

**Interline Electronic Ticketing
A Joint SITA/IATA Partnership
Product Briefing**

SITA

THE SKY IS NOT THE LIMIT

The Market Need

There is widespread enthusiasm for electronic ticketing (e-ticketing) within the airline community. This enthusiasm has been and is continuing to be fueled by its cost savings benefits for the airlines and convenience for the passengers. Many airlines are seeking to secure a continuing higher percentage of all bookings over the Internet. E-Ticketing will be the engine that fuels the Internet booking expansion. E-Ticketing commenced in 1996 and is expanding in domestic markets and on limited international sectors. Currently there is no industry solution that has been implemented for interlining E Ticketing for widespread application over all international sectors.

Interline Issues

Traditionally, an interline ticket is described as one in which more than one airline is involved in the itinerary. At first glance, this appears to be the core of the challenge for the use of e-tickets across airlines. However, because the passenger does not carry a paper ticket the challenges are more complex. Issues such as third party check-in systems, code share flights, endorseeable and conditionally endorseeable tickets, post flight reconciliation, reporting, revenue accounting and government agency requirements must be considered.

The fundamental barrier to the wide spread market expansion of e-tickets is the lack of secure access to e-ticket data. Potentially, this data could be residing in any one of 60 or more airline host systems. Access is required from the 60 host systems and another 60 or more departure control systems.

An additional barrier is the use of many different types of technologies by airlines. Some airlines systems are legacy based, some are open systems and some have a combination of both. The market needs an interline solution that addresses these compatibility challenges without a major equipment investment. The e-ticket solution should utilize existing industry infrastructure - SITA, GDSs, and airline technology and networks - to provide an entry point service for all participants, with minimal changes to their systems. The Service should accommodate enhancements to host legacy systems and to conversions to open systems and IP network technology.

Business Processes

While it is possible to have a single industry e-ticket system it is assumed that the current process for the issuance of e-tickets will remain within each airline's e-ticket system. The industry has sufficient connectivity between the GDS distribution systems and the airline e-ticket systems. Therefore, this paper focuses on the requirements once an airline has 'issued' an e-ticket.

There are three main business process streams:

Changes to e-tickets

The airline agent retrieves the e-ticket, checks if the change is possible within the rules of the issuing airline and the ticket conditions, establishes the legitimacy of the passenger to use the e-ticket, and makes the changes. All the involved parties are advised of the changes.

Check-in

The check-in agent retrieves the check-in record, then retrieves the e-ticket record, establishes the legitimacy of the passenger to use the e-ticket, allocates a seat, and 'uplifts' the e-coupon. All the involved parties are advised that the e-coupon has been used.

This process is identical to the current paper-ticket-based check-in process. The supporting documents are different in that one is paper and the other is an electronic record. The communication method is different in that one is based on a flow of paper coupons, and batch files, while the other is a flow of electronic records.

Revenue Accounting

The airline that uplifts the coupon enters the data into their revenue accounting system, applies the appropriate prorate rules, and bills the issuing airline. The issuing airline accepts the billing and makes payment through the IATA Clearing House, or rejects the billing and enters into a negotiation with the uplifting airline.

Industry Standards for E-ticketing

The airlines have agreed on a series of EDIFACT messages to be used for data communications between the airline host systems. These messages enable each airline involved in the process to view or change the status of the coupon.

The successful implementation of industry-wide e-ticketing will depend on the handling of the complex situations and exceptions. Consider:

- The systems that need to communicate with each other and report on a passenger who has an e-ticket issued by Airline A, is uplifted by Airline B, on a code-share flight operated by Airline C, and is checked in by Airline D.
- Finding the e-ticket for a passenger who doesn't have a booking, has forgotten who the issuing airline might be, and forgotten the flight and date of the original booking.

- Passengers who have restricted endorsement tickets, who wish to change airlines, even though they have been told they have limited or no options to change.

The incentive to address these challenges is driven by the potential e-ticket benefits to the airlines: less paper handling and storage, eliminate data entry, lower issuing costs, early access to ticket data, more options for web bookings, improved automation of check-in, reduced loss of coupons, and speedier settlement of interline billing.

