

# DHCPv6 Route Option

(draft-dec-dhcpv6-route-option-01.txt)

IETF 74, March 2009

:

Wojciech Dec ([wdec@cisco.com](mailto:wdec@cisco.com))

Richard Johnson ([raj@cisco.com](mailto:raj@cisco.com))

# **DHCPv6 - Route Option**

## **Problem Statement/Motivation**

- **Broadband network operators have a need to provision static route entries on RGs/CPEs.**
  - Existing operational practice with DHCPv4 (eg using rfc3442)
  - Recognised as a useful tool in dealing with network changes/migrations/testing
  - Used in scenarios where deployment of IGP is not feasible.
- **ICMPv6 allows for an RA based mechanism (rfc4191) to disseminate route information to hosts**
  - Is operationally an issue when DHCPv4 practice is used
  - Requires operator to provision the edge router (not always possible, eg when router is operated by 3<sup>rd</sup> party).
  - Does not integrate with centralized management
  - Affects all hosts on a shared link (eg VLAN) subscriber service portfolio impacted by LSN
- **This draft proposes a DHCPv6 option that allows the provisioning of static routes on clients supporting the option**
- **The DHCP clients are primarily intended to be broadband RGs.**

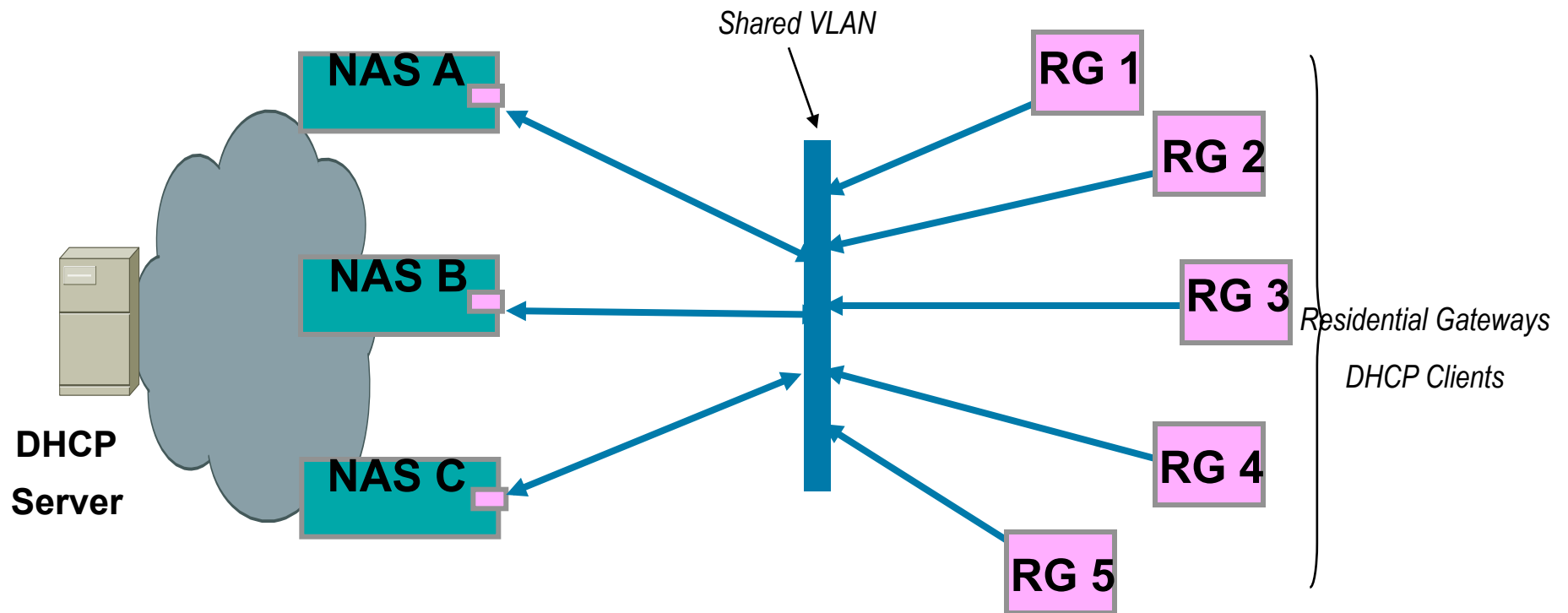
# **DHCPv6 - Route Option**

## **Non-Goals**

- **Transform DHCPv6 into an IGP**
- **Be used to handle complex topologies and failure scenarios or misconfiguration**
- **Be used by non-leaf routers**
- **Be a mandatory feature of every DHCPv6 client**
- **Resolve IPv6 interface address selection, etc**
- **Define how to assign preference for multiple sources of information (eg DHCP servers)**

