



The Hot Stuff on Airline Recruiting
ACI-NA Air Service Data & Planning Seminar
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Quality of Service Index Review

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Session Outline

- What is QSI, and what is it used for?
- How does QSI work?
- QSI analysis: inputs and outputs
- Defining the scope of your analysis
- QSI software: advantages and cautions
- Sample analysis and discussion
- How else can airports use QSI analysis?
- Q&A and session summary

What is QSI?

- A powerful tool that is used extensively in the industry
- Method of assessing the relative quality of different services
- A Quality of Service Index is a way of quantifying a concept which is qualitative (service quality)
- In the case of air travel, quality is measured from the perspective of the passenger
 - What aspects do consumers value when booking air travel?
 - Based on the characteristics of different flight options, which ones are consumers most likely to choose?
- QSI attempts to forecast consumer behaviour by quantifying the relative attractiveness of different flight options

What is it Used For?

- QSI is used to predict the future
- It can help **airlines** answer questions such as:
 - What market share will a new flight capture?
 - How many passengers will it carry, and what will the load factor be?
 - How many of these passengers will be local, and how many will be connecting?
 - How many of the onboard passengers will we take from our competitors? From our existing flights?
 - What revenue will the flight achieve?
 - What network contribution will it provide?
 - Will the new service be profitable?

What is it Used For?

- For airport marketers, QSI is used to:
 - Identify and evaluate new route opportunities for the airport
 - Improve the accuracy and credibility of business case presentations to airlines

- So how does it work?

How does QSI work? QSI Methodology

- QSI involves four basic steps
- Step 1: Determine which factors passengers consider when choosing a flight among several options
- Step 2: Apply coefficients to each factor, for each flight option
- Step 3: Multiply the coefficients to calculate a QSI score for each flight option
- Step 4: Compare the relative QSI scores to estimate the market share that each flight option will achieve

How does QSI work? QSI Methodology

- Basic methodology example:

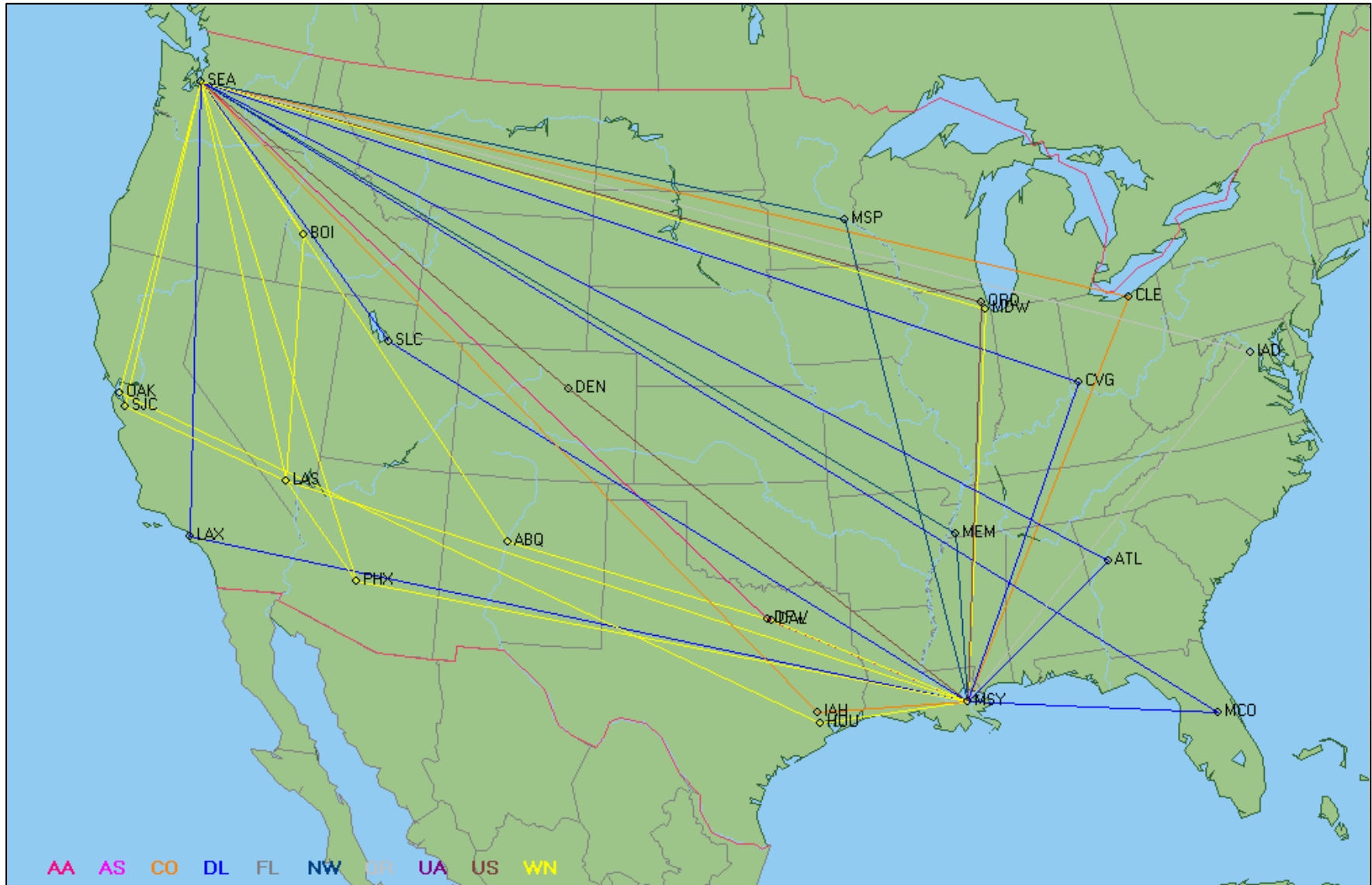
Step 1: Factors

Step 2: Coefficients

Step 3: QSI Score

Step 4: Market Share

Factors	Flight Options	
	Airline A (1 Non-stop Flight/Day)	Airline B (3 Connecting Flights/Day)
Aircraft Type	1.00	1.00
Stops	1.00	0.25
Frequency	1.00	3.00
Total	1.00	0.75
Industry Total	1.75	1.75
Forecast Market Share	57%	43%



Understanding Factors & Coefficients

- **Factors: what factors do passengers consider when choosing between different flight options?**
 - Number of stops
 - Aircraft type
 - Flight frequency
 - Travel time
 - Airfare
 - Time of day
 - Day of week
 - Others?

- **Do all passengers consider the same factors?**

Understanding Factors & Coefficients

- **How are coefficients determined?**
 - Should a non-stop flight score twice as high as a connecting flight? Ten times as high?
 - How attractive is a Boeing 777 relative to an Airbus A320?

- **The best indication is past behaviour**
 - Calibration of coefficients is based on millions of observations

- **Determining proper coefficients is a huge job, but vitally important!**

Understanding Factors & Coefficients

- **Coefficients may be:**
 - Relative (e.g., non-stop flight =1, single cnx = 0.25)
 - Absolute (e.g., flight frequency)

- **Weightings: the greater the variation in possible coefficients, the greater the influence of the factor**

- **For example, if:**
 - Flight coefficients range from 1.0 for a non-stop to 0.05 for a double connection to (lowest is 5% of the highest), and
 - Aircraft coefficients range from 0.70 for a CRJ-900 to 1.05 for an A321 (lowest is 66% of the highest), then
 - Flight routing will have a much greater impact on QSI score than aircraft type

QSI Analysis: Inputs and Outputs

- **Model inputs – what data is required?**
 - Flight schedules (OAG)
 - City pair market sizes (DOT or other research)
 - Airfares (DOT or other research)
 - Stimulation factors (Research and carrier input)

- **Model output – interpreting the results**
 - A QSI model will provide market share for local and connecting markets
 - Combined with the data above, this can be used to calculate:
 - Flight load factor
 - Traffic spill
 - Self diversion
 - Flight revenue

