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ascend

Taking your airline to new heights

THE PILOT

A Conversation with Tim Hoeksema, chairman, president and chief executive officer, Midwest Airlines. pg. 36

Special Section

INSIDE

wearelistening@sabre.com

What Customers Want

With an enhanced focus toward customer loyalty, airlines are investing in advanced analytics to gain insights into customer behaviors and preferences, which will significantly impact carriers' revenue management and inventory control processes as well as boost the bottom line.

By Ben Vinod | *Ascend* Contributor

To get closer to customers and understand what they truly desire, airlines are investing in data mining, business intelligence and advanced data analytics to understand consumer traits, behaviors and preferences to improve customer retention, acquire new customers and maximize the revenue-generation potential with every customer interaction. The renewed focus on customer loyalty and experience for airlines to differentiate themselves also has a significant impact on pricing and revenue management.

Key Enablers

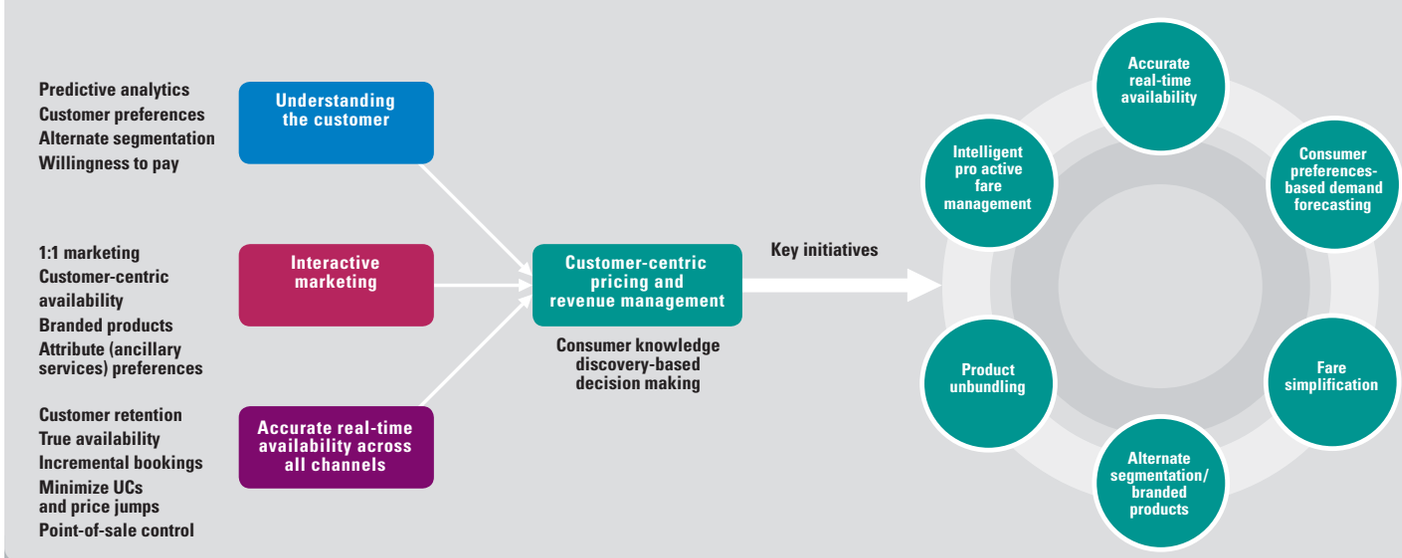
Customer-centric revenue management is an enabler of customer relationship management to increase an airline's profitability based on customer insight. Traditionally, it has been the role of airline marketing to acquire new customers in the most cost-effective manner. However, today, it requires a combination of marketing, revenue management and real-time inventory control to facilitate one-to-one targeted responses to manage the customer life cycle across all customer touch points. Key business drivers are converging to enable customer-centric revenue management along six key dimensions. While these initiatives along these six dimensions can be sometimes viewed as independent initiatives, they need to come together in a cohesive framework for an effective pricing and revenue management program.

Business process changes necessitated with a desire to get closer to customers has resulted in the most significant changes in pricing and revenue management since the introduction of origin-and-destination revenue management in the mid 1990s.

