Internet protocol

In the seven-layer OSI model of computer networking, the network layer is layer 3. The network layer is responsible for packet forwarding including routing through intermediate routers, whereas the data link layer is responsible for media access control, flow control and error checking. The network layer provides the functional and procedural means of transferring variable length data sequences from a source to a destination host via one or more networks, while maintaining the quality of service functions. Addressing Network addressing is any numbering or naming scheme used to identify objects and locations on computer networks.

Encapsulation is a process to hide or protect a process from the possibility of outside interference or misuse of the system while simplifying the use of the system itself, also makes one type of network data packets to other data types. Encapsulation occurs when a protocol that is on the lower layer receives data from the protocol that is at a higher layer and put the data into a data format that is understood by the protocol. Access to the internal system so arranged through a set of interfaces. With the encapsulation of data into an identity.

A simple example encapsulation process in the process of mail delivery, if a letter would be sent but without the envelope, address and postage. The letter should have an identity in order to get to the destination, if it does not have an identity then the letter will not be able to get to the destination. Envelopes with address and stamp the same as the data encapsulation. Decapsulation is the inverse of the encapsulation process. Encapsulation is the process of wrapping the data while the decapsulation process is a

process of opening packs. The process was reversed from the encapsulation process.

Encapsulation The process starts from the uppermost layer (Application Layer) to the lowest layer (Physical layer) while the decapsulation process starts from the lowest layer (Physical Layer) to the uppermost layer (Application Layer) Internet Protocol version 4 (IPv4) is the fourth version in the development of the Internet Protocol (IP) and the first version of the protocol to be widely deployed. It is one of the core protocols of standards-based internetworking methods of the Internet, and routes most traffic in the Internet. [1] However, a successor protocol, IPv6, has been defined and is in various stages of production deployment.

IPv4 is described in IETF publication RFC 791 (September 1981), replacing an earlier definition (RFC 760, January 1980). IPv4 is a connectionless protocol for use on packet-switched networks. It operates on a best effort delivery model, in that it does not guarantee delivery, nor does it assure proper sequencing or avoidance of duplicate delivery. These aspects, including data integrity, are addressed by an upper layer transport protocol, such as the Transmission Control Protocol (TCP). Routing is the process of selecting paths in a network along which to send network traffic.

Routing is performed for many kinds of networks, including the telephone network (circuit switching), electronic data networks (such as the Internet), and transportation networks. This article is concerned primarily with routing in electronic data networks using packet switching technology. In computer networking a routing table, or routing information base (RIB), is a data table

stored in a router or a networked computer that lists the routes to particular network destinations, and in some cases, metrics (distances) associated with those routes.

The routing table contains information about the topology of the network immediately around it. The construction of routing tables is the primary goal of routing protocols. Static routes are entries made in a routing table by non-automatic means and which are fixed rather than being the result of some network topology " discovery" procedure. Static routing is a concept describing one way of configuring path selection of routers in computer networks. It is the type of routing characterized by the absence of communication between routers regarding the current topology of the network.

This is achieved by manually adding routes to the routing table. The opposite of static routing is dynamic routing, sometimes also referred to as adaptive routing. A default route of a computer that is participating in computer networking is the packet forwarding rule (route) taking effect when no other route can be determined for a given Internet Protocol (IP) destination address. All packets for destinations not established in the routing table are sent via the default route.

This route generally points to another router, which treats the packet the same way: If a route matches, the packet is forwarded accordingly, otherwise the packet is forwarded to the default route of that router. The process repeats until a packet is delivered to the destination. Each router traversal counts as one hop in the distance calculation for the transmission

path. The route evaluation process in each router uses the longest prefix match method to obtain the most specific route. The network with the longest subnet mask that matches the destination IP address is the next-hop network gateway.