
Subject: What is Variance And Unequal Loading Balancing?

Posted by [admin](#) on Thu, 30 Jul 2026 09:12:32 GMT

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In Cisco CCNA certification exams, you may be asked about variance and unequal cost load balancing.

Variance is a load balancing technique that allows a router to load balance traffic based on the variance of the metric of a particular route.

For example, if a router has two paths to a destination network and one of the paths has a metric that is twice the metric of the other path, the router can load balance traffic between the two paths based on a variance value.

If the variance value is set to 1, the router will send half of the traffic over the path with the lower metric and half over the path with the higher metric.

If the variance value is set to 2, the router will send two-thirds of the traffic over the path with the lower metric and one-third over the path with the higher metric.

Unequal cost load balancing is a technique that allows a router to load balance traffic between multiple paths to a destination network, even if the paths have different metrics.

This is useful in situations where multiple paths to a destination network are available, but some of the paths have higher metrics than others.

By using unequal cost load balancing, the router can distribute traffic evenly between the different paths, rather than sending all of the traffic over the path with the lowest metric.

To configure variance and unequal cost load balancing on a Cisco router, you can use the "variance" and "maximum-paths" commands in the router's configuration mode.

The "variance" command sets the variance value, and the "maximum-paths" command sets the maximum number of paths that can be used for load balancing.

For example, to set the variance value to 2 and the maximum number of paths to 2, you would use the following commands:

```
router(config)#router eigrp 1 router(config-router)#variance 2
router(config-router)#maximum-paths 2
```

It is important to note that variance and unequal cost load balancing are not enabled by default on Cisco routers.

They must be explicitly configured in the router's configuration.

In routing, variance is a parameter that can be used to control the level of unequal cost load balancing in a network. Unequal cost load balancing is a technique that allows a router to distribute traffic across multiple paths to a destination network, even if the paths have different costs.

By default, most routing protocols will only perform equal cost load balancing, meaning they will only use multiple paths if they have the same cost. However, with the use of variance, a router can be configured to use paths with different costs for load balancing.

To configure variance, you will need to use the "variance" command in the router configuration mode. This command takes an integer value that specifies the maximum difference in cost that the router will allow between the lowest-cost path and the other paths being used for load balancing. For example, to configure the router to use paths that are up to twice as expensive as the lowest-cost path, you would use the following command:

Copy code
router eigrp 1
variance 2

Keep in mind that variance is an advanced feature that is not supported by all routing protocols. Additionally, using variance to allow for unequal cost load balancing can have unintended consequences, such as causing traffic to be routed over less optimal paths or causing instability in the network.

Therefore, it is important to carefully consider whether unequal cost load balancing is appropriate for your network and to carefully tune the variance value as needed.

CCNP Certification / BCMSN Exam Tutorial: Server Load Balancing (SLB)