Consumer Preference Forecasting

The arrival of the Internet in the mid 1990s was followed shortly with Web travel supermarkets and consumer-direct Web sites. With the growth in online bookings from airline Web sites and supermarkets, there is a new source of rich data to model consumer preferences and estimate demand for an airline's product. Forecasting using this approach is based on the fundamental recognition that demand is the outcome of a consumer choice decision. Demand forecasting based on consumer preferences follows the actual demand process in terms of how a specific air product is purchased for travel. Consumers typically select

Key Drivers To Enable The Six Dimensions Of Customer-Centric Revenue Management



Key business drivers — understanding the customer, interactive marketing and accurate real-time availability across all channels — are joining to facilitate customer-centric revenue management along six key dimensions.

an itinerary based on a combination of schedule attributes and price.

This new source of data used for forecasting demand based on consumer preference is called shopping data. The forecast model is based on a customer's utility function — a function of market share, market size, competitive schedule changes, type of service (nonstop, direct or connection), carrier preference in a market, type of aircraft (turbo, jet), requested time, departure/arrival times, elapsed times, displacement time between services, route frequency, fares and applicable restrictions. Introducing price into the equation has the advantage of being able to react quickly to major fare specials. This approach to forecasting is a vast improvement over traditional time-series models that do not consider the effects of competitor schedule, quality of service attributes and prices prevailing in the market.

An effective method to forecast dependent demand, or demand that is a function of the price and other consumer choice variables, is to adopt a top-down consumer choice model that follows the actual demand process of itinerary selection by a customer. In addition, a consumer choice-modeling framework is the only practical method to forecast restriction-free demand where only the price point determines the product and consumer demand is dependent on the price points. Besides forecasting demand, this approach can also be used to estimate the demand for new markets, impact of flight schedule changes, up-sell rates, recapture rates and price elasticities. Calibration of a logit choice model requires a combination of industry data, airline data and actual passenger booking sessions that reflect the options available and the choices made by passengers.

Last August, *Sabre Airline Solutions*® deployed the world's first consumer-preference-based demand-forecast model for GOL, Brazil's fastest-growing low-cost carrier with a primary hub in São Paulo, as part of the *Sabre*® *AirMax*® *Revenue Management Suite* for O&D control.

Fare Simplification

The first attempt at value pricing was made in April 1992 by American Airlines, a bold initiative to move to a radical simplification of a fare structure that had grown in complexity since deregulation. Instead of selling seats at several prices, American Airlines offered only four types of fares — first class, regular coach and two discount coach fares that had a seven-day and 21-day advance purchase restriction. The carrier's value pricing initiative also planned to abolish corporate discounts. Acknowledged by industry analysts as well ahead of its time, the value pricing initiative by American Airlines, however, collapsed when major competitors that had initially matched American's tariff structure quickly retracted, which prompted American's then Chief Executive Officer Robert Crandall to famously remark "you are only as smart as your dumbest competitor."

With the objective of providing transparency in fares to customers, low-cost carriers reintroduced simplified fares in the late 1990s with an added twist by dropping restrictions. The earliest fare simplification model, which is still practiced by a few LCCs today, relies on a pure restriction-free pricing structure. In this scenario, an airline would file multiple fares with the same identical minimal fare restrictions across all fare classes. Hence, the probability of selling a fare higher in the hierarchy is contingent on the immediate lower fare being closed for sale. In other words, the fare structure promotes a 100 percent sell down to the lowest available fare since there is no distinction in the product with the exception of the fare value. With this approach, when a flight is first detailed in the reservations system, there is a single one-way fare in the market. In this scenario, revenue management should forecast dependent demand based on current fare class that is open. In addition, active monitoring and closure of selling fare at the right time is required to promote sell-up to the higher fare and maximize flight revenues.

As low-cost carriers have grown from start-ups to established airlines with an increasing and sometimes dominant market share, the evolution of fare simplification has gravitated toward a hybrid model based on the realization that fare restrictions provide flexibility and the ability to target specific customer segments. The hybrid model has unique class groups or restriction sets where each class group has the same fare restrictions but with different fare values. With launch carrier bmi, *Sabre Airline Solutions* introduced the first leg/segment revenue management solution with decision support for restriction-free pricing in 2002.

