TICTOC

Timing over IP Connections and Transfer Of Clock

Proposed Charter

Description of Working Group:

There is an emerging need to distribute highly accurate time and frequency information over IP and over MPLS packet switched networks (PSNs).

Network transport service providers and their users are seeking to rationalize their networks by migrating their existing services and platforms onto IP or MPLS enabled IP packet switched networks (PSN). In some cases this migration is only possible if the user equipment can be provided with the high quality frequency service to replace the timing (frequency) service provided to all users of TDM networks. These applications include the TDM emulation techniques developed by the PWE3 WG, and the radio systems used in mobile phone networks.

There are applications that need require time with a greater precision than can be achieved with the current version of NTP. These applications span a range of industries: telecommunications, financial, test and measurement, government, industrial etc. The early work in these areas indicates that the availability of high accuracy time as a commodity allows the use of techniques that were previously impossible. High quality time is therefore an enabler for new distributed technology. The best-known example of an application that requires high quality time in the telecommunications sector is the need to measure one-way packet delay. Another network example is the need to synchronize device operation of media types at the MAC layer.

The TICTOC WG will be responsible for identifying and satisfying the time and frequency needs of the various services that need to be supported over IP and MPLS PSNs.

The TICTOC WG will co-ordinate with the PWE3 and NTP WGs in the IETF, as well as IEEE 1588, IEEE 802.1AS and ITU-T SG15 Q13.

WG Objectives:

The objectives of a WG are:

To compile the time and frequency requirements of various services that need to be supported over the PSN.

To research the influence of measurable network characteristics on the achievable performance of clock distribution.

To propose algorithms that approach optimal clock recovery performance over existing networks, and yet may take advantage of network upgrades (should these be available).

To propose a suitable clock distribution protocol that can run over the existing network architecture. This protocol may have different operational modes, depending on whether time or frequency distribution is required.

Goals and Milestones:

Mar 07 Hold BoF in Prague, ask for charter approval
Jul 07   Approval of charter final version and creation of WG
Jul 07   Problem statement WG draft
Dec 07 Problem statement WG draft submitted to IESG
Dec 07 Requirements WG draft
Nov 08 Requirements WG draft submitted to IESG
Mar 08 Architectural Framework WG draft
Mar 09 Architectural Framework WG draft to IESG
later: Standards-track solutions drafts