While it is possible to have industry standards, largely dependent on the e-ticket record locator being in the check-in record. However, indications are that a substantial percentage of passengers create new bookings, with new PNRs, to accommodate changes, and the information, including the e-ticket locator, in the original booking is 'lost'.

Multiple Solutions for E-ticketing

In the absence of an industry solution there is a temptation for groups of airlines to implement their own solutions. Past experience shows that even though there are a set of standard messages defined, it is unlikely that individual systems will be entirely compatible. The compatibility problem becomes worst over time as these systems are enhanced to the group's own specification. The cost to the airlines to maintain links to multiple systems soon becomes unsustainable.

While it may seem logical for a mega-alliance to develop its own system, the reality is that the alliance airlines have code-share partnerships with probably 50 other airlines, and interline with hundreds of others. The other reality is that airlines do change alliances, and would like to do so with minimal disruption to their processes and systems.

As well as the need to exchange data between the airline systems there is a need to make the ticket information available to government agencies. This is far easier for both the airlines and the governments if there is a single industry solution.

Interline E-Ticketing: The SITA/IATA Solution

SITA and IATA have established a partnership in order to provide a neutral, low-cost, industry solution for interline electronic ticketing. IATA brings industry standards and forums that generate electronic ticketing policies and procedures, while SITA provides the technology and network. Interline e-Ticketing will enable airlines to significantly increase their use of electronic ticketing which is

currently constrained by the lack of the interline capabilities beyond selected bilateral agreements.

The purpose of the SITA-IATA Electronic Ticketing Interline Solution is to facilitate the expansion of electronic tickets to the interline market. The entire interline electronic ticketing (e-Ticket) process is reliant on the exchange of messages between the validating carrier, the marketing/operating carrier(s), and if applicable, the GDS and ground handler. These messages enable specific actions to be requested and confirmed or denied on the sending and receiving airline systems' e-ticket databases. It also allows for ticket coupon status indicators to be updated accordingly.

The SITA-IATA Electronic Ticketing Interline solution will be operated on an open system architecture platform using advanced technical software and a relational database. It is being implemented in several phases. The first phase provides connectivity between trading partners and includes such features as routing and translation of IATA PADIS EDIFACT messages through hubware. The second phase provides information necessary to locate the validating carrier of an Electronic Ticket through an access key database.

Phase 1

The first phase of this new service will commence customer testing in early spring 2001, and be ready for production soon after testing is completed. This phase will provide a switch to manage the exchange of EDIFACT messages between reservation or departure control systems and e-ticket systems. An audit trail will be incorporated. Airline host systems that handle standard EDIFACT messages will require no modifications.

The initial phase accommodates airlines that have their own e-ticket system.

Through Hubware, the IATA/SITA solution offers connectivity between trading partners for easy transmission (sending and receiving) of electronic ticketing EDIFACT messages. The first phase of the solution is limited to the exchange of messages and offers an essential service for the transfer of electronic ticket data between partner airlines that have the electronic ticketing capability within their own systems but do not have connectivity to exchange EDIFACT messages.

The connectivity mechanism to exchange EDIFACT messages is typically referred to as Hubware and performs the following functions:

- Communications
The Hubware will handle communications using IATA Host-to-Host transport protocol over X.25 communication interface.

- **Routing**
The routing and delivery of EDIFACT messages is the main purpose of the first phase of the solution. The originating system sends the message to the Hubware that in turn delivers the message to the appropriate target system.
- **Translation**
The Hubware translates IATA PADIS Edifact version/release messages using a common language between trading partners as defined by those trading partners in bilateral agreements.
- **Logging**
SITA will maintain a selected amount of information to track receipt and delivery of messages to and from the Hubware. This information is available to the participating airlines and contains the time/date/source, originating system details, the target or receiving system details along with the message type and message version/release.

