# R

# RACE

Research on Advanced Communications in Europe. Project sponsored by the European Community (EC) for the development of broadband networking capabilities.

#### radio frequency

See RF.

# radio frequency interference

See RFI.

# RAM

random-access memory. Volatile memory that can be read and written by a microprocessor.

random-access memory See *RAM*.

# Rapid Transport Protocol See *RTP*.

# RARE

Réseaux Associés pour la Recherche Européenne. Association of European universities and research centers designed to promote an advanced telecommunications infrastructure in the European scientific community. RARE merged with EARN to form TERENA. See also *EARN* and *TERENA*.

# RARP

Reverse Address Resolution Protocol. Protocol in the TCP/IP stack that provides a method for finding IP addresses based on MAC addresses. Compare with *ARP*.



#### rate enforcement

See traffic policing.

#### rate queue

Value that is associated with one or more virtual circuits, and that defines the speed at which an individual virtual circuit will transmit data to the remote end. Each rate queue represents a portion of the overall bandwidth available on an ATM link. The combined bandwidth of all configured rate queues should not exceed the total bandwidth available.

#### RBHC

Regional Bell Holding Company. One of seven telephone companies created by the AT&T divestiture in 1984.

# RBOC

Regional Bell Operating Company. Local or regional telephone company that owns and operates telephone lines and switches in one of seven U.S. regions. The RBOCs were created by the divestiture of AT&T. Also called *Bell Operating Company (BOC)*.

#### rcp

remote copy protocol. Protocol that allows users to copy files to and from a file system residing on a remote host or server on the network. The rcp protocol uses TCP to ensure the reliable delivery of data.

#### rcp server

Router or other device that acts as a server for rcp. See also rcp.

# read-only memory

See ROM.

# **Ready To Send**

See RTS.

# reassembly

The putting back together of an IP datagram at the destination after it has been fragmented either at the source or at an intermediate node. See also *fragmentation*.

#### redirect

Part of the ICMP and ES-IS protocols that allows a router to tell a host that using another router would be more effective.

# redirector

Software that intercepts requests for resources within a computer and analyzes them for remote access requirements. If remote access is required to satisfy the request, the redirector forms an RPC and sends the RPC to lower-layer protocol software for transmission through the network to the node that can satisfy the request.

#### redistribution

Allowing routing information discovered through one routing protocol to be distributed in the update messages of another routing protocol. Sometimes called route redistribution.

#### redundancy

1. In internetworking, the duplication of devices, services, or connections so that, in the event of a failure, the redundant devices, services, or connections can perform the work of those that failed. See also redundant system.

2. In telephony, the portion of the total information contained in a message that can be eliminated without loss of essential information or meaning.

### redundant system

Computer, router, switch, or other computer system that contains two or more of each of the most important subsystems, such as two disk drives, two CPUs, or two power supplies. For example, on a fully redundant LightStream 2020 ATM switch, there are two NP cards with disks, two switch cards, and two power trays. A partially redundant LightStream 2020 switch might have two NPs, one switch card, and one power tray.

# **Regional Bell Holding Company**

See *RBHC*.

#### **Regional Bell Operating Company** See RBOC.

#### registered jack connector

See RJ connector.

#### relay

OSI terminology for a device that connects two or more networks or network systems. A data link layer (Layer 2) relay is a bridge; a network layer (Layer 3) relay is a router. See also *bridge* and *router*.

#### reliability

Ratio of expected to received keepalives from a link. If the ratio is high, the line is reliable. Used as a routing metric.

# **Reliable SAP Update Protocol**

See RSUP.

# reload

The event of a Cisco router rebooting, or the command that causes the router to reboot.

### remote bridge

Bridge that connects physically disparate network segments via WAN links.

#### remote copy protocol

See *rcp*.

# remote job entry

See RJE.

# remote login

See rlogin.

# Remote Monitoring See *RMON*.

Remote Operations Service Element See *ROSE*.

# remote-procedure call See *RPC*.

# remote shell protocol

See rsh.

#### remote source-route bridging See RSRB.

#### rendezvous point See RP.

# repeater

Device that regenerates and propagates electrical signals between two network segments. See also segment.

# **Request For Comments**

See RFC.

# request/response unit

See RU.

# **Research on Advanced Communications in Europe** See RACE.

Réseaux Associés pour la Recherche Européenne See RARE.

## **Reverse Address Resolution Protocol** See RARP.

# **Reverse Path Multicasting**

See RPM.

