This document contains suggested text to resolve comments regarding P802-REVc-d1.0.

3. Definitions, acronyms and abbreviations

3.1 Definitions

3.2 Acronyms and abbreviations

As a part of resolving other CIDs, some new acronyms are needed here.

The following are to be inserted in alphabetical order. The comment(s) that prompts the insertion is indicated at the end of line and will not be put in the draft.

DCN	data center networking (CID 80)
TSN	time sensitive networking (CID 80)

5. Reference models (RMs)

5.3 Interconnection and networking

5.3.2 MAC-sublayer interconnection: Bridges

Comment 80: Add "5.3.2.6 Time sensitive network Bridging" and "5.3.2.7 Data center network bridging" renumbering current 5.3.2.6 to 5.3.2.8.

5.3.2.6 Time sensitive networking (TSN)

TSN features are a set of protocols and mechanisms specified by IEEE 802 standards from which one can select the mechanisms that are best suited to meet the needs of the applications supported by a given network. These TSN mechanisms are add-ons to generic networking mechanisms in order to establish a common network that supports TSN Streams as well as other kinds of traffic. The goals of using TSN features typically include providing guaranteed data transport with low and bounded latency, low and bounded delay variation, and extremely low packet loss for TSN Streams. TSN features evolve and new capabilities are added as part of IEEE 802 standardization efforts. Therefore, the following list is incomplete and just provides a snapshot of TSN features:

a) Timing and Synchronization for Time-Sensitive Applications (IEEE Std 802.1AS-2020 [B1])
b) Credit-Based Shaper: (IEEE Std 802.1Q-2022, 5.4.1.5)
c) Frame Preemption (IEEE Std 802.3-2018 [B6] and IEEE Std 802.1Q-2022, 5.26)
d) Scheduled Traffic (IEEE Std 802.1Q-2022, 8.6.8.4)
e) Cyclic Queuing and Forwarding (IEEE Std 802.1Q-2022, 5.4.1.9)
f) Asynchronous Traffic Shaping (IEEE Std 802.1Q-2022, 5.4.1.10)
g) Per-Stream Filtering and Policing (IEEE Std 802.1Q-2022, 5.4.1.8)
h) Frame Replication and Elimination for Reliability (IEEE Std 802.1CB-2017 [B3])
i) Stream Reservation Protocol (IEEE Std 802.1Q-2022, clause 35.)
j) Link-local Registration Protocol (IEEE Std 802.1CS-2020 [B5])
k) Path Control and Reservation (IEEE Std 802.1Q-2022, 5.4.6)

l) TSN Configuration (IEEE Std 802.1Q-2022, 5.29)

m) Configuration Enhancements for Time-Sensitive Networking (IEEE Std 802.1Qdj-2023)

NOTE-There is no need to apply all the TSN features in a network and none of the TSN features are a requirement. The application area or actual deployment determine which TSN features are used in a given network, e.g., whether or not time synchronization is used. TSN profile standards, e.g., IEEE Std 802.1BA [B2] and IEEE Std 802.1CM [B4] select TSN features and give guidelines on their use in a particular application area.

5.3.2.7 Data center network bridging

The IEEE 802.1 Working Group provides a series of standards and Bridging enhancements for data center networking (DCN) targeted at network congestion for both L2 and L3 data centers and targeted at data center network virtualization. The DCN features can provide high performance congestion loss free networks and support for in server virtualized networking for attachment of containers and virtual machines.

Ed.: The term "data center" has not been defined. We need a definition. What is an L2 data center? Do you mean that DCN is targeted at network congestion in data centers at both the Data Link Layer and Network Layer?

Sublclause 5.2.3.6 is now 5.2.3.8 with the changes shown to address CID 4, CID 37, CID 59, and CID 94

5.3.2.8 Bridging example

Some bridges are used to interconnect access domains that each contain a very small number of end stations (often, a single end station). Others interconnect multiple access domains that contain principally other bridges, thus forming a backbone for the bridged IEEE 802 networks. Bridged IEEE 802 network configurations that involve these kinds of interconnection have become widespread as the technologies have developed. These configurations allow the construction of networks with much larger numbers of end stations and much higher aggregate throughput than was previously achievable.

Figure 1 illustrates an example of a bridged IEEE 802 network that can be configured with bridge-style interconnection. The bridges A and B, and the IEEE 802.3 LAN configurations to which they attach, are typical of the older style of bridged IEEE 802 network in which a bridge interconnects a small number of access domains, each containing many end stations, as is similar with K and L and M~~their IEEE 802.17™ ring~~. ~~The IEEE 802.17 ring~~Bridge M and the IEEE 802.3 connections to M and those between S and T and S and U form backbone networks. On the other hand, the bridges S, T, and U function as bridges that combine~~s IEEE 802.17,~~ IEEE 802.3, and IEEE 802.16™ networks. S and M are ~~is a~~ backbone bridge, handling a number of network attachments. T and U are bridges that support multiple end stations, with connection to a backbone network. B and K also provide access to a backbone network. The end station shown connected to S by a point-to-point link could be a server system.

