

Airline Pricing and Inventory Management: How It Works

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Today's Agenda

- Understanding objectives and key measures of airline revenue management
- Overview of pricing
- Overview of inventory management
- Discussion of how pricing fits in the larger issue of managing our business
- Plenty of time for questions and discussion

>> A PDF of these slides will be available

A Small Commercial Message!

- I want to acknowledge the kind help of American Airlines, which for almost 20 years has provided financial and travel support for my lectures at places like Darden
- Without their help, I could not visit dozens of schools each year
- American Airlines believes strongly in supporting the communities we serve
- We are proud to be a good corporate citizen – in the Commonwealth of Virginia and all over the world

Price and Volume Basics

- The classic tradeoff between price and volume exists to a large degree in the airline business
 - We call these terms yield and load factor
 - Yield is the amount of revenue per kilometer
 - Load factor is percentage of capacity sold
 - These two measures vary inversely
- The key difference in our business is that our product is totally perishable – like bananas at the supermarket

The Revenue-Management Objective

- Our objective is to maximize the revenue received for each unit of capacity offered
 - The measure is Revenue per Available Seat Mile – R/ASM, the product of yield and load factor
 - In 3Q08, American's system load factor was 82.2%, yield (per mi.) was 14.34¢, so R/ASM was 11.79¢
 - This calculation can be disaggregated to the flight level
 - This is the best measure!

Time-variable Demand

- Airlines also have the challenge of managing demand that varies temporally:
 - By time of day, day of week, and season
- We use pricing to “shave the peaks” in a business with high fixed costs
 - As a general statement, fixed costs are 70-80% of total expense
 - The classic microeconomic rule applies: it is rational to operate a flight that covers all variable costs and makes even a small contribution to fixed expense

The Reality of Old Airlines and New

- All over the world, for the first five or six decades of the airline industry, governments regulated economic (as well as operational) aspects of our business
- During the past 30 years, the overwhelming trend has been to deregulate, and let the marketplace decide
- But during the closed environment of regulation, older airlines did not see a need to control their expenses
- Since deregulation, these older companies, including American, have had to compete with new companies – like Southwest and jetBlue – that have much lower costs
- By definition, these lower costs mean the new airlines can sell 100% of their seats cheaper than we can!

Overview of Pricing

Why Is Airline Pricing Confusing?

- We are all accustomed to a linear relationship between cost and distance
 - We know this best from the gas pump
- Because of the high fixed/low marginal cost structure in this business, and the presence of competitors with much lower costs, in open markets prices today bear little resemblance to cost . . .

Better, But Imperfect, Pricing Analogs



- Imperfect: unlike manufactured goods, the cost “floor” for the product is very low

American Has Lots of Prices

- Over 200,000 “published” fares
- 11,000 city-pairs on four kinds of routes
 - Point to point: New York-Los Angeles
 - Hub to beyond a hub: Chicago to Santo Domingo
 - Behind a hub to a hub: Mexico City to Omaha
 - Behind a hub to beyond a hub: El Paso to Frankfurt (via Dallas/Fort Worth and Chicago)
- Each city pair has an average of 10 fares
- More than 100,000 daily changes

Why So Many Fares?

- Chronic overcapacity – this is an industry that cannot easily calibrate demand and supply
- Intensely competitive industry, with different types of companies
 - Varying financial condition of airlines
 - Point-to-point systems vs. hub networks
 - Low-cost carrier (LCC) competition on 85% of U.S. routes
- Nearly perfect information – and capable I.T.

Match Price or Lose Market Share

- This is a basic fact of life in open markets, no less in the airline business than elsewhere
- Kevin Healy, VP-Planning and Sales for low-cost carrier AirTran, speaking in Dallas in December 2004

“For every 1 seat we offer, American offers 26 at discount prices. They match all of our fares, and all of our fare rules.”

Overview of Inventory Management

Managing Inventory: The Basic Idea

- Price is meaningless without quantity: how many seats to sell at what price?
- Remember: the inventory is perishable!
- There are three main risks
 - Oversales: at departure, customers exceed seats
 - Spoilage: refusing bookings, then seats go empty
 - Dilution: selling a seat lower than the price a customer was willing to pay
- But controls are only needed if the flight is likely to be full
 - Otherwise, we will be able to accommodate all the demand

A Lot of Inventory to Manage!

- The management horizon is 11 months (330 days)
- American operates about 2,100 flights per day, with an average of 140 seats on each
- We also manage the inventory for 1700 daily American Eagle flights, with an average of 40 seats

The Three Types of Inventory Control

- Overbooking, or selling seats above the aircraft capacity
- Managing discount-fare availability
 - Said another way: never saying “No” to the full-fare customer
- Managing “competing itineraries” on a single leg
 - Unique to carriers that operate hub-and-spoke networks

Overbooking

- Why?
 - Two to three reservations produce one sale
 - On average, only about 85% of customers with bookings the day before actually board a flight -- and reservations canceled too late usually cannot be resold
 - We continue to allow people to “no-show” with either no or small penalty -- we’d really like to run ticket sales like rock concerts or football games!

