

# Sources and Sinks of Life Time in U.S. Air Travel

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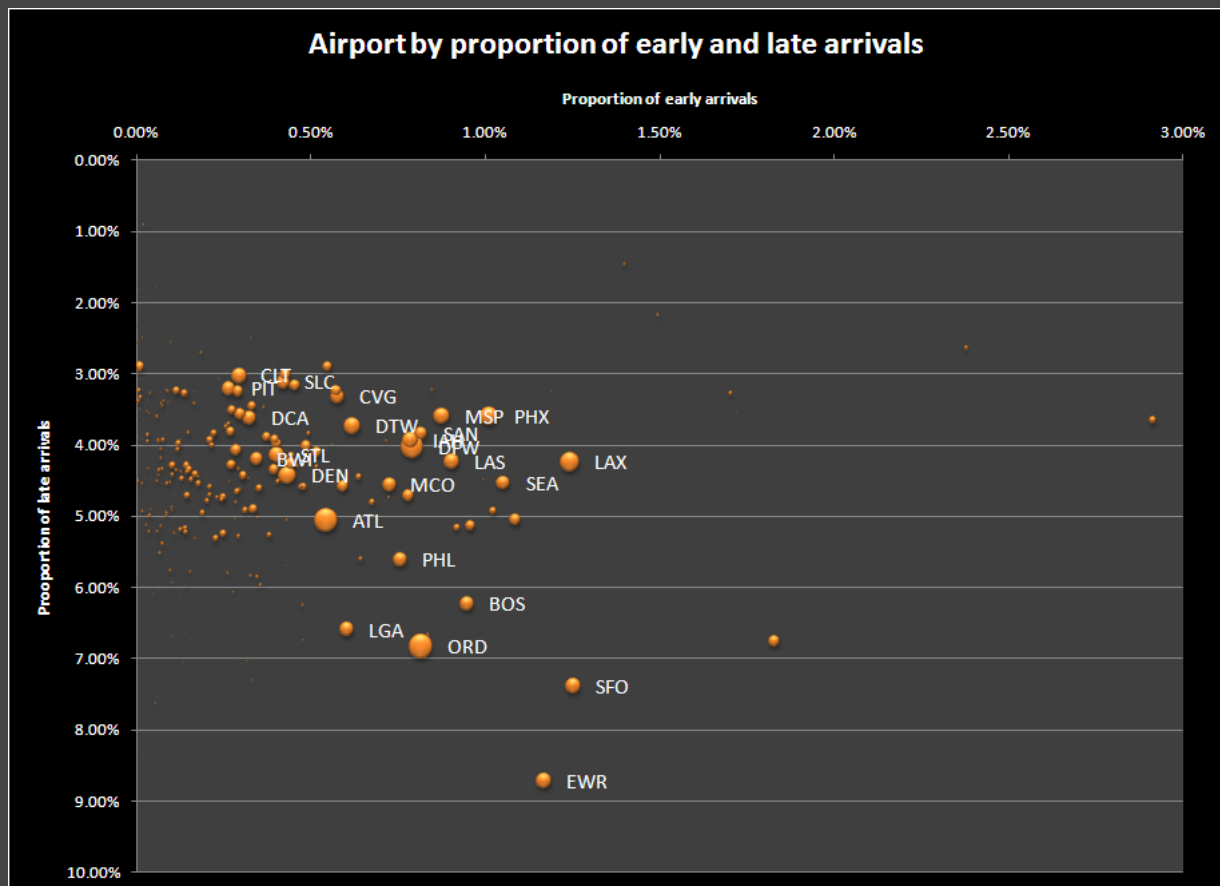
## Motivation

- Some airline flights arrive early, others late.
  - Sometimes only minutes are gained or lost but even hours can disappear
- Where do we gain and lose life time in U.S. air travel?

