

MHAP

IETF-55

ipv6mh

<http://arneill-py.sacramento.ca.us/ipv6mh/>

Michel Py - mpy@ieee.org

MHAP

Multi Homing Aliasing Protocol

- Router-based solution. Zero change to hosts.
- Dual-space protocol.
- One identifier: PI address (either MHAP or GAPI).
- Multiple locators: PA addresses.

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- The identifier and the locators are part of the same name space: IPv6 unicast addresses.
- The main innovation is that the identifier has limited routability and is used in the identifier-to-locator process.
- The scalability comes from the fact that the identifiers are not in the defaultless table.

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Similarities with multiaddress host-based solutions:

- A host has n PA addresses associated to it.
- The address space used for transit is aggregated PA space.

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Differences with multiaddress host-based solutions:

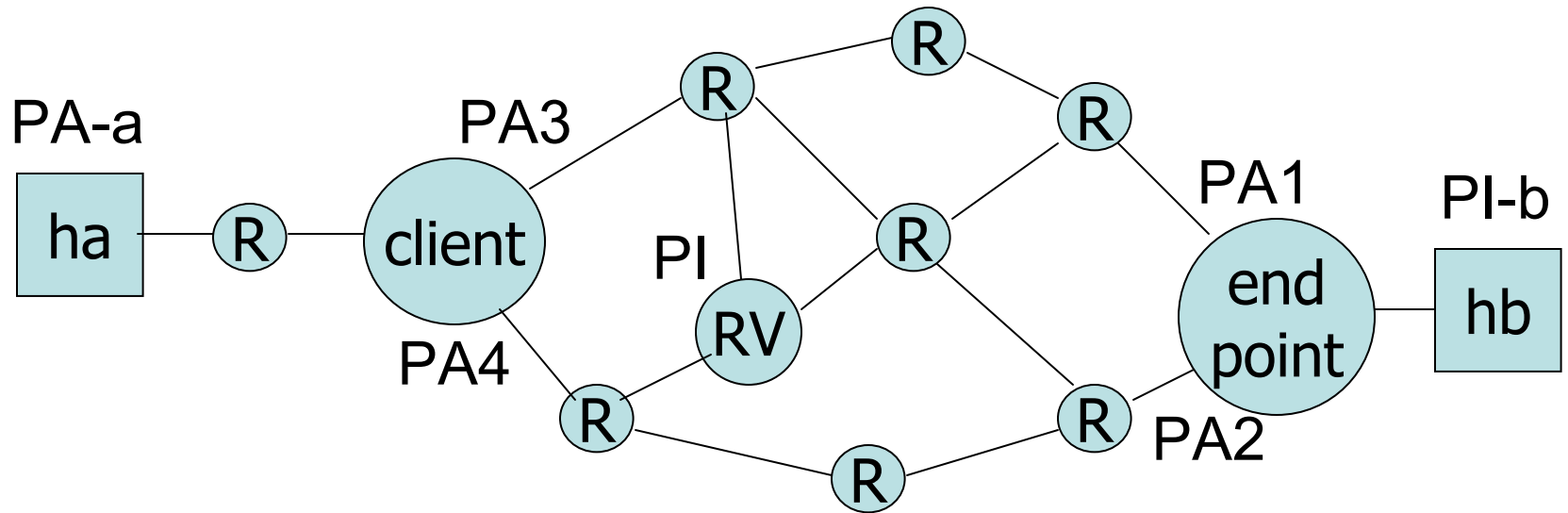
- The multiple addresses are not bound to the host itself. The host has only one address, the PI identifier.
- There is no source address selection.

MHAP

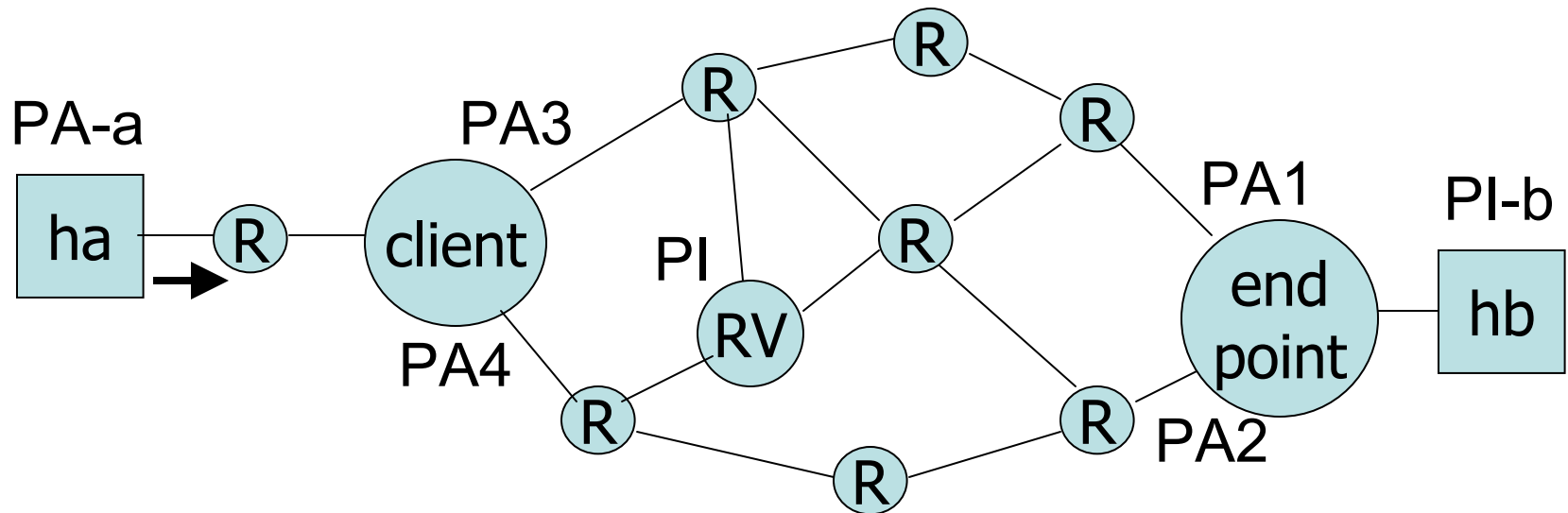
Differences with multiaddress host-based solutions:

- The destination address selection uses BGP.
- Binding updates are router-based, not host-based.

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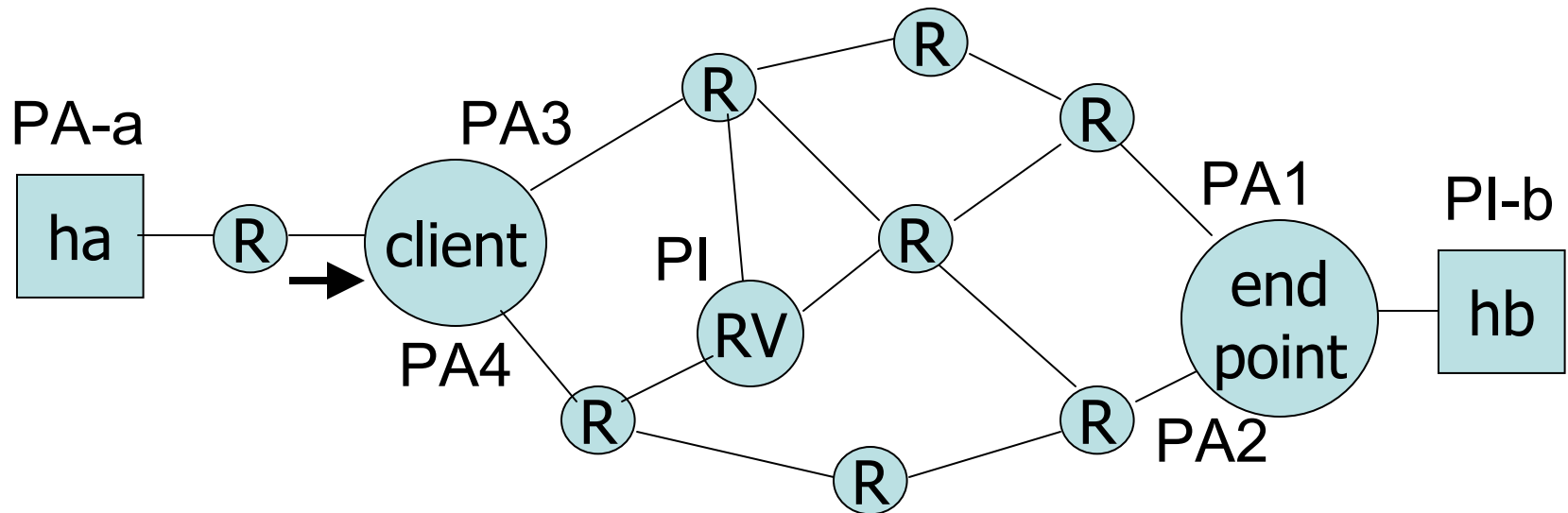