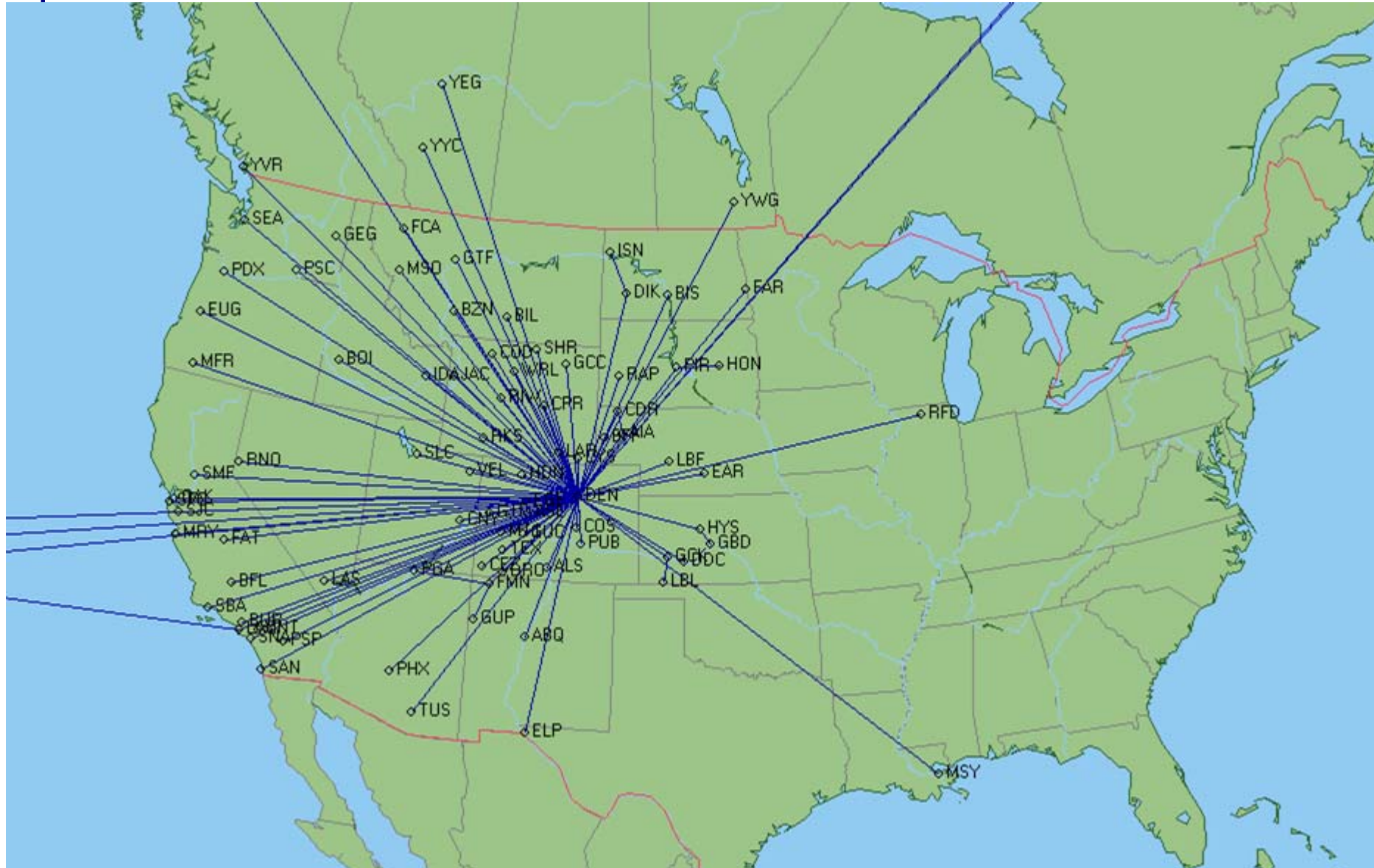
- **What you get out is only as good as what you put in!**
 - Accurate data is absolutely critical

Defining the Scope of Your Analysis:

- **Which flights should be considered?**
 - Non-stop, single connect, double connect?
 - Online connections, interline connections?
 - Circuity considerations

- **Which airports are relevant?**
 - Defining your catchment area
 - Determining which airports to include
 - Does leakage occur in both directions?
 - How do we account for surface access differences?

- **Which factors should be included?**
 - Are all factors relevant?



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Sample Analysis and Discussion

- QSI analysis for New Orleans – Denver

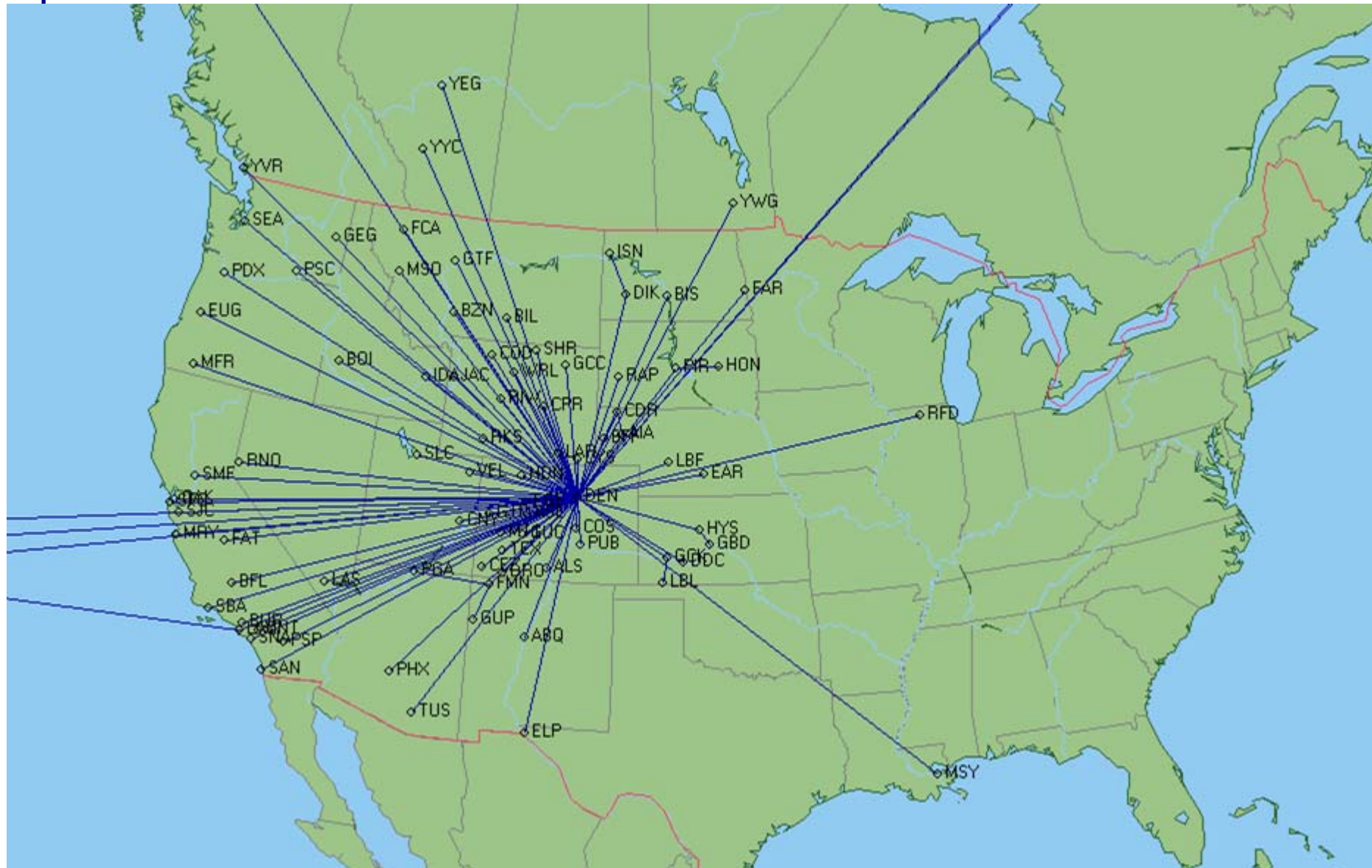
- United Airlines
 - 3 flights/day
 - A320 aircraft

