ECS656U   **Distributed Systems**   2018-19

Lab Sheet 5

This lab involves the use of the Network Time Protocol (NTP) Timestamps

1   NTP Timestamp

Consider the following four Timestamps:

T_1 = C5 02 04 EC EC 42 EE 92

T_2 = C5 02 04 EB D3 E8 DD A4

T_3 = C5 02 04 EB D4 0C 52 1D

T_4 = C5 02 04 ED 24 44 AB 18

The timestamp format includes the first 32-bit unsigned seconds as a field spanning 136 years and the 32-bit fraction field resolving 232 picoseconds. In the timestamp formats, the prime epoch, or base date of era 0, is 0 h 1 January 1900 UTC, when all bits are zero. It should be noted that strictly speaking, UTC did not exist prior to 1 January 1972, but it is convenient to assume it has existed for all eternity, even if all knowledge of historic leap seconds has been lost. For example T_1 can be resolved as Sep 27, 2004 03:18:04.922896299 UTC. Design a program to resolve the values of T_2, T_3 and T_4.

2   Extra Challenge

As an extra challenge try to determine the Offset which is calculated as $\frac{(T_2-T_1)+(T_3-T_4)}{2}$ and the round trip time which is calculated as $(T_4 - T_1) - (T_3 - T_2)$.

End of questions

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