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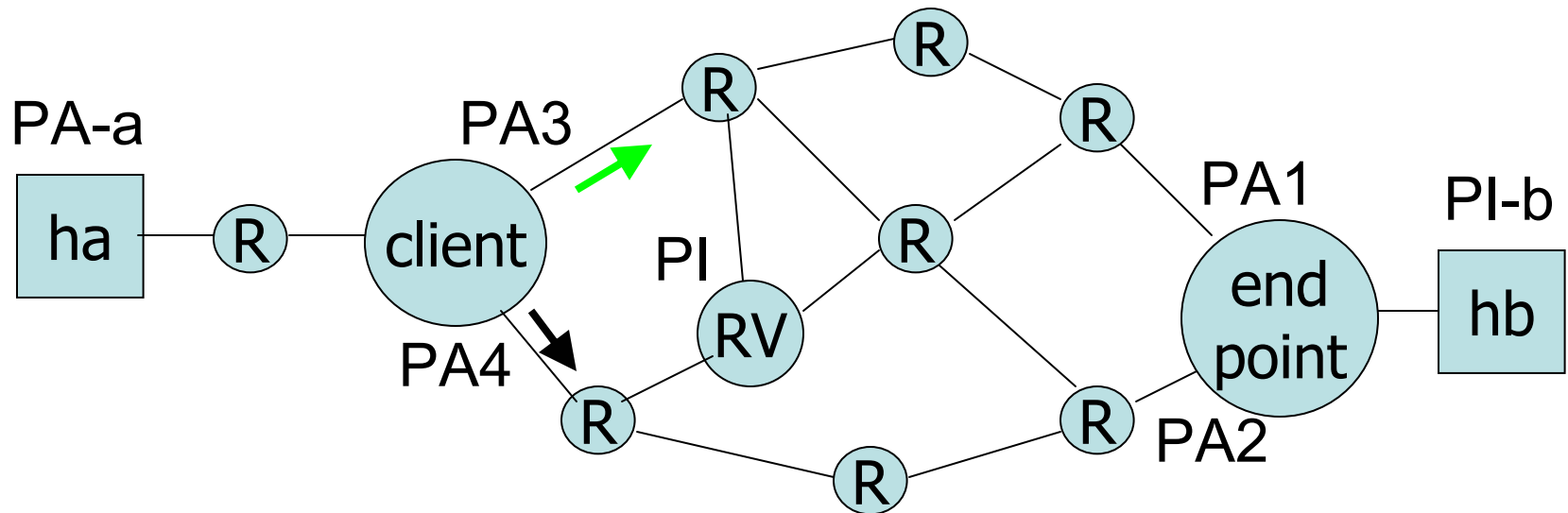
PA-a > PI-b Initial packet

MHAP



PA-a > PI-b Initial packet

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PA-3 > PI-b

PA-4 > PI-b

PA-a > PI-b

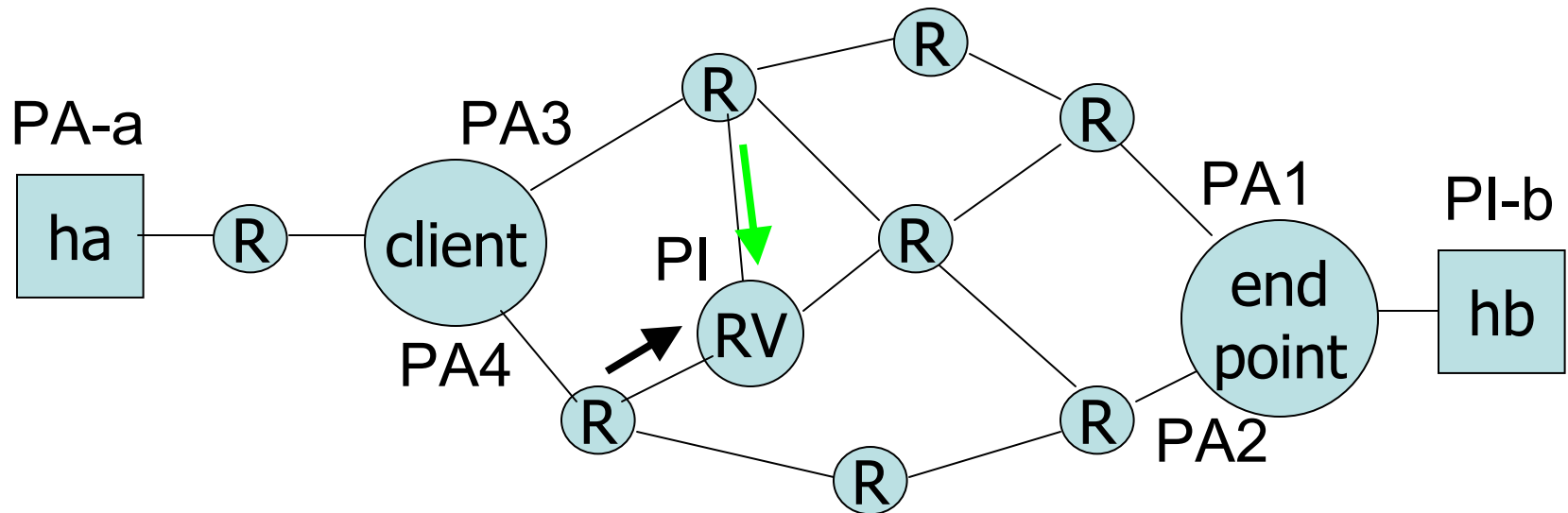
MHAP Request 1

MHAP Request 2

Initial packet

The MHAP requests are triggered by the initial packet.

