**Overview:**

transport segment from sending to receiving host

on sending side encapsulates segments into datagrams

on receiving side, delivers segments to transport layer

network layer protocols in every host, router

router examines header fields in all IP datagrams passing through it

**Two key network-layer function**

forwarding: move packets from router’s input to appropriate router output

routing: determine route taken by packets from source to destination

**Data plane**

local, per-router function

determines how datagram arriving on router input port is forwarded to router output port

forwarding function

**Control plane**

network-wide logic

determines how datagram is routed among routers along endend path from source host to destination host

two control-plane approaches:

traditional routing algorithms: implemented in routers

software-defined networking (SDN): implemented in (remote) servers

Two kinds of control plane:

Per-router control plane: individual routing algorithm components in each and every router interact in the control plane

Logically centralized control plane: A distinct (typically remote) controller interacts with local control agents (CAs)



