Timestamp calculation

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About timestamp

❑ Timestamp

- – 31 bits in size; units in nanoseconds.
- – Represented as a _presentation_time_ at the received (and calculated by the sender based on its clock).
- – Can present time ~1s in future.
- – Carries lower 31 bits of the calculated presentation time (~2s on wire but ~1s window).

Presentation time algorithm..

```
#define TWINDOWMASK 0x00003ffffffffffffLL
#define TTSTAMPMASK 0x00007ffffffffffffLL
#define TWINDOWSIZE 0x0000400000000000LL

uint64_t ptime_2_tstamp( uint64_t ptime ) {
    // Actual window is less what we send over the wire
    return ptime & TTSTAMPMASK;
}

uint64_t tstamp_2_ptime( uint64_t local_time, uint64_t tstamp ) {
    // mask out window size of bits of the local time
    uint64_t ptime = local_time & ~TWINDOWMASK;

    if ((local_time ^ tstamp) & TWINDOWSIZE) {
        // Window under/overflow taking place.. flip the
        // timestamp MBS to take that into account.
        tstamp ^= (local_time & TWINDOWSIZE);
    } else {
        // Timestamp and local time in the same window
        // "half". Just take window worth of bits.
        tstamp &= TWINDOWMASK;
    }
    // Adjust local time with timestamp
    return ptime+tstamp;
}
```

Just an example!