MHAP



PA-3 > PI-b

MHAP Request 1

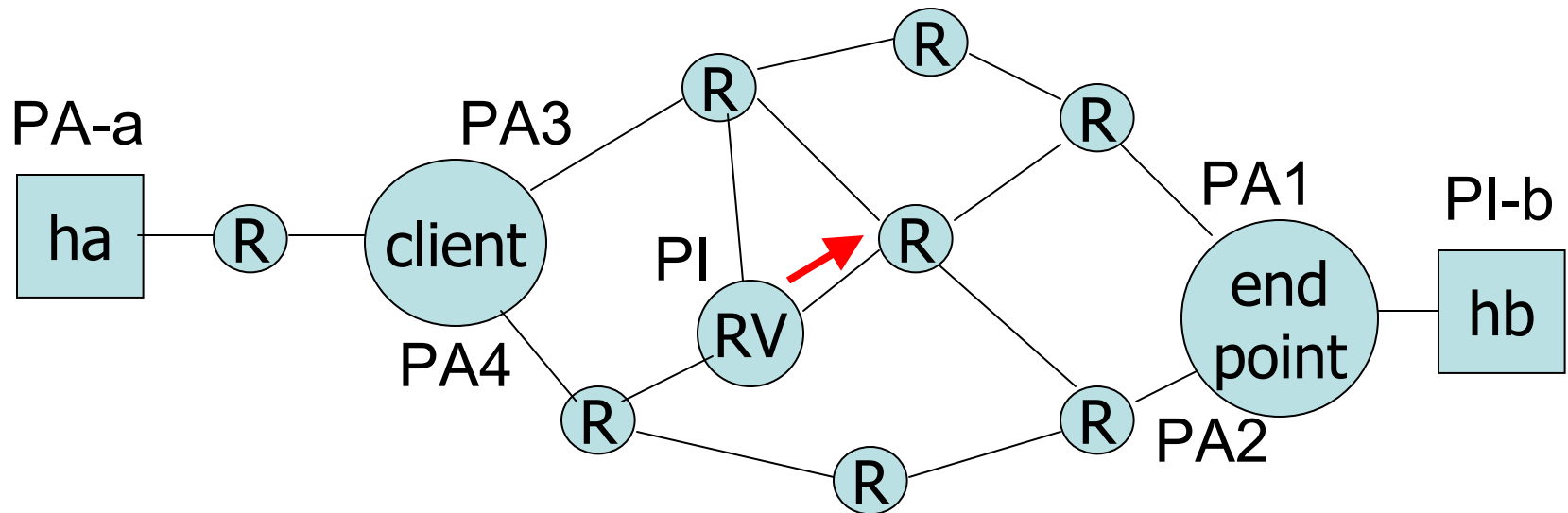
PA-4 > PI-b

MHAP Request 2

PA-a > PI-b

Initial packet

MHAP



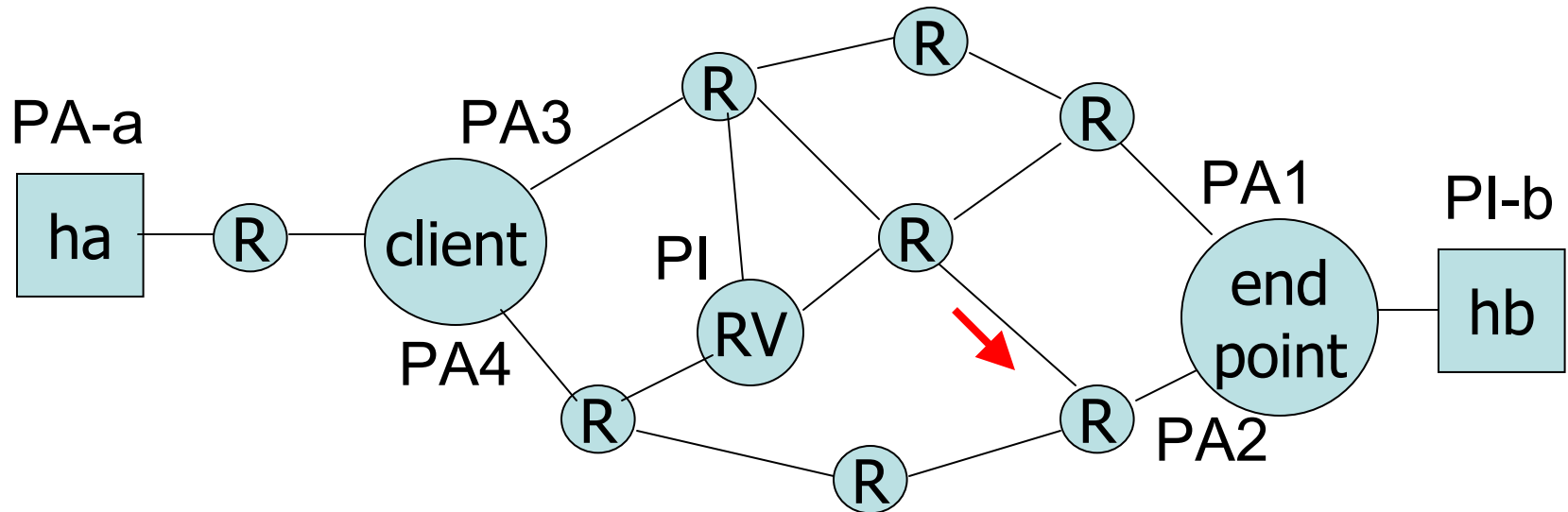
PA-3 > PA-1 MHAP Request 1

PA-4 > PA-2 MHAP Request 2

PA-a > PA-b2 Initial packet

The RV point has aliased all the packets on behalf of the client.

