802.17 Terms and Definitions

Terms and Definitions Ad Hoc Committee

This section[1] defines terms that appear in the IEEE 802.17 resilient packet ring (RPR) specification. A term is a word that has a specific technical interpretation. Terms referenced within a definition are italicized.

The following rules are applied:
− The expansion of an acronym is not capitalized even in cases where the source document does capitalize the expansion.
− U.S. English spellings are used in cases where there are multiple English spellings (e.g. color vs. colour).
− In cases of alternative U.S. English spellings (e.g. queueing vs. queuing), the most common, or preferred, spelling is used.
− In cases where there is not a preferred spelling, a spelling is chosen and used consistently.
− Circular definitions are avoided.
− Footnotes will be deleted from final document unless otherwise noted.
− Terms defined here, and not required within the standard will be deleted upon voting on the document.
− Bracketed terms <> are not intended to be included in the standard document but are included for discussion.

802.17 adopts terms and definitions from existing specifications unless there is a reason to do otherwise[2]. Preference is generally given to existing IEEE 802 definitions. This section describes adopted terms and their sources, modifications to existing definitions related to their use in the 802.17 context, and new terms and definitions associated with the 802.17 standard. Sources include:

IEEE 802	LAN/MAN
IEEE 100 (dictionary of tems)	General
ISO X.200 (OSI)	Abstract concepts associated with layers, protocols, etc.
ANSI X3.139 (FDDI)	Station and ring structure
ITU I.233 (frame relay)	QoS
FRF.13/.19 (frame relay forum)	Service Level Definitions / OA&M
Frame Relay Forum Glossary[3]	Frame Relay Terminology

---

[1] This document is a ***draft*** of a proposed *terms and definitions* section of the IEEE 802.17 specification. It is incomplete and is known to have bugs. Comments can be directed to bob.sultan@fnc.fujitsu.com. The working version of this section contains some terms that will not appear in the final document but are useful for discussion.
[2] Often, existing definition, while not incorrect, are overly complex or do not provide insight into the meaning of the concept. In general, we need to decide whether to choose the 'best' definition or an *existing* definition that is reasonable. It would be useful to develop a rule for this.
[3] http://www.frforum.com/basicguide/glossary.html

List of Terms[4] Arranged by Subject

protocol

resilient packet ring (RPR): (1) A *connectionless* ring-based *MAC protocol* as defined by IEEE 802.17, appropriate for *LAN*, *MAN*, or *RAN* deployment[5]. (2) A collection of stations following the resilient packet ring protocol, and the links forming the ring.

IEEE Std. 802.17: The IEEE *resilient packet ring* standard.

802.17: *IEEE Std. 802.17*.

<spatial reuse protocol (SRP): A protocol, described in IETF informational RFC 2892, August 2000.>

protocol implementation conformance statement (PICS) : 1.3.47: A statement of which capabilities and options have been implemented for a given Open Systems Interconnection (OSI) protocol.

network

network (data transmission): (1) [IEEE 100[6] (COM/SUB/PE) 99-1992, 599-1985 modified[7]] A series of *stations* interconnected by communication channels. (2) Can be used in place of LAN, MAN, RAN, or WAN.

local area network (LAN): [*adapted* from IEEE 100 (C/DIS) 1278.2-1995, 1278.3-1996[8]] A communications network designed for a user premises, typically not exceeding a few kilometers in length, and characterized by moderate to high data transmission rates, low delay, and low bit error rates.

metropolitan area network (MAN): [IEEE 100 (C/LM) 8802-6-1994] A *network* for connecting a group of individual *stations* and *networks* [for example, *local area networks (LANs)*] located in the same urban area. Note: A *MAN* generally operates at a higher speed than the networks interconnected, crosses network administrative boundaries, may be subject to some form of regulation, and supports several access methods.

regional area network (RAN): (1) A *network* for connecting a group of individual *stations* and *networks* [for example, *metropolitan area networks (MANs)*] located in multiple contiguous urban areas. (2) A *MAN* spanning multiple urban areas.

wide area network (WAN): [IEEE 100 (C/DIS) 1278.2-1995] A communications network designed for large geographic areas. Sometimes called *long-haul* network.

medium

---

[4] A term/definition preceded by [HvA-Ed] is based-on the definition as proposed by Harmen van As in his posting of 4/17/01, with some modification. The reader can consult Harmen's posting to compare modified definitions with originals. A term preceded by [HvA-Alt] proposes a definition that differs in meaning from Harmen's definition.
[5] Or should this be specifically the protocol standardized by IEEE802?
[6] The Authoritative Dictionary of IEEE Standards Terms
[7] changed 'points' to 'stations'.
[8] 'moderate sized geographic area' replaced by 'user premises, typically not exceeding a few kilometers in length,'

transmission medium:: [IEEE 100 (C/LM) 8802-6-1994, 802.5-1998 1.3.34] The material on which *information signals* may be carried; e.g., optical fiber, coaxial cable, and twisted-wire pairs.

medium: *Transmission medium.*

layer/sublayer

medium access control (MAC) sublayer: (1) [IEEE 100 (C/LM) 8802-5-1995] The portion of the *data link sublayer* that controls and mediates the access to the *ring*. **(2)** [802.3-2000 1.4.167] The *data link sublayer* that is responsible for *transferring data* to and from the *physical layer*[9]. **(3)** [ISO/IEC 15802-1] The MAC service provider.

logical link control (LLC) sublayer: [C/LM 8802-5-1992s] That part of the *data link layer* that supports *media* independent *data link* functions, and uses the services of the *medium access control sublayer* to provide services to the *network layer*.

physical layer (PHY): [(C/LM) 8802-5-1995] The layer responsible for interfacing with the *transmission medium*. This includes conditioning signals received from the *MAC* for *transmitting* to the *medium* and processing *signals received* from the *medium* for *sending* to the *MAC*.

reconciliation sublayer (RS): [adapted from IEEE 100 (C/LM) 802.3 -1998[10]] A mapping function that reconciles the *signals* at *the media independent interface (MII)* to the *media access control (MAC) – physical signaling sublayer (PLS)* service definitions.

MAC client: The *protocol layer* (or *sublayer*) immediately above the *MAC layer*. Generally the *network layer* or *logical link control (LLC) sublayer.*

upper-layers: The collection of *protocol layers* above the *data-link layer*.

layer entities[11]

physical layer entity (PHY)[12]:: [802.3-2000] [13]the portion of the Physical Layer between the Medium Dependent Interface (*MDI*) and the *Media Independent Interface (MII),* or between the *MDI* and *GMII*, consisting of the Physical Coding Sublayer (PCS), the *Physical Medium Attachment (PMA)*, and, if present, the *Physical Medium Dependent (PMD)* sublayers. The PHY contains the functions that transmit, receive, and manage the encoded signals that are impressed on and recovered from the physical medium.

<layer agnosticism[14]>

<medium[15] agnostic Denotes a *MAC sublayer* that can operate with arbitrary *physical layer* alternatives, requiring a *reconciliation sublayer* for each specific *PHY* type supported.