The Access Terminals and Host Departure Control Systems

The airlines and ground handlers operate these systems. They are connected to the hub by existing host-to-host links. They can be implemented in the standard version without change to the host system or in the integrated version after host enhancements.

Revenue accounting system

When the e-ticket is utilized this event must be advised to the revenue accounting systems of the ticket owner and the uplifting airline. Standard industry batch file transfer will be used for this advice.

Network Components

The existing host links on the SITA network will be used. This will facilitate a speedy implementation.

Phase 2

The second phase will be available in early 2002 and will incorporate business rules and post flight reconciliation capability. It will offer options to airlines that wish to store their e-ticket records centrally, to minimize host transactions and to facilitate location of e-ticket records. This phase will facilitate code-share and third party handling transactions and handle partner and alliance business rules. It will provide access for government agencies. This capability will reduce or eliminate the need for airlines to modify their systems to accommodate specific circumstances and exceptions.

SITA is upgrading its e-ticket system to provide a service to airlines that don't wish to develop their own standalone system. This service will provide absolute security of commercial data as well as minimizing host system edifact workload. This service will be available early in 2002.

This capability will enable airlines or handling agents who don't have their own e-ticket system to check-in passengers holding e-tickets.

SITA and IATA's Access Key database provides for storage and access of Electronic Ticket information that simplifies the request and retrieval of data with capabilities above and beyond the basic communication, routing, translation and logging offered by the Hubware. Users can perform queries on pre-defined combinations of data, and the system will generate the desired output including limited information about the electronic ticket/document.

The Access Key Database supplies the validating carrier with information for the uplifting agent in order to subsequently request control of a coupon. For example, a passenger with an electronic (e) ticket has reservations on an airline "A" whose flight cancels. The passenger goes to another airlines' "B" ticket counter and asks to re-accommodate. With the Access Key Database, the agent from airline B can send a message to airline A requesting the key information on the electronic ticket that provides airline "B" with the information necessary to request control of the ticket.

Here's how it works. When a Ground Handling Agent or Marketing/Operating Carrier sends an access key inquiry to SITA, a search is made in the Access Key Database to identify the Validating Carrier. Based on the searcher's request, the Access Key Database can extract the following information from the Validating Carrier:

- Ticket/Document Number
- Passenger Name
- Date of Flight
- Frequent Flyer Reference
- Origin of Airport
- Credit Card Number
- Destination Airport/City Code
- Airline Confirmation Number from Validating Carrier
- Airline Designator from Marketing Carrier
- Flight Number
- Passenger Telephone Number
- Form of ID (as bilaterally agreed)
- Reporting of final status from the Validating Carrier.

After the query is made, the Access Key Database responds to the requestor with the ticket number (Validating Carrier provided in first 3 characters of the document number) and Passenger Name plus any additional information requested.

Authorization to the Access Key DataBase is controlled by Tables that are maintained by SITA and designed to meet the specific needs of the customer. Bilateral Tables allow access to stored data for contracted trading partners only (including alliance, code share and preferred partners), while Business Rule tables allow access to stored data based on particular criteria specified by the Validating Carrier (fare or flight specific provisions/restrictions). The Access Key database also features the ability generate audit trails, customers reports and transactions statistic reports on demand.

Cutover and Migration to the Access Key database takes place based on specific procedures established by SITA and the contracted customer. Customer support is available 24 hours a day, seven days a week.

Summary

There are compelling reasons why the industry should use a single e-ticket service, rather than allow a proliferation of separate in-house systems:

- A single link to the e-ticket service rather than multiple links that are difficult to maintain
- Eliminates airline host system development for business rules and for algorithms to locate e-tickets
- Speeds the entry of all airlines no matter their technology capability
- Enables fast implementation of new partnership and alliance relationships
- Facilitates transactions beyond core alliances
- Economy of scale of a single system

The SITA/IATA solution leverages off the ticketing, revenue accounting, airport handling forums and knowledge that already exists in IATA working groups and the technology and network infrastructure that SITA provides to the industry. These two neutral organizations that are owned by the airlines, provide the security and protection of the commercial value that is attached to an e-ticket, both in money and information terms.

