Simplified Routing (Best Practices)

Categories: **Best Practices, Principal Article, Networking, SteelHead (Appliance)**

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Issue

With some network topologies traffic is redirected back through a SteelHead.

Solution

If a SteelHead appliance is installed in a subnet different than the clients or servers, the user currently has to define one router as the default gateway and static routes for the other router so that traffic does not get redirected back through the SteelHead.

If the user does not add the static routes, it does not work in some cases because the ACLs (Access Control Lists) on the default gateway drop traffic that should have gone through the other router. To avoid forcing the user to add those static routes, the MAC address received by the SteelHead for an IP address could be reused when sending out packets for the same address.

Simplified routing is gathering the IP to next hop MAC address mapping from each packet it receives to use in addressing its own traffic. Pass-through traffic just naturally comes in one interface and goes out the other. Optimized traffic needs a destination as it's a new TCP connection, so when we send a packet out from the device, as a final step after all the routing code has done its job simplified routing inserts the next hop it has associated with the destination IP. This overrides everything else. We will only use the static routes or gateway in the case that simplified routing has no mapping.

If the next hop goes down we will learn the new next hop on the next packet that we receive to/from the new router on a per IP address basis, so if we learn the new route for 10.0.0.1, we will have to learn again for 10.0.0.2, etc.

The things to look for are:

- Layer-2 WANs
- Are virtual routers being used? If so do they use a virtual MAC to send?
- Can packets sent to/through the Steelhead be returned to the same router? If not source gathering must not be enabled.

Required Configuration

- Default route must exist on each SteelHead.
- The default route should point to a router that can route packets to devices on the LAN.

Problems & Limitations

- If the route to reach a server changes while the proxy table in the client-side Steelhead still has an entry for that server, then unless source gathering is turned on and there is traffic from that server coming in, we send to the cached (old) MAC address.
- If you have deliberately configured asymmetrically routed networks, source-gathering methods (such as Simplified Routing set to Source-Dest or All) might cause undesirable results. For these networks, Riverbed

recommends setting Simplified Routing to Dest Only.
- Simplified routing can't be used with broadcast support.
- Simplified routing can't be used with WCCP.
- Simplified routing can't be used with PBR.
- Simplified routing can't be used in an Interceptor deployment.

Enabling Simplified Routing

You must enable simplified routing from the CLI and in config mode. The command is:

```
Steelhead > enable
Steelhead # config t
Steelhead(config#) in-path simplified routing ?
```

The command has the following options:

- **all** - collect mappings from dest/source MAC data and data from un-natted (unoptimised) connections
- **none** - all options turned off
- **dest-only** - collect mappings from destination MAC data
- **dest-source** - collect mappings from dest and source MAC data

When To Enable Simplified Routing

Simplified routing should be enabled in the following scenarios:

- Multiple LAN Subnets which need to be optimized through the Steelhead.
- Multiple VLANS on the LAN segment which need to be optimized through the Steelhead.

For More Information

- The *Steelhead Appliance Deployment Guide* (version 6.0 and later) provides details about implementing simplified routing in an L2 environment.

Environment

SteelHead - All models