---

[9] This appears as a definition of medium access control, but it is clearly a definition of medium access control sublayer.

[10] . The word 100BASE-T, appearing in the original, has been omitted.

[11] Not clear that we need to define these 'entities' apart from the layer definitions.

[12] IEEE 100 refers to both the *physical layer* and the *physical layer entity* as the *PHY*. This must be an error.

[13] Removed Within IEEE 802.3,

[14] It is not clear to me that either of these terms is meaningful. Doesn't the concept of layering include this kind of agnosticism? Is there any MAC that is not medium agnostic? The notion of the (PHY) reconciliation sublayer (RS) seems to be part of the layer model. To me this implies that agnosticism is also part of the model. Is there any MAC that looks at the upper layer payload? Can someone describe why we need to specify agnosticism?

payload agnostic: Denotes a *MAC sublayer* that is not sensitive to the contents of the *payload transferred* to/from the *MAC client*.

protocol agnostic: Denotes a *MAC sublayer* that can operate with arbitrary *upper-layer protocol* alternatives.>

station

station (data station): [adapted[16] from IEEE 100 (C/EMB/LM) 1073.3.1-1994, 1073.4.1-1994, 8802-5-1995] A device that may be attached to a *network* for the purpose of *transmitting* and *receiving* information on that network. [17]**source station:** The *station* containing an 802.17 MAC client that originates a *MAC frame* to a *ring*.

destination station: [adapted[18] from IEEE 100 (C/BA) 1355-1995] The *station(s)* [19] which is/are intended to receive an *802.17 frame* from a ring. **sink station :** The *station* that *strips* a given *frame* from the *ring*[20]**. end station:** [802.3-2000 1.4.111] A station[21] attached to a *network*[22] that is an initial source or a final destination of MAC frames transmitted across that *network*. A *network layer router* is, from the perspective of the *LAN*, an *end station*; a *MAC Bridge*, in its role of *forwarding MAC frames* from one *LAN* to another, is not an *end station*

source end station: The *end station* that originates a *MAC frame* with respect to a *network*.

destination end station: [adapted[23] from IEEE 100 (C/BA) 1355-1995] The *end station(s)* on a *network*[24] which is/are to *receive* a particular *MAC frame*.

source (data source): (1) [ISO/IEC2382-25 25.01.15, IEEE 100 610.7-1995] The functional unit that provides[25] data for transmission. <**(2)** [IEEE 100 (PE) 599-1985w] The equipment[26] which supplies data signals that enter into a data link>

sink (data sink): (1) [ISO/IEC2382-25 25.01.16, IEEE 100 610.7-1995] The functional unit that accepts transmitted data. <**(2)** [IEEE 100 (PE) 599-1985w] The equipment[27] which accepts data signals after transmission>

<**port: (1)** The point of *ingress* for *inbound* (*ring in*) *frames* and the point of *egress* for *outbound* (*ring out*) *frames* with respect to the *data station*. **(2)** [Adapted from IEEE 100

---

[15] Standards documents are split on whether this is medi*a* or medi*um*. Medium, the singular, seems more appropriate and is used here.

[16] *Local area network (LAN)* has been changed to *network*.

[17] Omitted A *station* is identified by a *MAC address*.

[18] 'node' replaced by 'station'; 'packet' replaced by 'frame'

[19] Elided 'terminal' (could not find the definition of 'terminal station').

[20] The first definition is consistent with existing definitions of *sink*.

[21] Changed 'system' to 'station'

[22] Changed 'LAN' to 'network'.

[23] 'node' replaced by 'station'; 'packet' replaced by 'frame'

[24] Added 'on a network'.

[25] 610.7 uses 'originates' instead of 'provides'

[26] It would be useful to use 'station' when talking about 'equipment'. Data source and data sink should be used to describe the *logical* suppliers and consumers of data.

[27] It would be useful to use 'station' when talking about 'equipment'. Data source and data sink should be used to describe the *logical* suppliers and consumers of data.

(C/LM) 802.1G-1996, 8802-5-1995] A signal interface provided by stations[28] that is generally terminated at a media interface connector (MIC).[29].

<medium interface connector (MIC): [802.5-1998 1.3.36] A connector interface at which signal transmit and receive characteristics are specified for attaching stations[30].>

<channel>[31]

<transmission channel: [ISO/IEC2382-9 09.02.14] A means of transmission of a signal in one direction between two stations where the signals are physically or logically isolated from the signals in other channels.>

<channel: *Transmission channel*.>

<forward channel: [ISO/IEC2382-9 09.02.15] A *transmission channel* in which the direction of transmission is restricted to the direction in which user data are being *transferred*.>

<backward channel : [ISO/IEC2382-9 09.02.16] A *transmission channel* associated with the *forward channel* but with the opposite direction of *transmission* .>

link/segment

link[32]: (1) [IEEE 100 (C/LM) 802.5c-1991] A unidirectional physical and media connection between two *stations*.

link partner: The device at the opposite end of a link from the local station[33].

link aggregation

link aggregation group[34]:: [IEEE 802.3-2000 1.4.154] A group of *links* that appear to a *MAC Client* as if they were a single *link*. All *links* in *a link aggregation group* connect between the same pair of *aggregation systems*. One or more *conversations* may be associated with each *link* that is part of a *link aggregation group*.

ring/ringlet

ring: (1)The collection of *stations* and *links* forming a *resilient packet ring*. (2) A set of *congruent ringlets* forming a *resilient packet ring*

---

[28] Changed "token ring stations, passive concentrator lobes, active concentrator lobes, or concentrator trunks" to "stations".

[29] Elided 'Ports may or may not provide physical containment of channels' What, exactly, does this mean?

[30] Elided 'and concentrators' and 'One class of MICs is the connection between the attaching stations and the lobe cabling. A second set is the attachment interface between the concentrator and its lobes. A third set is the interface between the concentrator and the trunk cabling. Two types of connectors are specified: one for connecting to STP media and one for connecting to UTP media.

[31] Not clear that we need the term *channel* (and variations) for 802.17.

[32] A link aggregation group appears to the MAC Client as a single link, so I assume that a link can refer to a link aggregation group. Is that correct?

[33] Elided 'The link partner device may be either a DTE or a repeater.'

