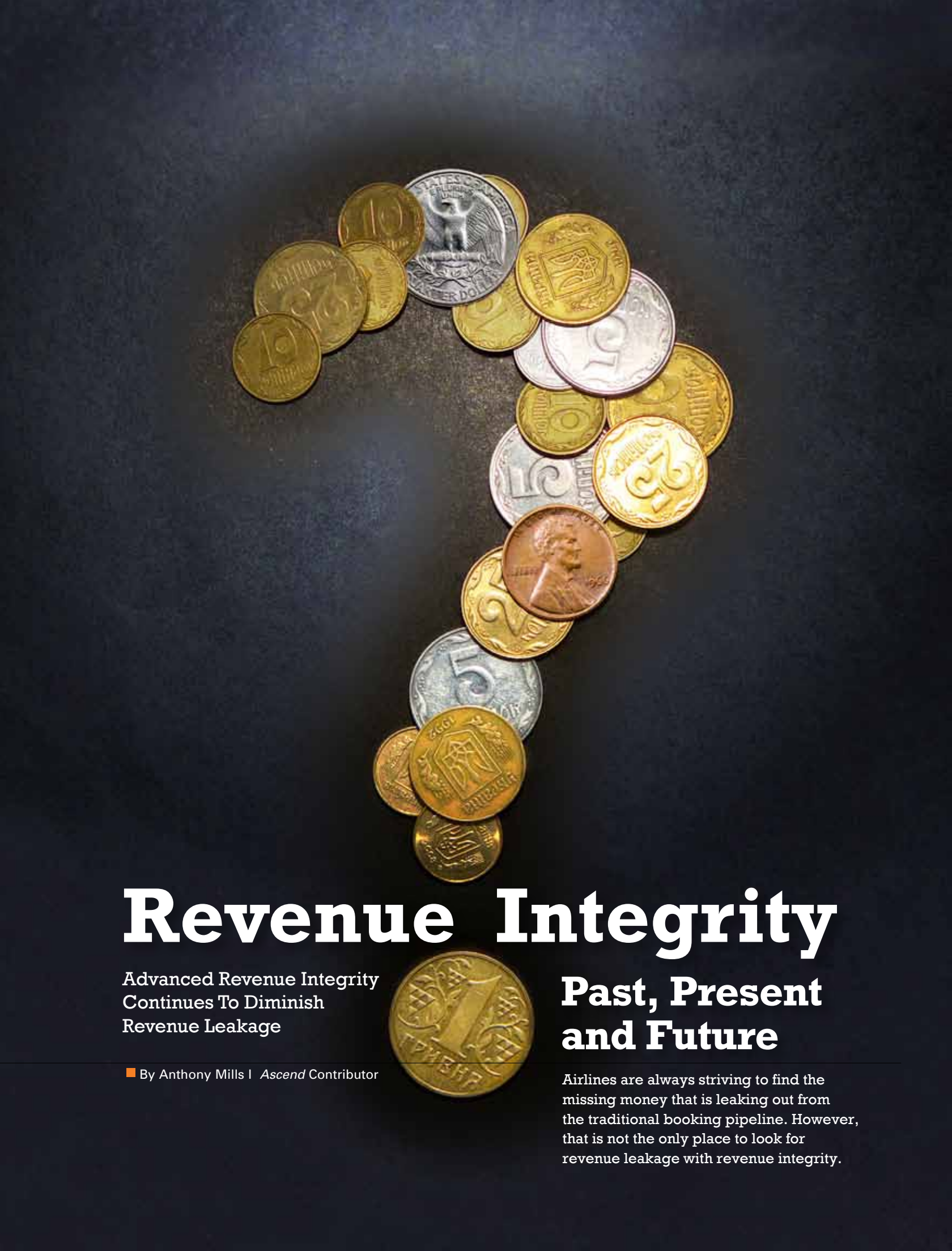

Revenue Integrity

Past, Present and Future

Advanced Revenue Integrity Continues To Diminish Revenue Leakage

By Anthony Mills I *Ascend* Contributor

Airlines are always striving to find the missing money that is leaking out from the traditional booking pipeline. However, that is not the only place to look for revenue leakage with revenue integrity.

