

Transmission Control Protocol Internet Protocol

Communication protocol The first two cooperating protocols, the Transmission Control Protocol (TCP) and the Internet Protocol (IP) resulted A communication protocol is a system of rules that allows two or more entities of a communications system to transmit information. defined in the Internet Protocol Suite. The protocol defines the rules, syntax, semantics, and synchronization of communication and possible error recovery methods. Protocols may be implemented by hardware, software, or a combination of both 455980e82f

== Technical details == 455980e82f Multiple protocols often describe different aspects of a single communication. A group of protocols... 455980e82f The first major version of IP, Internet Protocol version 4 (IPv4), is the dominant protocol of the Internet. Its successor is Internet Protocol version 6 (IPv6), which has been in increasing deployment on the public Internet since around 2006. 455980e82f checks the identity of the linked device and either accepts or rejects the device 455980e82f == Function == 455980e82f RTCP provides basic functions expected to be implemented in all RTP sessions: 455980e82f

Internet protocol suite Early The Internet protocol suite, commonly known as TCP/IP, is a framework for organizing the communication protocols used in the Internet and similar computer networks according to functional criteria. foundational protocols in the suite are the Transmission Control Protocol (TCP), the User Datagram Protocol (UDP), and the Internet Protocol (IP). Early versions of this networking model were known as the Department of Defense (DoD) Internet Architecture Model because the research and development were funded by the Defense Advanced Research Projects Agency (DARPA) of the United States Department of Defense. The foundational protocols in the suite are the Transmission Control Protocol (TCP), the User Datagram Protocol (UDP), and the Internet Protocol (IP) 455980e82f

PPP is used over many types of physical networks, including serial cable (PPPoS), phone line, trunk line, cellular telephone, specialized radio links, ISDN, and fiber optic links such as SONET. Since IP packets cannot be transmitted over a modem line on their own without some data link protocol that can identify where the transmitted frame starts and where it ends, Internet service providers (ISPs) have used PPP for customer dial-up access to the Internet. 455980e82f PPP is used on former dial-up networking lines. Two derivatives of PPP, Point-to-Point Protocol over Ethernet (PPPoE) and Point-to-Point Protocol over ATM (PPPoA), are used most commonly by ISPs to establish a digital subscriber line (DSL) Internet service LP connection with customers. 455980e82f

Internet Control Message Protocol ICMP differs from transport protocols such as TCP and UDP in that it is not typically used to exchange data between systems, nor is it regularly employed by end-user network applications (with the exception of some diagnostic tools like ping and traceroute). It is used by network devices, including routers The Internet Control Message Protocol (ICMP) is a supporting protocol in the Internet protocol suite. It is used by network devices, including routers, to send error messages and operational information indicating success or failure when communicating with another IP address. The Internet Control Message Protocol (ICMP) is a supporting protocol in the Internet protocol suite. For example, an error is indicated when a requested service is not available or that a host or router could not be reached 455980e82f

PPP is very commonly used as a data-link-layer protocol for connection over synchronous and asynchronous circuits, where it has largely superseded the... 455980e82f determines the acceptable packet size for transmission 455980e82f A separate Internet Control Message Protocol (called ICMPv6) is used with IPv6. 455980e82f

Link Control Protocol networking, the Link Control Protocol (LCP) forms part of the Point-to-Point Protocol (PPP), within the family of Internet protocols. In setting up PPP communications, both the sending and receiving devices send out LCP packets to determine the standards of the ensuing data transmission. In setting up PPP In computer networking, the Link Control Protocol (LCP) forms part of the Point-to-Point Protocol (PPP), within the family of Internet protocols 455980e82f

Point-to-Point Protocol It can provide loop detection, authentication, transmission encryption, and data compression. the Internet Protocol Control Protocol (IPCP) is used, although Internetwork Packet Exchange Control Protocol (IPXCP) and AppleTalk Control Protocol (ATCP) In computer networking, Point-to-Point Protocol (PPP) is a data link layer (layer 2) communication protocol between two routers directly without any host or any other networking in between 455980e82f

== Formal oversight == 455980e82f RTCP itself does not provide any flow encryption or authentication methods. Such mechanisms may be implemented, for example, with the Secure Real-time Transport Protocol (SRTP) 455980e82f Major internet applications such as the World Wide Web, email, remote administration, file transfer and streaming media rely on TCP,

which is part of the transport layer of the TCP/IP suite. SSL/TLS often runs on top of TCP. Today, TCP remains a core protocol for most Internet communication, ensuring reliable data transfer across diverse networks. 455980e82f can terminate the link if requirements exceed the parameters 455980e82f searches for errors in configuration 455980e82f ICMP is part of the Internet protocol suite as defined in RFC 792. ICMP messages are typically used for diagnostic or control purposes or generated in response to errors in IP operations (as specified in RFC 1122). ICMP errors are directed to the source IP address of the originating packet. 455980e82f The protocol: 455980e82f The Internet protocol suite provides end-to-end data communication specifying how data should be packetized, addressed, transmitted, routed, and received. This functionality is organized into four abstraction layers, which classify all related protocols according to each protocol's scope of networking. An implementation of the layers for a particular application forms a protocol stack. From lowest to highest, the layers are the link layer, containing communication methods for data that remains within a single network segment (link); the internet layer, providing internetworking between... 455980e82f == Description == 455980e82f == Description == 455980e82f Typically, RTP will be sent on an even-numbered UDP port, with RTCP messages being sent over the next higher odd-numbered port. 455980e82f LCP packets are sent during the Link Establishment Phase of PPP, after the physical layer has been made ready from the Link Dead state. No transmission of network-layer protocols such as IP may be transmitted across PPP until after the Link Establishment or Authentication phases are complete. When a connection is requested by a peer to be terminated (or if Authentication fails), the Link Termination Phase is performed, and PPP returns to the Link Dead state. 455980e82f IP was the connectionless datagram service in the original Transmission Control Program introduced by Vint Cerf and Bob Kahn in 1974, which was complemented by a connection-oriented service that became the basis for the Transmission Control Protocol (TCP). The Internet protocol suite is therefore often referred to as TCP/IP. 455980e82f == Protocol functions == 455980e82f