[34] A link aggregation feature may be considered for 802.17 but it would likely differ in detail from the scheme currently defined in 802 (802.1ae). In particular, there would be a requirement that each aggregated link around the ring would have the same aggregate bandwidth as the others, requiring adjustment when an individual link within the aggregate fails.

ringlet: **(1)** A closed unidirectional path formed by an ordered set of stations and the links interconnecting stations such that each station has exactly one link entering the station and one link exiting the station[35].

congruent[36] ringlets: *Ringlets* that share the same set of stations, but a distinct set of *links*, such that the order of station traversal via the links is identical or is exactly reversed.

ring medium: The abstraction of a *ring* as a continuous *transmission medium* having a closed path.

ring segment[37] (segment) : The portion of a ring bounded by two stations interconnected by one or more links.

dual-ring: **(1)** [(C/LM) 802.5c-1991] A topology in which stations are linked by link pairs and, from any one station to another, there are exactly two distinct paths, where a path is defined as a sequence of consecutive links in which no link pair is traversed more than once. **(2)** A ring composed of exactly two congruent ringlets whose transmission paths have opposite orientations.

multi-ring: A *ring* composed of multiple *congruent ringlets*, at least two of which are *opposing ringlets.*

opposing ringlet: A *ringlet* whose *traffic* circulates in the direction opposite that of a given *ringlet*.

downstream[38]: The direction of data flow.

upstream[39]: The direction opposite to the upstream direction.

upstream neighbor's address (UNA)(modified):: [802.5-1998 1.3.77] The address of the station immediately upstream from a given station.

interconnected rings: *Non-congruent r*ings that intersect at one or more *stations*.

bridge

bridge: [IEC2382-25 25.01.12] A functional unit that interconnects two local area networks that use the same logical link control protocol but may use different medium access control protocols. Local area networks (LANs) and metropolitan area networks (MANs) are example of subnetworks that a bridge may interconnect.

---

[35] This definition not applicable [IEEE 100 (C/MM) 1596-1992 (modified)] The closed path formed by the connection that provides feedback from the output link of a station to its input link. This connection may include other nodes or switch elements

[36] To be used only with the definition of *ring* that references *congruent ringlets*.

[37] Not appropriate: **(2)** [802.5-1998 1.3.57] Section of transmission path bounded by repeaters or converters[37]. Ring segment boundaries are critical for determining the transmission limits that apply to the devices within the segment. **(3)** [IEEE 100 (C/LM) 802.3u-1995, 802.9a-1995] The portion of a ringlet[37] between the producer and consumer along which a packet is sent. The segment traversed by a send packet is the send segment, and the segment traversed by an echo is the echo segment. **(4)** [IEEE 100 (C) 610.6-1991] The medium connection[37], including connectors, between medium dependent interfaces in a LAN.

[38] The definition that appears in IEEE 100 is not applicable: The direction of data flow along a bus, i.e., away from the Head of Bus function. (C/LM) 8802-6-1994

[39] The definition that appears in IEEE 100 is not applicable: The direction along a bus that is towards the head of bus function. This is opposite to the direction of data flow along a bus. (C/LM) 8802-6-1994

Bridged network (modified): [(C/LM) 10038-1993, 802.1G-1996] A concatenation of individual networks interconnected by MAC Bridges.

transparent bridging: [(C/LM) 8802-5-1995] A bridging mechanism in a bridged network that is transparent to the end stations.

<encapsulating bridge: ?[40]> (Bob Castellano)

address

broadcast address: [ISO/IEC2382-25 25.01.13] A group address that identifies the set of all *stations* on the *network*.

individual address: [ISO/IEC2382-25 25.01.14] An *address* that identifies a particular *station* on a *network*.

group address: [ISO/IEC2382-25 25.01.15] An *address* that identifies a group of *stations* on a *network*.

multicast address: [ISO/IEC2382-25 25.01.16]. A *group address* that identifies a subset of the *stations* on a *network.*

all-stations MAC address: [ISO/IEC2382-25 ????]. (Brian Holden)

frame/packet

MAC frame (frame)(: **(1)** [IEEE 100 (C/LM) 802.12-1995] The logical organization of control and data fields (e.g., addresses, data, error check sequences) defined for the MAC sublayer[41]. Note: The term frame can be prefixed with an orientation (*ingress*, *egress*, *inbound*, *outbound*) or an operation (*inserted*, *copied*, *stripped*, *transit*).

data frame[42]: **(1)** A *frame* carrying *user data* (including *upper-layer* control information).
control frame: A *frame* carrying only *MAC layer* control information[43].

packet: **(1)** A *frame* to which has been added those fields that are medium dependent.**protocol data unit (PDU)**: [802.5-1998 1.3.46] Information delivered as a unit between peer entities that contains control information and, optionally, data.

service data unit (SDU): [802.5-1998 1.3.59] Information delivered as a unit between adjacent entities that may also contain a PDU of the upper layer.

maximum transfer unit (MTU): [IEEE 100 610.7-1995 (modified)] The largest payload that can be transferred across a given physical network in a single frame.

maximum frame size (MFS): The maximum number of bytes in a frame.

stream/flow/conversation

data-stream (stream): [(C) 610.10-1994 (modified)] A continuous stream of data elements being transmitted.

---

[40] Appears that discussion of bridging other that to indicate support for current 802.1D may be beyond the scope of 802.17.

[41] Omitted sentence: "The MAC frame may be constructed in either ISO/IEC 8802-3 or ISO/IEC 8802-5 format.

[42] Note that these alternatives have very different meanings.

[43] Seems useful to qualify frames as data or control. 802 doesn't seem to use the term *data* in this way.

conversation: [IEEE 100 (C/LM) 802.3 ad-2000] A set of *MAC frames transmitted* from one *end station* to another, where all of the *MAC frames* form an ordered sequence, and where the communicating *end stations* require the ordering to be maintained among the set of *MAC frames* exchanged.

flow The collection of *frames* associated with a *conversation* that can be identified by one or a combination of specific values carried in the *protocol headers* at the *MAC layer* or above[44].

orientation

inbound[45] **:** The direction of *frame* arrival at a *station* from a *ringlet*.

outbound[46] **:** The direction of *frame* departure from a *station* to a *ringlet*.

ingress[47] **: (1)** The direction from the *MAC client* towards the *ring or MAC sublayer.* **egress**[48] **: (1)** The direction towards the *MAC client* from the *ring or MAC sublayer.*

operation

insert[49] **(insertion) :** The placement of an *ingress frame* on the *ring* by a *station*.

strip (stripping) : The removal of a *frame* from the *ring* at a *station*. **destination stripping**: The removal of *frames* by the *destination station*.

source stripping : The removal of *frames* by the *source station*.

copy (copying) : Replication of an inbound frame by the MAC sublayer (independent of whether or not the frame is stripped).

passthru The passing of a *frame* through a *station* via the *ring*[50].

transmit (transmission) : (1) [(C/LM) 802.5-1989s, 8802-5-1995 (modified)] The action of a station generating a frame[51] and placing it on the medium. **(2)** The sending of a *frame* on a *link* by a *station*. **(3)** [ISO/IEC2382-09 9.01.02]. The transfer of data from one point to one or more other points over telecommunications facilities. **(4)** [IEEE 100 610.5-1990] To send data from one place for reception elsewhere.

data transmission: *transmission*

receive (receipt, reception) : The acceptance of a *frame* from the *ring* by a *station*.

transfer : [ISO/IEC2382-09 9.03.01] To send from one location and receive at another. Used also for the movement of an SDU from one layer to an adjacent layer.

prepend: [802.3-2000 1.4.218] To append to the beginning. For example, a Media Access Control (MAC) frame is prepended with a preamble, and appended with a frame check sequence (FCS).