Ascend is celebrating its tenth year of publication. Where have those 10 years gone? The real question that executives in the revenue integrity field at airlines are asking themselves is, "Where did all the missing money from bad bookings go during those 10 years? And did we recover it, or at least some of it?"

If they have a solid revenue integrity strategy in place, they likely have recovered a good portion of this lost revenue. The revenue integrity discipline focuses on stopping revenue leakage by examining bookings to ensure they are genuine. Revenue integrity principles aim at stemming this leakage by making sure that:

- What is reserved gets sold,
- What is sold gets delivered — no more, no less,
- What gets delivered gets billed.

Stopping revenue leakage has a direct impact on the bottom line for an airline and is, therefore, one of the most compelling cost-saving and profit-improvement opportunities for airlines.

The Early Years

Where and when did the concept of revenue integrity begin?

In the early days when airlines were establishing a foot hold with the flying public, they sold direct to the public and distributed somehow through a third party — the same holds true today.

Back in the 1960s, airlines realized that automating the process for distributing their bookings would effectively extend their sales force, and global distribution systems (GDSs) were born. Airlines were effectively the first e-commerce companies in the world (B2C electronic commerce) and could reach many more potential customers to fly with them. GDSs are now the backbone of the Internet travel distribution system.

With these different distribution channels came problems of how to ensure that an airline's flights were actually being booked by passengers who would pay and fly. Travel agencies, airlines and customers all contributed, and continue to contribute, to problems that can cause revenue leakage for airlines. This leakage comes from anywhere along the pipeline … from the initial reservation, all the changes made to the reservation, ticketing and paying to the service delivery at the airport and in flight.

All aspects of booking and ticketing to the fulfillment lifecycle provide an opportunity for an individual to intentionally (deliberate abuse of the system) or accidentally cause the loss of considerable amounts of money. Many airlines originally thought this was just the way things were in the airline industry and these problems were an inevitable part of how business was conducted.

To counter this, airlines began to put individuals to work manually reviewing particular flights at a designated number of days before departure, especially flights that were becoming full. This manual work continued for some time, and this is where "flight firming" helped airlines clean out spurious bookings from their inventory to ensure that availability was as good as it could be for passengers that wanted to fly.

As revenue management systems became extensively used in the late 1980s, airlines began to have some insight or pro-active analysis of how the flights were filling and how expected revenues were looking. Even as flights seemed to be filling up well, there were still issues with no-shows on the day of departure. Analyzing these no-shows and using revenue integrity to help reduce them became critical, especially on high load-factor flights and/or those flights where classes were closing too soon and having to be re-opened again for sale in lower selling classes. It was highly important that these flights were checked manually at that time by the airline to ensure the no-shows were reduced and cancellation rates controlled as much as possible.

Paul Rose, chairman of the Airline Revenue Integrity Group (ARIG), remembers the early days of revenue integrity very well.

"All airlines have probably tried some very basic revenue integrity for 20 or 30 years, often using large numbers of people to do so," he said. "Amazingly, some airlines are still doing things that way. Then, in the 1990s, people started to look at robotic systems driven by a mainframe, but that meant you were looking at things in isolation. These systems were unsophisticated, and they had no database storage."

Those robotic systems were standalone PCs that worked like a human operator, replacing the repetitive manual work that flight-firming staff had been doing. Some of these robotic systems were created by airlines' own IT departments and did not handle many different revenue integrity issues, focusing on just one or two obvious problems.

In the mid-1990s, the first vendors began to provide robotic solutions to deal with the most common revenue integrity tasks. These were small startup companies such as Lanyon Ltd. (acquired by *Sabre Airline Solutions*® in 2004), Airline Automation Inc. (acquired by Amadeus in 2004, now called Amadeus Revenue Integrity), Bredimus Systems (changed its name to Airlogica in 2002) and MCC (exited the revenue integrity business in 2007).

The primary focus was reducing costs. These robotic scripts essentially replaced the human resources working these flights. The basic scripted robots were programmed to retrieve a booking in the airline host system, look for a certain problem (such as a fictitious name or duplicate segment) and then take action if a problem was found.

These first-generation revenue integrity robots were quite effective at reducing manpower, and they worked much faster than humans. However, they were limited and certainly caused additional transactional costs for airlines because of all the hits onto the host system looking for problem bookings. Individuals abusing the system were also getting smarter and were able to circumnavigate these basic robots.

