FCN – Project 4 (Kunal Nayyar kvn9339)

NTP

The protocol works in the following way –

- While sending the packets, the client only sends the leapIndicator, Version, and its current system time.
- The server replies with the offset time which is calculated by the following formula:

  localClockOffset = ((msg.receiveTimestamp - msg.originateTimestamp) + (msg.transmitTimestamp - destinationTimeStamp)) / 2;

- The offset is calculated as per the PollInterval value, which varies from 4 to 17. If the value is 4, itll divide the offset by the poll, subtract that from the actual localClockOffset. And add that offset to the newtime.
- It will continue to do this indefinitely.

I think this program should work well for the Buoys.

Reasons behind the choice: -

- UDP seems rather convenient.
- We can just keep an internal clock, and periodically request the NtpServer for any offsets (if we have any).
- If the server replies with a very large value, we can ignore or request for another value, since we cannot always trust the NtpServer, since it may have been caused due to a delay.
- Also, the Buoys may not be extremely accurate and fairly inexpensive. For which this protocol fits the bill.

Instructions to run Program –

- It takes parameters – ip address of NTP server