---

[44] This would correspond, for example, to the 5-tuple currently used in IP flow classification.

[45] (C/LM) 802.7-1989 is not applicable

[46] (C/LM) 802.7-1989 does not applicable.

[47] (C/LM) 802.7-1989 is not applicable.

[48] (C/LM) 802.7-1989 is not applicable.

[49] (C/LM) 11802-4-1994 is not applicable.

[50] Includes the case of wrapping, if supported.

[51] Elided ', token, abort sequence, or fill'

encapsulation: [ITU I.233.1 (modified)] A process by which an interface device places an end device's protocol-specific *frames* inside a *MAC frame*. The *network* accepts only *frames* formatted specifically for the *MAC*; hence, interface devices acting as interfaces to an *RPR network* must perform *encapsulation*.

broadcast: [802.5-1998 1.3.10] The act of sending a frame addressed to all stations.

time/rate

bit rate: **(1)** [ISO/IEC2382-09 9.03.01] The speed at which bits are transferred. **(2)** [802.3-2000 1.4.47] The total number of bits per second transferred to or from the Media Access Control (MAC).

bit time: (BT): [802.3-2000 1.4.50] The duration of one bit as transferred to and from the *Media Access Control (MAC).*The *bit time* is the reciprocal of the *bit rate*. For example, for 100BASE-T the *bit rate* is 10 – 8 s or 10 ns

actual transfer rate: *transfer rate*

transfer rate: [ISO/IEC2382-09 9.05.21] The average number of bits, characters or blocks *transferred* per unit time between two points.

effective transfer rate: [ISO/IEC2382-09 9.05.22] The average number of bits, characters or blocks transferred per unit time between two points and accepted as valid at the destination.

access rate: [FRF Glossary (modified[53])] The *data rate* of the user access channel. The speed of the access channel determines how rapidly (maximum rate) the end user can inject data into a *network*.

bandwidth: [FRF Glossary (modified)] The range of frequencies, expressed in Kilobits per second, that can pass over a given *data transmission channel* within a *network*. The *bandwidth* determines the rate at which information can be sent through a channel - the greater the *bandwidth*, the more information that can be sent in a given amount of time [54].

time-to-live (TTL): Value carried in the *protocol header* of a *PDU* in order to allow the discard of a *PDU* that has transited a sufficient number of stations (or nodes) that a looping condition is inferred. The *TTL* value is generally set to an initial value at the source and decremented at each subsequent hop. The *PDU* is discarded when the *TTL* value reaches zero.

activation

plug-and-play : **(1)** [BH] The requirement that a station be capable of Topology Discovery and optional insertion and drop of user frames without manual intervention other than the physical connection of the equipment. **(2)** The property that a *station* be *operational* some time after physical *insertion* of the *station* into the *ring* and *power-on* of the *station*, without a requirement for explicit *station provisioning* or *configuration*

operational : **(1)** The state of a *station* in which it *transits traffic*, *sources/sinks traffic* consistent with any explicit or default *provisioning*, *sources/sinks traffic* of the *best-effort traffic*

---

[52] Wording modified from 'frame relay' to 'MAC', used 'how rapidly' (from FRF Glossary) instead of 'how much data' (from I.233).

[53] Changed 'frame relay network' to 'network'.

[54] Changed 'frame relay network' to 'network'.

class without *provisioning*, and performs *control* activities associated with the steady-state. **(2)** The state of a *station* in which it *transits traffic*, *sources/sinks traffic* consistent with any explicit or default *provisioning*, and performs *control* activities associated with the steady-state.

discovery[55]

hello message : [BH] The generic term for a *topology discovery protocol* message which announces the presence of a *station*.

neighbor : [BH] A *station* that is exactly one *segment* away.

upstream neighbor : [BH] The upstream station that is exactly one *link* away.

downstream neighbor:: [BH] The *downstream station* that is exactly one link away.

partitioned ring : [BH] When a *ring* is broken into two non-communicating *partition segments.*

partition segment : [BH] One portion of a *partitioned ring.*

partition healing : [BH] When the *partition segments* of a *partitioned ring* are reconnected.

station introduction : [BH] Introducing a *station* into an existing ring[56].

station removal : [BH] Removing a *station* from a *ring*

insertion disable : [BH] A *network management* command which disables the *insertion* of *traffic* onto a *ring* by a given *station*

station capability : [BH] The representation of the capabilities of a given station

link capability : [BH] The representation of the *capabilities* of a given *link*

station status : [BH] The current state of *operation* of a given *station*

link status : [BH] The current state of *operation* of a given *link*

MAC Address Query: : [BH] A request by one *station* for the *MAC address* of another *station*.

topology/path selection

topology: [IEEE 100 610.7-1995] <(A) The interconnection pattern of nodes on a network.> (B) The logical and/or physical arrangement of *stations* on a *ring*[57].

path: **(1)** A specific sequence of *stations* and *links* traversed by a *frame* in *transit* between two *stations*. **(2)** [IEEE 100 (C/MM) 1394-1995] The concatenation of all the physical links between the link layers of two nodes.

topology database update (TDU): A *control frame* propagated for the purpose of distributing information regarding *ring* topology.

topology database : **(1)** A representation of the connectivity and capabilities[58] of *stations* and *links* on the *ring*. **(2)** A representation of the connectivity of *stations* and *links* on the *ring*.

---

[55] These definitions were contributed by Brian Holden and have not been modified.
[56] 802 overloads the term 'insertion' for station introduction.
[57] Replaced 'network' with 'ring'.
[58] 'and capabilities' proposed by Brian Holden. 'Inevitably we will end up with at least one bit of standards-based optional capability which will need to be stored in the database….BH

topology discovery : The process by which the connectivity and capabilities of the stations and links on the ring is discovered by a newly added station.[59]

path selection : The decision made at the ingress station as to the *link* (or *ringlet*) on which a *frame* is to be *transmitted*.

protection (resilience)

steering: The placement of a *frame* on a specific *ringlet* at the *ingress station* based on knowledge of the *ring* topology[60].

wrapping: (1) [IEEE 100 (C/LM) 802.5c-1991] Reconfiguration function that involves dual ring stations using contra-rotating links to avoid a failed link or node. **(2)** The *transit* of a *frame* such that the *frame* is *received* on one *ringlet* and *retransmitted* on the *opposing ringlet*[61].

buffer: (1) [IEEE 100 610.12-1990, 610.5-1990] A device or storage area used to store data temporarily to compensate for differences in rates of data flow, time of occurrence of events, or amounts of data that can be handled by the devices or processes involved in the transfer or use of the data. **(2)** An area of memory used for temporary storage of *frames*.

egress buffer: *MAC layer buffer* storing *frames* received from the *PHY-layer* and awaiting *transfer* to the *upper-layer*.