In the late 1990s, Airline Automation Inc. (AAI) began offering a service bureau that allowed airlines to outsource the revenue integrity robotic processing. This became quite popular, especially in the United States. AAI also pioneered the second-generation revenue integrity solution, which used a shadow database that stored a copy of the PNRs that were retrieved by the robots. That led to an expansion in the number of problems that could be examined rather than dealing with the same PNR several times to review each possible problem as well as an expansion in the number of airlines addressing revenue leakage problems.

The Last Decade

At the start of the 21st century, around the time the first *Ascend* magazines came rolling off the press, a small Icelandic company called Calidris came into the frame with the first third-generation revenue integrity solution. The real-time data integration and business-process-automation solution stored all data from various sources linked up in a real-time operational data store and allowed airlines to take charge of their revenue integrity processes.

This was a large-scale server-based solution, whereas the previous generations had run on independent PCs connected to the airline's host system.

"When we started building Calidris Integrity, the term "revenue integrity" didn't exist," said Magnus Ingi Oskarsson, strategic architect for *Sabre Airline Solutions* and co-founder of Calidris. "And we didn't know that any solutions for it existed. We just saw problems that needed a solution. We wanted to create a holistic solution that could handle all problems as soon as they surfaced.

"For this, we developed a platform that could take all relevant data, such as booking, ticket and departure control, in real-time and link it together so airlines could share it across their entire organization. Then we added problem analysis and process automation to identify and deal with any problems that came along."

This is a fundamentally different approach than the robotics of earlier years. The focus is on total quality at all times across the entire lifecycle of the customer interaction with the airline.

"We were lucky to start working on our solution when technology was mature enough for us to develop a real-time platform and revenue integrity was emerging as a must-do initiative that had one of the best returns on investment for airlines," he said. "Calidris Integrity soon became known as the most effective RI solution, and we have not looked back since."

Receiving real-time booking and ticket data into the solution enabled Calidris to really push the boundaries of revenue integrity. It had a real-time operational data store underlying the platform, which conducted a lot of the analysis. Checking pre-departure meant less or little post-departure revenue recovery.

Its revenue integrity solution was unique in that problem analysis was managed separately from problem identification and resolution processes. This enables airlines to tailor resolution processes to individual markets, classes and customer types. Airlines such as Emirates have used this with significant advantage in problematic markets like the Indian sub-continent. In short, airlines now had a solution they could control and change to handle almost any revenue integrity problems that surfaced.

"At that time, before the e-ticketing era, our no-shows were unbelievable, higher than 20 percent," said Ramesh Venkat, senior vice president of yield

management for Emirates. "Cancellations were reckless. We also had issues with booking-class compliance and extremely high denied boarding, leading to customer inconvenience. We had to do something about it, and we evaluated many systems, but we chose the one that gave us the greatest flexibility in terms of managing a lot of requirements. Having used Calidris (now *Sabre*® AirVision™ *Revenue Integrity*), our no-shows dropped from 20 percent to 3 percent. In terms of denied boardings, we're down to less than six per 10,000 from 13. That is quite a dramatic improvement during the last five years.

"But we've also seen improvement in revenue generation, cost control and service. From the revenue-generation perspective, we now have the ability to spot high-revenue customers, and we have invented processes to action them. So, the quality of PNRs plays a big role in all our bookings, and we use revenue integrity for that. We can also spot when only one segment has been waitlisted with many others confirmed, and we can confirm or cancel the rest.

"On the side of cost control, GDS expenses are spiraling. Using revenue integrity, we save on multiple cancellation costs. In terms of service, there are a lot of prices that come with special offers, and to drive this through the standard ticketing system is very difficult. We use revenue integrity to trap those PNRs to put the right service information on the tickets."

It is most important for airlines to change rules and processes themselves. The analysis, process configuration and airline rules were all completed within the Calidris Integrity solution and controlled by the airline. Also, as bookings with multiple problems were analyzed within the solution, the transactions back onto the reservations systems were kept to a minimum. The solution had also been integrated with a number of reservations systems for all airlines to benefit from the technology.