- What share of the MSY-DEN market will United get?

- How much of this traffic is UA already carrying?

- What share of the MSY-PDX market will United get via DEN?

- What is the projected load factor of these flights?



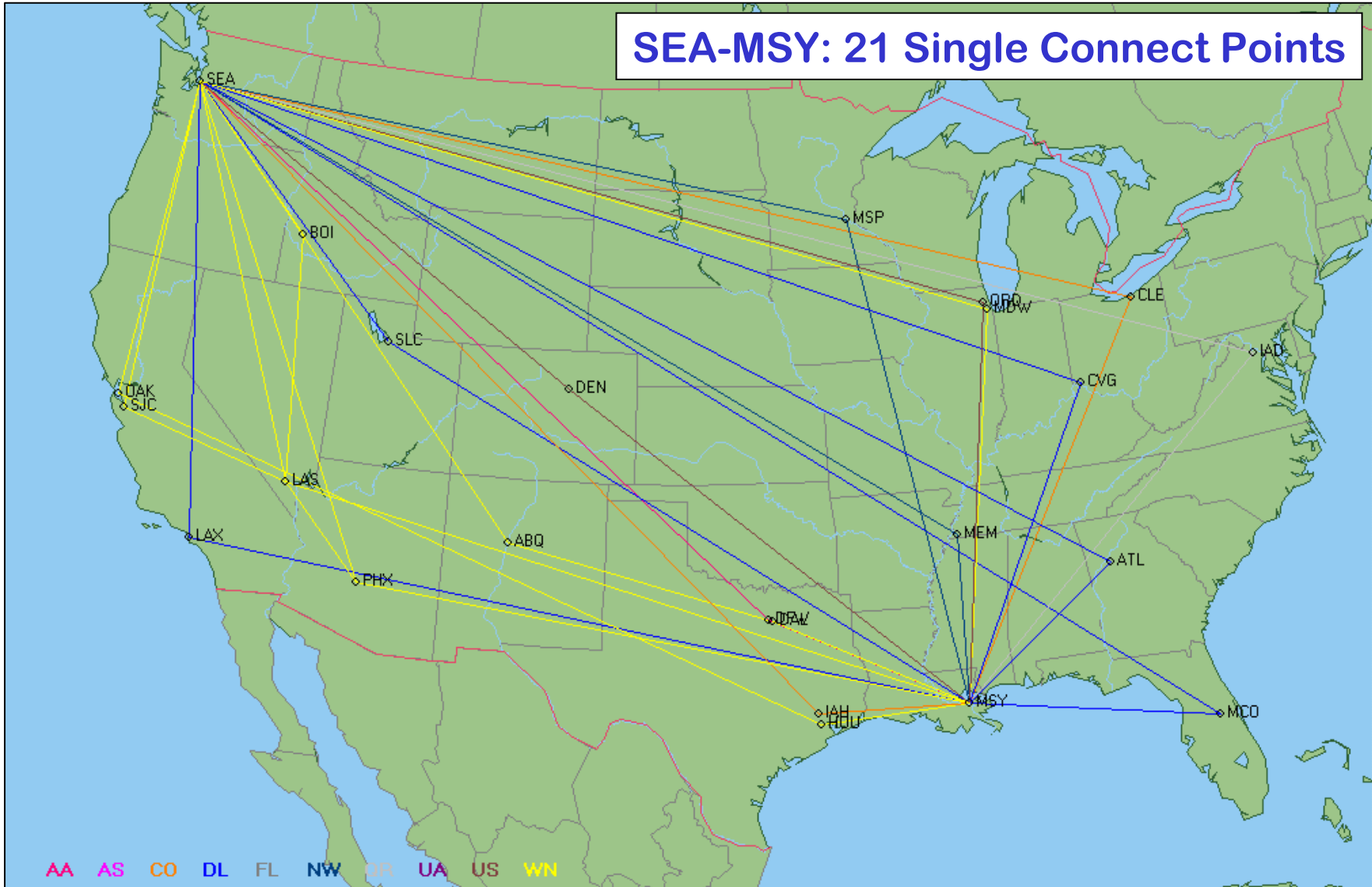
QSI Software: Advantages and Cautions

- **QSI calculations can be done manually**
- **However, as the complexity of the analysis increases, this can become impractical**