# Data

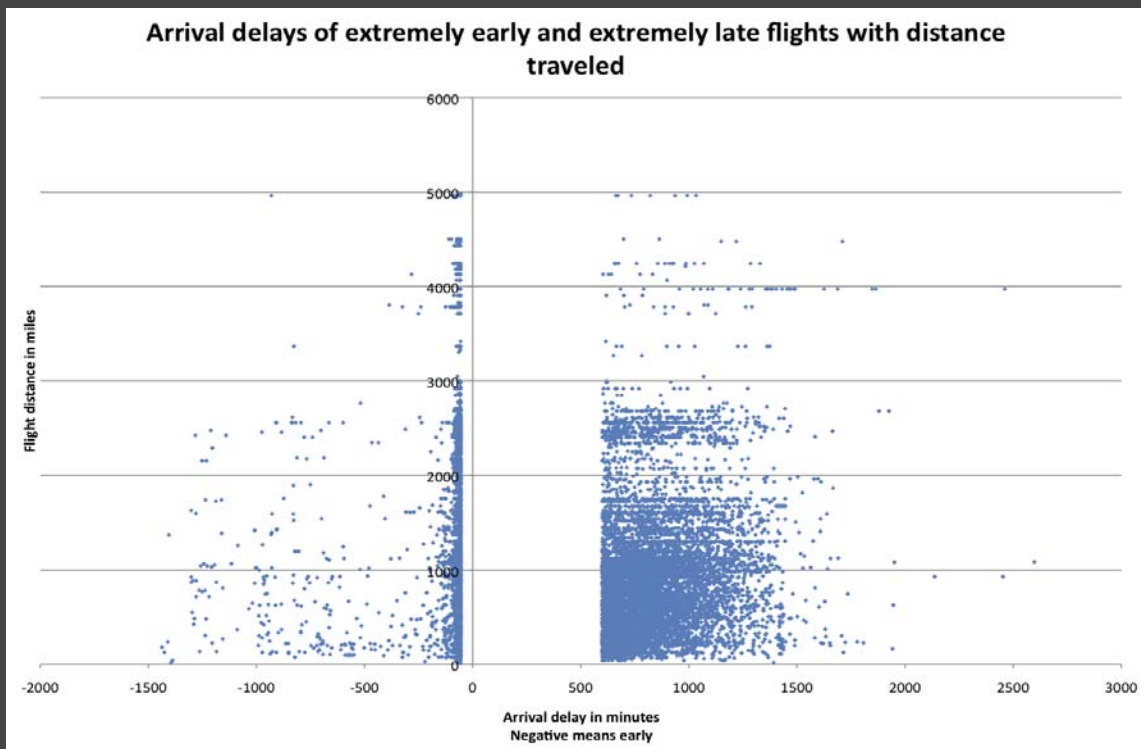
- All commercial flights within the United States of America between 1987 and 2008
  - 123 million flights among 350+ airports
- Focus is on the difference between scheduled arrival time and actual arrival time
  - 30 or more minutes early
    - 770,000
    - 0.6% of all flights
  - 60 or more minutes late
    - 5,600,000
    - 4.6% of all flights

"Early" and "late" refer to these cutoffs throughout



# Data cleanliness

- 2,300,000 cancelled flights (1.9%)
  - An additional 280,000 flights (0.2%), though not cancelled, have no arrival delay recorded
    - These were omitted