There were several areas where Calidris differed from traditional revenue integrity robots. The simpler robots work flights a certain time before departure (snapshot approach). Others work queues on the host system where the host system places problem PNRs. Some are batch driven, meaning they work once per day on all PNRs created during that day (or work on more frequent batches during a 24-hour period). Real-time brought the ability to receive all changed bookings from the reservations system so bad bookings could be immediately returned to inventory.

Given that the main benefits from revenue integrity are finding problem bookings and cancelling them to resell the inventory, doing this in real-time, which is almost dynamic, speeds this up significantly and can deliver around 20 percent revenue improvements compared to solutions only using a nightly batch feed.

Some of the early adopters of Calidris technology were airlines that were working in the most difficult markets of the world and needed to have clean inventories all of the time to ensure that the availability was there when the demand was high. Airlines such as Royal Jordanian Airlines have gained significant value over the years from using the solution.

"Just looking at three of the top performing capabilities from the real-time *Sabre AirVision Revenue*

The "Godfather Of Revenue Integrity" When working for British Airways, Paul Rose managed all outward-facing aspects of revenue management. In that role, he contacted about 100 other airlines so they could collaborate on revenue integrity practices. In 1998, as a result of this work in partnership, ARIG was established. At that time, Rose created a term for solving revenue leakage in the airline reservations area: "revenue integrity."

Calidris Co-founder Magnus Ingi Oskarsson, co-founder of Calidris, believes the Calidris Integrity platform was the ideal platform to link real-time data (booking, ticket, DCS, etc.) and provide the best foundation for a new, more-effective way of handling revenue integrity in real time.

Rolls Royce Of RI For the past seven years, Ramesh Venkat, senior vice president of yield management for Emirates, has been spearheading the airline's revenue integrity program. According to Venkat, his airline is now working with the Rolls Royce of revenue integrity solutions.

Real-time RI Value Benefits Royal Jordanian Airlines, which has used real-time *Sabre AirVision Revenue Integrity* (formerly Calidris) since 2004, has gained large value benefits every month. Mohannad Khraisheh, director revenue management and pricing at the airline, manages the RI function.

Integrity solution (ticket time limits, duplicate bookings and redundant segments) portrays the value of the solution for Royal Jordanian," said Mohannad Khraisheh, the airline's director of revenue management and pricing. "By releasing large numbers of seats back to inventory, it is calculated that the solution delivers an estimated value of US$180,000 per day."

How an airline practices revenue integrity is as important as the choice of the revenue integrity solution (internal processes versus the system). In the end, results delivered by the systems are only as good as the business rules and practices put in place by each airline. Unfortunately, many airlines buying a new revenue integrity solution sometimes simply carry their existing rules and practices forward with them rather than taking the opportunity to re-examine them.

Airlines often partake in revenue management consultancy, but they often are not in the habit of using revenue integrity consulting. Consultancy on the revenue integrity side of the business helps airlines reassess their rules and practices to optimize them for today's environment.

General reviewing of an airline's revenue integrity rules and practices on a regular basis is also advised. Especially for ticket time limits, benchmarking against best practices in the industry, ensuring key performance indicators are maintained (trend analysis) and that reporting to key partners is in place.

This can be conducted by the airline or via external consultancy. In fact, sometimes having an external consultant to assess an airline's revenue integrity practices is the best approach for a more objective view of the airline's potential internal struggles among commercial, revenue and distribution departments. And it provides a fresh outside perspective.

Sabre AirVision Revenue Integrity continues to expand the boundaries of revenue integrity by developing more capabilities.

One example is "churning," the practice whereby a travel agent repeatedly cancels and rebooks the same passenger on the same flight in an attempt to lengthen the ticket time limit. Soon to be released is a churning analyzer to help airlines identify, report and act on this practice. The benefits for an airline is that identification of this practice at particular agencies allows the airline to take actions against travel agencies that misuse the airline's inventory and create additional GDS costs for the airline.

Airlines can enforce the original TTL and train agencies to stop churning and prevent driving up unnecessary costs. The results are higher revenues and lower GDS costs (reduced transaction and cancellation fees).

Looking Ahead

Revenue integrity will still play a policing role for airlines, but it will gradually play more of a pro-active role.

"I still believe the current ethos of revenue integrity is essentially reactive," said Venkat. "You allow somebody to book and you put a series of principles behind it. Then you tell people what's not right. It allows some events to happen and then goes back to determine what you want to do after that action has taken place; it's post mortem. I would prefer to see a real-time, pro-active revenue integrity strategy. This happens because reservations systems are independent of revenue integrity, but I would not allow such a PNR into the system to begin with."