ingress buffer: *MAC layer buffer* storing *frames* received from the *upper-layer* and awaiting *transfer* to the *PHY-layer*.

transit buffer [HvA-Alt]: *MAC buffer* used to store all or part of a *transit frame* before *retransmission*.

insertion buffer [HvA-Alt] : A type of *transit buffer* used to store all or part of a *transit frame* or *frames* awaiting completion of an *ingress frame transmission* in progress**[62]**.

shaping buffer : A *buffer* intended to store bursts of *ingress traffic* that fall within a *maximum burst size (MBS)*.

queue

queue: (1) [IEEE 100 (C/SE) 729-1983s] A list that is accessed in a first-in, first-out manner. **(2)** The organization of a *buffer* such that *frames*, or portions of *frames*, can be removed from the *buffer* in the same order in which they were placed in the *buffer*. Note: The term *queue* can be prefixed with any term or terms with which the term *buffer* is prefixed, indicating a *buffer* of the specified type that is organized as a *queue*.

queue element: The unit of storage that is added to or removed from a *queue* in a single operation.

---

[59] I'm really unclear on whether the concepts of topology database update and discovery should be coupled.
[60] *Steering* provides resilience by directing *frames* on a *ringlet* that does not *transit* a failed *link* or *station*.

[61] The definition describes the case of a dual-ring as agreed in the May meeting. In the case of a multi-ring, this might be changed to 'an opposing ringlet' or 'a different (or alternate) ringlet'. It might also be unchanged, depending on what is considered to be a useful definition of wrapping in the multi-ring environment.,
[62] The *insertion buffer* does not necessarily operate in *cut-thru mode* as implied by Harmen's definition of an *insertion buffer* as a '*MAC buffer* operating in *cut-through mode*'). An *insertion buffer* is equal in size to the *MTU* of the local *station* as a *transit frame* need wait at most the time required for the *ingress frame transmission* in progress to complete.

queue depth: The number of *queue elements* on a *queue*.

delay and latency

latency: [HvA-Ed] **(1)** The time it takes for information to get through a *network*, sometimes referred to as *delay*. **(2)** [(C/LM) 8802-5-1995] The time, expressed in number of symbols, it takes for a signal to pass through a *ring* component.

ring latency: (1) [802.5 1.3.54] The[63] time (measured in bit times) it takes for a signal to propagate once around the ring. The ring latency time includes the signal propagation delay through the ring medium plus the sum of the propagation delays through each station or other element in the data path connected to the[64] ring[65]. **(2)** [8802-25 25.04.03] The *ring latency* includes the *signal propagation delay* through the *ring medium*, including *drop cables*, plus the sum of the *propagation delays* through each *data station* connected to the *ring* and is related to the *data transmission rate.*

propagation delay: **(1)** [HvA-Ed] Time required for a *signal* to traverse the *transmission medium*. **(2)** [IEEE 100 610.7-1995] In networking, the *delay time* between when a signal enters a channel and when it is received.

ingress queue delay [HvA-Ed]: Time interval between the *enqueue* of a *frame* to the *ingress queue* and that *frame* reaching the *head* of the *ingress queue*.

egress queue delay [HvA-Ed]: Time interval between the enqueue of a *frame* to the *egress queue* and that *frame* reaching the head of the *egress queue*.

medium access delay [HvA-Ed]: Time interval between an *ingress frame* reaching the head of the *ingress queue* and that *frame* gaining *access* to the *medium*, excluding *frame transmission time*.

ring end-to-end delay[66] [HvA-Ed]:: Time required for a frame to travel from a *source* to *a destination station* on the same *ring* as measured from the time that the *frame* is delivered to the *physical layer* at the *source station* to the time that the *frame* is delivered to the *MAC layer* at the *destination station*.

MAC end-to-end delay [HvA-Ed]: Time required for a *frame* to travel from a *source station* to a *destination station* on the *ring* as measured from the time that the *frame* is fully *transferred* to the *MAC layer* at the *source station* to the time that the *frame* is fully transferred to *upper-layer* at the *destination station*.

<round trip propagation time: [IEEE 802.3 25.01.15].Twice the time for a bit to travel between the two most distance. (not clear how this would be defined in the 802.17 context)>

<compression delay [HvA-Ed]: Time required to encode the information sent by a real-time source such as live video in order to reduce the amount of data transmitted.>

<packetization delay [HvA-Ed]: Time required to fill a packet with information from a real-time source.>

---

[63] Removed 'In a token ring,'.

[64] Removed 'token'.

[65] This definition could be adapted in order to provide consistency with token ring but values would vary with traffic class for RPR.

[66] Describe how this differs from *ring latency*.

<protocol stack delay [HvA-Ed]: Time required to process *PDUs* in the *upper protocol layers*.>

<decompression delay [HvA-Ed]:: Time required to restore the format of a received compressed packet before relaying it to the acoustical and/or video equipment.>

<playout buffer delay[67] **[HvA-Ed]:** *Delay* enforced on the receive-side of a real-time communication in order to achieve a constant *user end-to-end delay*.>

user end-to-end delay [HvA-Ed]: Total *delay* between two end-users or applications.

station transit delay[68] **[HvA-Alt]:** Time between the arrival of a *start-of-frame* at the *transit buffer* and the *retransmission* of the *start-of-frame* on the *medium*.

transit delay[69]**:** [ITU I.233.1 A.2] Transit delay of a frame starts at the time t1 at which the first bit of the frame crosses the first boundary, and ends at the time t2, at which the last bit of the frame crosses the second boundary. Transit delay = t2 – t1.

transit buffer delay [HvA-Alt]:]: Component of *transit delay* associated with the buffering of a *frame* (or portion of a *frame*) until the time of its *retransmission*.

insertion buffer delay [HvA-Alt]: : Identical to *transit buffer delay* in the special case where a *buffer insertion ring* is deployed[70]**.**

frame transmission time [HvA-Ed]: Time required to *transfer* a complete *frame* to the *medium* after *access* is acquired.

latency : *delay*[71]

control latency[72] : Interval between the time that a *control frame* is sent from a *station* and the time that the effect of that *control frame* is visible at the issuing *station*.

<div align="center">

fairness

</div>

fairness: The assignment of *transmission-ring ingress rates* such that available *capacity* is shared equitably according to a specified algorithm.

weighted-fairness: A class of *fairness algorithm* that allows the assignment of *unequal* shares of *ring capacity.*

simple-fairness: A class of *fairness algorithm* that assigns *equal* shares of *ring capacity.*

fairness protocol [HvA-Ed]: That portion of the *RPR MAC protocol* that ensures *fairness.*

fairness algorithm: Algorithm that ensures *fairness* among *RPR MAC users.*

---

[67] The value of *playout buffer delay* is equal to that of the maximum *jitter*.

[68] The term *station* is used to qualify the term *transit-delay* since the term *transit-delay* is used by *frame relay* to indicate *end-to-end transit delay*.

