

The US Flight Odyssey 2008

In the year of 2008, the United States airline business flourishes. The operational numbers speak for themselves. There are 19 official carriers in the US and their share regarding the big numbers is presented below. The big three: Southwest, American and Skywest Airlines cover not only most of the flights executed in 2008 but also have a significant share in time spent by their planes in the air.

There are some interesting patterns emerging from operational data. Most carriers slow down during weekends. A..

Number of Flights

6,515,628

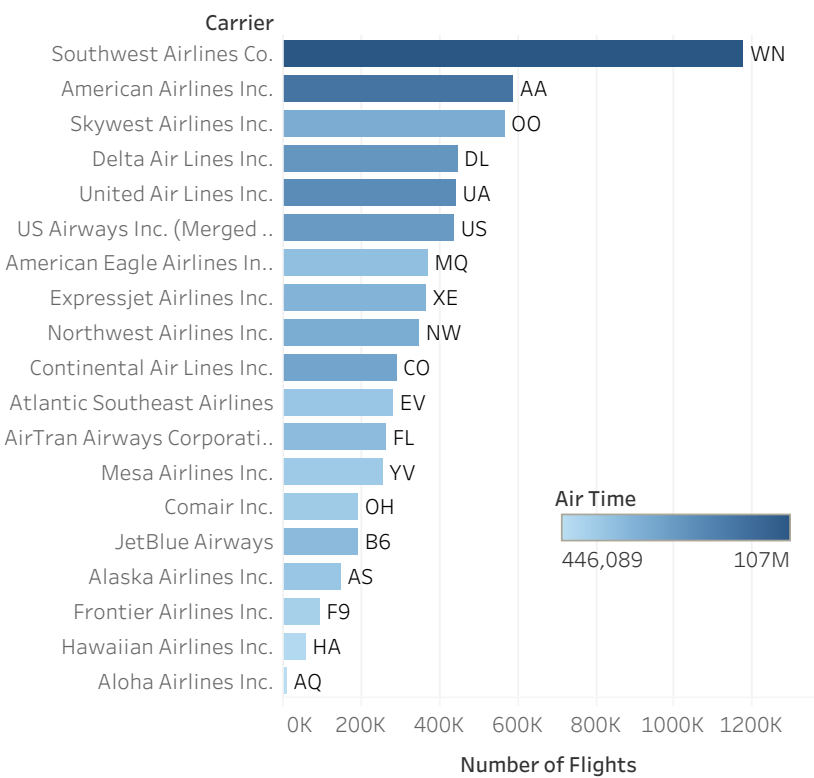
Hours in the Air

11,371,500

Distance in Miles

4,838,291,850

Number of Flights by Carrier



Month
1 to 12
and Null values

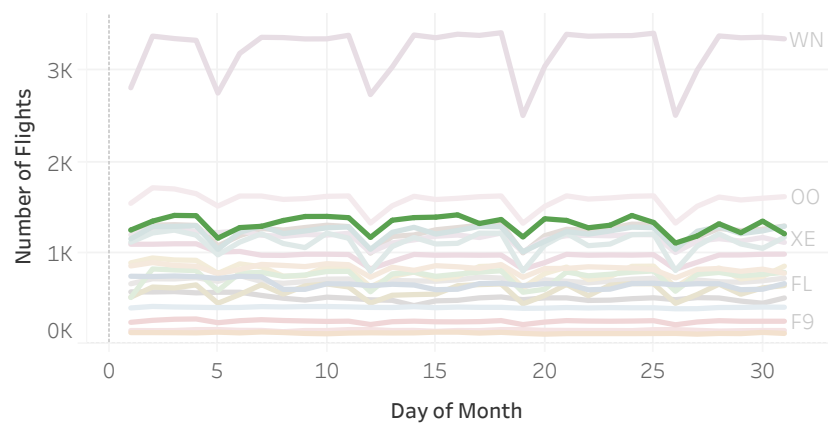
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In the year of 2008, the United States airline industry was in a state of flux. Many airlines were struggling, and some had to file for bankruptcy.

