Methods to support multi-homing

This application identifies methods to support home network multi homing (e.g. for video services).

IP Multihoming is not prevalent in US homes today, but with everything (e.g. video, voice) moving to IP, some homes are choosing to be multihomed. The following scenarios are good examples of IP Multihoming:

- A customer gets Internet service from Comcast and IP video services from AT&T
- A customer gets Internet services from AT&T and IP video services from Comcast
- A customer gets Internet and IP video services from Comcast but Comcast is using different IP networks for each service
- A customer gets Internet service from both Comcast and AT&T

Multihoming is a feature that works and works well with the support for protocols such as BGP and manual network administration. In this application we are proposing a solution for supporting multihoming in the home network without support for routing protocols (e.g. BGP) and manual network administration.

Disclosure:

A host in an IP multihomed network, will most likely receive multiple DHCP offers to its DHCP requests, one from the Customer Edge Router (CER) of each IP network. However, per RFC 3315, the host accepts only one DHCP offer from a single DHCP server. In this disclosure we propose that
1. The host looks at the IPv6 addresses in the IA_NA field(s) in the DHCP offers to decide whether to accept all offers or reject some and accept others
2. The host compares the first 48 bits of each IPv6 address in the IA_NA fields, and
    1. Accepts only one of the IPv6 addresses (discard others) if the first 48 bits of all IPv6 addresses are the same
    2. Accepts all IPv6 addresses if the first 48 bits of all IPv6 addresses are different
    3. If some IPv6 addresses have the same first 48 bits but not all, accept only one of the matching prefix addresses, discard the others, while accepting all non-matching IPv6 addresses, as well.
3. The host assigns the selected IPv6 address(es) from step 2

There is no known solution specifying when to accept multiple or just single IP address. Other approaches are to have hosts select the appropriate gateway via wireless SSID or to have one gateway subordinated to the other.