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From: IEEE 1588 Working Group

You are addressed as an organization which has defined or is going to define a PTP profile or which may be affected by the outcome of P1588 in some way.

One of the IEEE 1588 Working Group's work items is to specify an SNMP-compliant MIB and some management enhancements for the revised edition of the standard. We face some quite divergent requirements. PTP application domains encompass the whole spectrum of simple and resource constraint devices such sensors and actuators on one side and complex feature rich carrier grade and data center equipment on the other side. Some of these application domains rely on an existing management infrastructure, where PTP is going to be added just as an additional feature.

This situation has triggered some questions:

A: Native management protocol (i.e. management protocol as defined by IEEE 1588-2008)

We know that the native PTP management protocol is part of some profiles.

A1: Does your profile make use of the native PTP management protocol?

A2: Is it sufficient to keep the protocol and the set of manageable objects as it is in IEEE 1588 - 2008 or do you expect enhancements? Which new functionality is requested?

B: Unified/harmonized MIB

SNMP MIBs are a common way to describe the managed objects of devices. IEEE 1588 nodes have some objects in common but also some differences between profiles.

One approach of harmonization is to define a single object tree where all profiles are included. The object tree would be connected to IEEE's node of the OID space.

An alternative is the definition of the basic structure of a MIB, which can the serve as a template for profile specific MIBs. The object tree would be connected to the organization's node of the OID space.

A third approach is to divide the MIB into a portion common to all PTP flavors and have profile specific objects in another MIB.

All these approaches have their advantages and disadvantages. We have to consider that devices can be created which support multiple profiles simultaneously. The various standards defining profiles have different lifecycles.

B1: Which solution is preferred by your organization?

B2: Do you have specific expectations with respect to the MIB?

B3: Do you see another approach?

B4: Are the limited modeling capabilities of SNMP adequate for your applications?

C: How to configure PTP networks

While SNMP is extensively used in fault handling and monitoring this is not the case for configuring network elements. The IETF has developed NETCONF/YANG in order to replace the predominant CLI scripting.

C1: Do you use or consider to use NETCONF/YANG in your application domain?

D: Performance Monitoring is another major item of discussion within our group.

There is a general consensus within the IEEE1588 group that for some applications is important to provide tools to monitor the performance of the network (and of the Network Elements).

Accurate performance monitoring would in general require the support of an external reference (e.g. GPS) however PTP clocks may provide some useful information. In particular, in addition to the default parameters used by PTP (meanpathdelay, OffsetFromMaster, etc.) the monitoring of the 4 PTP Timestamps (t1, t2, t3 and t4) was suggested, e.g. for the following use cases:

- Indication on Network performance. This is applicable mainly in case PTP packets are carried over network elements that are not able to process the PTP packets, e.g. legacy routers. As an example, in this case monitoring how t1, t2, t3 and t4 change over time, as a relative difference, can provide information on the noise and packet delay variation present in the network.
- Indication on Clock operation. As an example, by monitoring how t1, t2, t3 and t4 change over time as a relative difference can provide information on abnormal clock/network conditions or clock stabilization time.

This performance monitoring data is related to the PTP port of the PTP clock that is in Slave state.

A set of simple statistics based on the monitoring of the PTP timestamps (e.g. Average, Minimum, max, standard deviation, over 15 minutes) was therefore proposed to be indicated in the next release of the IEEE 1588 draft (the complete set is available as Annex to this).

As this topic is understood to be of particular interest to the Telecom industry (e.g. as related to the Telecom profiles), we would like to ask the following questions

D1: What are the IEEE1588 performance monitoring requirements for your organization?

D2: Would the proposed parameters being discussed within the P1588 group be relevant and of interest for your applications?

D3: Do you have any additional proposal in this area? Do you have any specific expectation from the work being done by P1588?

The P1588 management subcommittee asks for your input and invites you to participate in the ongoing discussions on management issues for the next edition of IEEE 1588.

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Annex — Performance Monitoring Parameters

Counter Name	Description
t-ms Average Delay	Average t2-t1 for each 15 minute or 24 hour interval.
t-ms Min Delay	Minimum t2-t1 for each 15 minute or 24 hour interval.
t-ms Max Delay	Maximum t2-t1 for each 15 minute or 24 hour interval.
t-ms Delay StdDev	StdDev t2-t1 for each 15 minute or 24 hour interval.
t-sm Average Delay	Average t4-t3 for each 15 minute or 24 hour interval.
t-sm Min Delay	Minimum t4-t3 for each 15 minute or 24 hour interval.
t-sm Max Delay	Maximum t4-t3 for each 15 minute or 24 hour interval.
t-sm Delay StdDev	StdDev t4-t3 for each 15 minute or 24 hour interval.
Average MeanPathDelay	Average MeanPathDelay for each 15 minute or 24 hour interval.
Min MeanPathDelay	Minimum MeanPathDelay for each 15 minute or 24 hour interval.
Max MeanPathDelay	Maximum MeanPathDelay for each 15 minute or 24 hour interval.
MeanPathDelay StdDev	StdDev MeanPathDelay for each 15 minute or 24 hour interval
Average OffsetFromMaster	Average OffsetFromMaster for each 15 minute or 24 hour interval.
Min OffsetFromMaster	Minimum OffsetFromMaster for each 15 minute or 24 hour interval.
Max OffsetFromMaster	Maximum OffsetFromMaster for each 15 minute or 24 hour interval.
OffsetFromMaster StdDev	StdDev OffsetFromMaster for each 15 minute or 24 hour interval.