

Summary

Cisco routers switch packets through one of several paths; the characteristics of the switching path depend on whether a route cache is used, how the cache is accessed or built, and what context (process or interrupt) in which the switching actually takes place:

- Process switching doesn't cache any information, and switches packets in the context of a process.
- Fast switching caches reachability information and the MAC headers needed to forward packets in a radix tree and switches packets during interrupts.
- Optimum switching caches reachability and the MAC headers in a multiway tree (mtree), and switches packets during interrupts.
- CEF switching caches reachability information in an mtrie, and the MAC headers needed to forward packets within an adjacency table. CEF switches packets during interrupts.

[Table 2-1](#) summarizes characteristics of various switching methods.

Table 2-1. Switching Paths in IOS

Switching Method	Type of Cache	Processing Characteristics
Process switching	None	Packet switching is done by a scheduled process.
Fast switching	Hash table or two-way radix tree and route cache	Packet is switched by the main processor during an interrupt.
Optimum switching	mtree and fast route cache	Packet is switched by the main processor during an interrupt.
Cisco Express Forwarding (CEF)	mtrie and adjacency table	Packet is switched by the main processor during an interrupt.

Swap Option Available: Now

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