[69] The term *station* is used to qualify the term *transit-delay* since the term *transit-delay* is used by *frame relay* to indicate *end-to-end transit delay*.

[70] Harmen's definition of *insertion buffer delay*, 'Time required for a packet to pass through the insertion buffer operating in cut-through mode', implies that cut-thru mode is *always* deployed in a BIR. This is not the case. A BIR may deploy store-and-forward or cut-thru for transit traffic.

[71] In English usage, delay has a more negative connotation than latency, but 802 states that they are synonyms.

[72] On the exploder, control latency has been related to round-trip delay. Can someone provide an exact definition of round-trip delay in the RPR context?

global fairness [HvA-Ed]: The assignment of *transmission ring ingress rates* such that globally available *ring capacity* is partitioned equitably according to a specified algorithm.

local fairness [HvA-Ed]: The assignment of *transmission ring ingress rates* in excess of those assigned by the *global fairness algorithm*, intended to use of locally available *capacity* made available by *spatial reuse*.

fairness period [HvA-Ed]:: Time between adjustments in *ring ingress rates* by the *fairness algorithm*.

<bandwidth allocation (BWA):: (alternative term for fairness)

<dynamic bandwidth allocation:: (alternative term for fairness)>

<dynamic bandwidth allocation algorithm:: (alternative term for fairness)>

<div align="center">

rate control

</div>

rate control [HvA-Ed]: Limitation of the *traffic rate* in bytes over a specified time interval.

ingress rate control: *Rate control* performed at the *ring ingress*.

<div align="center">

error checking

</div>

frame check sequence (FCS) : **(1)** [IEEE 100 (C/LM) 802.12-1995] *A Cyclic Redundancy Check (CRC) used by the transmit and receive algorithms to detect errors in the bit sequence of a MAC frame.* **(2)** [IEEE 100 (EMB) 1073.3.1-1994] The field immediately preceding the closing delimiter of a *frame*. The *FCS* used is the 16 b polynomial defined by the *cyclic redundancy check* sequence specified by ITU-T (RC-ITU-T). This field allows the detection of errors by the receiving station **(3)** [IEEE 100 610.7-1995] A field in a *bit-oriented protocol frame* containing the remainder of the *cyclic redundancy check* calculation on the contents of the *frame*.

cyclic redundancy check (CRC): A form of error check used to ensure the accuracy of *transmitting* a message. Note: The *CRC* is the result of a calculation carried out on the set of *transmitted bits* by the *transmitter*. The *CRC* is encoded into the *transmitted signal* with the data. At the *receiver*, the calculation creating the *CRC* may be repeated, and the result compared to that encoded in the signal. The calculations are chosen to optimize the error detection capability.

information integrity: [ITU I.233.1 A.2 (modified[73])] Describes a condition such that all *frames* delivered by the *network* satisfy *the FCS validation check*.

verified frame:[802.5-1998 1.3.79 (modified[74])] A valid *frame* addressed to the *station*, for which the information field has met the validity check.

error detection [(BA/C) 896.9-1994] The action of identifying that a system state is erroneous.

<div align="center">

congestion / flow control

</div>

flow control:: **(1)** [IEEE 100 (EMB) 1073.3.1-1994] A mechanism used in open systems to regulate data communications to ensure that no data is lost in the case of insufficient buffer size, or other limited resources. Flow control is done using receive not ready (RNR), receive ready (RR), and the flow control primitives. Flow control in devices or systems entails operations from the Data Link through the Application layer. **(2)** [(C/MM) 1212.1-1993] A mechanism for

---

[73] Changed 'Information integrity is preserved when' to 'describes a condition such that'
[74] Removed some token ring specific wording.

signaling the producer when messages may or must not be sent. It is used to avoid overrunning the limits of the consumer, memory, queue-depth, or message-passing facilities.

pause: : [802.3-2000 1.4.209] A mechanism for full duplex *flow control*.

backpressure [HvA-Ed]: Sending of a *control frame* towards the *traffic source*, via the *opposing ring*, to stop or slow the flow of *traffic*.

throttle: Sending of a *control frame* to the *traffic source*, via the *opposing ring,* to stop or slow the flow of *traffic*.

congestion control [ITU I.233.1 A.9] Real-time[75] mechanisms to prevent and recover from congestion during periods of coincidental peak *traffic* demands or network overload conditions (e.g. resource failures). *Congestion control* includes both congestion avoidance and congestion recovery mechanisms.

congestion management [ITU I.233.1 A.10] This includes network engineering, OAM procedures to detect the onset of congestion, and real-time mechanisms to prevent or recover from congestion. Congestion management includes, but is not limited to, congestion control, *congestion avoidance*, and *congestion recovery*[76].

congestion avoidance [ITU I.233.1 A.11] [77]Procedures initiated at or prior to the onset of mild congestion in order to prevent congestion from becoming severe. *Congestion avoidance* procedures operate around and within the regions of mild congestion and severe congestion.

congestion recovery [ITU I.233.1 A.12] Procedures initiated to prevent congestion from severely degrading the end user perceived *quality of service*(s) delivered by the *network*. These procedures are typically initiated when the *network* has begun *to discard frames* due to congestion. *Congestion recovery* procedures operate around and within the region of severe congestion.

discard eligibility (DE) [FRF glossary] Discard Eligibility (DE) A bit indicating that a frame may be discarded in preference to other frames if congestion occurs, to maintain the committed quality of service within the network. Frames with the DE bit set are considered Be excess data. See also Excess burst Size (Be).[78]

quality of service[79] (QoS)

quality of service (QoS): One or a combination of measurable properties (parameters) defining the requirements of a given data service. QoS parameters associated with *RPR* are *throughput*, *delay*, *jitter*, *frame loss*, and *availability*.

bit error ratio (BER) : [802.3-2000 1.4.47[80]] The ratio of the number of bits received in error to the total number of bits received.

---

[75] Elided 'this refers to'.

[76] Elided 'as defined below'.

[77] Elided 'Congestion avoidance procedures refer to'.

[78] Elided 'user-set'

[79] IEEE 802 and ISO/ITU LAN/MAN standards do not currently specify *quality of service*. ITU I233.1 does specify QoS for a frame relay bearer service. While frame relay and RPR differ in their connection-orientation, they are similar in that they both use frames as their unit of data transfer (vs. e.g. ATM) and both support QoS. The frame relay QoS model has been widely deployed by service providers and is well understood by customers. Frame relay terminology related to QoS is for RPR where applicable (in some cases with changes to the term or definition).

throughput [ITU I.233.1 A.1(modified[81])] The number of data bits contained between the *MAC header* and the *MAC trailer* (exclusive) successfully transferred from *source MSAP* to *destination MSAP*(s) per unit time. Successful transfer means that the *FCS* check for each frame is satisfied.

jitter:: Variation in delay.

uncorrelated jitter:: [802.5-1998 1.3.76] The portion of the total jitter that is independent of the data pattern. This jitter is generally caused by noise that is uncorrelated among stations and therefore grows in a non-systematic way along the ring. Uncorrelated jitter is also called noise jitter or non-systematic jitter.