The dilemma faced by full-service network airlines is how to effectively compete against low-cost carriers in key markets that are predominantly short haul where profitability is the exception rather than the rule. Even established and well-run carriers such as British Airways have been unable to operate profitably on the intra-European routes, even

Single-Dimensional Restriction-Free Tariff Structure

Booking class	Fare	Advance purchase	Minimum stay	Cancellation penalty (%)	Description
Y	US$279	–	–	100%	• Fare classes are not independent • Lower fare differential • Multiple fares are filed but with the same identical restrictions • Promotes 100 percent sell down to the open-fare class due to the absence of restrictions
B	US$249	–	–	100%	
M	US$209	–	–	100%	
H	US$179	–	–	100%	
V	US$159	–	–	100%	
Z	US$139	–	–	100%	
Q	US$109	–	–	100%	

When considering a simplified pricing structure where the fare amount is the only determinant of the market segment, all fare rules are identical.

Hybrid Restriction-Free Tariff Structure

Booking class	Fare	Advance purchase	Minimum stay	Cancellation penalty (%)	Description
Y	US$279	–	–	25%	• Products (fare classes) with identical restrictions are not independent • Multiple fares are filed with identical restrictions • Promotes less than 100 percent sell down since multiple classes with different restrictions may be open
B	US$249	–	–	25%	
M	US$209	–	–	25%	
H	US$189	7AP	3	50%	
V	US$169	7AP	3	50%	
Z	US$149	7AP	3	50%	
Q	US$129	21AP	7	100%	
R	US$109	21AP	7	100%	
W	US$99	21AP	7	100%	

In the case of a simplified fare structure with three class groups, within each class group the restrictions are the same and the fare amount is the only component that is different.

before the arrival of the LCCs. While retaining their traditional fare structure with restrictions for connecting traffic, network carriers have to compete against low-cost carriers on short-haul routes. To compete and protect market share, they have to operate in a hybrid environment. From an inventory control perspective, to operate in a hybrid environment, a cabin on a flight can be viewed as consisting of a virtual partition to accommodate the optimal mix of customers on the traditional fare structure in the first partition and the optimal mix of passengers who purchase unrestricted fares at various price points in the second partition. Hence, the two types of inventory controls for the two passenger types should co-exist on the same flight. The consumer choice modeling approach can be used to forecast traditional fare classes (independent demand) and restriction-free fare classes (dependent demand). However, the network optimization model poses some unique challenges since there are two types of passengers — restriction-free and regular tariffs. The world's first restriction-free pricing solution for network carriers that control inventory by O&D was launched with the *AirMax* suite deployment at GOL that uses a new fare-adjustment approach to transform dependent demand into independent demand and solving the modified problem with the proven stochastic network optimization model from *Sabre Airline Solutions*.

Alternate Segmentation

Getting closer to the customer requires an understanding of the underlying data and an investment in a data management infrastructure. With an investment in the storage and analysis of passenger name record and ticket data, there is a growing interest in segmentation of customers beyond the traditional booking class to promote brand recognition and customer retention. While booking classes are still required for inventory control and distribution of availability through GDSs, alternate segmentation offers a framework for implementing key marketing initiatives.

Creation of a data management infrastructure supports a deeper understanding of the customer base and prevents customers from leaving through the revolving door.

The creation of alternate segments beyond the traditional booking class is typically accomplished based on a desired marketing objective. For example, displaying availability to an end consumer based on value score may be a desired marketing objective. In this scenario, the customer lifetime value, or CLV, is a measure of the present value of the likely future revenue stream generated by a customer. Hence,

$$CustomerLifetimeValue = -CTA + VTD + \sum_{t=1}^{t=T} \frac{R_t - C_t}{(1+i_t)^t}$$

where CTA is the cost toward acquisition of the customer and VTD is the value to date from inception up to the current time period and the last term, which is the most important measure, is the remaining customer lifetime value. R_t is the revenue in period t, C_t is the direct variable cost in period t and i is the cost of capital.