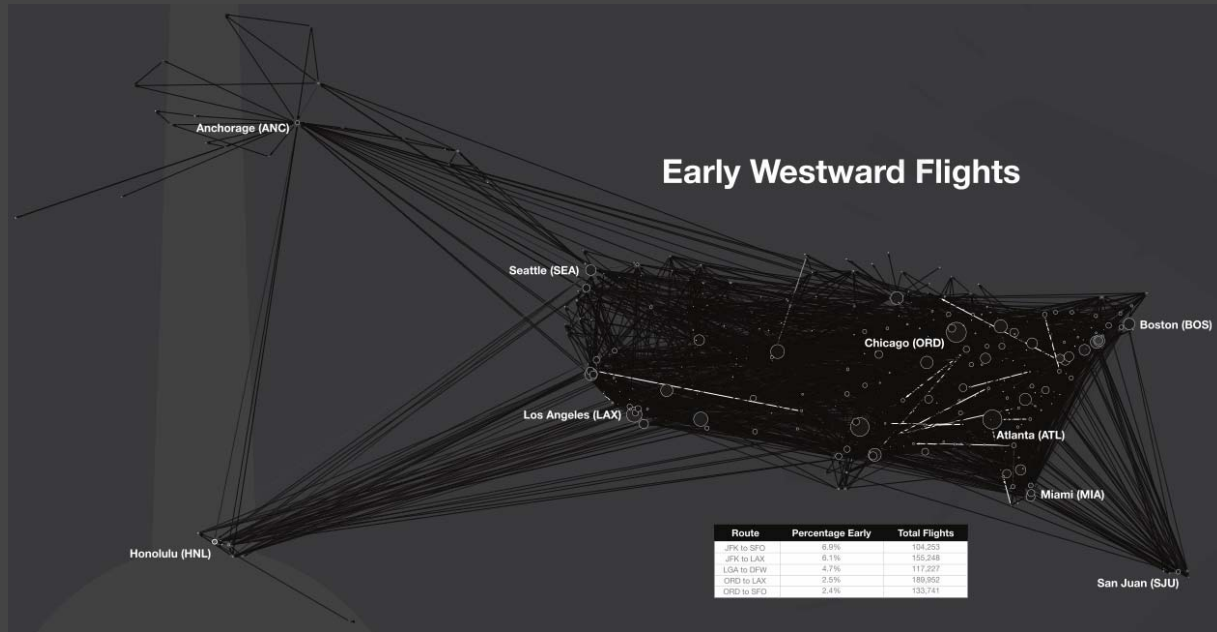
# Visualization

- Directed networks were constructed from airport-airport flight data and laid out geographically
- We would like to ask:
  - How often are flights to a particular airport early or late?
  - How often are flights between a particular pair of airports early or late?

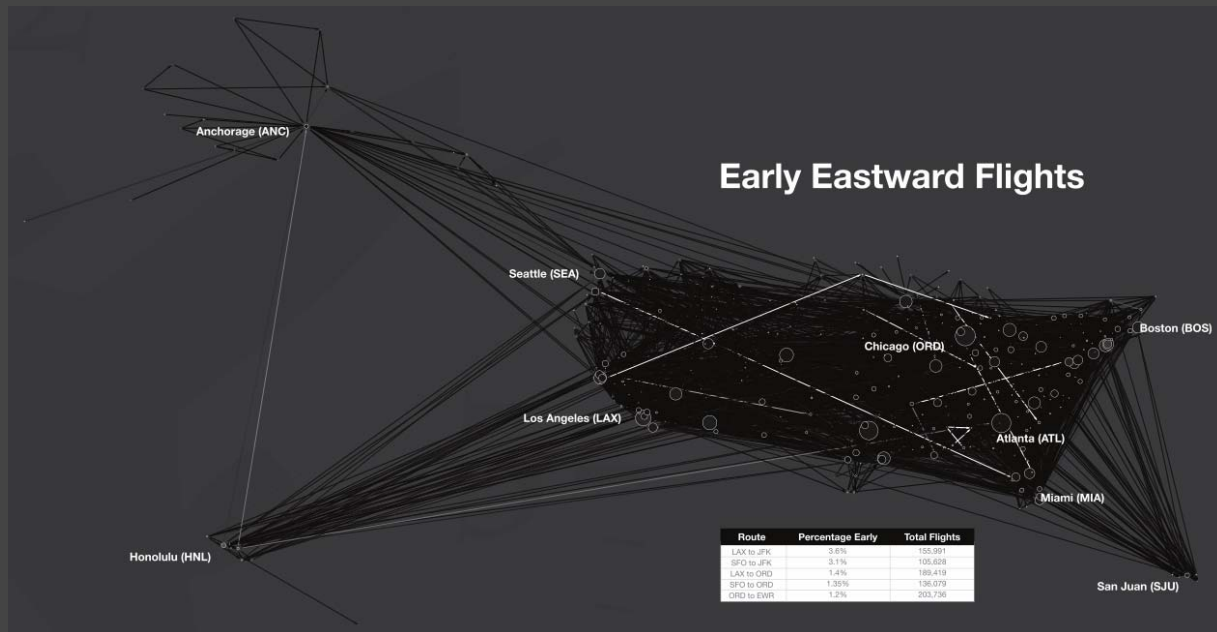
# Visualization

- Airport nodes
  - Area size coded by total incoming traffic
  - Color coded by the proportion of those flights that arrived early (or late, respectively)
- Airport-airport edges
  - Width coded by total traffic
  - Color coded by the proportion of those flights that arrived early (or late, respectively)
- As the network is highly reciprocal, eastward and westward routes are isolated into two distinct groups for readability
- The comparatively few flights to and from the associated states of the U.S. in the far Pacific were omitted

