Function Of Data Link Layer

== Historical and conceptual perspective == 8130c70517

Network layer service requests from the transport layer and issues service requests to the data link layer. Functions of the network layer include: Connectionless communication 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 8130c70517

The internet layer has three basic functions: 8130c70517

Protocol data unit It is composed of protocol-specific control information and user data. In the layered architectures of communication protocol stacks, each layer implements protocols

tailored to the specific type or mode of data exchange. user data. In the layered architectures of communication protocol stacks, each layer implements protocols tailored to the specific type or mode of data exchange In telecommunications, a protocol data unit (PDU) is a single unit of information transmitted among peer entities of a computer network 8130c70517

Information gathered with LLDP can be stored in the device management information base (MIB) and queried with the Simple Network Management Protocol (SNMP) as specified in RFC 2922. The topology of an LLDP-enabled network can be discovered by crawling the hosts and querying this database. Information that may be retrieved includes: 8130c70517 The protocol is defined in technical standards and is formally referred to by the IEEE as Station and Media Access Control Connectivity Discovery specified in IEEE 802.1AB with additional support in IEEE 802.3 section 6 clause 79. 8130c70517 For example, the Transmission Control Protocol (TCP) implements a connection-oriented transfer mode, and the PDU of this

protocol is called a segment, while the User Datagram Protocol (UDP) uses datagrams as protocol data units for connectionless communication. A layer lower in the Internet protocol suite, at the Internet layer, the PDU is called a packet, irrespective of its payload type. 8130c70517

Physical layer The physical layer defines the means of transmitting a stream of raw bits over a physical data link connecting In the seven-layer OSI model of computer networking, the physical layer or layer 1 is the first and lowest layer: the layer most closely associated with the physical connection between devices. family of interconnect protocols are widely used. The physical layer provides an electrical, mechanical, and procedural interface to the transmission medium. The shapes and properties of the electrical connectors, the frequencies to transmit on, the line code to use and similar low-level parameters are specified by the physical layer 8130c70517

== Functions == 8130c70517 The principal transport protocols of

the Internet protocol suite are the Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP). TCP provides a connection-oriented, reliable byte stream service, while UDP provides a connectionless datagram service with fewer protocol mechanisms. Other transport protocols include the Stream Control Transmission Protocol (SCTP) and the Datagram Congestion Control Protocol (DCCP). Newer transport protocols, such as QUIC, may be implemented over UDP. 8130c70517 LLDP performs functions similar to several proprietary protocols, such as Cisco Discovery Protocol, Foundry Discovery Protocol, Nortel Discovery Protocol and Link Layer Topology Discovery. 8130c70517 In the OSI reference model, the components of a communication system are distinguished in seven abstraction layers: Physical, Data Link, Network, Transport, Session, Presentation, and Application. 8130c70517

Link Layer Discovery Protocol The Link Layer Discovery Protocol (LLDP) is a link-layer protocol used by network devices for advertising their identity, capabilities, and neighbors on The Link

Layer Discovery Protocol (LLDP) is a link-layer protocol used by network devices for advertising their identity, capabilities, and neighbors on a local area network based on IEEE 802 technology, principally wired Ethernet 8130c70517

A common design aspect in the internet layer is the robustness principle: "Be liberal in what you accept, and conservative in what you send" as a misbehaving host can deny Internet service to many other users. 8130c70517 == Packet-switched data networks == 8130c70517 == Purpose == 8130c70517 The link layer is described in RFC 1122 and RFC 1123. RFC 1122 considers local area network protocols such as Ethernet and other IEEE 802 networks (e.g. Wi-Fi), and framing protocols such as Point-to-Point Protocol (PPP) to belong to the link layer. 8130c70517 At the electrical layer, the physical layer is commonly implemented in a dedicated PHY chip or, in electronic design automation (EDA), by a design block. In mobile computing, the MIPI Alliance *-PHY family of interconnect protocols are widely used. 8130c70517

Application layer and which became the foundation of the modern Internet, integrates these functions into a broader application layer that handles process-to-process communication An application layer is an abstraction layer that specifies the shared communication protocols and interface methods used by hosts in a communications network 8130c70517

The data link layer is concerned with local delivery of frames between nodes on the same level of the network. Data-link frames, as these protocol data units are called, do not cross the boundaries of a local area network. Inter-network routing and global addressing are higher-layer functions, allowing data-link protocols to focus on local delivery, addressing, and media arbitration. In this way, the data link layer is analogous to a neighborhood traffic cop; it endeavors to arbitrate between parties contending for access to a medium, without concern for their ultimate destination. When devices attempt to use a medium simultaneously, frame collisions occur. Data-link protocols specify how devices detect and recover from such

collisions, and may provide... 8130c70517 Despite the different semantics of layering between the Internet protocol suite and OSI model, the link layer is sometimes described as a combination of the OSI's data link layer (layer 2) and physical layer (layer 1). 8130c70517 Transport layer services are... 8130c70517 Functions of the network layer include: 8130c70517