MHAP

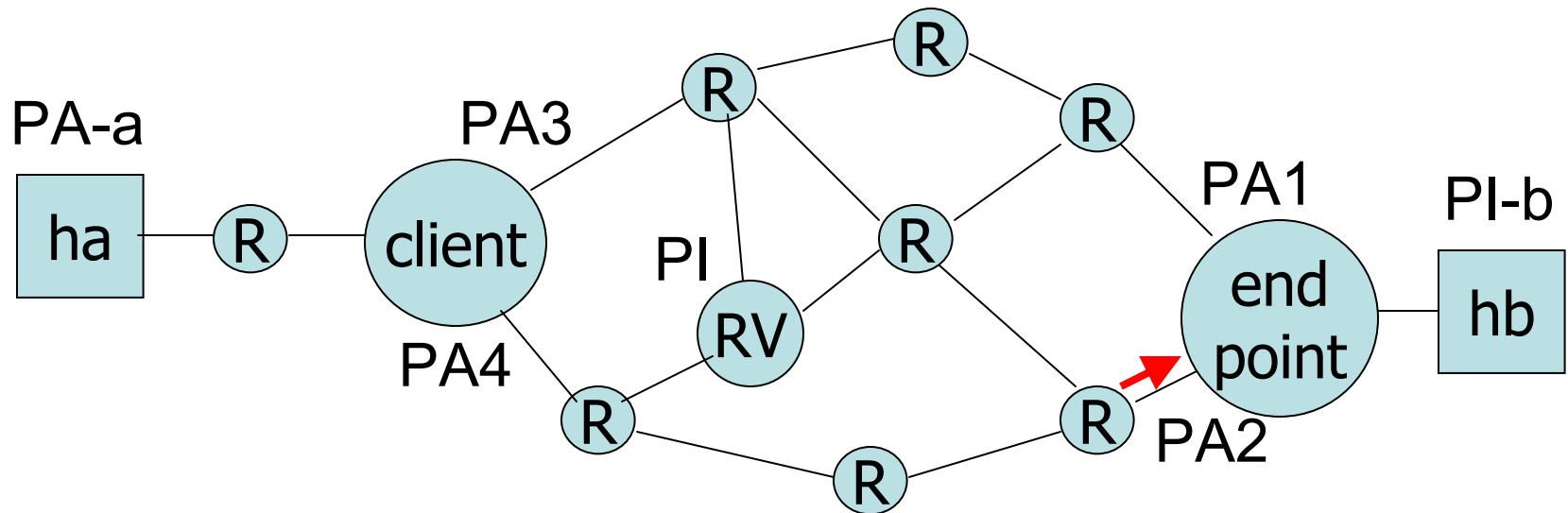


PA-3 > PA-1 MHAP Request 1

PA-a > PA-2 MHAP Request

PA-a > PA-b2 Initial packet

MHAP

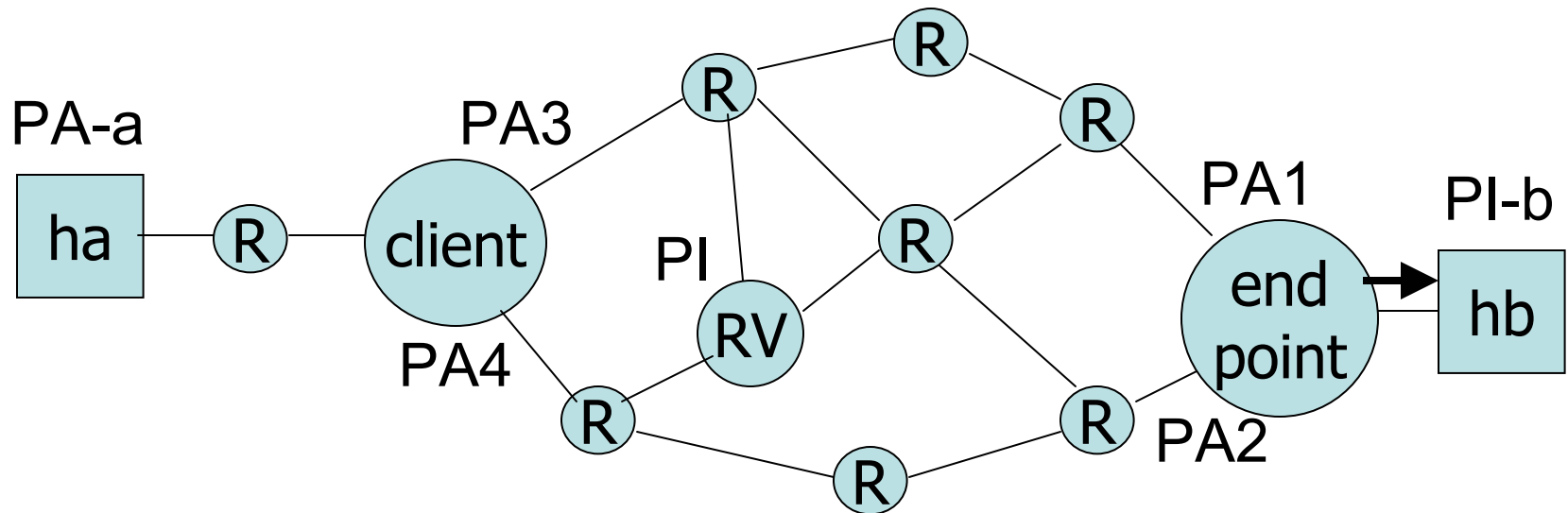


PA-3 > PA-1 MHAP Request 1

PA-a > PA-2 MHAP Request

PA-a > PA-b2 Initial packet

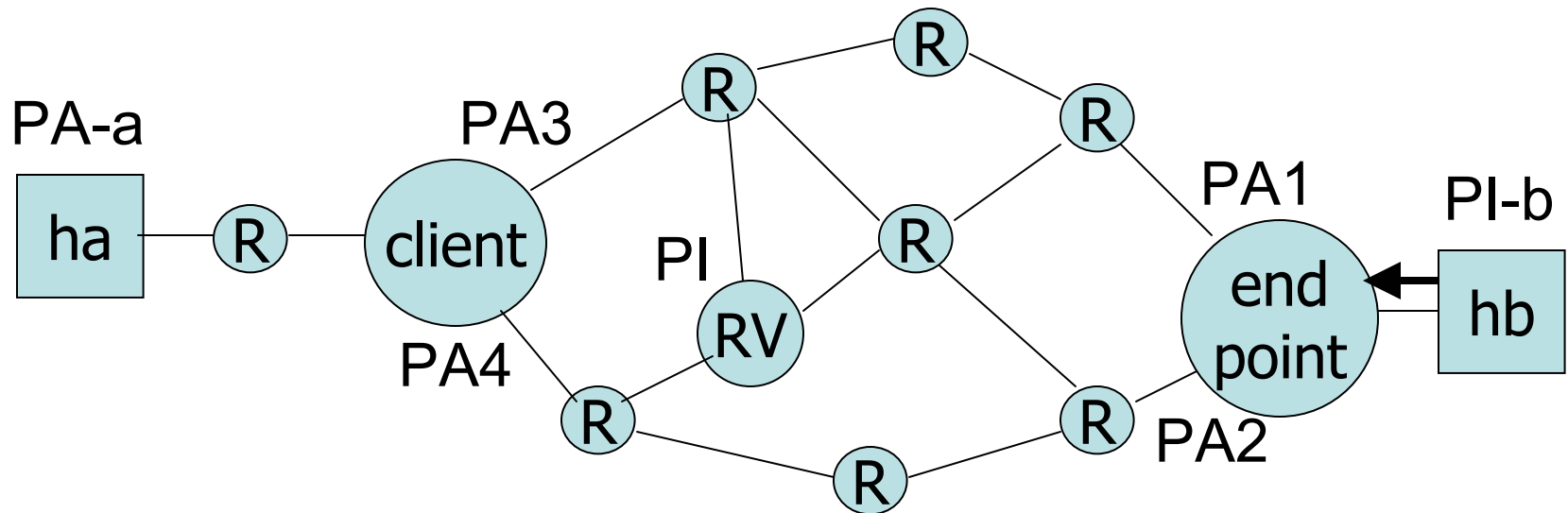
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PA-a > PI-b Initial packet

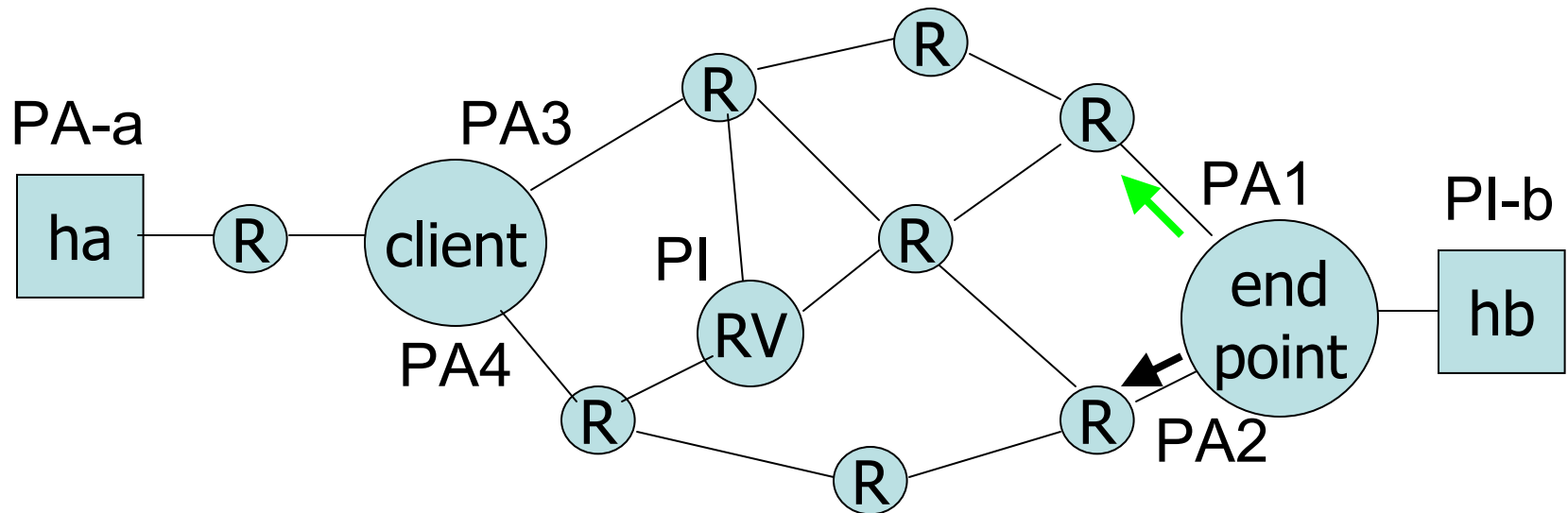
The endpoint has de-aliased the packet.