<wander:: GR-253 GR-1244>

burstiness: [FRF Glossary (modified[82])] Data that uses *bandwidth* only sporadically; that is, information that does not use the total *bandwidth* of a circuit 100 percent of the time. During pauses, channels are idle; and no *traffic* flows across them in either direction. Interactive and LAN-to-LAN data is *bursty* in nature.

committed burst size (Bc): [ITU I.233.1 A.5 (modified)[83]] The maximum amount of data (in bits) that the *network* agrees to *transfer*, under normal conditions, during a time interval Tc.

excess burst size (Be): [ITU I.233.1 A.6 (modified)[84]] The maximum amount of data by which a user can exceed Bc during a time interval Tc. This data (Be) is delivered in general with a lower probability than Bc.

committed rate measurement interval (Tc): [ITU I.233.1 A.7 (modified[85])] The time interval during which the user is allowed to send only the committed amount of data (Bc) and the excess amount of data (Be).

committed information rate (CIR) [ITU I.233.1 A.8 (modified[86])] The information transfer rate which the network is committed to transfer under normal conditions. The rate is averaged over a minimum interval of time (Tc).

residual error rate [ITU I.233.1 A.13 (modified[87])] As applied to *MAC layer* service: (1 − (total correct MAC SDUs delivered)/(total offered MAC SDUs)).

delivered errored frames [ITU I.233.1 A.14 (modified[88])] The number of *frames* for which the value of one or more of the bits in the *frame* is in error, or when some, but not all, bits in the *frame* are lost bits or extra bits (i.e. bits that were not present in the original signal).

---

[80] 802.5-1998 has approximately the same definition exc ept that they refer to the term incorrectly as Bit Error *Rate*.

[81] frame relay format, connection, etc. changed to MAC.

[82] Elided "In the context of a frame relay network" and "because it is sent intermittently, and in between data transmissions the channel experiences idle time waiting for the DTEs to respond to the transmitted data user's input of waiting for the user to send more data."

[83] Version from FRF Glossary.

[84] Elided 'Be is negotiated at call setup'.

[85] Elided 'Tc is computed.'

[86] Elided 'CIR is negotiated at call setup'

[87] Need help with this one.

[88] Changed 'A delivered frame is defined to ba an errored frame when' by 'The number of frames for which'

delivered duplicated frames [ITU I.233.1 A.15 (modified)] A *frame received* at a *destination* such that the frame was not generated by the *source station* identified by the *source address* and the *frame* is exactly the same as a *frame* that was previously delivered to that *destination*.

delivered out-of-sequence frames [ITU I.)33.1 A.16 (modified)] A frame (Ft) arriving at a *destination station* after a *fame* F_{t+1}, F_{t+2}, F_{t+3} …., F_n in a sequence of *frames* F_1, F_2, F_3, …. , F_n sent from a *source station*.

lost frames [ITU I.233.1 A.17 (modified[89])] A *frame* not delivered to the intended *destination* user within a specified time-out period, and the *network* is responsible for the non-delivery.

loss (frame loss) The occurrence of *lost frames*.

misdelivered frames [ITU I.233.1 A.16 (modified)] A *frame transferred* from a *source* to a *destination* user other than the intended *destination user*. It is considered inconsequential whether the information is correct or incorrect in content).

QoS parameters [ITU I.233.1 3.1] Parameters whose values characterize offered service quality: *throughput*; *access rate*; *committed information rate*; *committed burst size*; *excess burst size*; *transit delay*; *residual error rate*; *delivered errored frames*; *delivered duplicated frames*; *delivered out-of-sequence frames*; *lost frames*; and *misdelivered frames*[90].

guaranteed-service (GS)): Service that assures specific QoS parameter values, for some specified portion of the service period.

<low-loss guaranteed-service (LLGS): A guaranteed service having the property that loss is small.>

<low-delay guaranteed-service (LDGS): A guaranteed service having the property that delay/jitter is a relatively small.>

best-effort service (BES): A service not providing any guarantees but which may provide fair access to available ring bandwidth.

service level definition[91]

service level agreement (SLA): Contract between a network service provider and a customer that specifies, usually in measurable terms, what services the network service provider will furnish.

service level definition : Contract between a network service provider and a customer that specifies, usually in measurable terms, what services the network service provider will furnish.

frame transfer delay (FTD) [FRF.13 section 3] The difference in milliseconds between the time a frame exits a source and the time the same frame enters the destination[92].

---

[89] Elided 'A transmitted frame is declared to be a lost frame when the'. Is 'user' the 'MAC client'?

[90] ITU X.200 5.10.2.2.1 provides an alternative list but that list contains at least one questionable parameter (priority) and is not as specific as the I.233 list.

[91] RPR service level definitions adopt terminology from frame relay service level definitions as both offer a frame-based service to subscribers. RPR definitions use the term *data stream* instead of *connection* to reflect the connectionless nature of the RPR. Another source of definitions is the document *An Assured Rate Per-Domain Behaviour for Differentiated Services*   <draft-ietf-diffserv-pdb-ar-00.txt>, and related documents, that treat similar issues in the context of the IETF Differentiated Services Working Group.

[92] Longer, formal definition is provided in FRF.13.

frame delivery ratio (FTR） [FRF.13 section 4] The ratio of successful frame receptions to attempted frame transmissions. Attempted frame transmissions are referred to as Frames Offered. Successfully delivered frames are referred to as Frames Delivered. These loads may be further differentiated as being within the committed information rate or as burst excess[93].

data delivery ratio (DDR） [FRF.13 section 5] Reports the network's effectiveness in transporting offered data (payload without address field or FCS)[94]. The DDR is a ratio of successful payload octets received to attempted payload octets transmitted. Attempted payload octets transmitted are referred to as DataOffered. Successfully delivered payload octets are referred to as DataDelivered. These loads are further differentiated as being within the committed information rate or as burst excess[95].

service availability [FRF.13 section 6] parameters report the operational readiness of individual frame relay virtual connections. Service availability is affected by outages that interrupt the transport of frame relay traffic[96].

<u>**class of service (CoS)**</u>

class of service (CoS): The grouping of traffic that shares the same *relative* delivery priority.

<u>**traffic class[97]:**</u>

traffic class: The grouping of *traffic* that shares the same of rules for *ring access* and *ring transit[98]*.

<u>**transit**</u>

<repeat [802.5-1998 1.3.50] The action of *receiving* a bit stream (for example, frame, token, or fill) and placing it on the *medium*. Stations repeating the bit stream may copy it into a buffer or modify control bits as appropriate.>

clump (clumping)[99] : A string of two or more *contiguous transit frames*.

cut-thru: The transit of a frame through a node such that the first bit of the frame is retransmitted before the last bit is received[100].

store-and-forward: A method of *transit* such that *all* bits of *the frame* are *received* and *buffered* before retransmission begins[101].

buffer insertion ring (BIR): A *ring* that allows *transit frames* to be *transmitted* ahead of *ingress frames* except when an *ingress frame* already begun *transmission*. A station contains a

---

[93] Longer, formal definition is provided in FRF.13.