- **Even determining the competitive flight options can be time consuming**
- **There are significant advantages to using computer software designed for airline QSI analysis**

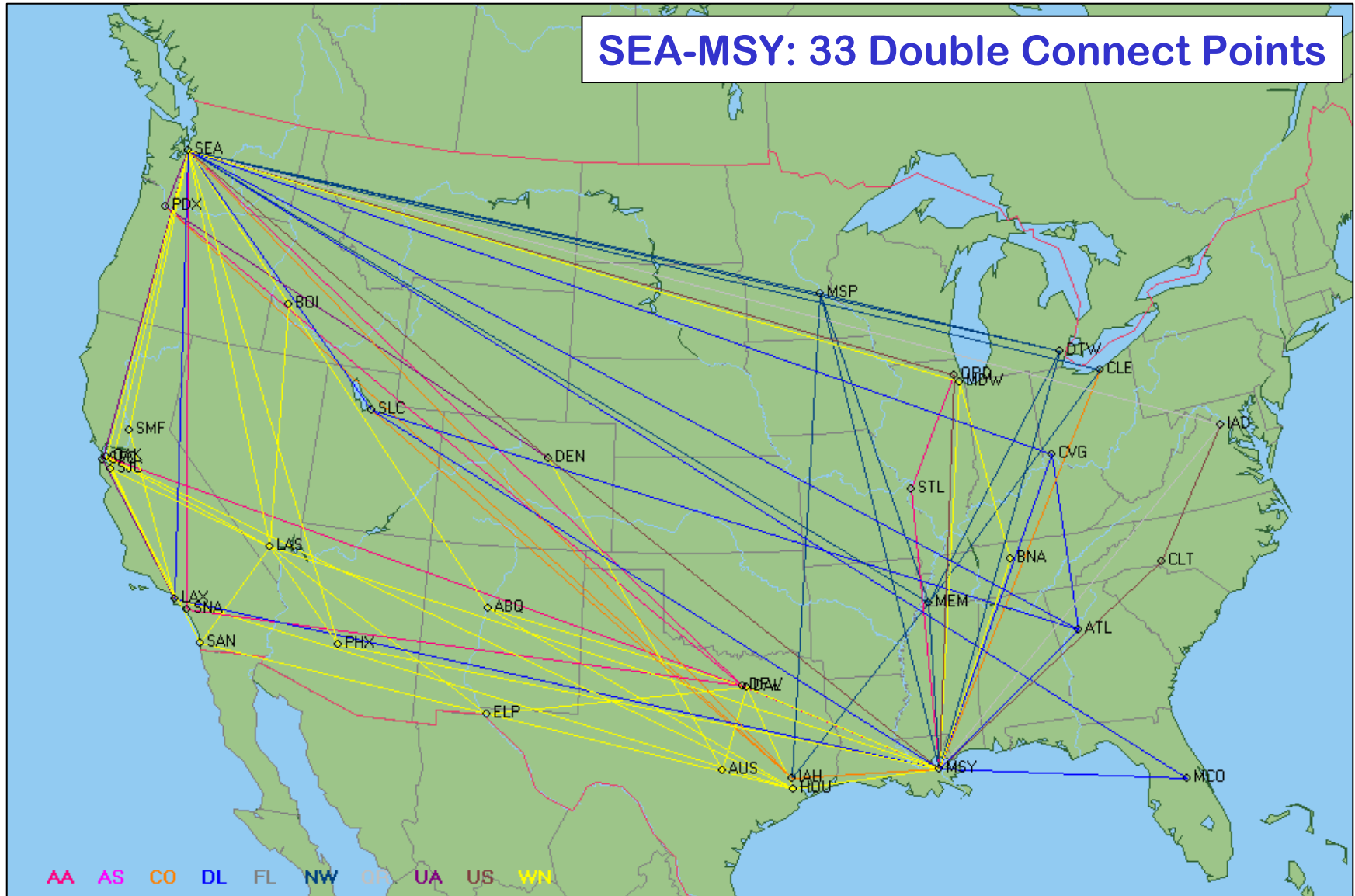
QSI Software Advantages - Schedules

- **The software is designed to identify and build appropriate competitive air services**
- **Min/max connect times**
- **Codeshare and interline agreements**
- **Circuitry**

