Computer technology continues to evolve, so what are the options facing airline executives in terms of sales channels? Can global distribution systems (GDSs) be bypassed permanently? How big is the market for these systems and is consolidation of IT vendors inevitable? What is the next technology wave and when will it come?

The future of web-based applications for reservations

Web-based technology is changing the way airlines are marketing and selling their tickets. Different airline types, varying from large national carriers that are part of alliances, through to low-cost carriers (LCCs) and small regional airlines, have a wide range of needs. New technology can address these needs, but how does the market look in terms of competition? Is there room for all software vendors to survive? We look at the big GDS-bypass debate and the decisions facing airline executives in terms of sales channels and distribution of seat inventory.

Historical perspective

The first reservation systems to be computerised were in the US during the 1960s, using emerging mainframe computer technology. Their functionality was of course constrained by the software. Computers allowed airlines to make their seat inventories accessible to travel agents and sales offices so that they could see which seats were available for sale, at which price, on each flight. Thus the concept of the global distribution system (GDS) was born. Four or five main GDSs were established, and although some have since disappeared, GDSs have, until recently, remained the dominant sales channel. The huge investment in hardware, support experts and data meant that a degree of resistance to change was created in the legacy reservations systems.

SABRE Airline Solutions has been a main player in the airline IT arena for many years. The first passenger reservations system offered by Sabre was installed in 1960 for American Airlines. "There was heavy investment in mainframe legacy systems by airlines in the 1970s and 80s, and the volume of transactions processed by these systems means they have stayed in operation for a long time," says Murray Smyth, senior vice president of Europe, Middle East and Africa at Sabre Airline Solutions. "But the 1990s and the internet have opened up a host of new opportunities for airlines, their customers and suppliers."

The internet

The internet, and the evolution of open systems architecture, has been a major catalyst in changing the way airlines do business over the past two decades. One of the pioneers of pure web-based reservations and direct booking is Navitaire. The original company developed the World Network direct distribution technology in the 1990s, as an alternative to costly GDS systems. It then acquired the Open Skies airline reservation division of Hewlett Packard in 2000, changing its name to Navitaire. Navitaire's driving force was the legendary David Neeleman, now chief executive officer of jetBlue, but originally co-founder of Morris Air.

The idea of bypassing expensive GDSs and selling directly to the public was conceived by Navitaire, and perfectly coincided with the exponential growth of the internet. The main benefits of selling via the internet are a direct sales link to passengers via an airline's own website, and lower sales costs through bypassing middlemen. The disadvantage is a lack of global marketing reach for an airline.

Growth in sales via the internet has been significant. "We were in the right place at the right time," says Alex Cruz, vice president business development from Accenture, which now owns Navitaire. "The growth of internet use has been directly related to the growth and success

of Navitaire. There is also a real split in the market in terms of the way tickets are issued. The first type is ticket-based, and I include e-tickets in that. This is still firmly in the 1960s and 1970s business model. While there is no official name for the second type, it is essentially ticketless.

"The difference between them is that there is only a financial transaction in this second model, which is a simpler process and carries fewer overhead costs," adds Cruz. "Ticketless airlines are financially more successful, and the number of seats sold under this model continues to grow. Traditional airlines have tried to follow this trend by forming 'babies', airlines like TED, Song and Tango, which have tried to adopt ticketless strategies, without fundamentally changing the cost of sales that their parent major airlines have.

"The traditional airlines that still follow the traditional model are constantly fighting to reduce distribution costs," continues Cruz. "I know of airlines that have hundreds of agreements with other carriers that generate virtually no additional revenue, yet they keep these agreements and distribution channels in place, with all the attendant overheads. The challenges for airlines using the ticketless model, primarily the LCCs, is whether they should continue to keep it very simple, or try to strengthen parts of their product by offering some more frills and increasing some of their distribution options. This may even include an element of GDS utilisation."