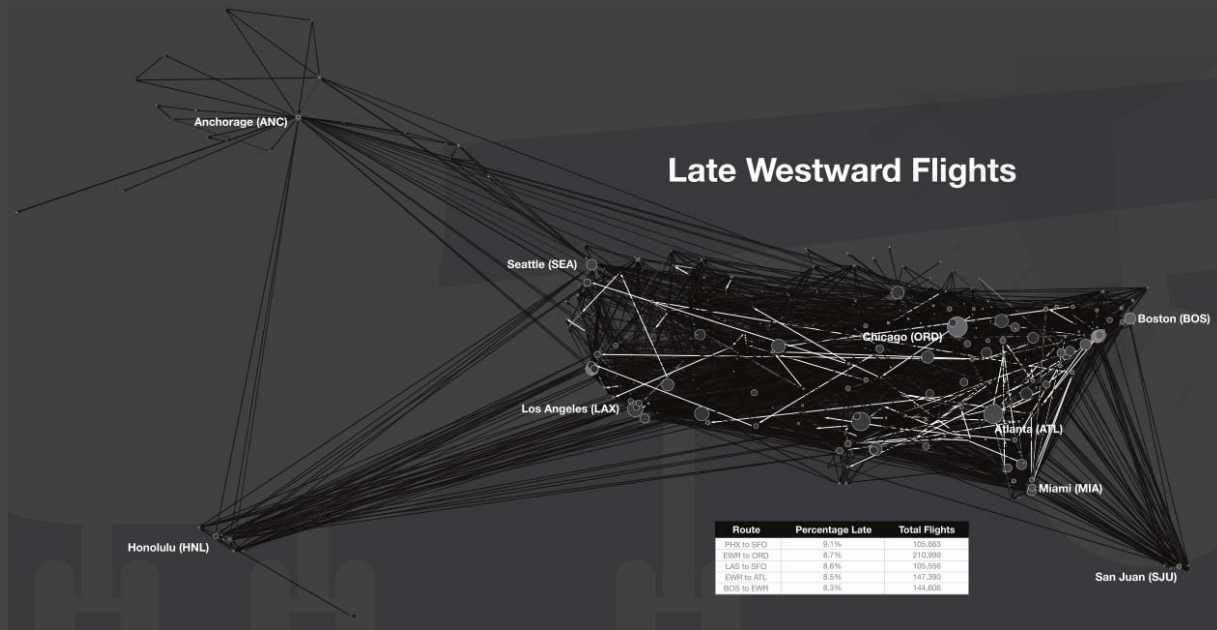
# Sources of Life Time - Westward



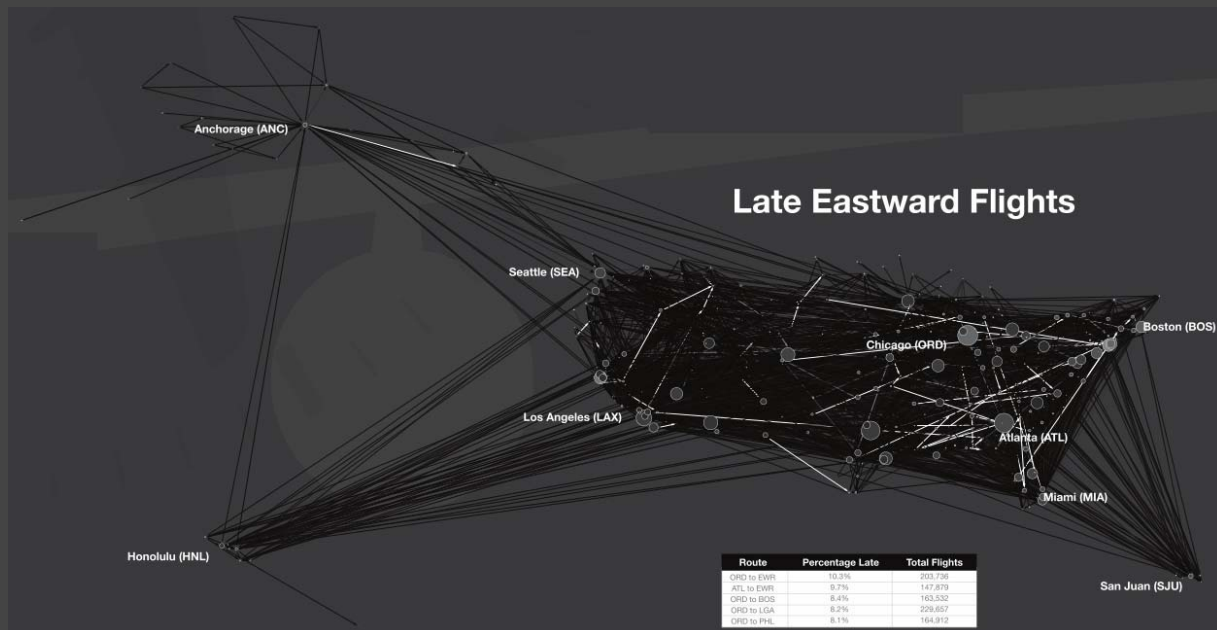
# Sources of Life Time - Eastward



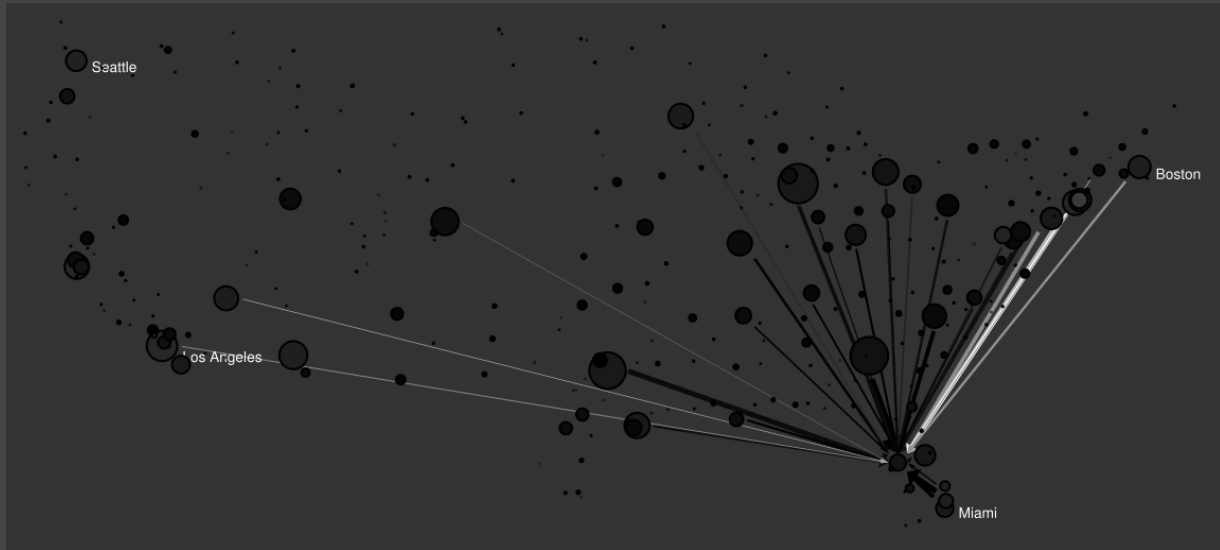