Customer Requirements for Interline E-Ticketing

Validating airline requirements:

- Exchange electronic ticket coupons in Edifact standards format. Solution will support all Edifact versions from 96-0 to current
- X25 protocol over existing host-to-host links
- Message types supported are TKTREQ, TKTRES, TKCREQ, and TKCRES
- Verify host system can accommodate interline carriers and destinations
- Make the electronic ticket coupon available to the uplifting airline's reservations or departure control systems
- Update electronic ticketing database from the information in messages from uplifting airline.
- Report electronic coupons uplifted by other airlines to host revenue accounting system
- Provide electronic ticketing bilateral agreements, including code share agreements, for message exchange
- Define what statistical data is needed for message exchange reporting

Uplifting airline requirements

- Exchange electronic ticket coupons in Edifact (Res and DCS systems). Solution will support all Edifact version from 96-0 to current
- X25 protocol over existing host-to-host links
- Message types supported are TKTREQ, TKTRES, TKCREQ, and TKCRES
- Request access and control of an electronic ticket coupon from another airline's electronic ticket database.
- Transfer the retrieved electronic ticket coupon from uplifting carriers reservations or DCS system to uplifting carriers electronic ticketing system.
- Change the status of the other airline's electronic ticket coupon
- Report status changes to validating airline
- Report the uplifted electronic ticket coupon to uplifting carrier's revenue accounting system
- Provide electronic ticketing bilateral agreements, including code share agreements, for message exchange
- Define what statistical data is needed for message exchange reporting

Initialization Plan Outline

1. Presentation and Qualification

- Provide and explanation of the service using collateral, testimonials, and possibly a demonstration.
- Complete the discovery questionnaire (Appendix A)
- Determine unique business requirements

2. Present Proposal

- Proposal states understanding of requirements, pricing, service levels
- Verify the results of the discovery questionnaire; confirm validity
- Determine delivery date and criteria
- Execute agreement

3. Review Requirements with Interline Partner(s)

- Repeat the questionnaire and qualification session
- Determine status and awareness of desired commercial relationship
- Ascertain technical environment
- Define HUB with reference to connectivity type, routing, and required translations
- If connectivity does not exist, determine who initiates the service, and payment for that service

4. Begin Project Management

- Draft implementation plan / combine between SITA and customer
- Determine required development for SITA and customer
- Verify implementation target date
- Schedule and prioritize development / synchronize between SITA and customer
- Plan agreed to by all parties involved
- Confirm connectivity; make modifications to configurations
- Billing of implementation fee

5. Preparations

- SITA loads tables with translations and routings
- Development takes place
- Communications tested
- SITA trains customer staff on monitoring, support and escalation procedures
- Cutover initial site
- Run test cycles
- Acceptance by customer
- Begin billing on transaction fees

If you would like more information of IATA/SITA's new electronic ticketing solution or if you are interested in becoming a launch customer, contact Mark Summers, mark.summers@sita.int or 770 303 3479.

Appendix A – Customer Discovery Questionnaire

A. Commercial Environment

A.1> Who do you wish to exchange with?

A.2> What kind of relationship do you currently have with this company? (For example, are they in an alliance with your company, code-share, frequent flyer partner, etc.)

A.3> Does your company plan to use interline e-ticketing within an e-commerce product?

A.4> To determine sizing, can you tell us:

Annual number of bookings you make on this carrier?

Annual number of bookings your partner makes on your carrier?

Annual number of interline tickets you validate involving your partner, sorted by those issued through a GDS, and those you issue through direct sales?

Average EDI message size you generate?

B. Technical Environment

B.1> Does your current e-ticket application generate EDI messages?

B.2> Which version of EDIFACT do you currently utilize? (Example: 98.1)

B.3> Which message types are currently generated? (Example: TKTREQ, TKTRES, etc.)

B.4> Do you have connectivity between your company and the selected partner(s)?

B.5> What level of connectivity exists between you and your partner (Example: IATA Host-to-Host; TCP/IP)?