Sonic boom

One of the big five GDS providers is Sabre. With the advent of direct sales channels for airlines it has introduced a new web-based software called SabreSonic. Airlines can have a mix of
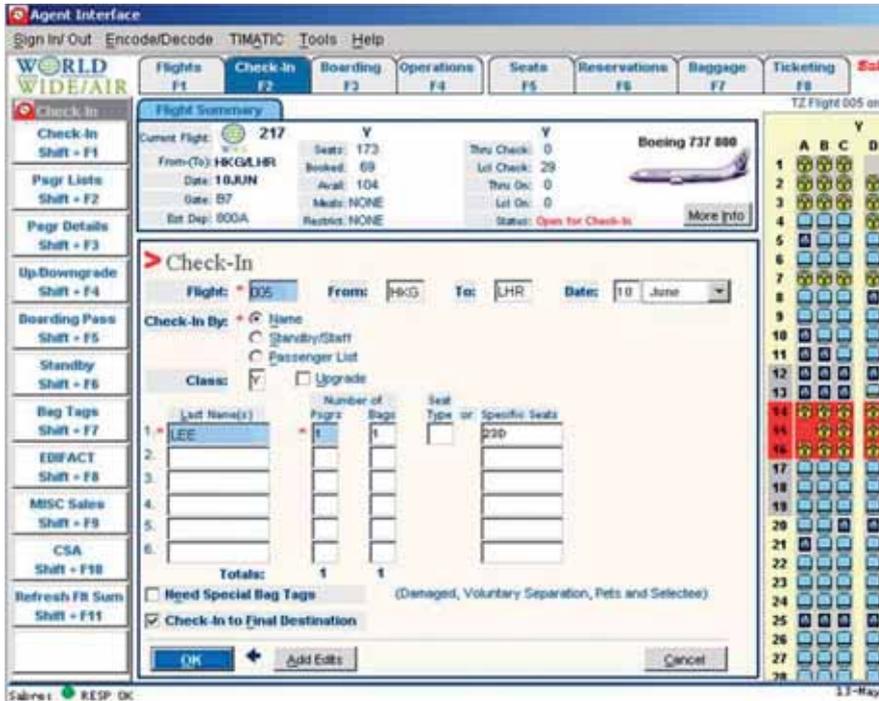
systems to support sales through GDSs and directly through the internet. "We have evolved the SabreSonic suite so we can serve the needs of a diverse range of airlines, from large, traditional carriers to small regionals and LCCs," says Smyth. "Reservations, inventory control and departure control are the core of an airline's systems requirement. We have progressively moved our own mainframe legacy technology to a new web-based open system. Open systems for inventory make it easier to connect to distribution channels, including GDSs, and easier to integrate yield management tools to operate more in real-time. They also enable e-ticketing and the ticketless method for the end customer. These are all important for responding to changes in the market place. One of the key changes with internet-based systems is that the sales channel changes and there is direct contact with the end customer. This means that relationship data and information can be used to foster the customer as a long-term client. Direct contact with customers also lowers the cost of distribution by removing layers of middlemen from the booking and sales process. A direct sales system also means that the user interface needs some careful attention, because this can affect how the customer reacts to the sales channel."

The internet also brings new channels, apart from the direct one. "E-travel agents are now possible," continues Smyth. "Technology has enabled websites like lastminute.com and Travelocity.com to develop as virtual travel agencies with the advent of open systems, linking into GDS data. These websites find the best available fares and allow the customer to manage the booking process themselves, with the resulting cost savings."

