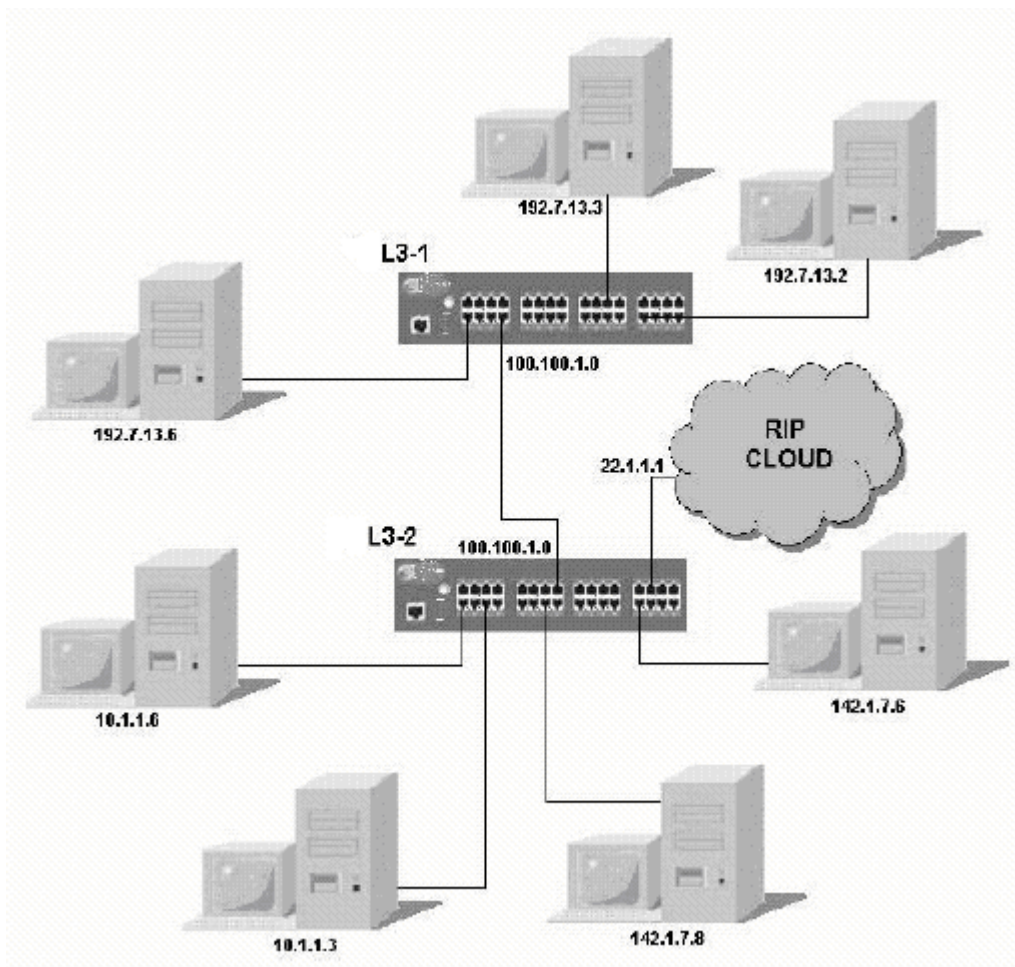


Routing Information Protocol



Routing Information protocol (RIP) is an Interior Gateway Protocol (IGP) that was introduced by ARPANet (Advanced Research Projects Agency Network) in 1969. It is used primarily for routing traffic in moderate size networks.

RIP is based on the Distance Vector algorithm. The router does not know the full path to a particular destination. It knows through which neighbors the destination is accessible and the cost (distance) to the destination through each of these neighbors. To determine the best path to a distant network, a router using RIP always selects the path with the minimum cost. If the cost for reaching each network is 1, then the path with the least number of routers is selected. Each router traversed by the data on the way from the source to the destination is considered as one hop.

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Routing Table

A router using RIP maintains a routing table that contains an entry for every known destination network. Each routing table entry contains the following data:

- The IP address and mask of the destination network or host.
- The Metric (distance or cost) to the destination network or host.
- The IP address of the next router that provides access to the destination.
- A timer that keeps track of the time elapsed since the entry was last updated

The router exchanges an update message with each neighbor at regular intervals (every 30 seconds by default). It also exchanges triggered updates with its neighbors whenever there is a change to one or more paths in the router's table. If a router does not receive an update message from a neighbor within the route timeout period (180 seconds by default), the router assumes the connection to that neighbor is no longer available. All paths that include that neighbor as the next hop will no longer be used.