MHAP



PA-a < PI-b Return traffic

MHAP



PA-3 < PA1

PA-4 < PA2

PA-a < PI-b

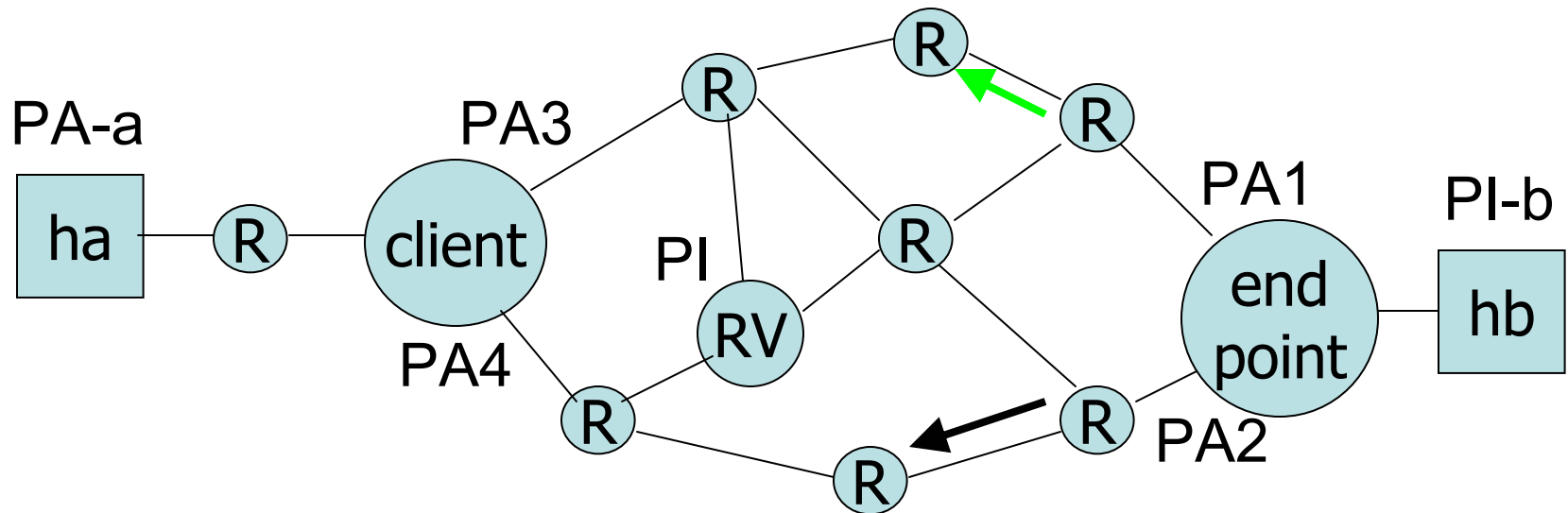
MHAP Reply1

MHAP Reply2

Return traffic

The MHAP replies are not triggered by the return traffic.