RTP Control Protocol The RTP Control Protocol (RTCP) is a binary-encoded out-of-band signaling protocol that functions alongside the Real-time Transport Protocol (RTP). RTCP provides statistics and control information for an RTP session. It partners with RTP in the delivery and packaging of multimedia data but does not transport any media data itself. RTCP The RTP Control Protocol (RTCP) is a binary-encoded out-of-band signaling protocol that functions alongside the Real-time Transport Protocol (RTP) 455980e82f

Communicating systems use well-defined formats for exchanging various messages. Each message has an exact meaning intended to elicit a response from a range of possible responses predetermined for that particular situation. The specified behavior is typically independent of how it is to be implemented. Communication protocols have to be agreed upon by the parties involved. To reach an agreement, a protocol may be developed into a technical standard. A programming language describes the same for computations, so there is a close analogy between protocols and programming languages: protocols are to communication what programming languages are to computations. An alternate formulation states that protocols are to communication what algorithms are to computation. 455980e82f

Serial Line Internet Protocol It is The Serial Line Internet Protocol (SLIP) is an encapsulation of the Internet Protocol designed to work over serial ports and router connections. The Serial Line Internet Protocol (SLIP) is an encapsulation of the Internet Protocol designed to work over serial ports and router connections. On personal computers, SLIP has largely been replaced by the Point-to-Point Protocol (PPP), which is better engineered, has more features, and does not require its IP address configuration to be set before it is established. It is documented in RFC 1055. On microcontrollers, however, SLIP is still the preferred way of encapsulating IP packets, due to its very small overhead 455980e82f

Stream Control Transmission Protocol Originally The Stream Control Transmission Protocol (SCTP) is a computer networking communications protocol in the transport layer of the Internet protocol suite. Stream Control Transmission Protocol (SCTP) is a computer networking communications protocol in the transport layer of the Internet protocol suite. Unlike UDP and TCP, the protocol supports multihoming and redundant paths to increase resilience and reliability. Originally intended for Signaling System 7 (SS7) message transport in telecommunication, the protocol provides the message-oriented feature of the User Datagram Protocol (UDP) while ensuring reliable, in-sequence transport of messages with congestion control like the Transmission Control Protocol (TCP) 455980e82f

SCTP is standardized by the Internet Engineering Task Force (IETF) in RFC 9260. The SCTP reference implementation was released as part of FreeBSD version 7 in 2008 and has since been widely ported to other platforms. 455980e82f

Transmission Control Protocol The Transmission Control Protocol (TCP) is one of the main protocols of the Internet protocol suite, providing reliable, ordered, and error-checked delivery The Transmission Control Protocol (TCP) is one of the main protocols of the Internet protocol suite, providing reliable, ordered, and error-checked delivery of a stream of octets (bytes) between applications running on hosts communicating via an IP network. It originated in the initial network implementation in which it complemented the Internet Protocol (IP). Therefore, the entire suite is commonly referred to as TCP/IP 455980e82f

The primary function of RTCP is to provide feedback on the quality of service (QoS) in media distribution by periodically sending statistics information such as transmitted octet and packet counts, packet loss, packet delay variation, and round-trip delay time to participants in a streaming multimedia session. An application may use this information to control

quality of service parameters, perhaps by limiting flow, or using a different codec. 455980e82f

Internet Protocol The first major version of IP, Internet Protocol The Internet Protocol (IP) is the network layer communications protocol in the Internet protocol suite for relaying datagrams across network boundaries. The Internet protocol suite is therefore often referred to as TCP/IP. the Transmission Control Protocol (TCP). Its routing function enables internetworking, and essentially establishes the Internet 455980e82f

The IETF Signaling Transport (SIGTRAN) working group defined the protocol (number 132) in October 2000, and the IETF Transport Area (TSVWG) working group maintains it. RFC 9260 defines the protocol. RFC 3286 provides an introduction. 455980e82f TCP is connection-oriented, meaning that sender and receiver first need to establish a connection based on agreed parameters; they do this through a three-way handshake procedure. The server must be listening (passive open) for connection requests from clients before a connection is established. The three-way handshake (active open), retransmission, and error detection add to reliability but lengthen latency. Applications... 455980e82f For example, every device (such as an intermediate router) forwarding an IP datagram first decrements the time to live (TTL) field in the IP header... 455980e82f IP has the task of delivering packets from the source host to the destination host solely based on the IP addresses in the packet headers. For this purpose, IP defines packet structures that encapsulate the data to be delivered. It also defines addressing methods that are used to label the datagram with source and destination information. 455980e82f Some people refer to the successful and widely used RFC 1055 Serial Line Internet Protocol as "Rick Adams' SLIP", to avoid confusion with other proposed protocols named "SLIP". Those other protocols include the much more complicated RFC 914 appendix D Serial Line Interface Protocol. 455980e82f

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