There are some interesting patterns emerging from operational data. Most carriers slow down during weekends. All carriers keep the same level of service availability most of the time. One interesting thing to notice is that American Eagle Airlines stopped operating in September (bankruptcy?).

But not everything looks great. Average arrival times are often delayed.

Flights per Day Monthly



Month

1 to 1
and Null values

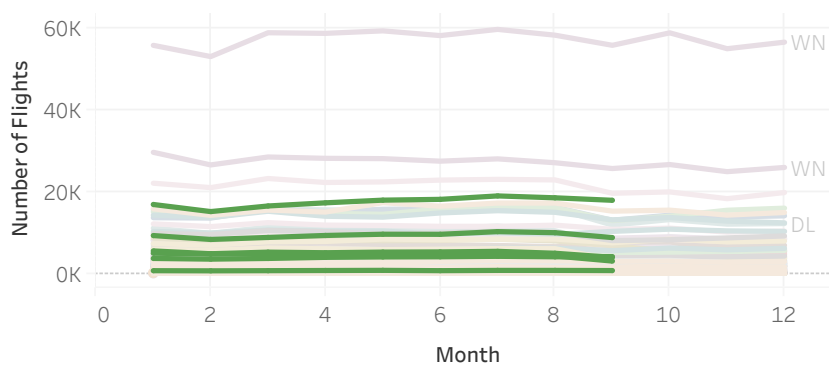
Plane Manufacturer

Multiple values

Carrier

- AirTran Airways Corporation
- Alaska Airlines Inc.
- Aloha Airlines Inc.
- American Airlines Inc.
- American Eagle Airlines Inc.
- Atlantic Southeast Airlines
- Comair Inc.
- Continental Air Lines Inc.
- Delta Air Lines Inc.
- Expressjet Airlines Inc.
- Frontier Airlines Inc.
- Hawaiian Airlines Inc.
- JetBlue Airways
- Mesa Airlines Inc.
- Northwest Airlines Inc.
- Skywest Airlines Inc.
- Southwest Airlines Co.
- United Air Lines Inc.
- US Airways Inc. (Merged with Ameri..)

Flights Monthly per Manufacturer



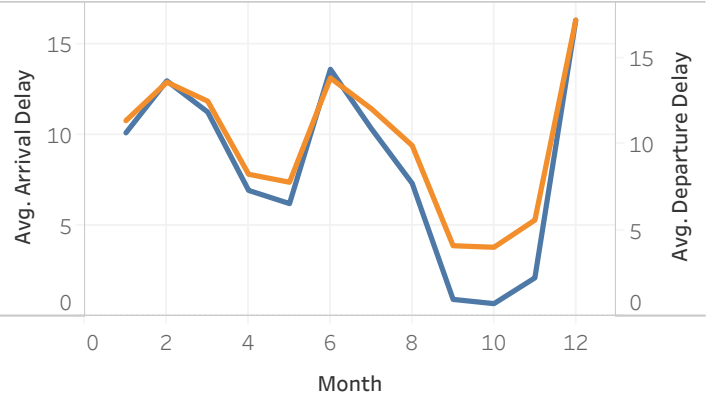
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There are some interesting patterns em..

But not everything looks great. Average arrival and departure delay oscilates around 10 minutes per flight, to be suspishingly low (about 2 minutes on average) through September to November. This might not be bad but maximum delays for specific flights can be as high as 40 hours (in February and April), this means even 2 days of waiting for a late flight at the airport! There are also thousands of cancelled flights in 2008 with two main reasons: bad weather and carrier decision. Security as a reason does not count here!

From the two kinds of delay, arrival and departure, the ..

