

## **NTP WG Meeting Minutes**

1300-1500, 20 March 2006

Karen O'Donoghue, co-chair of the NTP WG, called the meeting to order. Dave Marlow volunteered to take minutes, and Nevil Brownlee agreed to act as jabber scribe. Brian Haberman (NTP WG co-chair) and Jack Burbank (co-editor of NTP Protocol draft) participated remotely via audio stream and jabber.

Karen addressed basic administrative issues including blue sheets and agenda bashing. The only addition to the published agenda is a discussion of PWE3 timing requirements. This will be discussed both here and in the PWE3 WG.

There were no officially submitted new drafts since the last meeting. However, work has progressed, and that progression will be discussed during the meeting. Karen said that there would be a MIB internet draft soon and expects updated drafts from all of the active work items. The working group is behind on their charter milestones and needs to complete the current work items.

- NTPv4 Protocol Specification (Jim Martin)

Slides: NTP Protocol Specification status discussion (ntp-0.pdf)

Relevant Draft: draft-ietf-ntp-ntpv4-proto-01.txt

While there has not been an official update posted, a new draft (version 02) has been written and should soon be out officially. The editors have received input only from Dave Mills. Taking Dave Mills' input, the editors have produced an updated draft. This draft removes unnecessary and implementation specific material while providing clarifications. The update includes: 1) the removal of the Autokey protocol; 2) additional text on symmetric peer operations; and 3) additional discussion on protocol operations and the relationship to NTP algorithms and NTP state variables.

Jim provided a discussion on the work that still needs to be done to complete this work item. The major issue is to fix the Security section. A description of an NTPv4 extension approach is needed that will support optional authentication fields whose details will not be defined in this work item.

Additionally, Jim asked for guidance on the polling interval and what elements should be IANA managed. Reference identifiers should have a range that is IANA managed with some identifiers reserved for stratum 1 time sources use. The Kiss of Death codes are another item that is a candidate for being managed by IANA.

There was a discussion on whether an authentication solution required accurate time or not. While some thought this is a "chicken and egg" problem, others felt this was not a research question since the primary issue is to identify when a certificate expires. This discussion ended with Jim asking again for guidance on the Extensions. The strategy for proceeding was held during the "Way Ahead" discussion described below.

- NTPv4 Algorithms draft (Bill Kasch)

Slides: NTP Algorithms Specification discussion (ntp-1.pdf)

Relevant Draft: draft-ietf-ntp-ntp4-algorithms-01.txt

A rev 01 draft was submitted for the previous meeting. The details for the Algorithms document were taken from a book that Dave Mills authored. There was a concern that the descriptions were too similar to the book and thus a rewrite is necessary to avoid copyright issues. In addition Dave Mills was unhappy with the attempt to write this in ASCII formatted text. There is a proposed IETF experiment to utilize PDF versus ASCII format for selected RFCs. Bill indicated that he will pursue getting this work item into that experiment with the intent of publishing a PDF formatted document.

In the rewrite the intent is to simplify, removing details and focusing on processes. There is a need for a wider participation. Please comment early and often.

- NTPv4 MIB (Karen O'Donoghue)

Heiko Gersteg is working on the NTP MIB. There has been a great deal of discussion on the MIB on the mailing list. While there were a number of versions of the NTP MIB distributed on the mailing list, no Internet Draft has been submitted yet. Hopefully, an official draft will be forthcoming.

- NTPv4 Way Ahead (All)

The Chair and the AD emphasized the need to get initial documents completed. To this end, there is a need for more reviewers and contributors. The AD quoted from the charter where IPv6 and Security are core parts of the WG work items. The existing NTPv4 authentication approach (i.e. Autokey) is not mature enough to be included. The plan is to document the Extension mechanism that will enable the development of additional documents to define Authentication methods. NTPv4 has a basic extension approach defined, however, this needs to be refined. This refinement should not be developing a new capability. STIME provided an extension framework that may be able to support this effort.

The current NTP implementation is constantly changing. It was felt that a point in time needed to be picked and complete the current work items. It was pointed out that in January 2006, Dave Mills provided an update of his NTP protocol specification. An approach of freezing the work items to the functionality described in this version of NTP was agreed upon.

The Requirements Document was discussed. The charter identifies this document as providing the scope and the requirements for the WG. When developing a new solution, requirements are most important. When documenting an existing protocol, the capabilities of the existing protocol that are to be documented are most important. The

AD provided the opinion that the document was needed, with the scope listing the current work of the WG (where security may be lacking) and the requirements providing a list of new NTP work that are candidates for future work.

- IEEE 1588 Review (Karen O'Donoghue)

The second version of the IEEE 1588 spec is to be finished by end of this year. This will have an IPv4 mapping, an IPv6 mapping and an Ethernet mapping. There are vendors making products across the 1588 and NTP Technologies.

In addition the IEEE 802 Bridging Ethernet Group has chartered a group to provide time synchronization within the bridged communities. IEEE 1588 version 2 is expected to be used as the basis for this work.

- PWE3 Timing Requirements (Yaakov Stein)

Slides: PWE3 Timing Requirements

Relevant Draft: draft-frost-pwe3-timing-pw-reqs-01

This is an update of the draft that Tim Frost presented to this WG in August 2005. Yaakov presented the PWE3 timing requirements that have been identified. The specific timing requirements are application specific. The two candidate solutions are NTP and IEEE 1588. At this point in time, IEEE 1588 lacks the wide-area ruggedness of NTP, while NTP lacks the phase/frequency precision of IEEE 1588.

The major issue is where to take this work, the candidates are the PWE3 WG, the NTP WG, IEEE 1588 and ITU-T. The current NTP WG is restricted to documenting the existing NTP protocol and cannot take this work on at this time. Finishing the current work items would permit this work to be taken on in the NTP WG. Mark Townsley encouraged the WG to finish up the NTPv4 documents so that additional work could be pursued.

The meeting was adjourned.