Oskarsson, who has worked at the forefront of revenue integrity for 15 years, believes revenue integrity will move forward on several different fronts, including:

- Closer integration with pricing, directly enforcing TTLs and other fare rules. However, doing so blindly is not enough. TTL is essentially an option the airline gives the customer … an option to buy the seat later at today's price. The cost of this option has to be measured and the opportunity optimized by weighing the cost against the increased probability that the booking will become a real sale. Airlines could also sell the options to provide better service and generate ancillary revenue.
- Dynamic TTLs. Today, TTLs are fixed and published in the fare rules. They are the same on full and empty flights, for good and bad agents as well as for the best customers and unknown travelers. The same way revenue management optimization has become more sophisticated and revenue management controls more dynamic, TTLs will become dynamic and optimized to reflect the cost and revenue of the option they represent.
- Closer integration with revenue accounting. This means moving the fare auditing part of revenue accounting systems into a full, real-time audit of all issued tickets and other sale documents on the revenue integrity platform. This ensures the revenue calculation is correct.
- Moving revenue integrity into the sales process so checks are completed before the booking is made instead of after (pre-end transaction versus post-end transaction). Nothing can then be booked or ticketed unless all rules are upheld and the appropriate TTL has been published.
- Better and more scientific management of the whole process, including better business intelligence, metrics and key performance indicators that airline revenue integrity managers can follow to constantly improve their business. Equally important is that the correct tools need to be in place in revenue integrity, allowing RI managers to quickly and effectively implement their ideas.

"Most of the components and research needed for these advancements has already been completed," said Oskarsson. "It will be exciting to see them become part of our RI solution and start to generate additional value for our airline customers."

Revenue integrity is becoming increasingly integrated with revenue management, pricing and other key areas such as sales and marketing. In fact, it is already taking a valuable seat at the commercial planning table. It is obvious that having as clean an inventory as possible with real-time revenue integrity will give more stable data for revenue management demand forecasts. This, in turn, will improve demand and no-show forecasting, leading to better optimization and increased revenue to the bottom line.

In the past, airlines focused intently on the pre-booking opportunity (inventory). Traditional yield or revenue management deals with maximizing revenue before the customer books:

- Forecasting demand-to-come
- Forecasting cancellations
- Overbooking
- Allocating availability

The hidden treasure that is often not focused on as much as it should be lies in managing the post-booking opportunity. This is the realm of revenue integrity where airlines look to maximize revenue from bookings after they are booked:

- PNR problems
- PNR opportunities
- PNR-level decisions

Identifying synergies between revenue integrity and revenue management will make the ticket time limit functionality a bit more dynamic. For example, an airline can introduce dynamic TTL based on critical flights. Ideally, this would be achieved through the integration with a revenue management system to obtain expected load factor information and give an airline the choice to force more strict ticket time limits on flights with high load factors. The benefits of increased revenues from flights with high load factors would be expected.

Another exciting avenue being investigated for real-time *Sabre AirVision Revenue Integrity* includes completing the circle of booking, ticket and fare data to close the revenue-leakage loop. This involves integration with *Sabre® AirVision™ Fares Manager* to obtain fare rules or with a pricing engine to retrieve itinerary pricing and fare data. Airlines will be able to identify fare rule abuse in real time and pre-departure rather than exhaustive fare audits post-departure. It will also allow airlines to force ticket time limits directly based on fare rules instead of processing through a rules table.

With more and more interlining and codesharing among airlines and more airlines joining alliances, there is also a need to look at revenue integrity practices across airline alliances. For example, airlines could enforce ticket time limits more consistently across a complete itinerary through alliance partners to ensure the guest experience in booking multiple segment trips has consistent revenue integrity practices on all segments.

Revenue integrity has come a long way from its simple roots of firming flights that were filling up. Today, it's an advanced, integrated process automation solution, enabling airlines to reduce most costs, increase more revenues and make better-informed decisions around their booking, ticket and fare data. Revenue integrity is going to become more and more central to an airline's organization, particularly in the commercial planning arena, especially as they continue to focus on cost reduction and revenue improvement in the competitive airline world.

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