Timing and Synchronization for Time-Sensitive Applications in Bridged Local Area Networks

Draft PAR

January 11, 2006

Title (4)

Draft: IEEE Standard for Local and Metropolitan Area Networks – Timing and Synchronization for Time-Sensitive Applications in Bridged Local Area Networks

PAR Scope (13)

- This standard specifies the protocol and procedures used to ensure that the synchronization requirements are met for time sensitive applications, such as audio and video, across Bridged and Virtual Bridged Local Area Networks. This includes the maintenance of synchronized time during normal operation and following addition, removal, or failure of network components and network reconfiguration.

- It specifies the use of IEEE 1588 specifications where applicable in the context of IEEE Stds 802.1D and 802.1Q.

- Synchronization to an externally provided timing signal (e.g., a recognized timing standard such as UTC or TAI) is not part of this standard but is not precluded.

PAR Scope (13)

Is the completion of this document contingent upon the completion of another document?

- This standard is not contingent on the completion of any other documents

PAR Purpose (14)

- This standard enables endpoints of bridged LANs to meet the respective jitter, wander, and time synchronization requirements for time-sensitive applications.

.

PAR Reason (15)

- The use of current IEEE 802 technologies for time sensitive applications, such as high quality audio/video streaming, does not assure that the applications can present data with acceptable jitter, wander, and deviation in time. This includes applications that involve multiple streams delivered to multiple endpoints.
- To facilitate the widespread use of bridged LANs for these applications, synchronization information is one of the components needed (among other things) at each network element where a time-sensitive application is mapped or demapped or a time sensitive function is performed.
  - The synchronization information provided to each network element will allow the jitter, wander, and time synchronization requirements of demanding applications, such as in a residential environment, to be met.

PAR Reason (15)

- Existing time synchronization protocols (IEEE Std. 1588-2002 and NTP) are not currently specified to meet the cost requirements of time sensitive residential applications. This standard will leverage the emerging version of IEEE 1588 to develop the additional specifications required to address these requirements.

Deleted Text

- The application mapping can use this timing information to determine and record when particular information is mapped. The recorded information can then be used at the demapper, relative to the timing information there, to determine when to present the demapped information to the application layer.
  - This process requires that the timing information at the mapper and demapper be synchronized.
- The manner in which the application uses the timing information at the mapper and demapper is not part of this standard; rather, this standard covers the synchronization of the timing information at the mapper and demapper.