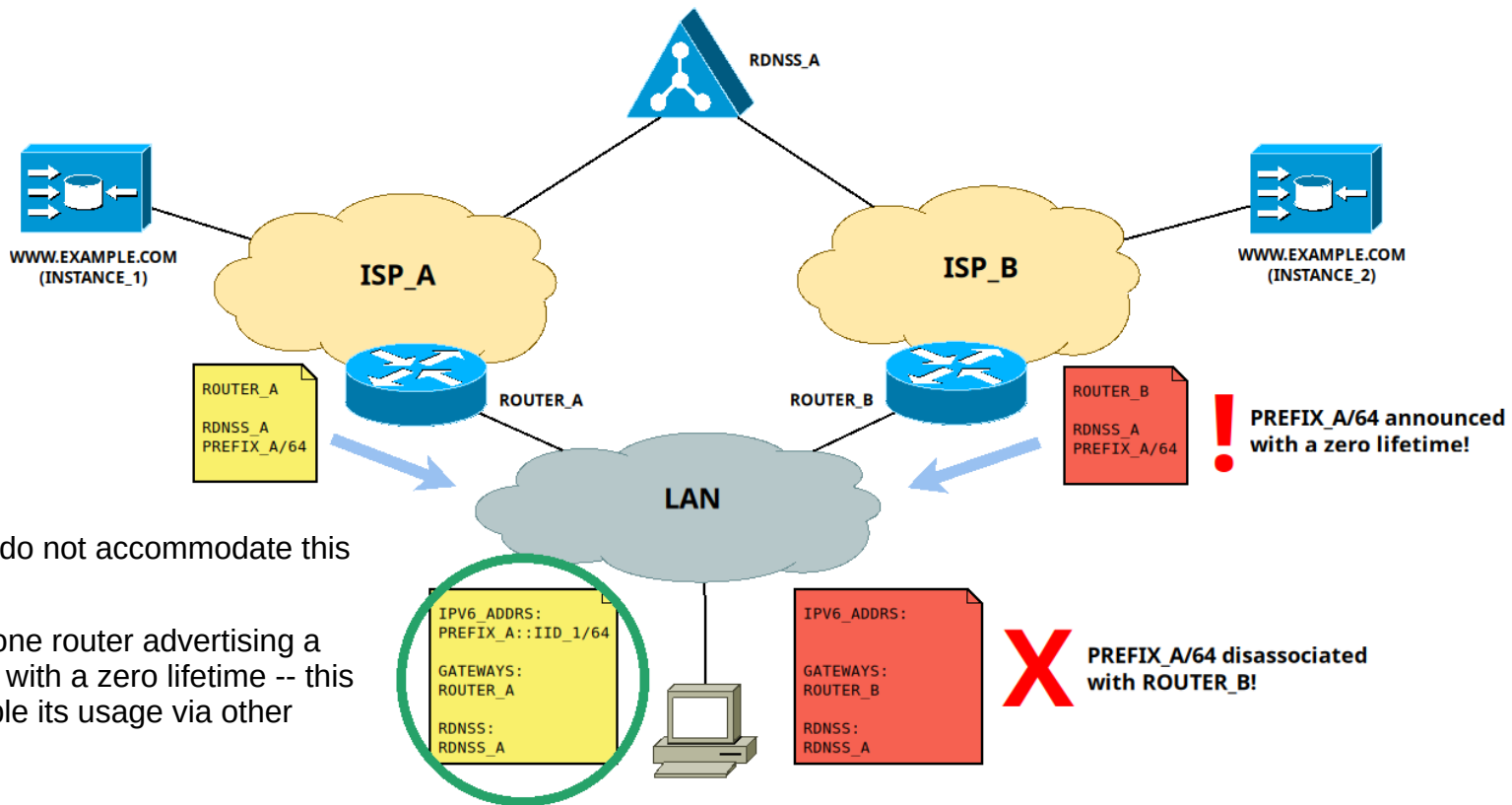
- RFC 8028 helps pick a next-hop
- But the same principle should be extrapolated to other SLAAC information

# Scenario #2: Multi-Router, Multi-Prefix Failover



- Current specs could still employ ISP\_B
- A **new Rule 5.7 in RFC 6724** could consider next-hop reachability when selecting a src addr.
- This would guarantee that ISP\_A is employed.

# Scenario #5: Conflicting information



- Current specs do not accommodate this scenario
- Consider e.g. one router advertising a public resolver with a zero lifetime -- this shouldn't disable its usage via other routers

# Next-steps

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- Comments/Questions?
- Adopt as wg document?