OSI model The link layer corresponds to the OSI data link layer and The Open Systems Interconnection (OSI) model is a reference model published in 1984 by the International Organization for Standardization (ISO) that "provides a common basis for the coordination of standards development for the purpose of systems interconnection. transport layer. ". The internet layer performs functions as those in a subset of the OSI network layer 8130c70517

== Role == 8130c70517 The physical layer consists of the electronic circuit transmission technologies of a network. It is a fundamental layer underlying the higher level functions in a network, and can be

implemented... 8130c70517 The Internet protocol suite as defined in RFC 1122 and RFC 1123 is a model of networking developed contemporaneously with the OSI model, and was funded primarily by the U.S. Department of Defense. It was the foundation for the development of the Internet. It assumed... 8130c70517 == Information gathered == 8130c70517 The internet layer does not include the protocols that fulfill the purpose of maintaining link states between the local nodes and that usually use protocols that are based on the framing of packets specific to the link types. Such protocols belong to the link layer. Internet-layer protocols use IP-based packets. 8130c70517

Transport layer of communication between applications. Depending on the protocol, these services may include connection-oriented communication, reliable and ordered delivery, flow control, congestion control, and the multiplexing of communication between applications. The transport layer is defined in both the Internet protocol suite and the OSI model, although the functions assigned In

computer networking, the transport layer is an abstraction layer in a network protocol stack that provides communication services between applications 8130c70517

The physical layer defines the means of transmitting a stream of raw bits over a physical data link connecting network nodes. The bitstream may be grouped into code words or symbols and converted to a physical signal that is transmitted over a transmission medium. 8130c70517 The model describes communications from the physical implementation of transmitting bits across a transmission medium to the highest-level representation of data of a distributed application. Each layer has well-defined functions and semantics and serves a class of functionality to the layer above it and is served by the layer below it. Established, well-known communication protocols are decomposed in software development into the model's hierarchy of function calls. 8130c70517

Data link layer This layer is the protocol layer that transfers The data

link layer, or layer 2, is the second layer of the seven-layer OSI model of computer networking. The data link layer provides the functional and procedural means to transfer data between network entities and may also provide the means to detect and possibly correct errors that can occur in the physical layer. This layer is the protocol layer that transfers data between nodes on a network segment across the physical layer. The data link layer, or layer 2, is the second layer of the seven-layer OSI model of computer networking 8130c70517

The network layer provides the means of transferring variable-length network packets from a source to a destination host via one or more networks. Within the service layering semantics of the OSI (Open Systems Interconnection) network architecture, the network layer responds to service requests from the transport layer and issues service requests to the data link layer. 8130c70517 == Services == 8130c70517 The transport layer is defined in both the Internet protocol suite and the OSI model, although the functions assigned to it differ between the two architectures. In the OSI model, the

transport layer is Layer 4 (L4). The layers of the Internet protocol suite are not formally numbered. 8130c70517 Local area networking standards such as Ethernet and IEEE 802.3 specifications use terminology from the seven-layer OSI model rather than the TCP/IP model. The TCP/IP model, in general, does... 8130c70517 An application layer abstraction is specified in both the Internet Protocol Suite (TCP/IP) and the OSI model. Although both models use the same term for their respective highest-level layer, the detailed definitions and purposes are different. 8130c70517 == Definition in standards and textbooks == 8130c70517

Internet layer The internet layer derives its name from its function facilitating internetworking, which is the concept of connecting multiple networks with each other through gateways. an IP address. The internet layer derives its name from its function facilitating internetworking, which is the concept of connecting multiple networks The internet layer is a group of internetworking methods, protocols, and specifications in the Internet protocol suite that are

used to transport network packets from the originating host across network boundaries; if necessary, to the destination host specified by an IP address 8130c70517

Link layer separates lower-layer functions into the physical layer and the data link layer. As a result, comparisons between the TCP/IP link layer and OSI layers 1 and 2 In computer networking, the link layer is the lowest layer in the Internet protocol suite, the networking architecture of the Internet. The link is the physical and logical network component used to interconnect hosts or nodes in the network, and a link protocol is a suite of methods and standards that operate only between adjacent network nodes of a network segment. The link layer is the group of methods and communications protocols confined to the link that a host is physically connected to 8130c70517

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