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PA-3 < PA1

MHAP Reply1

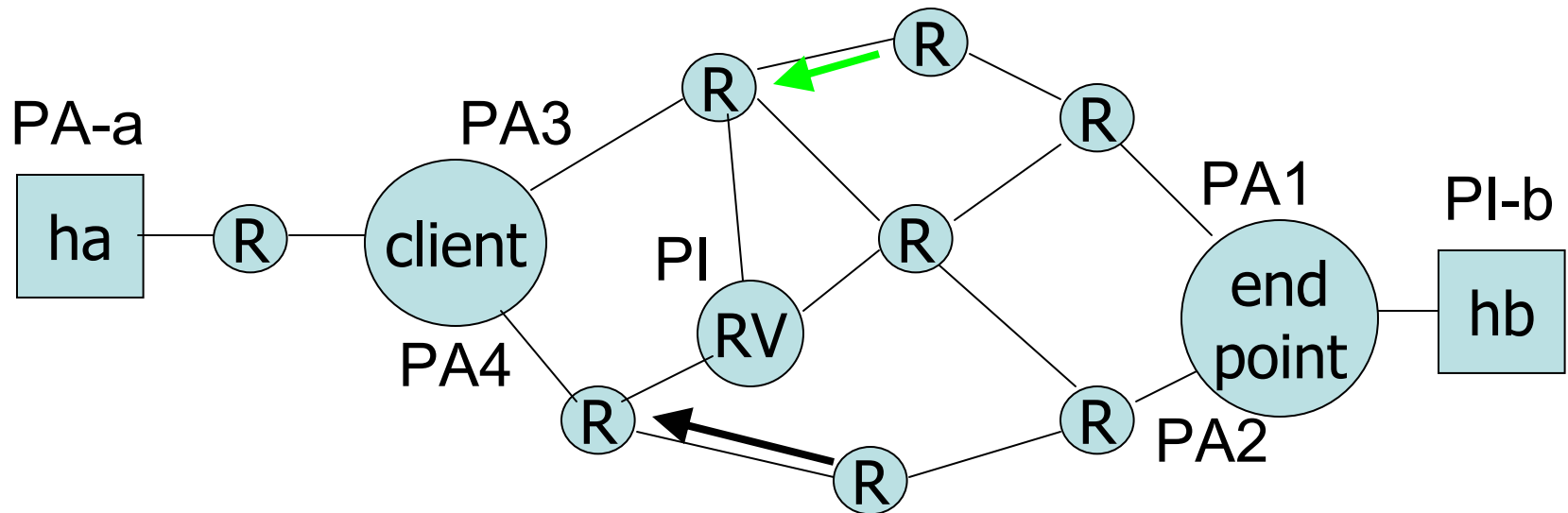
PA-4 < PA2

MHAP Reply2

PA-a < PI-b

Return traffic

MHAP



PA-3 < PA1

MHAP Reply1

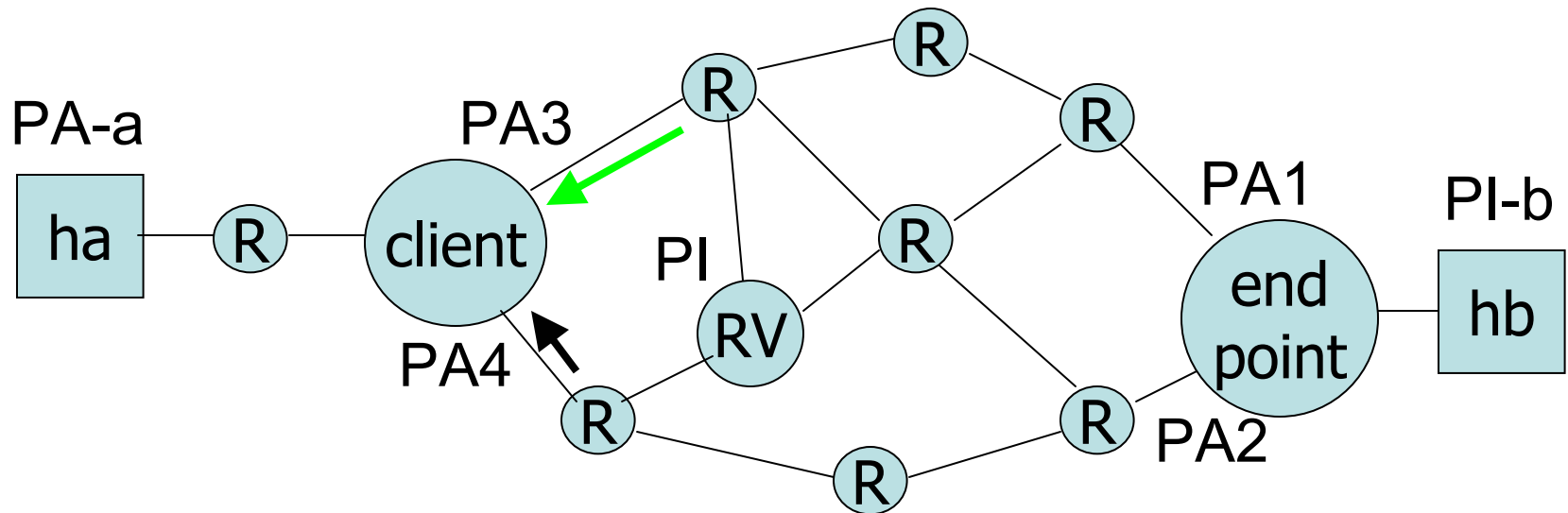
PA-4 < PA2

MHAP Reply2

PA-a < PI-b

Return traffic

MHAP



PA-3 < PA1

PA-4 < PA2

PA-a < PI-b

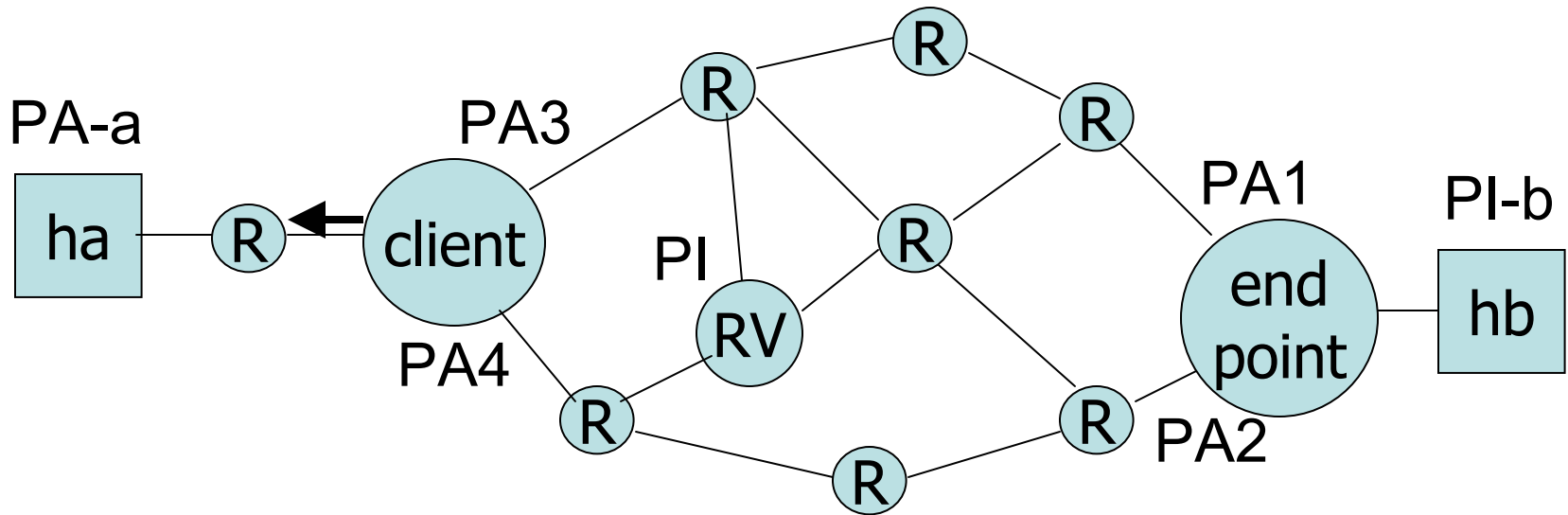
MHAP Reply1

MHAP Reply2

Return traffic

The client builds aliasing entry.

