

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:

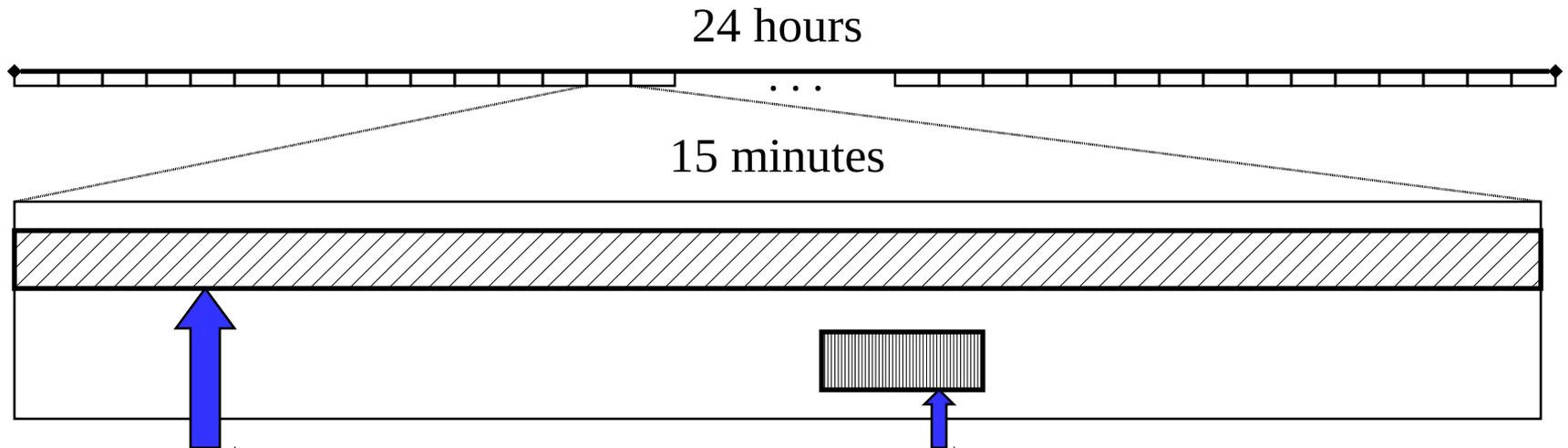
Cycle-ID: A tag that is sent by the Controller in an Instruction and echoed by the MA in its Report. The same Cycle-ID is used by several MAs that use the same Measurement Method for a Metric with the same Input Parameters. Hence, the Cycle-ID allows the Collector to easily identify Measurement Results 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:

Measurement Design (IETF-50, March 2001)



- **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 incT
- ➔ Type UDP, IPv4
- ➔ 60 bytes total, $p(1)$
- ➔ min 3 sec dTloss

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