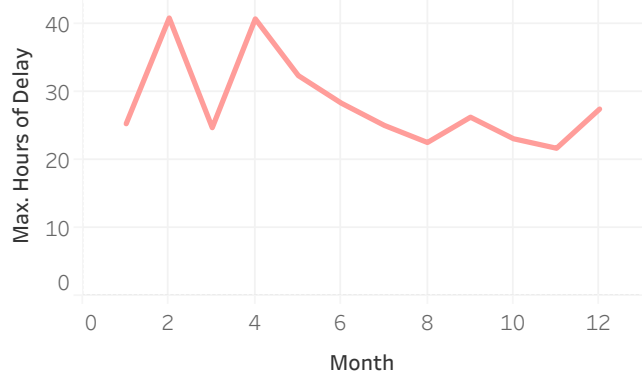
Average Delay in Minutes per Month



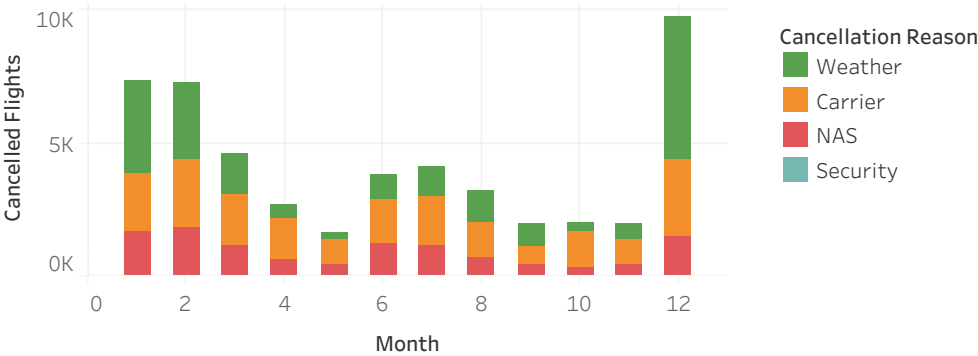
Measure Names

- Avg. Arrival Delay
- Avg. Departure Delay

Maximum Delay in Hours per Month



Cancelled Flights per Month per Cause



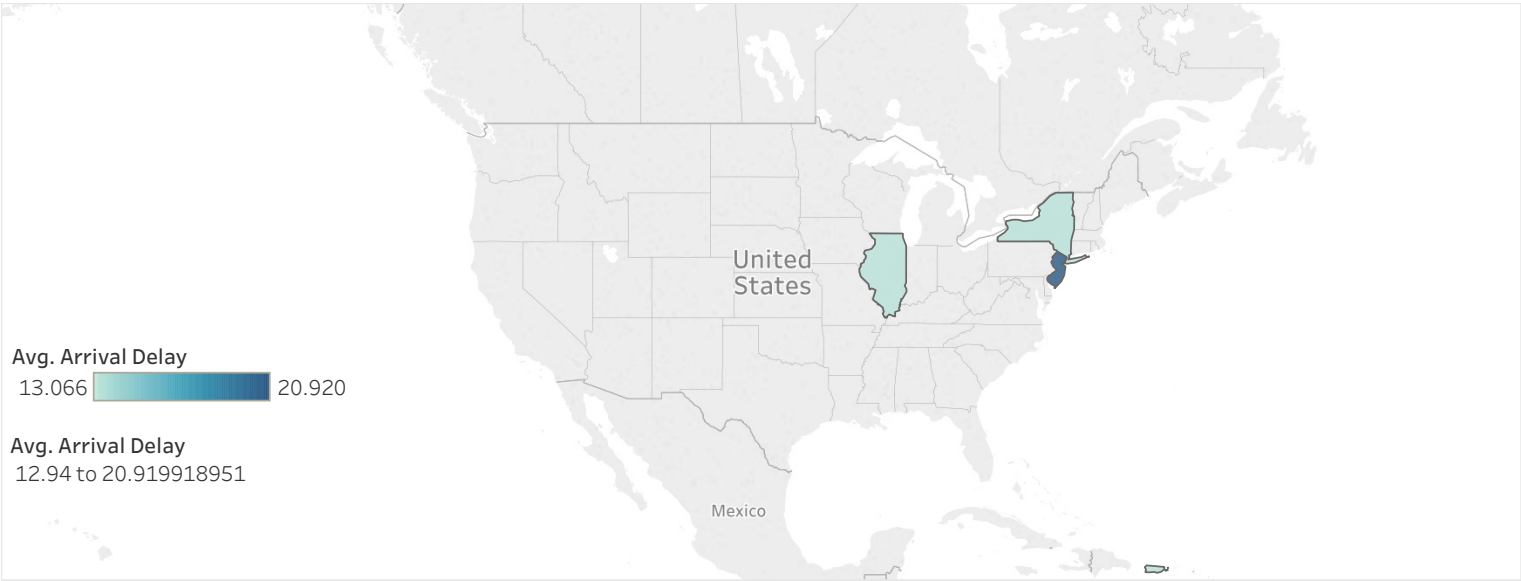
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But not everything looks great. Average arr..