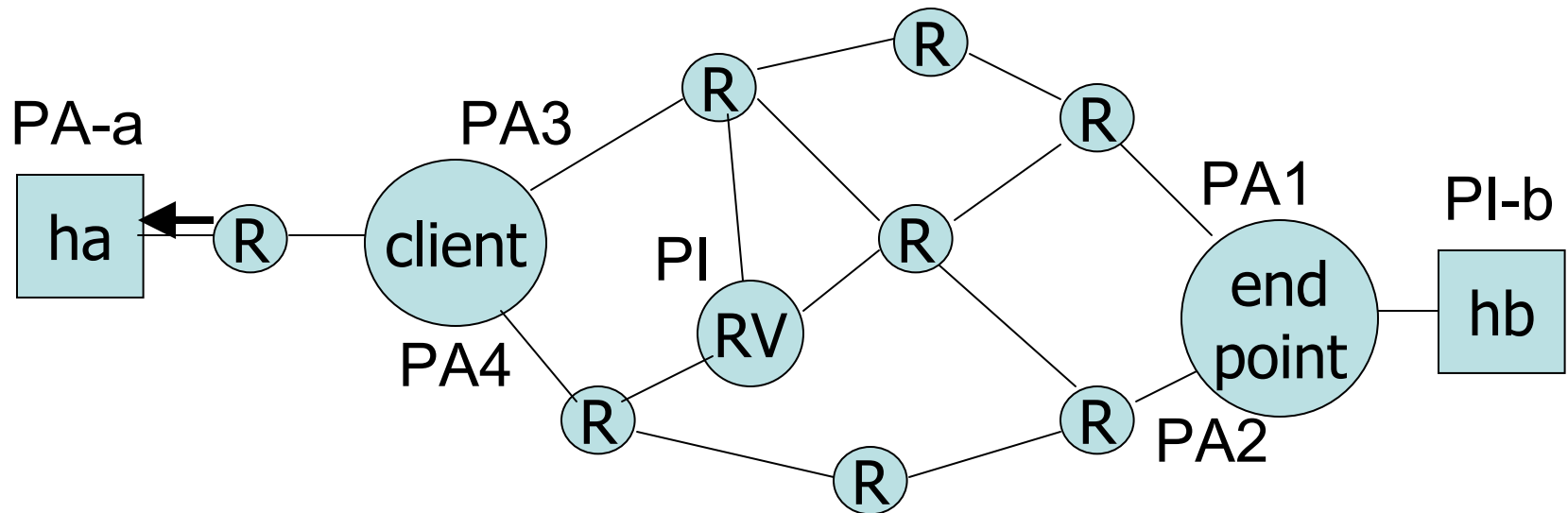
MHAP



PA-a < PI-b

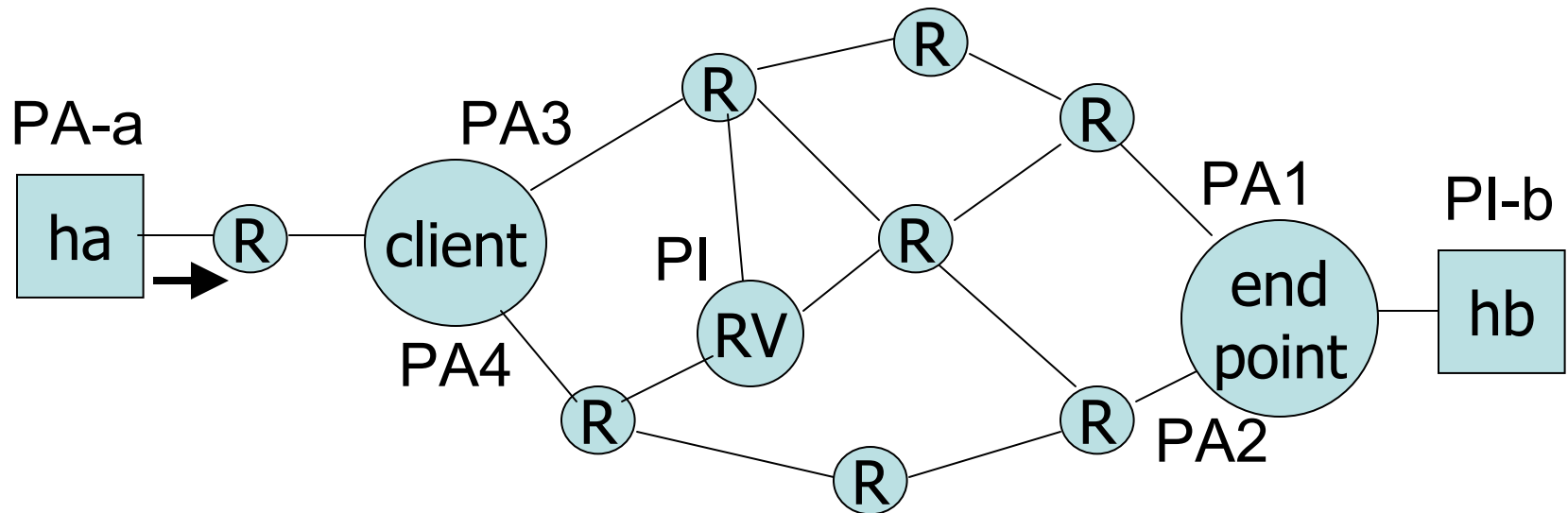
Return traffic

MHAP



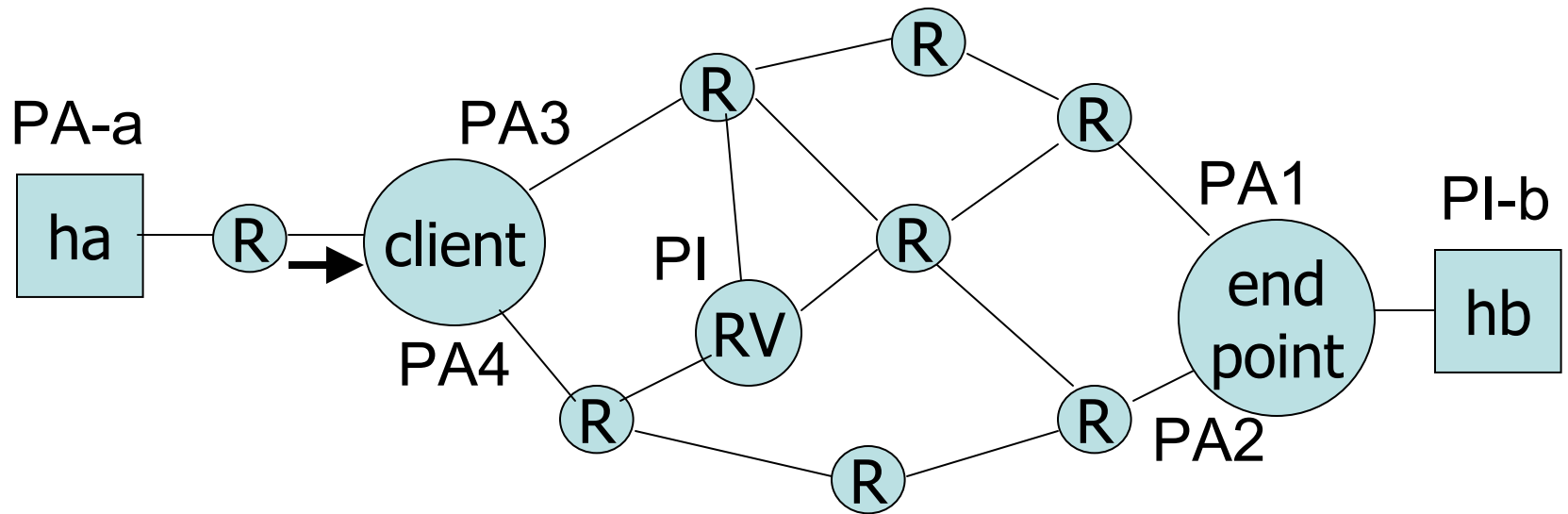
PA-a < PI-b Return traffic

MHAP



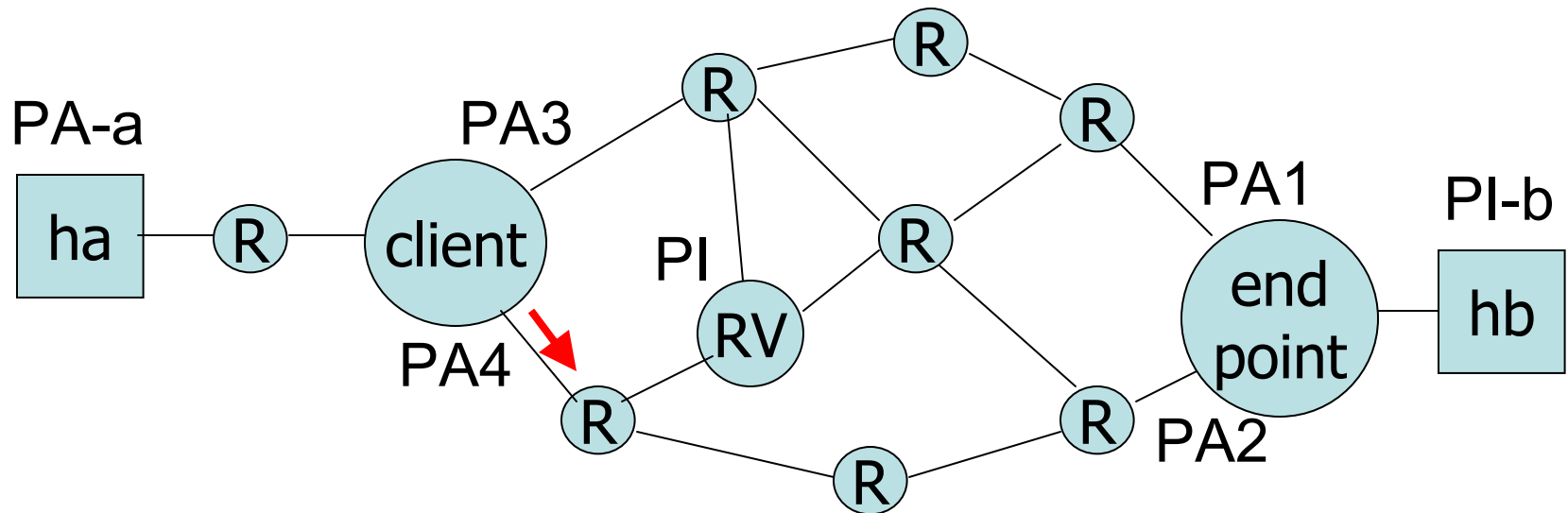
PA-a > PI-b Packet #2

MHAP



PA-a > PI-b Packet #2

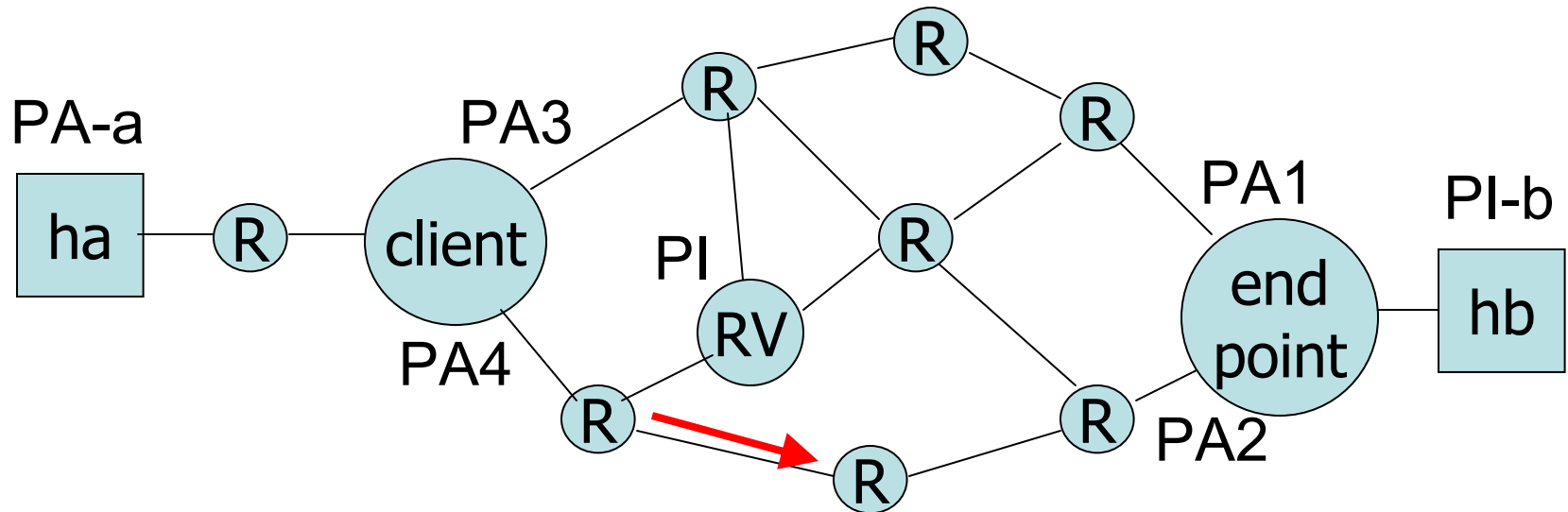
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Packet is now aliased by the client, RV point not needed anymore.