By sorting the CLVs or remaining CLVs in descending order, the individual measures can be grouped to create target segments for various marketing programs. An example of the use of CLV for an airline is to execute a promotion for frequent flyer customers who have not flown on an airline for a specified period of time. In this scenario, the data is first segmented to only include frequent flyers who have not flown for a specific time period, such as 12 months. Next, these customers can be clustered by CLV and specific CLV tiers can be selected for the promotional campaign to achieve the desired marketing objective of generating incremental bookings by providing incentives for these target customers to fly.

Branded fares provide another example of alternate segmentation beyond the booking class. To overcome the perception of an airline seat as a commodity, a key initiative in the airline community is to focus on the brand, describe the uniqueness of the products offered for sale and communicate the product offering to the customer.

The standard segmentation of customers for revenue management is based on the booking class. Up to 26 booking classes can be used, which can be distributed through GDSs. This paradigm does not change with branded fares since booking classes are still mapped to the branded-fare families. However, it spawns several new requirements for reservations processing, revenue management and distribution, including:

- Ability to maintain booking counts by branded products in real time to display availability by branded product,
- Support for the display of availability by branded product through both the consumer direct Web site and the GDS (The marketing objective of airlines is to have a travel agent on a self-service online booking engine describe the branded products to customers when a selection is being made.),
- Display of availability should indicate if the branded product, such as premium economy, is available and at what price,
- Demand forecasting that models the actual demand process requires a top-down approach to first forecasting demand for the branded products followed with a forecast for booking classes mapped to the branded product.

The *Sabre*® global distribution system product called *Sabre® Branded Fares* has been successfully deployed with Qantas Airways and Porter Airlines, which enables a new way of displaying fares that is integrated with the agency desktop workflow for *Sabre Connected*℠ travel agency points of sale.

Product Unbundling

It is a well-known fact that for typical consumer purchases, such as toothpaste, deodorant and automobiles, one-third of all customers purchase based on price, one-third based on quality and one-third based on brand recognition. However, airlines have always been an anomaly. Leisure passengers are notoriously price sensitive and business passengers base their decision on price and schedule. Brand loyalty is minimal unless the prices of the competing itineraries are very close. To differentiate their brand and create brand loyalty, airlines are experimenting with offering a no-frills base fare and adding back services for which customers are truly willing to pay.

With the growing emphasis on ancillary products and services as a potential revenue stream that can augment the bottom line, airlines require the capability to sell, distribute and settle ancillary services across all channels of distribution. This implies that a capability is required to set the prices for ancillary services, distribute products with differentiated content and conduct financial settlement across all channels. This has significant impact on the capabilities of current airline reservations, global distribution and revenue accounting systems.

In a recent study, ATPCO estimated the opportunity value of a global industry solution to exceed US$9 billion in revenue. Ryanair recently reported that its ancillary revenue rose 31 percent in the quarter ending June 30, 2006, outpacing its 20 percent increase in traffic. At easyJet, ancillary rev-

Branded Fare Families

Airline	Branded fares
Air Canada	Tango, Tango Plus, Latitude, Executive
Porter Airlines	Firm, Flexible, Freedom
bmi	Tiny, Economy, Premium Economy, Business
Avianca	Promo (Promotion), Econo (Tourist), Flexi (Flexible), Plena (Full Rate), Ejecutive (Business)

There are several examples of branded fare families adopted by some airlines. Each branded product is a fare family with unique traits that are essentially soft qualifiers bundled into the product definition such as access to pre-reserved seats, frequent flyer miles, lounge access and baggage count allowed at no charge.

enue accounted for 8 percent of the global revenue for the first half of 2006.