The SabreSonic suite includes SabreSonic Web, a complete, hosted on-line booking system that enables airlines to display and sell their products over the internet, as well as those of selected partner airlines, and car and hotel providers. SabreSonic Web also provides integration opportunities with other Sabre products such as the Traverse loyalty management system and the Centiva corporate loyalty management system. This integration gives the airline the ability to build on its online presence through planning and execution. "Developed on a new-generation platform for now and the future, SabreSonic Web embraces a new single standard. It is built on a multi-layer product platform designed to promote re-use and provide easy extensibility," explains Smyth. "The platform architecture adopts Java, J2EE and XML technology to deliver a robust, scalable travel service delivery solution. It features a personalised welcome page which presents travellers with a consolidated view of their bookings with the airline. Integration with the Traverse system provides real-time frequent-flier account information on the welcome page."

FACE of the future

Another big supplier of airline IT systems today is Lufthansa Systems, which is investing in new technology to move its reservation systems forward to serve the direct sales initiative. "We call this business domain, which includes reservations, Passenger Management Systems," begins Dr Anselm Eggert, senior vice president of passenger airline solutions at Lufthansa Systems. "Our new project is called future airline core environment (FACE). We are taking a step-wise approach with FACE to replace our technology in this area, module by module, to ensure a low risk path and a smooth transition for our customers. Most legacy systems are outdated, and home-grown legacy cannot be sustained. We think scale will drive this consolidation of vendors.

"Reservation software providers can provide two very distinct and different main paths," continues Eggert. "The first is renewal initiatives driven by the GDSs. All the GDS vendors have the capabilities, but are constrained by the fact that they are still a GDS. The second path is a GDS-independent route. The software vendor needs to provide tools so the airline can manage the distribution of inventory itself. The tools also need to provide a level of integration with the GDSs, which is inevitable. With this path, the airline can control inventory in terms of what content is provided at what time and at what price. FACE is a GDS-neutral solution, meaning that it covers all GDSs equally, and can do all of this."

Lufthansa Systems started developing FACE in 2003 and formally launched it in 2005 to replace its MultiHost passenger management system previously on offer. It estimates that it will spend $40 million on the project, with significant amounts being contributed by other companies, including UNISYS as a major technology partner. Many central components of FACE are based on modules from the AirCore product suite recently developed by UNISYS.

The new FACE technology also provides opportunities for Lufthansa Systems to change the business model for how airlines use sales channels. "FACE is modular," comments Eggert "so we can pick and mix to suit the requirements of a traditional flag carrier right through to an LCC. Flag carriers need complex capabilities for interlining, codesharing, GDS booking capabilities, and product definition in terms of business- and first-class travel. LCCs need simple functionality: booking at a price with no interlining and no GDS integration. FACE comes with an internet booking engine, which all the LCCs, and a growing number of other airlines, are looking for. Of course e-ticketing will become a requirement by 2007 for everyone, and this will also be a driver for

The main data processing centre for the Amadeus GDS system is at Erding in Germany. This centre manages more than 8.5 billion transactions per month.

technology refreshment."

Technology offers two other possibilities. Lufthansa Systems claims that the new FACE suite reduces costs, which will ultimately drive ticket price reductions for airlines. "The typical cost of a booked passenger segment (BPS) with FACE is $0.20-1.00 depending on which modules the customer chooses," says Eggert. "This compares with $3-4 for a GDS booking."

The other advantage of new technology is the way software functionality is delivered to the airlines. Lufthansa Systems is positioning itself as a full service provider, able to deliver FACE as an application service provider (ASP) hosted solution. This means that the airline outsources the entire application and management to Lufthansa Systems, and pays as it uses it. This reduces cost and business risk for the airline, allowing it to focus on ever-changing business challenges. FACE customers include Garuda Indonesia, which will be the launch customer in 2010. Merpati, bmi and Lufthansa Systems' 40 MultiHost customers will also be migrated to the new platform.

