Cycle-ID in LMAP

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Repeating Measurements

• Clearly envisaged the in LMAP Framework:
  • "Measure the 'UDP latency' with www.example.org; repeat every hour at xx.05".
  • "Count the number of TCP SYN packets observed in a 1 minute interval; repeat every hour at xx.05 + Unif[0,180] seconds".

• Defined Cycle-ID, but not as a Repeating Cycle:
  Cycle-ID: A tag that is sent by the Controller in an Instruction and echoed by the MA in its Report. The same Cycle-ID is used by several MAs that use the same Measurement Method for a Metric with the same Input Parameters. Hence, the Cycle-ID allows the Collector to easily identify Measurement Results that should be comparable.

• Nothing about repetition?
Measurement Support Needed

• Repeating Schedules (periodic, calendar)
• Random Delay for Actions triggered by Events in a Schedule.
• Multiple & related Actions/measurements triggered by the same periodic event, and a simple way to associate all events in EACH repeated set
• Example to follow:
**Poisson Sequence**
- 15 minute duration
- $\lambda = 0.3$ pkts/sec
- Type UDP
- 278 bytes total

**Periodic Sequence**
- 1 minute duration ($T_f - T_0$)
- Random Start Time
- 20 ms $\text{incT}$
- Type UDP, IPv4
- 60 bytes total, $p(1)$
- min 3 sec $dT_{\text{loss}}$
Cycle-ID: Simple association of Repeated Actions

• Cycle-ID differs from a common Tag:
  – Tags are static (most examples exchanged were)
  – MA is given the form of the Cycle-ID
  – MA generates a new Cycle-ID for each periodic or calendar Event
  – MA applies the Cycle-ID to results from each repeated measurement (extract from storage and display together)
  – Cycle-ID could be an incrementing number, or more complicated form that MA generates.
    • <Subscription#>,<Cycle#>
Run-time Alone may not be enough

- Randomized measurement start times make for more difficult queries (ranges)
- An Action could be unexpectedly delayed
  - And run in a later periodic cycle
  - Or not run at all