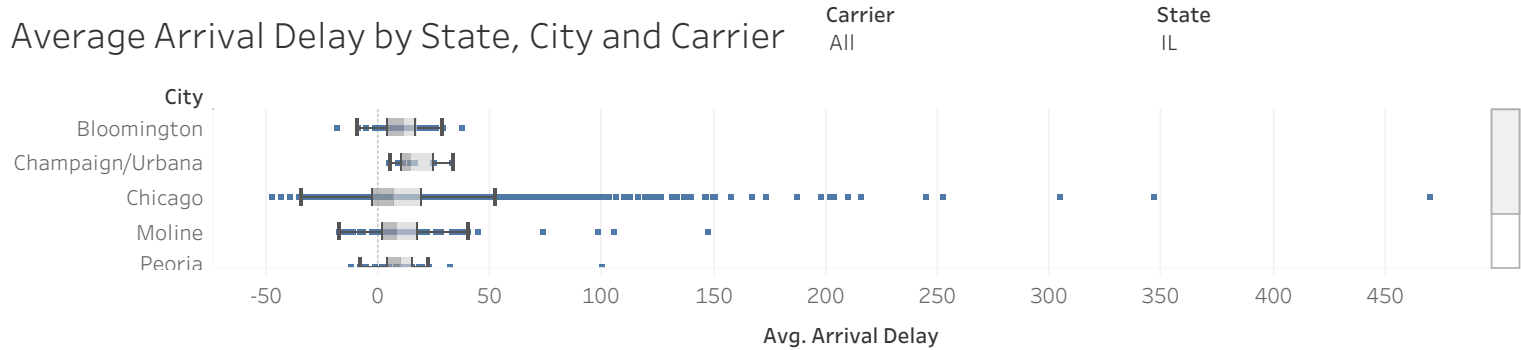
From the two kinds of delay, arrival and departure, the first one is worse. Here is the distribution on average delays per state, with the east coast and central states to be the most affected. The three states with an average arrival delay higher than 13 minutes per flight are New Jersey, New York and Illinois. One income flight to Chicago has almost 8 hours (470 minutes) of delay.

Looking side by side at arrival and departure delay-related d..

Average Arrival Delay by State



Average Arrival Delay by State, City and Carrier



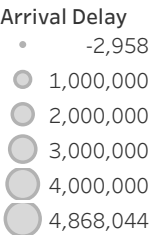
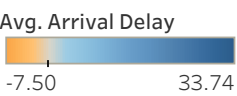
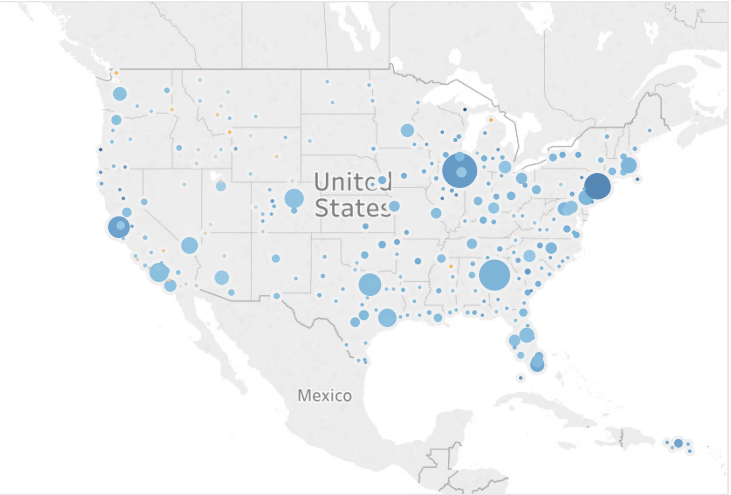
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From the two kinds of delay, arrival and departure..