# Sinks of Life Time - Westward



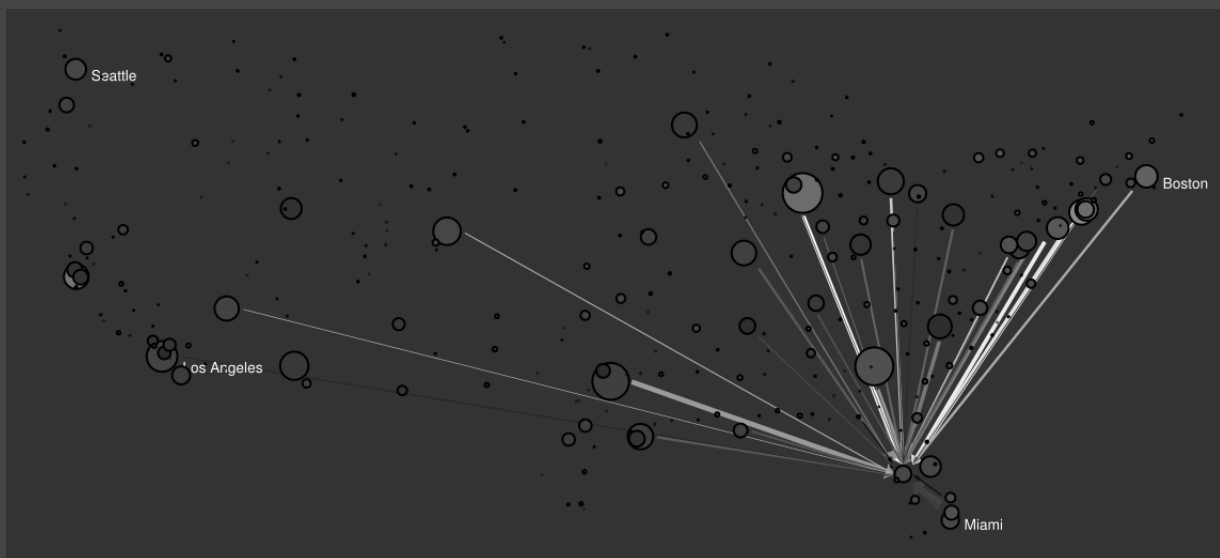
# Sinks of Life Time - Eastward



# Early to Tampa



# Late to Tampa



# Contributors



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