Overbooking is Good for Everyone

- Though criticized by the media and others, overbooking is “win-win”:
 - It allows us to say “Yes” to customers more often, to give them their first choice and a deeper discount
 - It helps us maximize revenue
 - Ultimately, it keeps fares lower
- We manage oversales effectively, by aggressively seeking volunteers at the gate
 - Last year, we only “bumped” 1 customer per 20,000

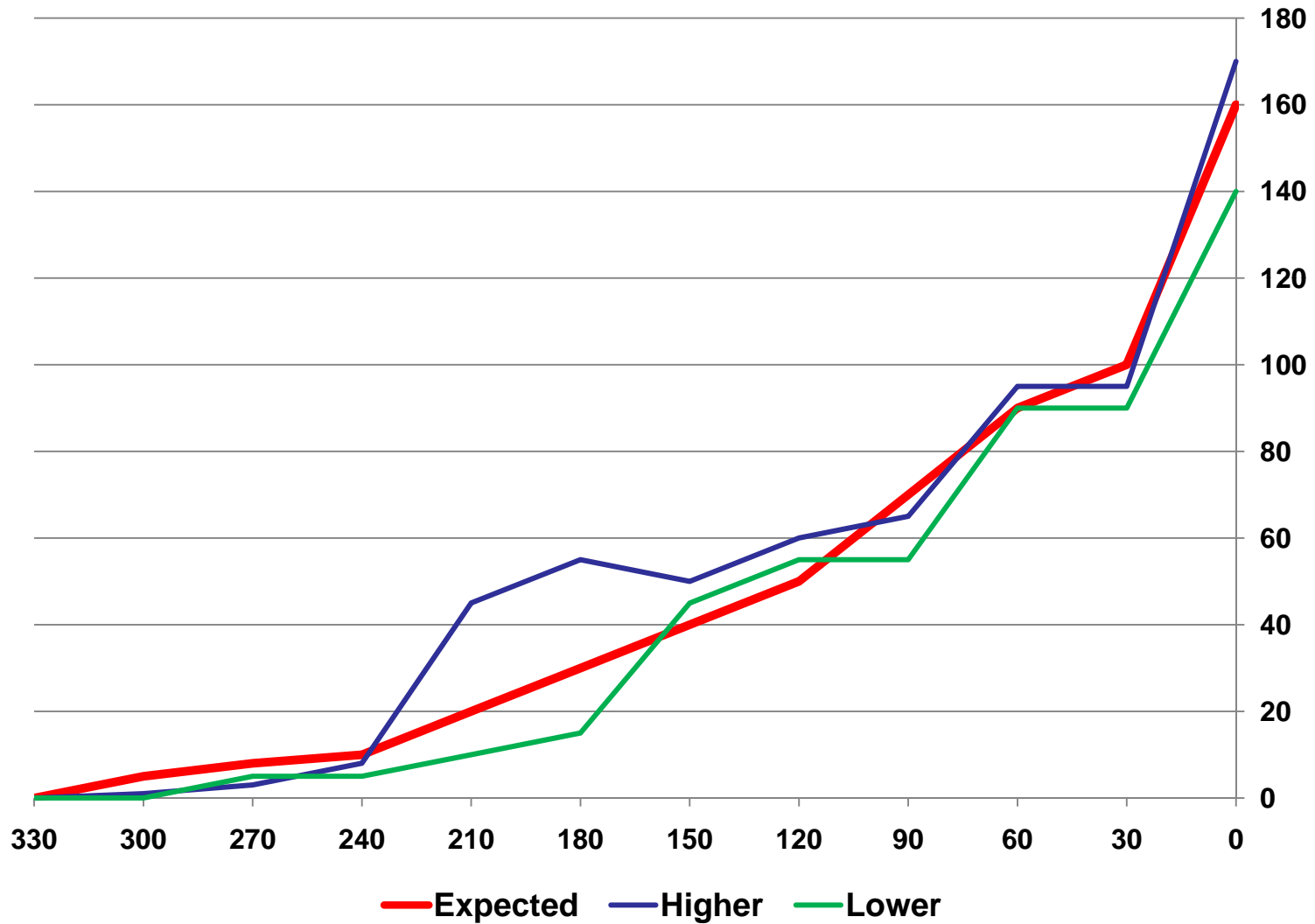
Managing Discount-Fare Allocation

- This process essentially works in reverse: the objective is never to deny a late-booking, full-fare customer
- But the positive view is to make available as many discount seats as possible
- Allocations change dynamically as departure approaches and as demand changes
- Typically, 60% of all flights remain open in all inventories up to departure time!
- Let me show you a picture and a chart . . .

Magic Beach Buckets Are The Key!