# RF

radio frequency. Generic term referring to frequencies that correspond to radio transmissions. Cable TV and broadband networks use RF technology.

#### RFC

Request For Comments. Document series used as the primary means for communicating information about the Internet. Some RFCs are designated by the IAB as Internet standards. Most RFCs document



protocol specifications such as Telnet and FTP, but some are humorous or historical. RFCs are available online from numerous sources.

# RFI

radio frequency interference. Radio frequencies that create noise that interferes with information being transmitted across unshielded copper cabling.

# RIF

Routing Information Field. Field in the IEEE 802.5 header that is used by a source-route bridge to determine through which Token Ring network segments a packet must transit. A RIF is made up of ring and bridge numbers as well as other information.

#### RII

Routing Information Identifier. Bit used by SRT bridges to distinguish between frames that should be transparently bridged and frames that should be passed to the SRB module for handling.

# ring

Connection of two or more stations in a logically circular topology. Information is passed sequentially between active stations. Token Ring, FDDI, and CDDI are based on this topology.

### ring group

Collection of Token Ring interfaces on one or more Cisco routers that is part of a one-bridge Token Ring network.

# ring latency

Time required for a signal to propagate once around a ring in a Token Ring or IEEE 802.5 network.

# ring monitor

Centralized management tool for Token Ring networks based on the IEEE 802.5 specification. See also *active monitor* and *standby monitor*.

# ring topology

Network topology that consists of a series of repeaters connected to one another by unidirectional transmission links to form a single closed loop. Each station on the network connects to the network at a repeater. While logically a ring, ring topologies are most often organized in a closed-loop star. Compare with *bus topology, star topology,* and *tree topology.* 

# RIP

Routing Information Protocol. IGP supplied with UNIX BSD systems. The most common IGP in the Internet. RIP uses hop count as a routing metric. See also *Enhanced IGRP*, *hop count*, *IGP*, *IGRP*, and *OSPF*.

# **RJ connector**

registered jack connector. Standard connectors originally used to connect telephone lines. RJ connectors are now used for telephone connections and for 10BaseT and other types of network connections. RJ-11, RJ-12, and RJ-45 are popular types of RJ connectors.

#### RJE

remote job entry. Application that is batch-oriented, as opposed to interactive. In RJE environments, jobs are submitted to a computing facility, and output is received later.

#### rlogin

remote login. Terminal emulation program, similar to Telnet, offered in most UNIX implementations.

# RMON

Remote Monitoring. MIB agent specification described in RFC 1271 that defines functions for the remote monitoring of networked devices. The RMON specification provides numerous monitoring, problem detection, and reporting capabilities.

# ROM

read-only memory. Nonvolatile memory that can be read, but not written, by the microprocessor.



# root account

1. Privileged account on UNIX systems used exclusively by network or system administrators.

2. One of the four default user accounts that are created in the factory on each LightStream 2020 ATM switch. The root account is for use by the system or network administrator only. Its default interface is the bash shell. See also *bash*.

# root bridge

Exchanges topology information with designated bridges in a spanning-tree implementation in order to notify all other bridges in the network when topology changes are required. This prevents loops and provides a measure of defense against link failure.

# ROSE

Remote Operations Service Element. OSI RPC mechanism used by various OSI network application protocols.

# round-trip time

See RTT.

# route

Path through an internetwork.

# routed protocol

Protocol that can be routed by a router. A router must be able to interpret the logical internetwork as specified by that routed protocol. Examples of routed protocols include AppleTalk, DECnet, and IP.

# route extension

In SNA, a path from the destination subarea node through peripheral equipment to a NAU.

#### route map

Method of controlling the redistribution of routes between routing domains.

# **Route Processor**

See RP.



#### route summarization

Consolidation of advertised addresses in OSPF and IS-IS. In OSPF, this causes a single summary route to be advertised to other areas by an area border router.

# **Route/Switch Processor**

See RSP.

#### router

Network layer device that uses one or more metrics to determine the optimal path along which network traffic should be forwarded. Routers forward packets from one network to another based on network layer information. Occasionally called a *gateway* (although this definition of gateway is becoming increasingly outdated). Compare with *gateway*. See also *relay*.

# route redistribution

See redistribution.

#### routing

Process of finding a path to a destination host. Routing is very complex in large networks because of the many potential intermediate destinations a packet might traverse before reaching its destination host.