An independent survey conducted by Leflein Associates in January 2006 showed that many travelers would pay for extra perks such as more frequent flyer miles, more overhead bin space and the ability to sit in a child-free section of the aircraft. Other ancillary items promoted by airlines include in-flight Internet access, pre-reserved seats, access to the frequent flyer lounge and ground transportation. The two primary trends that have been identified in the unbundling of airline products at the time of booking include:

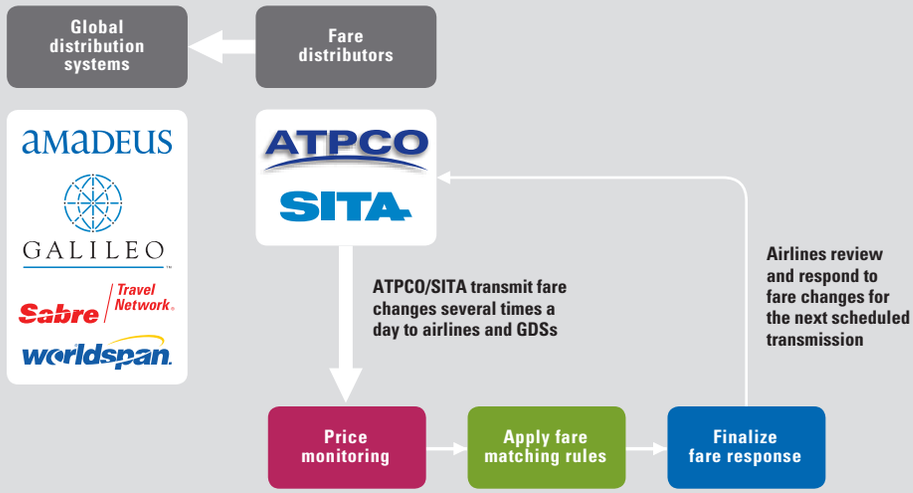
1. Distribution of a variety of in-flight products and services (pre-paid seats, checked baggage, meals, entertainment, etc.) and services consumed either before the flight or after the flight (access to frequent flyer lounge, pre-paid limo pick-up, etc.),
2. Selling optional flexibility with the use of their fares.

Today, the pricing of ancillary services, frequently referred to as attribute pricing, typically has the same value across the airline network. However, the future evolution of attribute pricing will vary by market for some ancillary services, such as pre-reserved seats, based on prevailing competitive market conditions. Pricing for ancillary services can be determined by using predictive analytics based on consumer preferences gathered from the booking process and survey data.

Promoting ancillary services also has an impact on revenue management. If certain customer segments are more likely than others to consume ancillary services, this should be factored into the decision-making process when discount allocation controls are established on an airline's reservations inventory system. Hence, the average passenger revenue for a booking class can be augmented with the ancillary revenue forecast before nested seat allocations are determined to ensure that seats protected for booking classes with an ancillary revenue upside receive additional seats. As ancillary revenues proliferate, this requires a forecast of the expected ancillary revenues by customer segment based on historic consumption that can then be added to the average fare value of the booking class to get a true representation of contribution when the network is optimized. Current revenue accounting systems do not aggregate ancillary services consumed to a flight segment. Hence, the challenge is to enhance the existing revenue accounting systems to track the usage of ancillary revenues by flight segment and booking class.

Sabre Airline Solutions is partnering with Midwest Airlines to launch merchandising through the *Sabre® Distribution Merchandising Suite* with enhancements to *SabreSonic® Res* for reservations, inventory and departure control processing and the *Quasar™* passenger revenue accounting system. This unique new solution will enable airlines to differentiate and sell premium airline seats in a coach-class cabin, and it will be available initially at the Midwest Airlines Web site and airport kiosks during check-in. Premium seat selection will also be available at any *Sabre Connected* travel agent after the initial rollout.