SEA-MSY: 21 Single Connect Points



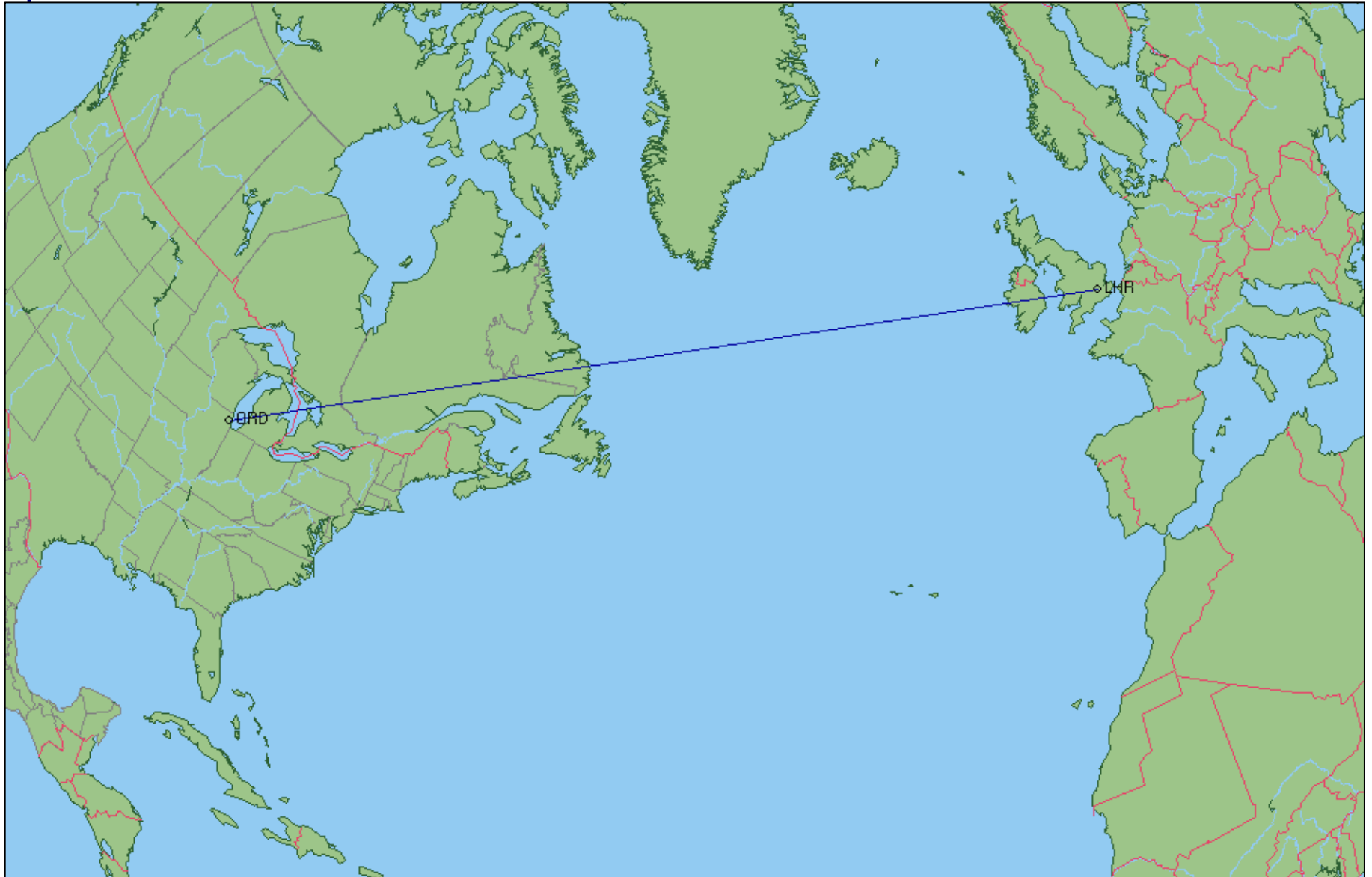
SEA-MSY: 33 Double Connect Points



QSI Software Advantages - Markets

- **As with identifying competitive flights, QSI models can build appropriate passenger itineraries for inclusion in the analysis**
 - These will differ by route and by airline
 - When single and double connect markets are included, the options can easily be in the hundreds

- **Consider the following example:**
 - What origin/destination passenger markets does American Airlines serve with a London-Chicago flight?