# DHCPv6 - Route Option

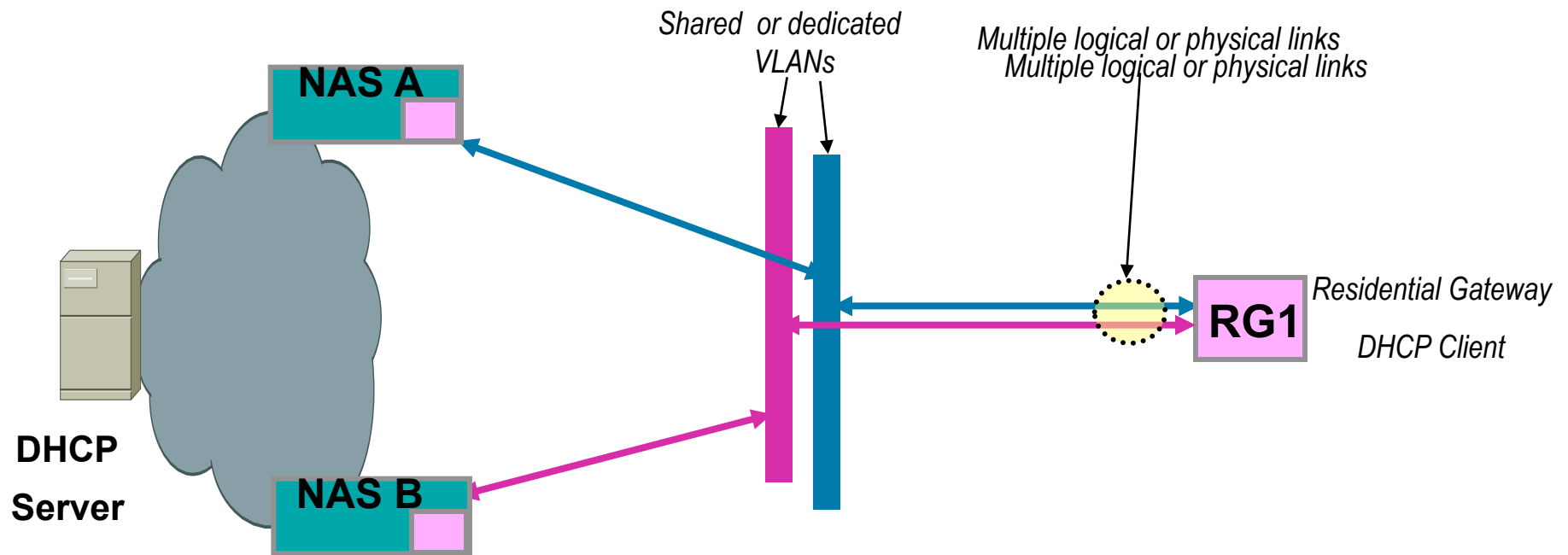
## Scenario 1 – Shared VLAN



- Many Subscribers – ETTX, DSL-Aggregation... Single shared VLAN connects all RGs (Routers).
- All RGs are intended to use NAS A as their default gateway
- RG1-2 are to use NAS B as their gateway for destination prefix X
- RG 3-5 are to use NAS C as their gateway for destination prefix Y
- Different static routes need to be provisioned on the RGs, eg using DHCPv6 from the central server

# DHCPv6 - Route Option

## Scenario 2 – Multiple Links



- No IGP running to the RG
- NAS A is intended to be used as the default gateway.
- NAS B is intended to be used to for a specific prefix Z corresponding to a service allowed only on the dedicated interface. A more specific route to prefix Z needs to be provisioned on RG.
- DHCPv6 server used as repository for the RG's static route

## Next Steps

- Authors would appreciate feedback from the WG
- Accept as WG I-D?