# routing domain

Group of end systems and intermediate systems operating under the same set of administrative rules. Within each routing domain is one or more areas, each uniquely identified by an area address.

# **Routing Information Field**

See RIF.

# Routing Information Identifier See *RII*.

# Routing Information Protocol See *RIP*.

# routing metric

Method by which a routing algorithm determines that one route is better than another. This information is stored in routing tables. Metrics include bandwidth, communication cost, delay, hop count, load, MTU, path cost, and reliability. Sometimes referred to simply as a *metric*. See also *cost*.

# routing protocol

Protocol that accomplishes routing through the implementation of a specific routing algorithm. Examples of routing protocols include IGRP, OSPF, and RIP.

# routing table

Table stored in a router or some other internetworking device that keeps track of routes to particular network destinations and, in some cases, metrics associated with those routes.

#### **Routing Table Maintenance Protocol**

See RTMP.

### **Routing Table Protocol**

See RTP.

# routing update

Message sent from a router to indicate network reachability and associated cost information. Routing updates are typically sent at regular intervals and after a change in network topology. Compare with *flash update*.

#### RP

1. Route Processor. Processor module on the Cisco 7000 series routers that contains the CPU, system software, and most of the memory components that are used in the router. Sometimes called a *supervisory processor*.

2. rendezvous point. Router specified in PIM sparse mode implementations to track membership in multicast groups and to forward messages to known multicast group addresses. See also *PIM sparse mode*.

# RPC

remote-procedure call. Technological foundation of client-server computing. RPCs are procedure calls that are built or specified by clients and executed on servers, with the results returned over the network to the clients. See also *client-server computing*.

#### RPM

Reverse Path Multicasting. Multicasting technique in which a multicast datagram is forwarded out of all but the receiving interface if the receiving interface is one used to forward unicast datagrams to the source of the multicast datagram.

# RS-232

Popular physical layer interface. Now known as *EIA/TIA-232*. See *EIA/TIA-232*.

# RS-422

Balanced electrical implementation of EIA/TIA-449 for high-speed data transmission. Now referred to collectively with RS-423 as EIA-530. See also *EIA-530* and *RS-423*.

### RS-423

Unbalanced electrical implementation of EIA/TIA-449 for EIA/TIA-232 compatibility. Now referred to collectively with RS-422 as EIA-530. See also *EIA-530* and *RS-422*.

# RS-449

Popular physical layer interface. Now known as *EIA/TIA-449*. See *EIA/TIA-449*.

#### rsh

remote shell protocol. Protocol that allows a user to execute commands on a remote system without having to log in to the system. For example, rsh can be used to remotely examine the status of a number of access servers without connecting to each communication server, executing the command, and then disconnecting from the communication server.

# RSP

Route/Switch Processor. Processor module used in the Cisco 7500 series routers that integrates the functions of the RP and the SP. See also *Cisco 7500*, *RP (Route Processor)*, and *SP*.

# RSRB

remote source-route bridging. SRB over WAN links. See also SRB.

#### RSUP

Reliable SAP Update Protocol. Bandwidth-saving protocol developed by Cisco for propagating services information. RSUP allows routers to reliably send standard Novell SAP packets only when the routers detect a change in advertised services. RSUP can transport network information either in conjunction with or independently of the Enhanced IGRP routing function for IPX.

# RTMP

Routing Table Maintenance Protocol. Apple Computer proprietary routing protocol. RTMP was derived from RIP. See also *RIP*.

#### RTP

1. Routing Table Protocol. VINES routing protocol based on RIP. Distributes network topology information and aids VINES servers in finding neighboring clients, servers, and routers. Uses delay as a routing metric. See also *SRTP*.

2. Rapid Transport Protocol. Provides pacing and error recovery for APPN data as it crosses the APPN network. With RTP, error recovery and flow control are done end-to-end rather than at every node. RTP prevents congestion rather than reacts to it.

#### RTS

Ready To Send. EIA/TIA-232 control signal that requests a data transmission on a communications line.

#### RTT

round-trip time. Time required for a network communication to travel from the source to the destination and back. RTT includes the time required for the destination to process the message from the source and generate a reply. RTT is used by some routing algorithms to aid in calculating optimal routes.

# RU

request/response unit. Request and response messages exchanged between NAUs in an SNA network.

# run-time memory

Memory accessed while a program runs. On a LightStream 2020 ATM switch, this memory contains configuration data that is accessed while the switch operates.