QSI Displacement
For Fleet Assignment Model

QSI Displacement for FAM

- QSI without Displacement does not include in its formulation:
- The flight / service displacement from a passenger's preferred time of departure.
- The related concept of flight / service proximity, where services clumped next to each other compete for the same passenger.

QSI Displacement for FAM

- The effect of these deficiencies is most readily observed in FAM, especially in reduction mode.
- FAM retains groups of flights at one end of day, while dropping all flights at the opposite end of the day.
- Resulting in unbalanced schedules.

QSI Displacement for FAM

- So, we need to include a displacement algorithm, which will:
- Use as much of the present QSI methodology as possible.
- Model demand displacement and TOD demand decay.

QSI Displacement for FAM

- Modeling TOD Demand Decay

- Assume that the demand for a service by TOD passengers' decays as the time displacement from that service increases.

- That this TOD demand for an individual service decays in some consistent manner related to known and measurable variables, such as:
  - Type and number of services in O&D.
  - Time of departure.
  - Type of O&D.
  - Type of passenger.

QSI Displacement for FAM

- The demand decay can be modeled as a probability density function
- The demand decay can allocate TOD passengers to that service using the TOD curve
- The Next Slide shows a displaced versus non-displaced QSI share for a four non-stop pattern.

A Four Nonstop Flight Pattern