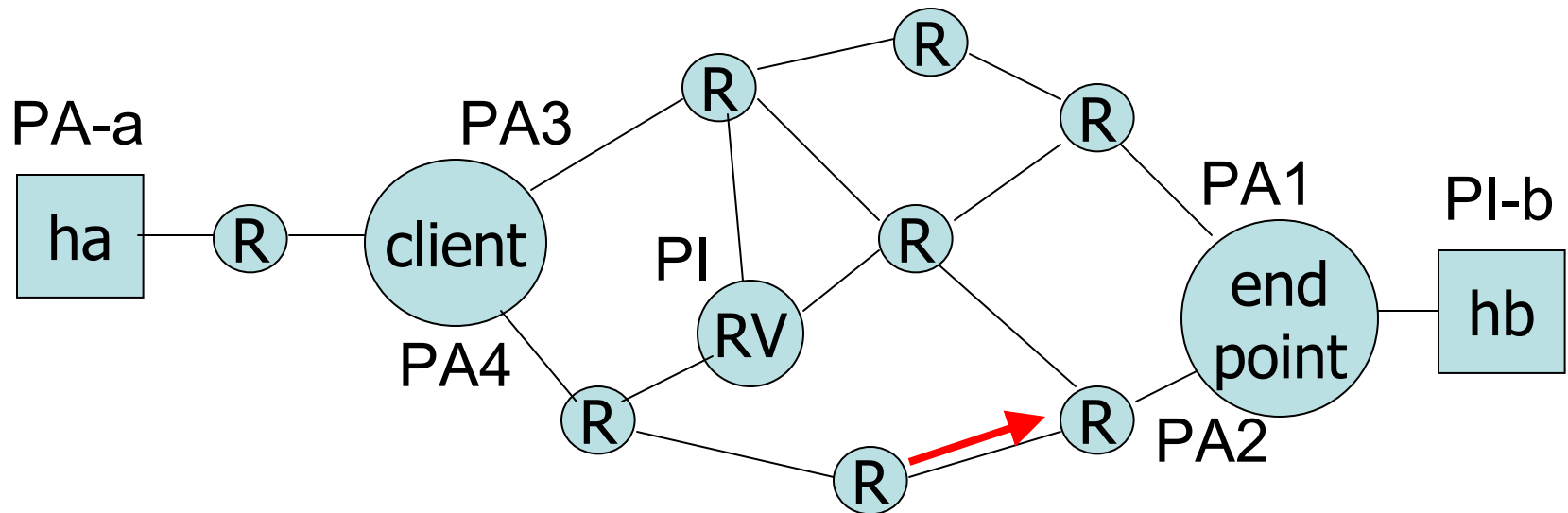
PA-a > PA-b2 Packet #2

MHAP



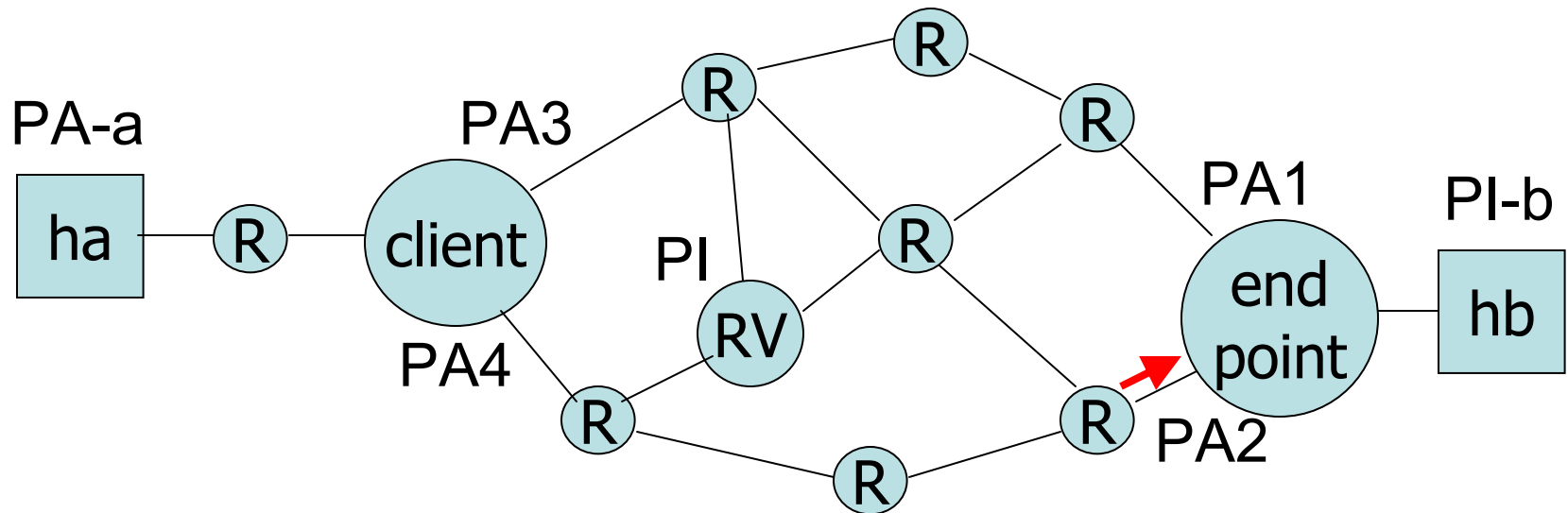
PA-a > PA-b2 Packet #2

MHAP



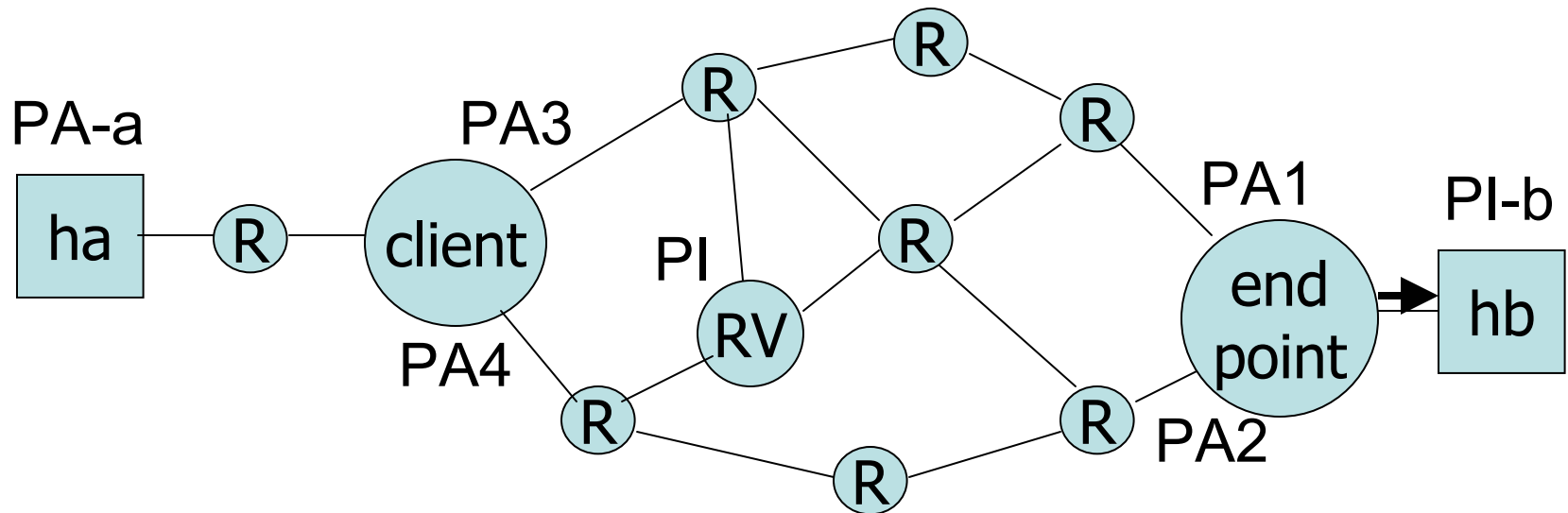
PA-a > PA-b2 Packet #2

MHAP



PA-a > PA-b2 Packet #2

MHAP



The endpoint has de-aliased the packet.

PA-a > PI-b Packet #2