Split Horizon

Split-horizon is a technique used to eliminate routing loops. It prevents routing loops caused if one destination is advertised through two routers that are configured as mutual next-hop neighbors. There are two Split-Horizon methods:

- The *Simple Split Horizon* scheme omits routes learned from a neighbor, in updates sent to that neighbor.
- The *Poison Reverse* scheme includes such routes, but assigns them a cost (metric) of 16, meaning that they are inaccessible through the advertising neighbor.

Triggered Updates

Triggered updates are updates that are sent whenever one or more routes are changed (change of the metric value), deleted, or added. A triggered update is sent almost immediately. It generally provides faster convergence and removes loops from non-neighboring routers. There must be a delay (1 to 5 seconds) between consecutive triggered updates. Triggered updates are not generated if a regular update is due within the delay period. Triggered updates increase RIP-related traffic.

RIP Version 1 versus RIP Version 2

RIP version 2 expands the functionality of RIP version 1 with the following features:

- Inclusion of subnet masks:
- Subnet mask information allows using Variable-Length Subnet Masks (VLSMs). Subnet masks are also necessary for implementation of "classless" addressing, as the CIDR work proposes.
- Support for next-hop addresses (in RIP Version 1, the advertising router is used as a next hop, while in RIP Version 2, the next hop is a separate field).
- Next-hop addresses allow for optimization of routes in an environment that uses multiple routing protocols. They reduce the load on a specific router in a multi-access network. RIP can specify the next-hop gateway in its update. If the next-hop is not specified, RIP uses the IP address of the neighbor from which the update is received.
- Multicasting: RIP version 2 packets can be multicast instead of being broadcast, reducing the load on hosts that do not support routing protocols.

Dax Product Offering:

Some of the Dax products that support Routing Information Protocol are as under:

DXMP-801:

https://www.daxnetworks.com/Dax/Products/router_asp/dxmp801.asp

DXMP-1700 :

https://www.daxnetworks.com/Dax/Products/router_asp/dxmp1700.asp

DXMP-2600E:

https://www.daxnetworks.com/Dax/Products/router_asp/dxmp2600e.asp

DXMP-2691 / DXMP-2692:

https://www.daxnetworks.com/Dax/Products/router_asp/dxmp2690.asp

DXMP-3600 Series:

https://www.daxnetworks.com/Dax/Products/router_asp/dxmp3600.asp

Dax Megastack:

https://www.daxnetworks.com/Dax/Products/switch_asp/dxmgstck.asp

DX-5044GS:

https://www.daxnetworks.com/Dax/Products/switch_asp/dx5044gs.asp

DX-5726GT:

https://www.daxnetworks.com/Dax/Products/switch_asp/dx5726gt.asp

DX-5744GS:

https://www.daxnetworks.com/Dax/Products/switch_asp/dx5744gs.asp

Dax BTI-0524GT / Dax BTI-0524G/ Dax BTI-0524G-D:

https://www.daxnetworks.com/Dax/Products/switch_asp/dxT5C24GT.asp

Dax BTI-0524T-L3 / Dax BTI-0548T-L3/ Dax BTI-0548T-L3-D:

https://www.daxnetworks.com/Dax/Products/switch_asp/dxT5C24G48T.asp

BTI-0530RN-L3 :

https://www.daxnetworks.com/Dax/Products/switch_asp/dxT5pro.asp

Dax BTI-T6 Pro (Classic & Compact):

https://www.daxnetworks.com/Dax/Products/switch_asp/dxT6pro.asp

Dax DX-940ARO:

https://www.daxnetworks.com/Dax/Products/wireless_asp/dx940aro.asp

Dax DX-601AR:

https://www.daxnetworks.com/Dax/Products/router_asp/dx601ar.asp

Dax LAN Extender:

https://www.daxnetworks.com/Dax/Products/lanextender_asp/daxlanextender.asp

Dax DX-4044FW:

https://www.daxnetworks.com/Dax/Products/lanextender_asp/DX4044fw.asp

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