The market landscape

How big is the market for the different types of internet-based reservation systems providers? "From a Sabre viewpoint, the basic market data show a large potential," says Smyth. "The reality is that among the 400 to 500 airlines, there is a real spread of technology strategies and opinions. Some are already there in terms of internet-based technologies and some have yet to get started. The US market has been at the forefront of early web technology adoption. All have some form of direct internet booking engine (IBE) and most are part of e-travel agencies. Around the world, the new LCCs are heavy web technology adopters, and usually go for the direct sales channels with most combining the internet booking model with a call centre. Of course, web technology only works if two things are present in the market: widespread access to the internet; and the infrastructure to handle on-line payment, usually by credit card. These two factors are usually the constraints of web technology adoption,

not the airline strategy or investment capacity. This can be a challenge for some countries in Europe, the Middle East and Africa.

"It is not clear how vendors will consolidate. The top 100-200 airlines in the world require an IT partner with the breadth and depth of capabilities to serve their current and future needs," continues Smyth. "Only a few IT providers can match this task, and Sabre is one of them. The market is fragmented for smaller airlines, and for very small airlines there are many new IT entrants offering pure internet-based solutions. The trend we see is strongly towards outsourced, hosted ASP solutions. The economics and risk of building and maintaining in-house IT systems do not make any sense. Functionality is moving fast and technical infrastructures need to be reliable, robust and scalable. Sabre can serve this market as well. The fact that we have both GDS and GDS-neutral solutions means we cover the market completely. We are well placed to continue our strong position when we combine this with the rest of our operational and planning applications."

Lufthansa Systems sees a big opportunity in the market. Many 1960s and 1970s legacy mainframe systems are now outdated, and airlines are starting a procurement cycle. The main issues are functionality and flexibility. "Old systems cannot adapt to travellers' new needs and expectations," says Eggert. "For example, legacy systems cannot specifically sell a seat in an emergency exit row or a window seat at a different price. FACE has a host of new features, which include self-booking and check-in facilities with seat selection on-line. It can also charge for different amounts and sizes of

baggage. Most importantly, it has a richer customer relationship management (CRM) capability, which allows customer data to be captured. This will make the booking process much more personal and easy, if passengers choose to register in the system. It will allow them to manage the booking themselves, for example changing route, adding additional people, or indeed cancelling or rescheduling."

A heavyweight perspective

One of the giants of the reservations and GDS world is Amadeus. Now a multi-national centred in Madrid, Spain, it was founded by Air France, Lufthansa, Iberia, and SAS in 1987 as their common GDS. It has evolved over the years and, according to Hans Jorgensen, vice president of strategic airline & partner programmes, it led the migration of reservations systems technology from legacy systems to internet-based architecture in the late 1990s.

"In response to the market, we developed the Altéa Customer Management (CMS) suite. Altéa comprises reservations, including e-ticketing, inventory control and a departure control system (DCS). It started with a meeting with British Airways (BA) when we roughed out a blueprint. BA wanted to move off its legacy mainframe TPS system, and we won ahead of Sabre. Qantas signed shortly after, and then Finnair signed. So we had both Oneworld and Star Alliance airline customers. The migration for BA onto Altéa is largely driven by the new Terminal 5 opening at London Heathrow, so it will not be complete until 2008/2009. The market for system replacement to new open standard reservations systems is mixed

Sterling is an interesting example of a potential future sales & distribution strategy for low-cost airlines. It has recently introduced a mix of direct distribution using its internet booking engine together with a low-cost integration with Amadeus GDS.

globally. Most US-based airlines have already moved, and most of these have chosen to outsource. In Europe, most large airlines have committed to migration. In Asia there is still some way to go and the market is open. The fastest-paced market is the Middle East, with some larger airlines in South America and Africa still to commit. The drive is pure economics: cost, functionality and investment profile drive the migration decision. Interestingly, while we can develop something specifically for an airline that is different from our standard Altéa suite, most airlines take the standard option. One thing that is pushing airlines faster is the IATA e-ticket initiative, which Amadeus is supporting through the 'Simplifying the Business' project, of which we are a Preferred Partner."

