* What is a routing
* A routing is a process of selecting path along which the data can be transferred form source to the destination routing is performed by a special device knows as a router
* A router works at the network layer in the OSI model and internet layer in TCP/IP model
* A router isa work at the networking device that forward the packet based on the information available in the packet header forwarding table
* The routing algorithms are used for routing the packets the routing path through which packet header and forwarding responsible for deciding the optimal path through which packet can be transmitted
* The routing protocols use the metric to determine the best path for the packet delivery the metric isa the standard of measurement such as hop count bandwidth delay current load on the path etc. used by the by the routing algorithm to determine the optical path to the destination
* The routing algorithm initializes and maintains the routing table for process of path determination
* Types of routing
* Static routing
* Default routing
* Dynamic routing
* Static routing ==

In static routing network administrators manually configure the routing table entries in a routers

These entries define specific path for network traffic to follow static routing is simple to configure but lacks flex as the routing paths remain fixed unless manually modified

Static routing is also known as nonadaptive routing these define specific paths which the administrator manually adds the router in a routing table

A router can send the packets for the destinations along the route defined by the administrator in the route can send packed for the destinations along int his technique routing decisions are not made the administrator conditions or topology of the

* dynamic routing
* it is a also knows as a adaptive routings

it is a technique in which a router add a new router in the routing table for each packet in response to the change ina conditions or topology of the network

dynamic protocols are used to discover the new routes to reach the destinations

in a dynamic routing information protocols [RIP]and open shortest path first [OSPF] are the protocols used to discover the new route

if any route goes down then the automatic adjustment will be made to reach destination

dynamic routing protocols automate the process updating and maintaining routing tables routers exchange information about network topology and reachability using information protocol such as routing information protocol[RIP] shortest a path first [OSPF or border gateway protocol[BGP]

dynamic routing adapts to network change automatically finding alternative paths if a link falls or a new route becomes available

* default routing
* default routing isa technique in which a router is configured default routing is when no specific route exits for a destinations
* allows route to forward packets for default gateway which any others routing table entries does it match any other router table entries
* default router are commonly used to connect network to the internet default routing is technique in which a router is a used when networks deal with the single exit point it is also useful when the bulk of transmissions networks have to transmit the data to same hp same hp device
* when a specific route is mentioned in the routing table route will choose the specific route is used when networks deal with the exit points it is also useful when the bulk of transmission network have to transmit the data to the same hp device
* when a specific route is mentioned in the routing table the route will choose the specific route rather then the default route the default route specific route rather then the default route the default route is chosen only when a
* specific route is not mentioned in the routing table
* what is a enumerations
* as part of the scanning phase of information gathering you also will perform when is known as enumerations which as ia process of connecting to and interrogating a network or system to retrieve information about that network or system
* We looked at enumerations earlier in this chapter when we thing s like doing a port scan which enabled us to retrieve a list of service running on the system
* Nmap contains scripts that you call upon for enumerations that are knows as Nmap scripts engine [NSE ] scripts you can call upon NSE with the scripts parameter of NMAP]
* data encapsulation & DE – encapsulations
* Data encapsulation
* Data encapsulation is the process in which extra information is added to the process to the process in which item to add some features to it
* Data encapsulations add the protocol information to the data so that data transmission can either be added in a the header or the footer or the
* The data is encapsulated on the sender s side applications layer to the physical layer
* Each layer takes the encapsulated on the sender data form the previous layer and adds some more information to encapsulate it and some more functionalities with the data
* functionalities may include proper data sequencing error detection and control flow control congestion
* Data de-encapsulation is the reverse process of data encapsulation the reverse process of data encapsulation at the same layer at the data is de-encapsulted layer
* OSI model TCP/IP model 7 layer
* Application layer
* Parensentation layer
* Session layer
* Transport layer
* Network layer
* Data link layer
* Physical layer

Applications layer is a identifying and establishing the availability of intended communication

Partner and whether thers are sufficient resources

Presentations layer= data translation encryptions code formatting send the data one information add

Sessions layer= data stablishing the data translations setting up managing and tearing down sessions keeps application data separate

Transport layer =provides end-to end transport services -establishes logical connections between hosts connections -oriented or connectionless data transfer

Network layer= manages logical addressing and path determination

Data link layer=provides physical transmission of data handles error notification flow control and network error notifications flow control and network topology split into two sub layers [llc and MAC]

Physical layer=physical layer specifies electrical mechanical for activating maintaining and deactivating physical link

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