Tactical Fare Management Process



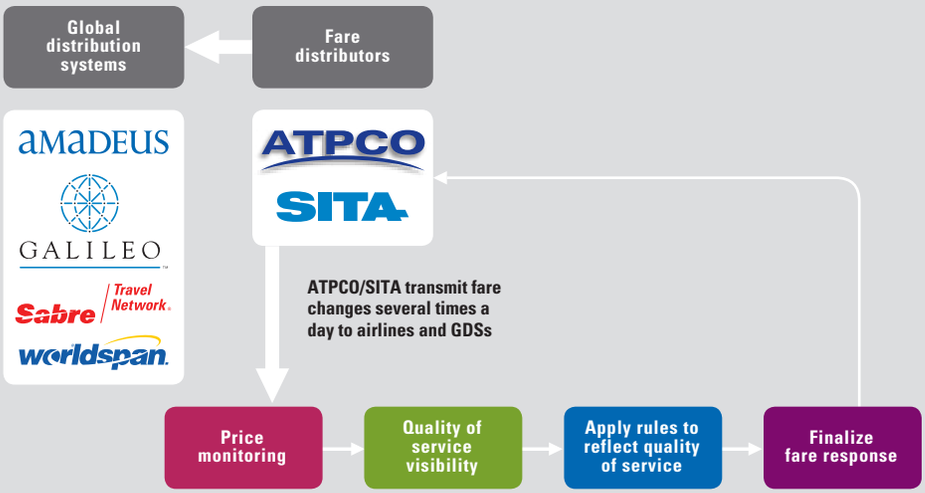
During the traditional fare management process, the fare distributors disseminate all fare changes, and the airlines respond to competitor fare actions.

Intelligent Proactive Pricing

Tactical and strategic price leadership in a market is increasingly viewed as a competitive weapon. Tactical pricing is the traditional fare management process of responding to a fare action taken on a specific fare in a market by a competitor. Strategic pricing has a longer term view and is the process of promoting an entirely new tariff structure for a market.

Traditional airline pricing has relied on reactive fare matching to respond to competitor actions. Sometimes, the reaction ripples through other markets or differs from the original change, inducing a sequence of changes. The objective of reactive fare

Customer-Centric Tactical Fare Management Process



Rather than the recommended fare management process where fare matching is taken for granted, here, the quality of service is considered to determine the ideal fare response to a competitor's fare actions.

changes is often to match a competitor's fare to preserve market share.

Traditional tactical fare matching can be replaced by determining the right response based on the quality of service offered by the competitor that initiated the fare action. Therefore, the tactical fare response to a specific fare action by a competitor can be an intelligent response as a function of the quality of service. If the quality of service offered by a competitor that initiated the action is inferior, a fare match response may not be the desired alternative.

Accurate Availability

The exponential growth in online bookings during the past decade has provided customers with instant access and visibility into competing schedules and fares through Web supermarkets such as *Travelocity* and *Expedia*. This unparalleled transparency of schedules and fares over the Internet has propagated a bargain-hunting mentality among leisure online travelers, resulting in a disproportionate growth in availability processing due to increased shopping activity. As a result, the need for greater revenue and inventory control has not been greater. Due to the growth in online shopping coupled with the use of robotics for comparison shopping across Web sites, it is estimated that the look-to-book ratio from online channels can vary from 100:1 to well over 1,000:1 in certain markets. With these high shopping volumes, online Web supermarkets resort to cached availability for two reasons:

1. Reduction in transaction costs associated with querying an airline's host CRS for true last-seat availability,
2. Faster response times from availability data that is readily available in cache.

The cache is periodically refreshed based on algorithms that are a function of the age and usage of the availability data. When an item is not found in cache, the response to an end consumer can be based on pre-stored AVS or a direct query to the host CRS of the airline to refresh the cache.

Cached inventory unfortunately is often inaccurate since online channels typically store this information by segment class; therefore, operational business rules are not reflected in the cache. For airlines that manage their inventory by origin and destination, the segment-class cache does not reflect true O&D-class availability. To address this problem, *Sabre Airline Solutions* was the first to deploy cached availability by O&D, class and country point of sale. This was an industry first and constituted a step improvement in accuracy of availability displays over cached availability by segment class.

There are two types of availability errors — type 1 and type 2 errors — that occur when the cache does not reflect true availability.

A type 1 error occurs when the cached availability for a booking class is open while the class is truly closed in the host CRS. A type 1 error can also result in the customer experiencing a price jump, which implies that the minimum available fare displayed is lower when only a higher fare is truly available.

A type 2 error occurs when the cached availability for a booking class is closed while the class is truly open in the host CRS.

These errors result is higher UCs, or unable to confirm at sell messages, which in turn result in lost demand and loss of customer goodwill. The deployment of an availability proxy is a step improvement to determine true last-seat availability by replicating an airline's availability and business logic resident in the host CRS without submitting the availability requests directly to the host CRS. The solution also serves as an availability offload or by-pass for the host CRS without losing accuracy in availability responses.