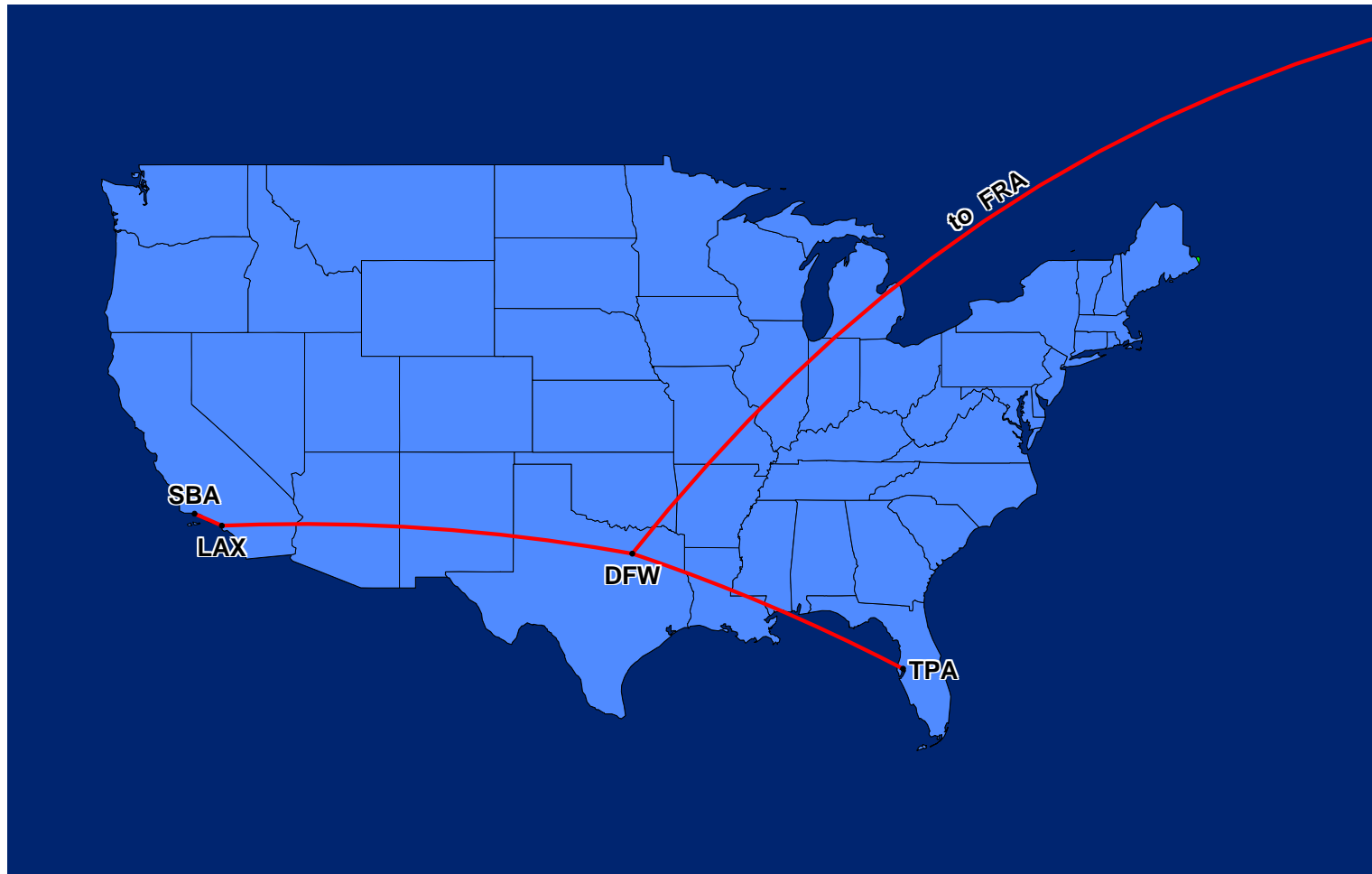
A Sample Flight, 160-seat Aircraft



Managing an Extensive Network

- The objective of traffic management is to ensure that we accommodate passengers with the greatest revenue contribution
- Operating a hub-and-spoke network means many different kinds of demand exist, mainly
 - Geographical – local vs. flow
 - Fare type – “full” vs. discounted
 - Competitive set (LCCs are nearly ubiquitous)

Managing an Extensive Network



How Do We Keep Track of All This?

- A strong combination of increasingly capable information systems and talented market observers is the key
- The process has evolved in tandem with advancing I.T. and Artificial Intelligence
 - Larger historical databases
 - More variables
- But understand that prices and conditions need to be presented in real time

Customer Issues – Some Old, Some New

- Broad marketplace perception that the system is confusing
 - Just because you can introduce more complexity doesn't mean you should
 - Lingering perception that LCCs are cheaper
 - Older U.S. carriers are abandoning reforms Delta pioneered in 2005
 - The problem of “Full Y”
 - Continued skepticism about discount-fare availability
 - Unbundling the product and fees as “the new thing”
 - Asynchronous pricing information across online channels
 - Perishability and the issue of standby travel
 - Interest in a secondary bid-price market
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Time for Your Questions!