The GDS-bypass debate

One of the big debates for airlines and IT vendors concerns the traditional global distribution channel. GDSs are expensive and new web technology has the potential to bypass the traditional channel in many but not all cases. How realistic is the vision of a complete GDS bypass, and how soon should boardroom executives start to have fundamental debates about their direction on distribution channels?

SABRE is well placed to comment with its feet in both camps. "GDS bypass is often discussed by customers and some of our competitors," says Smyth, "but the debate is often blurred and confused. It is not simply an issue of technology but of the airlines' commercial requirements. If an LCC is operating in local markets it can operate through direct channels, such

as call centres and the internet, which are enough to allow it to bypass GDSs completely. But an international carrier, with complex marketing relationships, needs a point of presence and visibility in disparate markets that only a GDS can provide. SABRE can serve both markets, because we have a strong GDS solution and the SabreSonic suite for GDS-neutral requirements. It works with all GDSs. The need for the GDS is not going to disappear anytime soon, however."

Amadeus goes further. "There is no debate," says Jurgensen. "80% of bookings go through a GDS and this is not changing fast. I have never met an airline that says it does not like the fact that we offer tight integration to the Amadeus GDS. A GDS simply can never be beaten as a distribution channel and airlines actively welcome the reach that GDS offers. We have developed Pioneer for LCCs that want inexpensive direct channels, and already have three customers including Norwegian Air Shuttle. We also have a second product, Results, in development with some more specific functionality."

Lufthansa Systems sees the GDS picture slightly differently, and claims that one of its unique selling points is the distribution channel handler module. "Because FACE is GDS-neutral, this module allows the airline to control inventory by price and which channel it is sold through, whether direct, or through a sales office or GDS by a travel agent on the other side of the world," says Eggert.

Glimpse of the future

Sterling, Scandinavia's largest LCC and the fourth largest in Europe, is an interesting case study to examine with

regard to how this debate might progress. Few LCCs have made the leap to GDS, since the gap between their simplified, cost-conscious business models and the dated, complex operations and infrastructures of the major GDSs always seemed too great. Sterling, however, has created a new alternative to traditional GDS connectivity using Navitaire's application programming interface (API) services. Sterling recently became one of the first ticketless low-fare airlines to join the giant Amadeus GDS, something of a surprise for an LCC.

"We viewed the cost and complexity of using EDIFACT or Type B messaging and all the other hassles of standard GDS connectivity as costly, archaic and of no value to Sterling," says Michael Hansen, vice president for business development and IT at Sterling. "We believe that technology should be an enabler, not an obstacle." Sterling held firm to that position when Amadeus first approached it about offering its inventory through the Amadeus system. Sterling proposed a fresh approach to GDS connectivity to offer its travel agencies greater content, which Amadeus eventually found compelling.

Sterling uses Navitaire's Open Skies reservation and distribution system. For several years, Open Skies APIs allowed Sterling to support direct booking with selected travel distributors. To maintain simplicity yet gain access to Amadeus's GDS, Sterling told Amadeus it would need to use Navitaire's APIs, together with some middleware developed by Sterling, to integrate with Amadeus. This resulted in completely bypassing the costly, high-maintenance connectivity that a GDS traditionally requires.

The result seems to be a win-win situation for both Amadeus and Sterling. Amadeus has discovered an effective method of penetrating the low-fare market on terms that LCCs can embrace. Sterling is enjoying benefits that should go far beyond savings on GDS booking segment fees. For example, Sterling expects the new solution to deliver increased bookings from business travellers and inbound traffic. It also keeps its seat inventory synchronised without expensive messaging to the GDS regarding inventory. Sterling continues to offer special fares to Amadeus agents,

New technology is changing the way the travelling public interacts with the travel provider. The adoption of new technologies is sporadic, however. SMS check-in and print-at-home boarding cards are becoming more commonplace, but at a slower rate than predicted by the industry.

who can also change or cancel bookings via Sterling's agency internet site. This could be a breakthrough for LCCs and other airlines. They get what seems to be the best of both worlds: access to agencies and their customers, such as large corporate accounts, large agencies and agents outside an LCC's traditional marketing area; and direct connections that allow them to retain control of their inventory.