7. IEEE 802 network management

7.2 General-purpose IEEE 802 network management

7.2.3 Managed object definitions

Comment 83: Add a paragraph in 7.2.3 for YANG: IEEE P802f/D2.0 additions are shown in blue underline***, additions for IEEE P802-REVc are shown in*** green underline***.***

In order for an IEEE 802 standard to specify management facilities, it is necessary for it to specify managed objects that model the operations that can be performed on the communications resources specified in the standard. The components of a managed object definition are as follows:

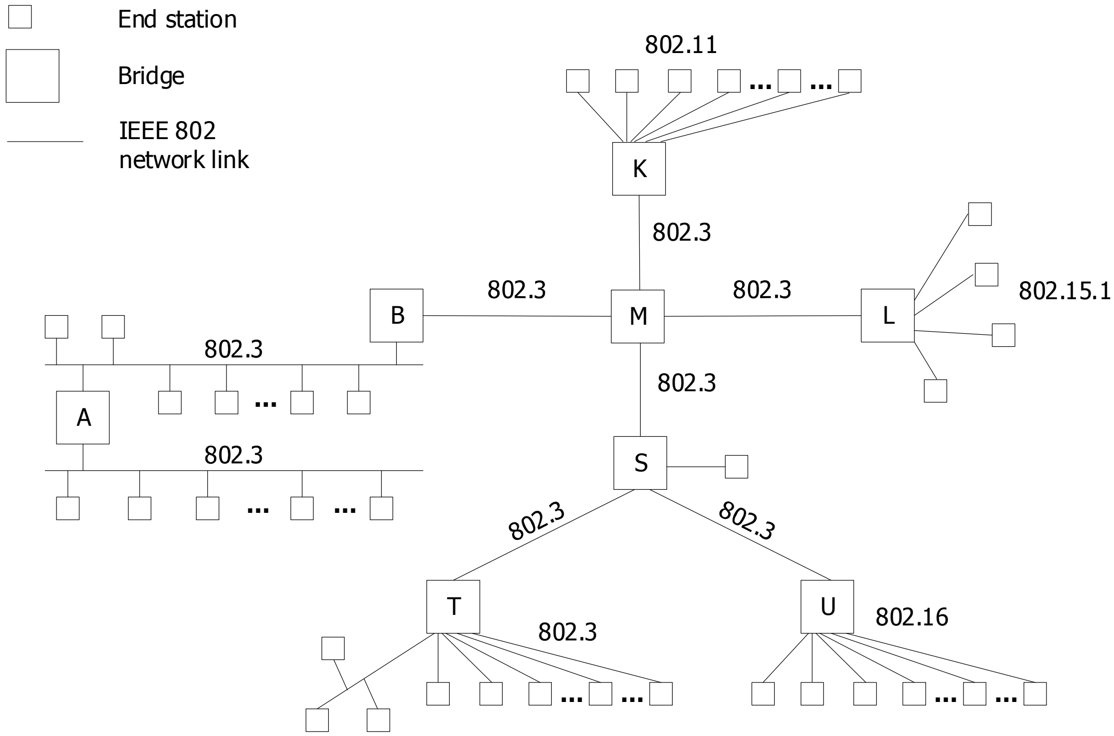

Figure 1—An example of a bridged IEEE 802 network

a) A definition of the functionality provided by the managed object, and the relationship between this functionality and the resource to which it relates.

b) A definition of the syntax that is used to convey management operations, and their arguments and results, in a management protocol.

c) An address that allows the management protocol to specifically communicate with the managed object in question. In IEEE 802 this is done with an object identifier (OID), as described in Clause 10, or a uniform Resource Name (URN), as described in Clause 11.

The functionality of a managed object can be described in a manner that is independent of the protocol that is used; this abstract definition can then be used in conjunction with a definition of the syntactic elements required in order to produce a complete definition of the object for use with specific management protocols.

SNMP is used in many cases together with the structure of management information known as SMIv2 (IETF RFC 2578, IETF RFC 2579 [B6], and IETF RFC 2580 [B7]), which uses a set of macros based on a subset of ASN.1 for defining managed objects. YANG (IETF RFC 7950) is a data modeling language used to model configuration data, state data, remote procedure calls, and notifications for network management protocols.

Historically 802 networks supported management using SNMP MIBs, however YANG is now in commonly used to describe management objects and is supported by many IEEE 802 standards. YANG is described by the IETF RFC7950 and IETF RFC8343. The YANG objects are modeled in the IEEE 802 standards using unified modelling language (OMG UML) diagrams.

Ed. 802.11 still uses SNMP MIBs, so "historical" is not correct. "commonly" should be "common". Where does "OMG" come from in OMG UML? I thought is was UML-like.

The choice of notational tools for defining managed objects depends on which of the available management protocols the standard supports.

Annex A

(informative)

Bibliography

Insert the following bibliography reference into Annex A in alphanumeric order:

[B1]