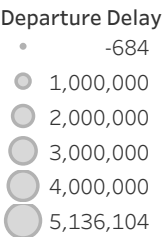
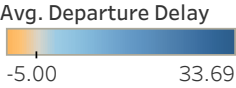
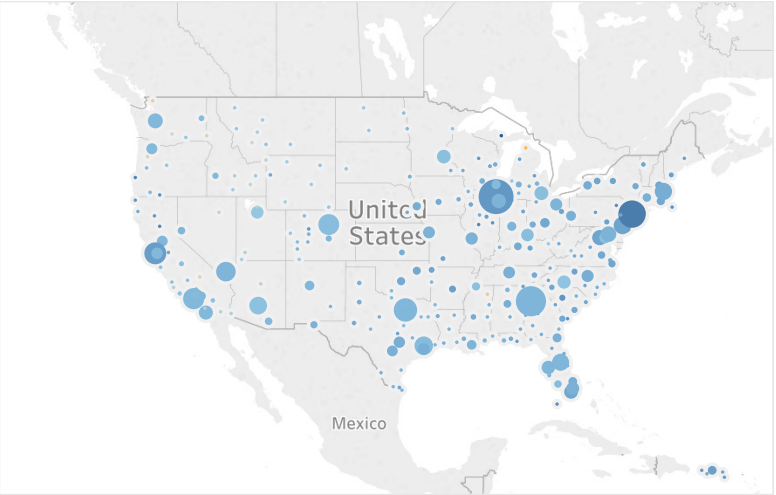
Looking side by side at arrival and departure delay-related data, we can see that they look very similar. It may be related to the fact, that planes comming late from a previous flight usually are late for the next one departure. Being-on-time lovers should avoid certain cities (or plan ahead their lateness). The cities are Chicago, Newark, Atlanta, San Francisco, Dallas and Denver.

To confirm, our previous finding is correct, let's see the two sc..

