

Control Plane and Data Plane

1. Control Plane :

In Routing control plane refers to the all functions and processes that determine which path to use to send the packet or frame. Control plane is responsible for populating the routing table, drawing network topology, forwarding table and hence enabling the data plane functions. Means here the router makes its decision. In a single line it can be said that it is responsible for How packets should be forwarded.

2. Data Plane :

In Routing data plane refers to all the functions and processes that forward packets/frames from one interface to another based on control plane logic. Routing table, forwarding table and the routing logic constitute the data plane function. Data plane packet goes through the router and incoming and outgoing of frames are done based on control plane logic. Means in single line it can be said that it is responsible for moving packets from source to destination. It is also called as Forwarding plane.

Difference between Control Plane and Data Plane

S.No.	CONTROL PLANE	DATA PLANE
01.	Control plane refers to the all functions and processes that determine which path to use to send the packet or frame.	Data plane refers to all the functions and processes that forward packets/frames from one interface to another based on control plane logic.
02.	It is responsible for building and maintaining the IP routing table.	It is responsible for forwarding actual IP packet.

03.	Control plane responsible about how packets should be forwarded.	Data plane responsible for moving packets from source to destination.
04.	Control plane performs its task independently.	Data plane performs its task depending on Control plane.
05.	In general we can say in control plane it is learned what and how it can be done.	In general we can say in data plane the actual task is performed based on what is learned.
06.	Control plane packets are processed by router to update the routing table.	The forwarding plane/data plane forwards the packets based on the built logic of control plane.
07.	Control plane packets are locally originated by the router itself.	Data plane packets go through the router.
08.	Control plane acts as a decision maker in data forwarding.	Data plane acts as a decision implementer in data forwarding.
09.	Routing is performed in the control plane.	Switching is performed in the data plane.