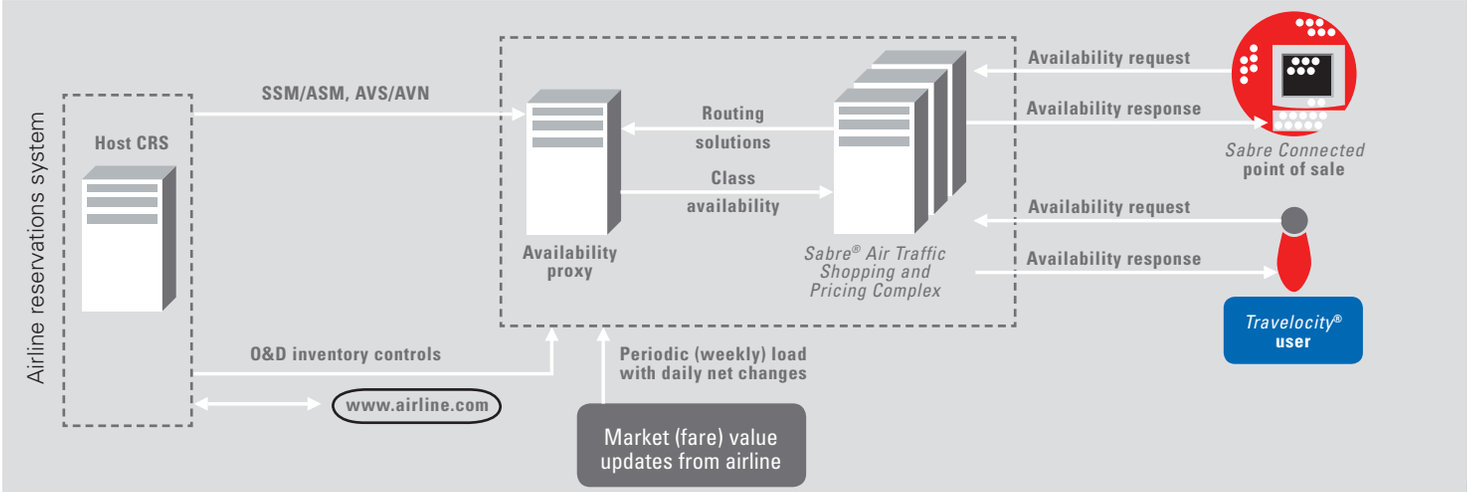
For airlines that manage seat inventory by origin and destination, the value proposition of deploying an availability proxy for *Sabre Connected* points of sale is the reduction in UCs, which results in incremental bookings and improvement in customer goodwill since the first choice selected by the customer is rarely rejected. From a *Sabre* GDS perspective, with the deployment of an availability proxy, all availability and shopping transactions from *Sabre Connected* points of sale will be processed directly by the availability proxy for true last-seat availability. *Sabre Travel Network*® partnered with Continental Airlines last year to launch the availability proxy. Similar deployments are planned for other major network carriers.

While focus on the customer has begun in earnest, the key components of customer-centric revenue management are still in their early stages of evolution. As the evolving trend suggests, revenue management, customer relationship management and how solutions are distributed are converging with strong interdependencies that require a holistic view to understand business impacts and how the various customer touch points need to be managed. The continuing evolution of pricing and revenue management is a winning proposition for both the airline and the customer.

A key driver for the migration are the more sophisticated demands from airlines based on advances in pricing, revenue management and customer-retention initiatives in customer relationship management to effectively manage customer touch points to build lifetime relationships with the valued customer base.

Ben Vinod is chief scientist for Sabre Holdings®. *He can be contacted at ben.vinod@sabre.com.*

Availability Proxy Deployment For An O&D Carrier



For an airline that operates with O&D inventory controls, the host CRS sends standard and ad hoc schedule change messages (SSM/ASM) and availability status (AVS/AVN) to the availability proxy environment. The host CRS also sends current O&D controls, such as bid prices, every time there is a change in bookings by flight leg and date. The market values required for the O&D availability evaluation are typically updated weekly by the airline, and net changes are processed daily by market on an exception basis.