Arrival Delay



Departure Delay

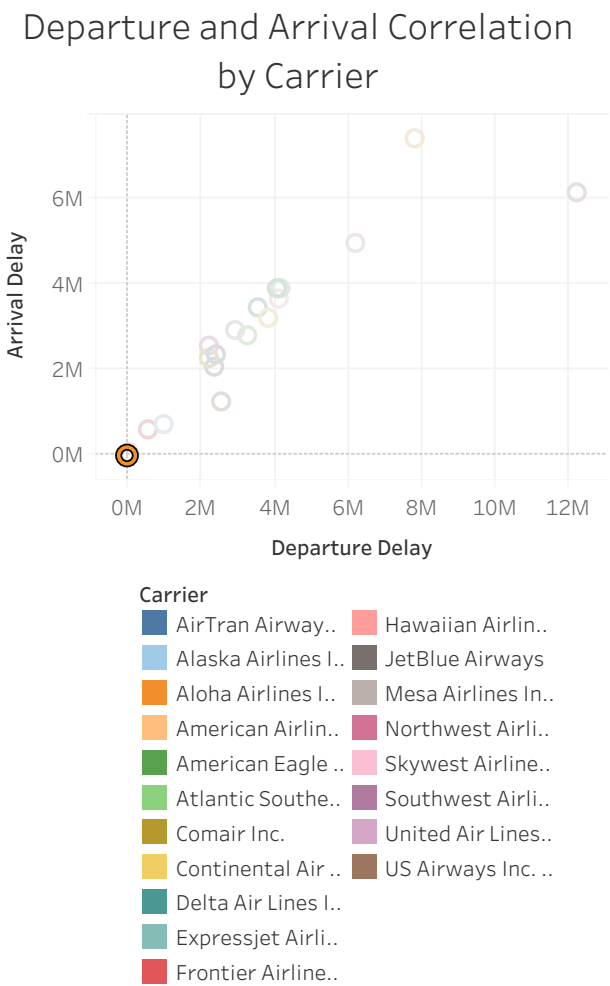
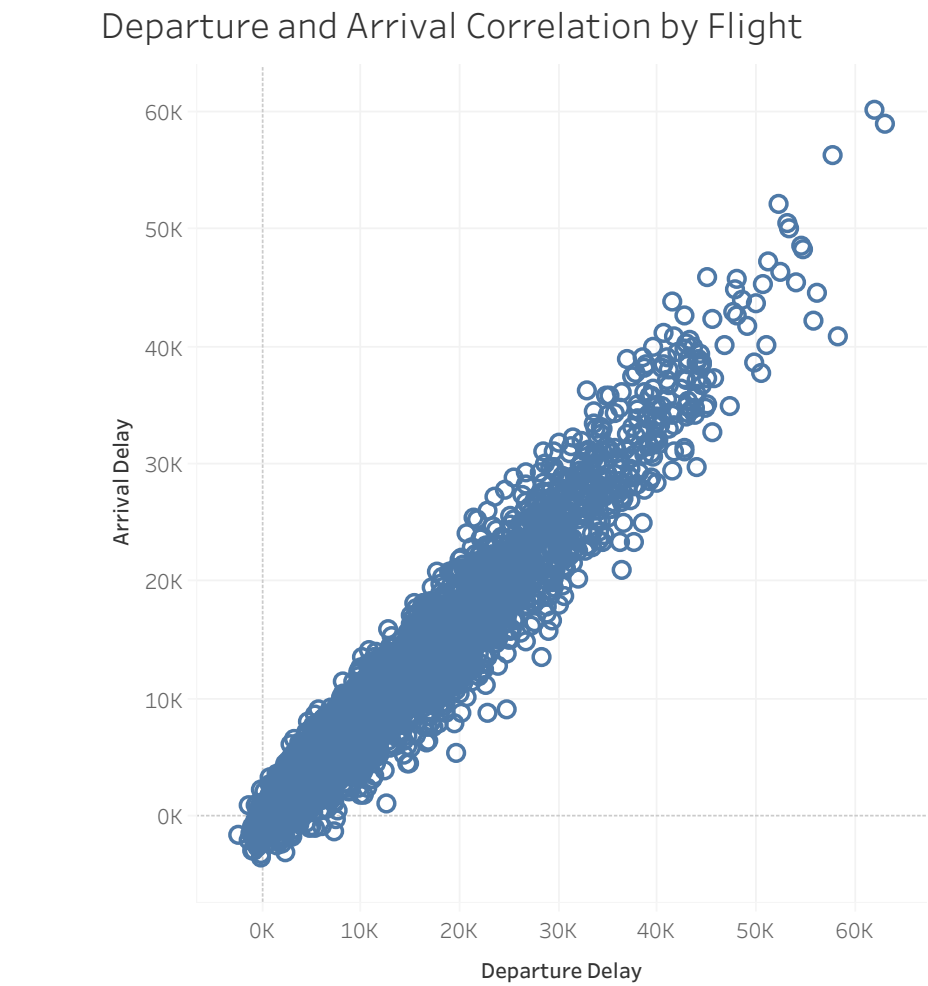


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Looking side by side at arrival and departure d..

To confirm, our previous finding is correct, let's see the two scatterplots below showing almost perfect correlation between arrival and departure delay. With a small deviation by Southwest Airlines, all US official carriers seems to follow the delay rule harmoniously. It seems that Aloha Airlines planes always arrive and depart ahead of schedule. Amazing!

But the delays may not be the worst thing which may hap..



