**Method of generating aggregate event collections**

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1. **Method description**

**Step 1: reduce the number of stochastic links**

This can be done by modifying the definition of stochastic links in the raw data.

Step 1.1: extract the link travel time at all breaking points over all support points for each stochastic link;

Step 1.2: calculate the Coefficient of Variation (Cv= Standard Deviation / Mean) for each stochastic link;

Step 1.3: find the Xth percentile of the Variation Coefficient; if it is less than the Xth percentile, set the link as deterministic link and use the mean travel time over all support points as the deterministic link travel time at each breaking point.

**Step 2: generate aggregate event collections**

EV is generated based on a highly aggregate definition of the travel time distribution for each link. And each link has two possible aggregate conditions for travel time: normal or congested.

Step 2.1: Calculate the boundary between the two conditions for each link

Pool all data from all support points over all time periods for each link and then find the xth percentile travel time as the boundary for each link;

Step 2.2: If the link travel time is greater than xth percentile, the link condition is set to be congested, which is denoted by 1; otherwise, the link condition is set to be normal, which is denoted by 0;

Step 2.3: Generate event collections based on the link conditions in step 2.

1. **Parameters used and preliminary results**

The parameters I use are in the following:

Time interval: 10 seconds

The Xth percentile of the Variation Coefficient: 80th percentile

The xth percentile travel time for each link: 95th percentile

Basically, it could generate several non-singleton EVs for about 200 trips with the above method and parameters. The number of trips with non-singleton EVs and the number and size of non-singleton EVs for each trip depend on the parameters you would use.