Navitaire seems to share SABRE's view. "GDSs cannot be bypassed for the bigger, full service international carriers," says Cruz. "Indeed, GDS costs are coming down so we are not complacent about Navitaire's position in this debate. But there are challenges for both market segments and we feel well positioned for our target market."

Outsourcing services

Another trend is total outsourcing of reservations and booking systems to an ASP. This has been aided by the advent of web-based systems and the internet, coupled with improved infrastructure and bandwidth growth. "The market for reservations software is consolidating and ASP is definitely the way to go for most airlines," says Ian Ryder, director of business transformation at SITA. "SITA refers to it as the Passenger Management Suite (PMS). Its core is the reservations and inventory piece, but it also includes the departure control system (DCS) and ticketing aspects. Support costs for legacy systems are drivers for the change to web-based systems. Business must also change and adapt. Internet booking engines used to be limited by the reservations systems they were connected with. Ten years ago SITA was already doing this, but now people want more flexibility, like calendar-based shopping. The old way of doing business was 'tell us where and when you want to fly and we will tell you the price and availability'. Now people are searching for what is available at a particular price over a range of days. Channels and media of communication are changing rapidly too. SMS-enabled check-in and robotic applications on the phone to manage or change a booking are the future. The airlines' core systems need to be written in such a way as to be easily exposable to these new channels.

We have Horizon in SITA's portfolio for PMS, which covers the entire range of business functions needed. It is available as a turnkey off-the-shelf solution, but we can also customise it for each operator. We can expose its core easily, through integration, to various GDSs and/or other reservation systems. For example, Air New Zealand uses Horizon as a front end to its own reservations system to drive the web sales channel cost effectively, without having to rip the heart out of the core systems. We can also add in various modules, such as the Airfare Shop product for pricing management. We are a partner in the IATA e-ticketing initiative to remove paper by 2007. Customers need quick adaptation and our recent reorganisation into a 'one SITA company' makes us more responsive. We are also well placed to offer a cost-effective hosted ASP solution to PMS. Using this model we typically charge per boarded passenger. We are just completing our next generation products for fares and pricing and will move onto our core reservations and booking modules."

Small is beautiful

Navitaire sees competition coming from the lower end of the market too. "A number of small companies and new entrants are challenging for the small airline market," says Jurgensen. "Most new entrants significantly under-estimate the effort required to build a platform that these airlines need and demand. Several years ago you could get away with something simple, but the system now needs more capability, which cannot be created overnight. So smaller providers tend to be losing market today. At the slightly higher end, Cedant/IBS is being

aggressive, but it is not clear how long this will last or what its long-term position will be. Amadeus is coming down into our market, but has yet to successfully penetrate with any significance. Others may emerge, in particular from China." Other players at the smaller end of the scale include US-based Radixx, UK-based Videcom and Dutch-based MainTrack. These smaller suppliers are all aimed at LCCs and start-up airlines, offering pure internet-based applications that are actually very rich in functionality and open to supporting integration with GDS if needed. They are all offered as hosted ASP solutions.

Summary

Web technology is contributing to a change in distribution methods and costs. GDSs will be around for the foreseeable future, but are under cost pressure and are already reacting. Blends of direct reservations channels, e-travel agents and traditional GDS-based travel agencies are likely to be the norm. The internet has driven this change, rather than the web-based reservations systems. The next technological step forward is likely to be smaller, and more incremental. Talk of new mobile technology changing the face of travel has yet to materialise. Changes are more likely to come in small waves of technology, in the way seats are sold together with other services, in a more intelligent manner, using techniques like dynamic packaging. The core GDS-bypass debate needs to be monitored constantly to ensure airline sales channel strategy remains appropriate. **AC**

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