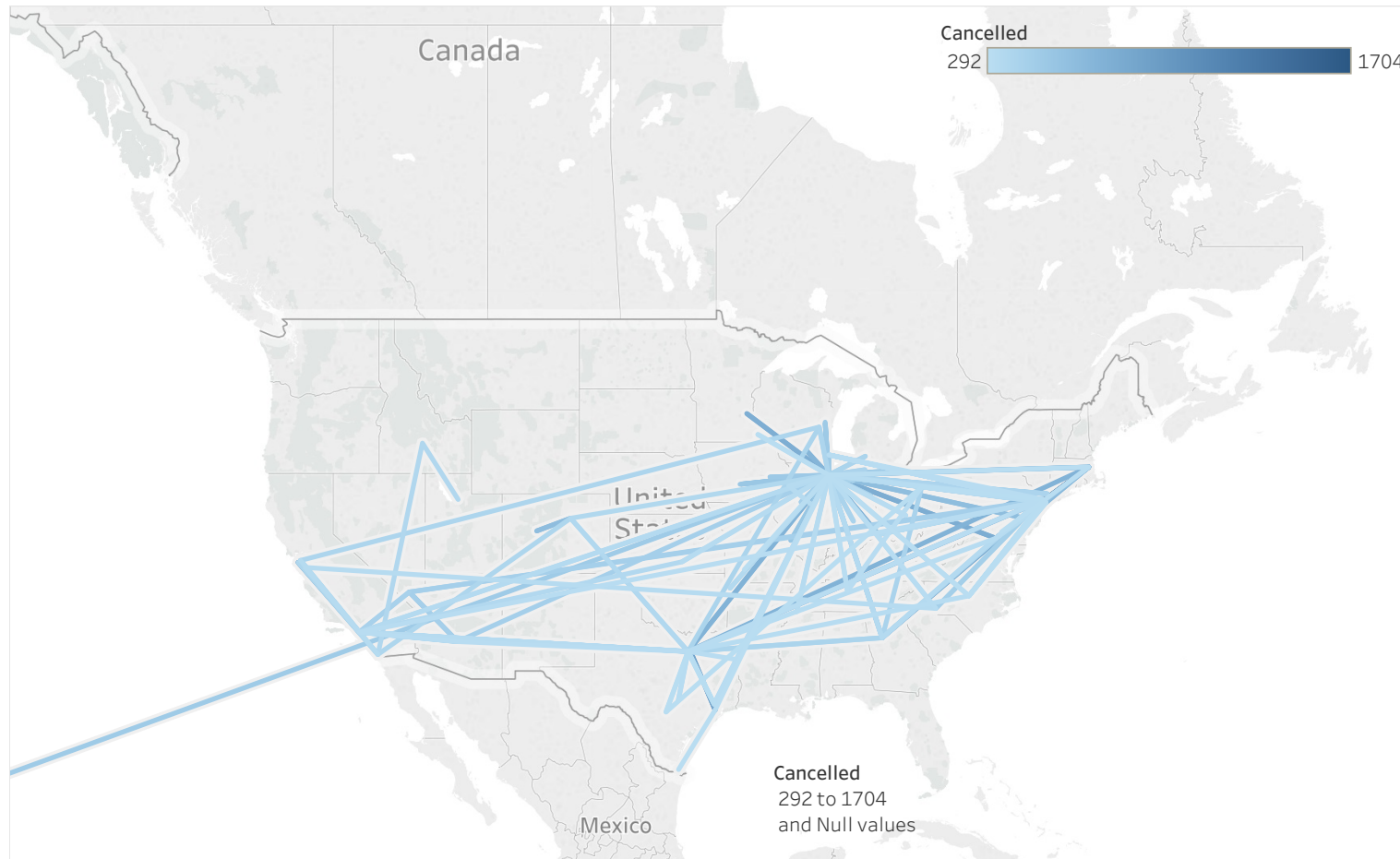
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To confirm,
our previous
finding is
correct, let'..

But the delays may not be the worst thing which may happen. Some flights get cancelled and below you can see which paths are most risky. Long-distance cross country flights are most prone to be cancelled and the ones along east coast. The winner with 1704 cancelled flights in 2008 is a flight from Nowy York LaGuardia to Chicago O'Hare.

For most of
passengers
delayed or
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Flights Cancelled by Path



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For most of passengers delayed or cancelled flights are unavoidable but planning next trips they can look at cancellation reasons and choose the carrier carefully. For example, they should potentially avoid carriers like Mesa Airlines having some problems with their fleet or flights organization, or both.