QSI Software Advantages - Markets

- On a London-Chicago flight, AA would serve
 - The non-stop market (i.e., LHR-ORD)
 - Single connects behind London (e.g., MAD-LHR-ORD)
 - Single connects beyond Chicago (e.g., LHR-ORD-DEN)
 - Double connects behind London (e.g., TFN-MAD-LHR-ORD)
 - Double connects beyond Chicago (e.g., LHR-ORD-DFW-MEX)
 - Double connect bridge traffic (e.g., MAD-LHR-ORD-DEN)

- To evaluate a AA flight from London to Chicago requires assessing:
 - 1,775 city pairs
 - Tens of thousands of flight itineraries

- This can only be done with sophisticated software

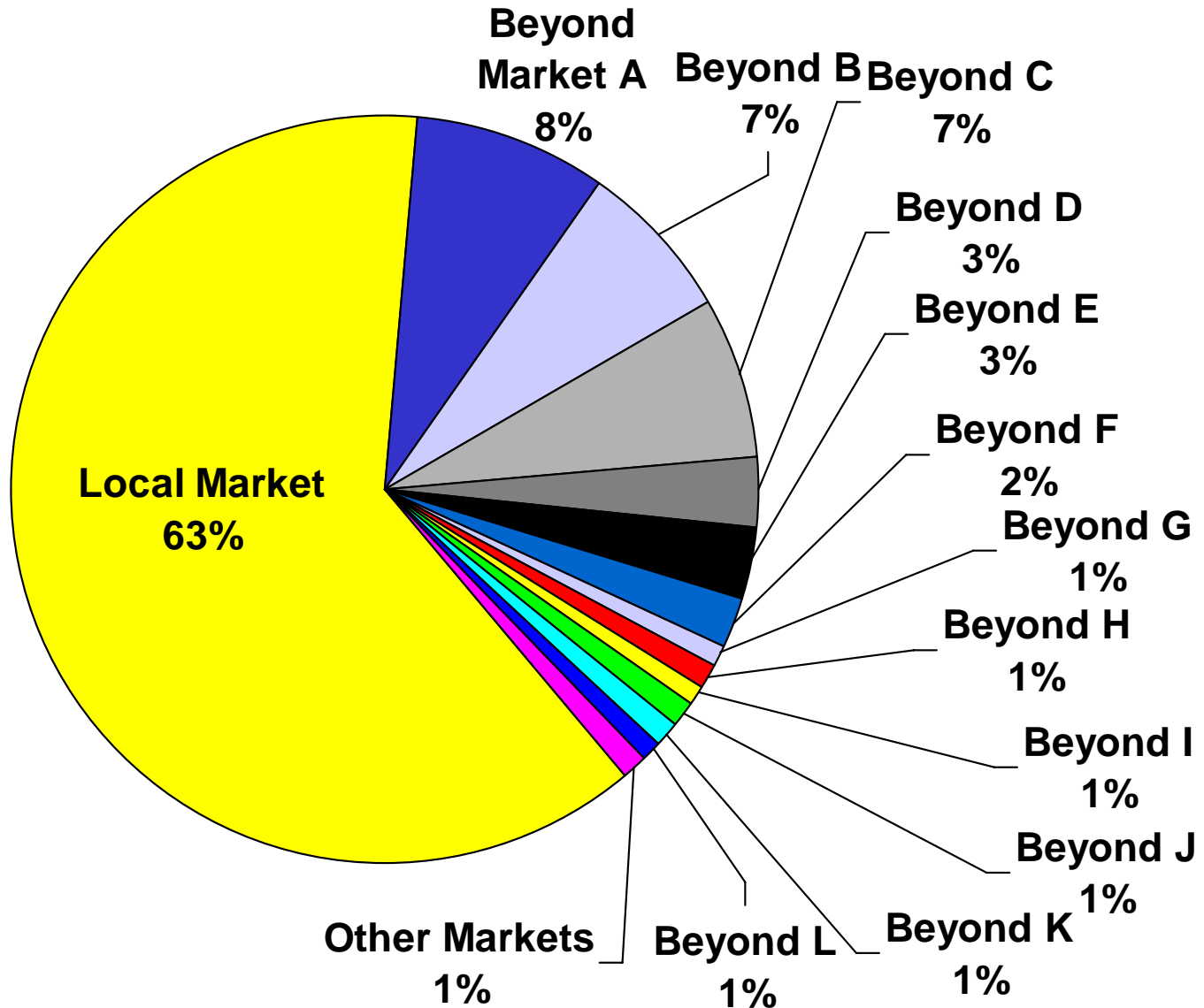
QSI Software: Advantages and Cautions

■ Other advantages:

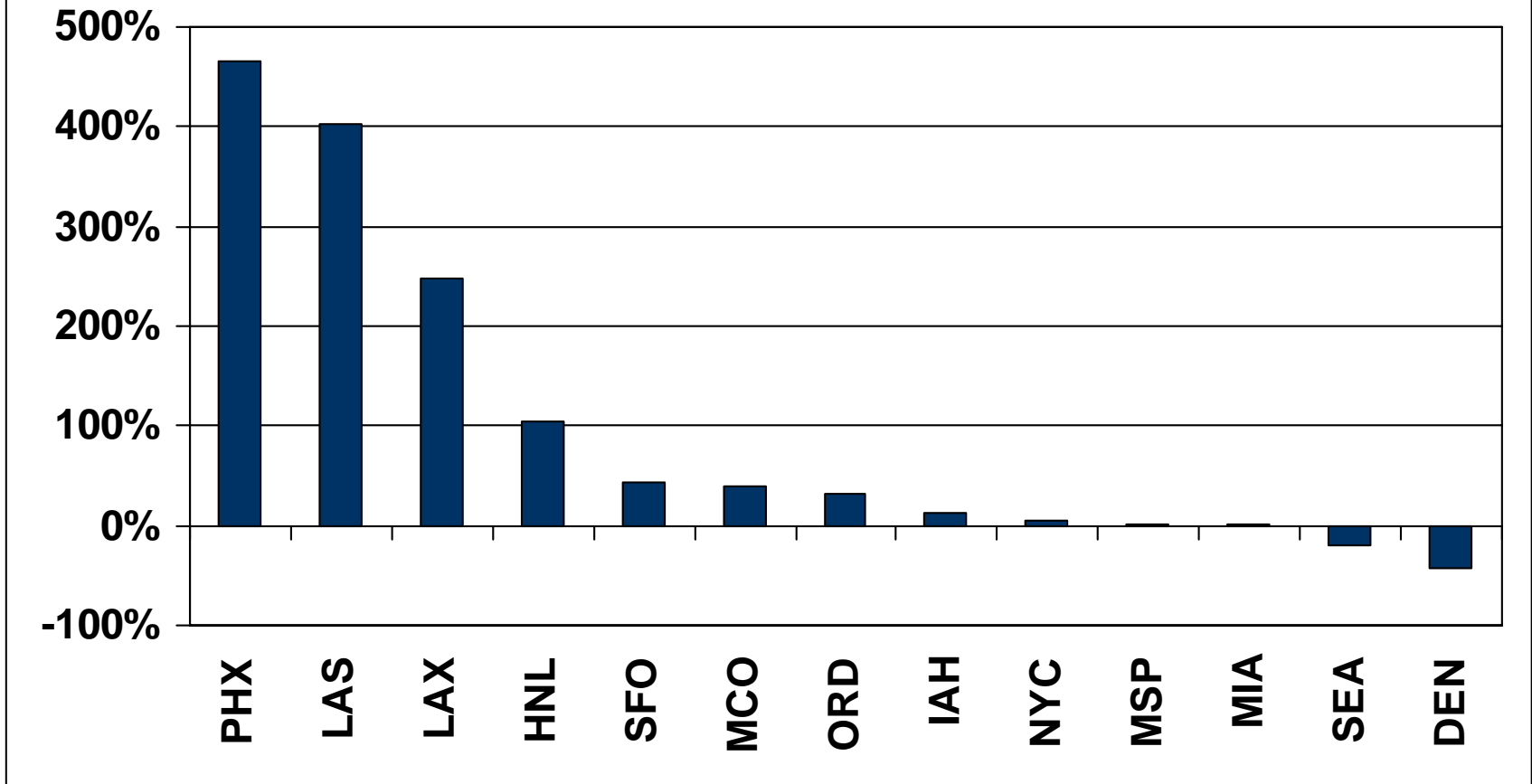
- Speed and efficiency
- Accuracy
- Consistency
 - Over time
 - With airlines' own analysis
- Credibility

■ Cautions:

- Results must always be interpreted, and may need to be adjusted
- Calibration and geographic limitations



% Change in QSI Score ('07 vs. '06)



How else is QSI analysis used?

By airlines:

- Travel agency incentives
- Corporate travel contracts
- Marketing efforts
 - E.g., which market would provide the greatest revenue increase if we were to improve to fair share?

Q&A and Session Summary

- QSI is a powerful tool that is used extensively in the industry
- QSI attempts to forecast consumer behaviour by quantifying the relative attractiveness of different flight options
- QSI analysis can:
 - Help airports improve their strategic ASD planning, and
 - Improve the accuracy and credibility of their business case presentations to airlines
- The results of a QSI analysis are only as good as the data inputs – accurate data is critical!
- Don't rely only on QSI – build a complete business case



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