[94] Omitted 'in one direction of a single virtual connection'

[95] Longer, formal definition is provided in FRF.13.

[96] Longer, formal definition is provided in FRF.13.

[97] Bob Love has proposed a table describing the names and properties of traffic classes. I have not yet integrated this suggestion. The proposal can be found at http://www.ieee802.org/rprsg/public/email/msg00414.html.

[98] Need a better definition.

[99] 'train' is an alternative.

[100] LAN switches typically perform cut-thru of 802.3 frames after reception of the destination *MAC address* (first six bytes of the *frame*). LAN switch cut-thru is not described in 802.1D but is left as a device specific feature. The frame check is not performed for frames that are cut-thru.

[101] The definition that appears in 09.07.13 ISO/IEC 2382-9 1995, 'A mode of operation of a *data network* in which data are temporarily stored before they are *retransmitted* toward the *destination*', is ambiguous, as it is not clear whether 'data' refers to a complete *frame* or some portion of a *frame*.

transit buffer (*insertion buffer*) of sufficient size to store *transit frames received* during the time that an *ingress frame* is being *transmitted*. In the worst case, a *transit frame* is delayed by the time required to *transmit* a *frame* of the *MTU size* at each *station* along the *path*.

buffer insertion method: The method of using a *BIR* for ring transport and access. The buffer insertion method can be applied to all *traffic* on the *ring* or to one or more specific *traffic classes*.

transit queuing: A method of *ring transit* in which *transit traffic* is *queued* to allow *transit* or *insertion* of *traffic* of *higher priority*.

MTU transparency: The *transit* of *frames* of any *MTU size* not addressed to the local *station*.

preemption[102]**[HvA-Alt]:** The interruption of transmission of a frame in order to send a frame of higher priority.

non-destructive preemption: The case of preemption where the remaining portion of a preempted frame is delivered at a later time.

destructive preemption: The case of preemption where part or all of the preempted frame is discarded.

fragment[103]**:** A portion of an frame whose transmission is interrupted by preemption.

<transit mode>[104]

<full cut-thru mode: A mode of operation in which all *transit frames* are *cut-thru*[105]. >

<partial cut-thru mode: A mode of operation in which *transit frames* are *cut-thru* when there is not a *frame* in *transmission*[106].>

<cut-thru mode [HvA-Alt]: A generic term describing partial or full *cut-thru* modes.>

<store-and-forward mode[107] **[HvA-Alt]:** A mode of operation in which the *store-and-forward* method is applied to every *transit frame.*>

spatial reuse

spatial reuse [HvA-Ed]: Generic term referencing global spatial reuse and/or local spatial reuse.

global spatial reuse: The utilization of ring capacity by other *stations* when the *station* to which the *capacity* is assigned does not utilize that *capacity*.

---

[102] This term was called *packet preemption* in Harmen's posting.

[103] *Fragments* can be reassembled into complete *frames* or discarded at the *station* immediately *downstream* from the *station* where *preemption* occurred. Alternatively, *fragments* can be *reassembled* into complete *frames* or discarded at the *destination*, but in the case of *destination reassembly,* it must be possible to identify the *source* of each *fragment*, as *fragments* from different *stations* may be interleaved.

[104] Could probably omit these 'modes'.

[105] *Full cut-thru mode* implies that transit frames *preempt* frames in transmission. The *cut-thru transit traffic* experiences low *delay* at the expense of higher *delay* for *add-traffic*.

[106] *Partial cut-thru mode* can improve average *transit-buffer delay*, but not worst-case *transit-buffer delay*. If some *frames* are *cut-thru* and others are not, then any improvement in average *transit-buffer delay* is offset by increased *jitter*.

[107] ISO/IEC 2382-9 09.07.13 **defines** *store-and-forward* as a *mode*. Here, the word *mode* is added explicitly to the term store-and-forward, to distinguish the case where all frames are *store-and-forward* (*store-and –forward mode*) from the case where a specific *frame* is *store-and-forward*.

local spatial reuse The utilization of the same *capacity* by *stations* on disjoint *segments* of the *ring*.

access

simultaneous access [HvA-Ed]: The insertion of traffic into the ring medium by two or more nodes at the same instant.

shared access: The ability of two or more nodes to share the capacity of the *ring medium*[108].

multiple access: Any technique whereby a number of terminals are able to share the capacity of a transmission channel in a predetermined manner or in accordance with traffic demand.

customer separation

customer separation[109] : The property that data associated with a group of users (e.g. a customer organization) is not communicated to a different group of users.

closed user group (CUG):: [09.08.14, 610.7-1995] A specified group of network users who are permitted communications among themselves but not with other network users.

closed user group identifier (CUGID)): An identifier that uniquely distinguishes a *closed user group*.

VLAN/VMAN

virtual medium (VMedium): : A subset of the active *topology* of a *bridged RPR network*. Associated with each *VMedium* is a *VMedium Identifier (VMID)*.

virtual LAN (VLAN): : [IEEE 100 (C/LM 802.1Q-1998)] A subset of the active *topology* of a *bridged local area network*. Associated with each *VLAN* is a *VLAN Identifier (VID)*.

<QTag prefix: : [802.3-2000 1.4.222] The first four octets of an Ethernet-encoded Tag Header. The Ethernet-encoded Tag Header is defined in IEEE P802.1Q.>

<tagged MAC frame: : [802.3-2000 1.4.269] A frame that contains a QTag Prefix.>

network management

agent:: [802.3-2000 1.4.30] A term used to refer to the managed nodes in a network. Managed nodes are those nodes that contain a network management entity (NME), which can be used to configure the node and/or collect data describing operation of that node. The agent is controlled by a network control host or manager that contains both an NME and network management application (NMA) software to control the operations of agents. Agents include systems that support user applications as well as nodes that provide communications services such as front-end processors, bridges, and routers.

network control host: : [802.3-2000 1.4.176] A network management central control center that is used to configure agents, communicate with agents, and display information collected from *agents*.

---

[108] The definition of *ring latency* in ISO/IEC 2382-25 25.04.03 suggests that the *ring* is modeled as a *shared medium* even if it is not a continuous physical medium.

[109] It was suggested that we use *customer traffic separation* instead.

management information base (MIB): : [802.3-2000 1.4.163] A repository of information to describe the operation of a specific network device.

dual ring management: : [IEEE 100 (C/LM) 802.5c-1991] The management functions of a dual ring station responsible for dual ring reconfiguration.

station management (SMT) : [802.5-1998 1.3.66] The conceptual control element of a station that interfaces with all of the layers of the station and is responsible for the setting and resetting of control parameters, obtaining reports of error conditions, and determining if the station should be connected to or disconnected from the medium.

Alphabetical Listing of Terms (with page references)