

- 1) Stratum in terms of NTP means layer. As NTP uses hierarchical network approach, there are multiple layers used there.
- 2) The output I got:

remote	refid	st	t	when	poll	reach	delay	offset	jitter
*ec2-18-195-247-	91.189.94.4	3	u	27	64	1	44.036	-1.656	0.116

The meanings:

- Remote - server hostname.
- Refid - Where or what the remote peer or server is itself synchronised to.
- St - the devices which are considered independent time sources are classified as *stratum 0* sources; the servers directly connected to *stratum 0* devices are classified as *stratum 1* sources; servers connected to *stratum 1* sources are then classified as *stratum 2* sources and so on.
- T - Type (u: unicast or multicast client, b: broadcast or multicast client, l: local reference clock, s: symmetric peer, A: multicast server, B: broadcast server, M: multicast server).
- When - number of seconds passed since last response.
- Poll - poll interval. NTP Client sends NTP packets at intervals ranging from 8 s to 36 hr.
- Reach - The reach peer variable is an 8-bit shift register displayed in octal format. When a valid packet is received, the rightmost bit is lit. When a packet is sent, the register is shifted left one bit with 0 replacing the rightmost bit. If the reach value is nonzero, the server is reachable; otherwise, it is unreachable.
- Delay - The round-trip delay to peer is reported in milliseconds.

- Offset - Offset is the time difference between the peers or between the server and client.
 - Jitter – offset variance.
- 3) The disadvantage of using Lamport's algorithm is that it is impossible to reveal if two events were/are concurrent.
- 4) The results from the scheme:
- a [7, 6, 1]
 - b [2, 8, 1]
 - c [2, 8, 4]
- 5) The github link:
- https://github.com/Oydinoy/Fall2019_DS